Master 1a

Mathology Grade 2 Correlation – Alberta
Data Cluster 1: Data Management

Organizing Idea:
Statistics: The science of collecting, analyzing, visualizing, and interpreting data can inform understanding and decision making.

Guiding Question: How can data inform representation?
Learning Outcome: Students relate data to a variety of representations.

Knowledge	Understanding	Skills & Procedures	Grade 2 Mathology	Mathology Little Books
Data can be collected by asking questions. First-hand data is data collected by the person using the data.	Data can be collected to answer questions.	Generate questions for a specific investigation within the learning environment.	**Data Cluster 1: Data Management** 3: Creating a Survey 5: Making Graphs 2 7: Consolidation	Marsh Watch
		Collect first-hand data by questioning people within the learning environment.	**Data Cluster 1: Data Management** 3: Creating a Survey 5: Making Graphs 2 6: Representing Data Through First Nations, Metis, and Inuit Stories **Data Math Every Day** 1: Conducting Surveys	Marsh Watch Big Buddy Days

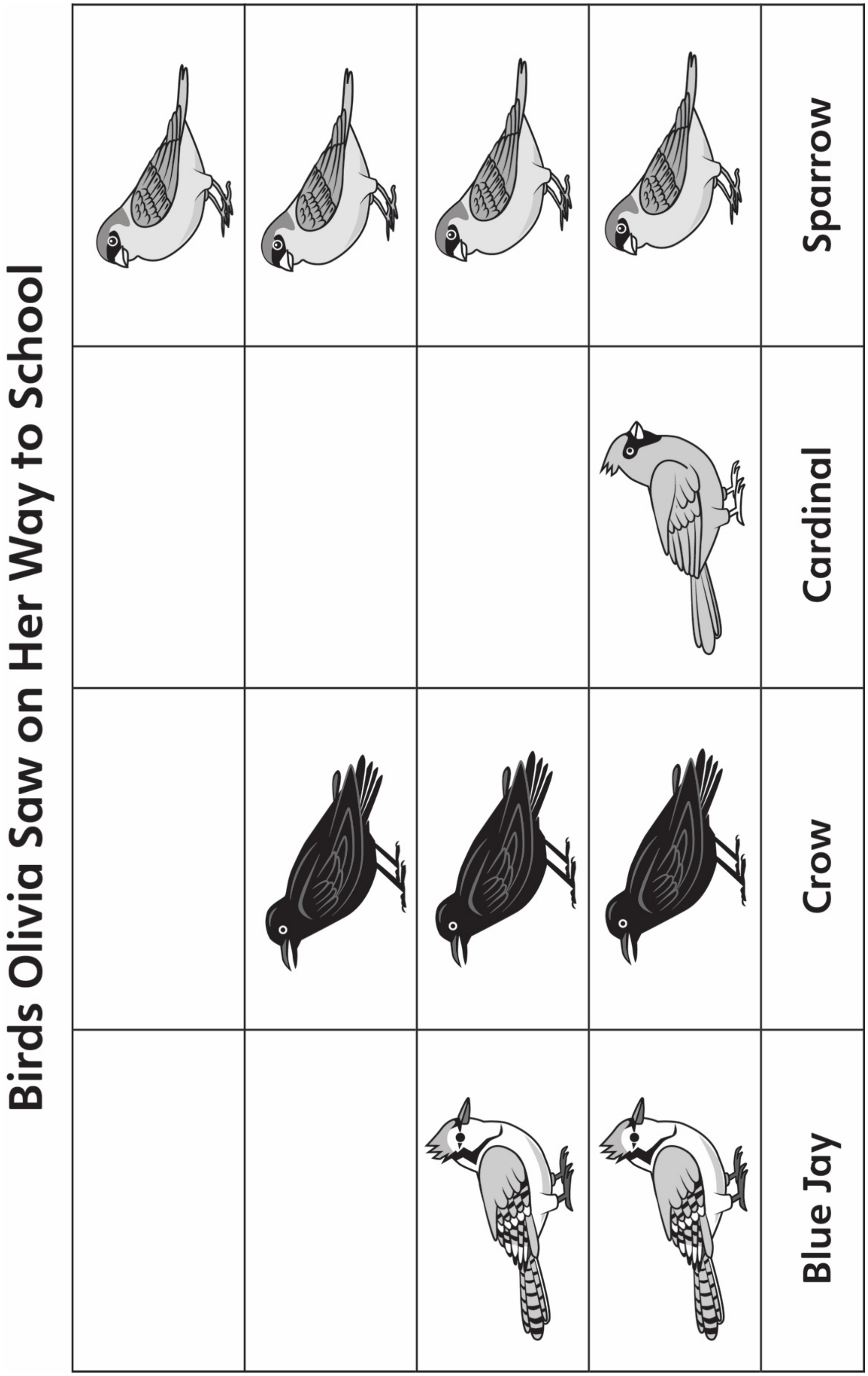
Master 1b

Data can be recorded using tally marks, words, or counts. Data can be expressed through First Nations, Métis, or Inuit stories. A graph includes features such as • a title • a legend • axes • axis labels Data can be represented with graphs such as • pictographs • bar graphs • dot plots	Data can be represented in various ways.	Record data in a table.	**Data Cluster 1: Data Management** 3: Creating a Survey 5: Making Graphs 2 7: Consolidation	Marsh Watch Big Buddy Days
		Construct graphs to represent data.	**Data Cluster 1: Data Management** 4: Making Graphs 1 5: Making Graphs 2 7: Consolidation **Data Intervention** 2: Sorting Objects	Marsh Watch Big Buddy Days
		Interpret graphs to answer questions.	**Data Cluster 1: Data Management** 1: Interpreting Graphs 1 4: Making Graphs 1 5: Making Graphs 2 **Data Math Every Day** 1: Reading and Interpreting Graphs **Data Intervention** 1: Interpreting Pictographs	Marsh Watch Big Buddy Days
		Compare the features of pictographs, dot plots, and bar graphs.	**Data Cluster 1: Data Management** 2: Interpreting Graphs 2 5: Making Graphs 2 7: Consolidation **Data Math Every Day** 1: Reading and Interpreting Graphs	Marsh Watch

Name________________________________ Date _____________________

Master 2

Sample Pictograph



Master 3: Activity 1 Assessment
Interpreting Graphs 1

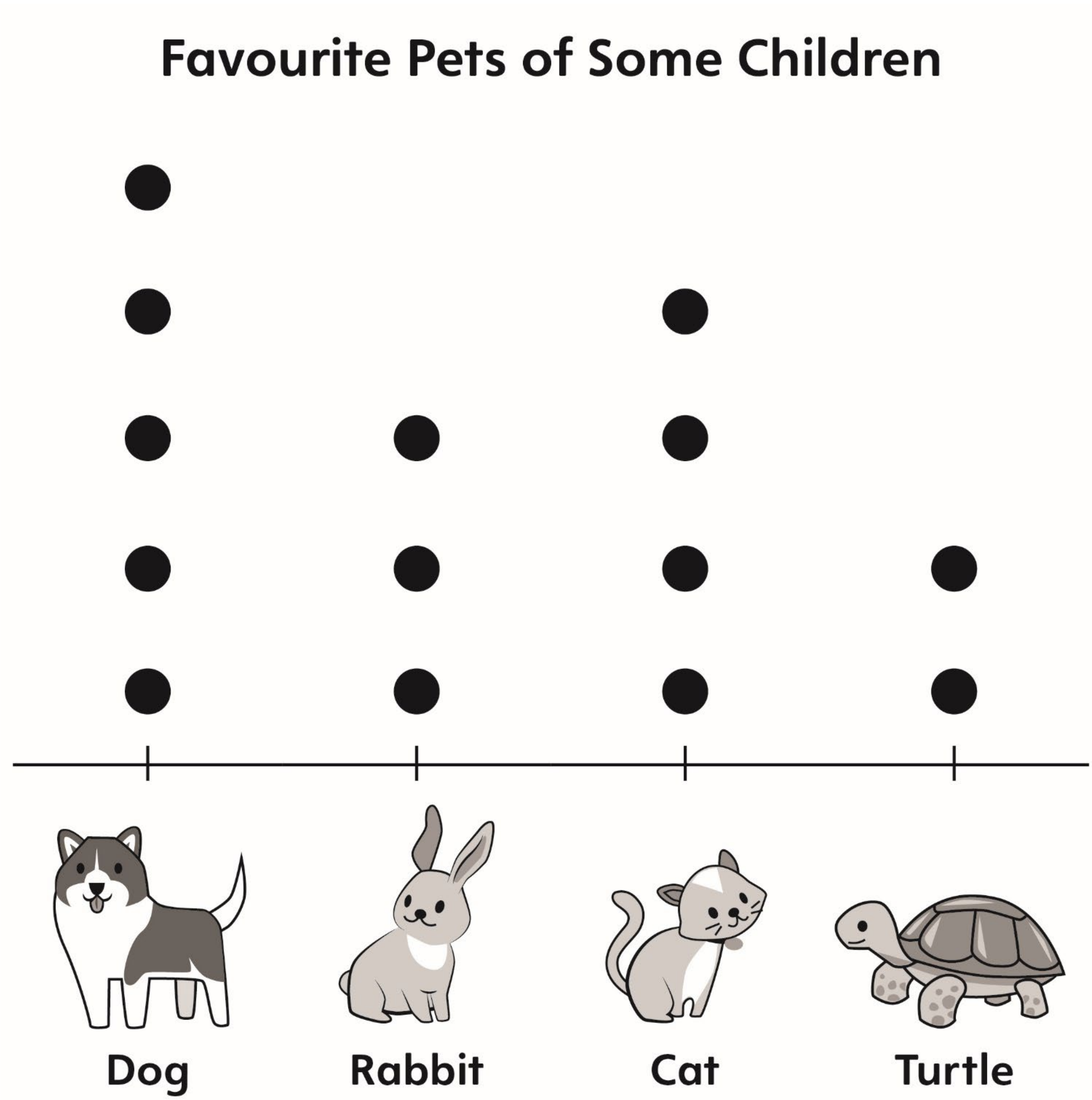
Interpreting Pictographs Behaviours/Strategies		
1. Student looks at pictograph, but does not know where to start.	2. Student reads pictographs, but counts one picture twice or mixes up the number word sequence. "1, 2, 3, 5, 6"	3. Student reads pictographs, but struggles to interpret data to answer "how many" questions.
Observations/Documentation		

4. Student reads pictographs, but struggles to interpret data to answer comparison questions (e.g., how many more/less). "How do I know how many more squirrels there are?"	5. Student reads pictographs and interprets displays by noting how many more/less than other categories, but struggles to compare the two graphs to see how the information displayed is alike and how it is different.	6. Student successfully reads pictographs and interprets displays by noting how many more/less than other categories and compares graphs using math language.
Observations/Documentation		

Name________________________________ Date _____________________

Master 4

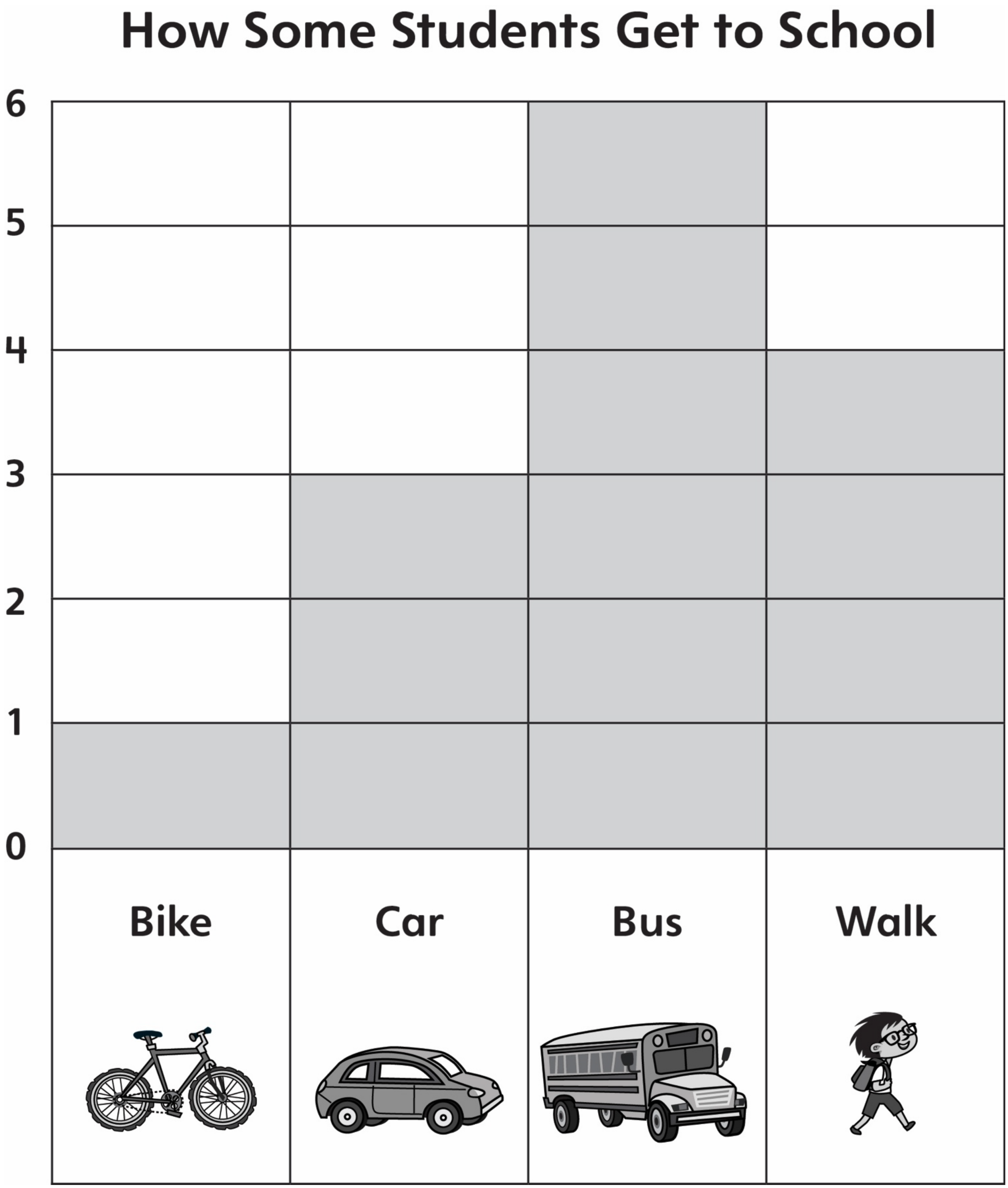
Sample Dot Plot



Name________________________________ Date _____________________

Master 5

Sample Bar Graph



Data Management and Probability

Master 6: Activity 2 Assessment

Interpreting Graphs 2

Reading and Interpreting Dot Plots and Bar Graphs Behaviours/Strategies			
1. Student looks at graphs, but does not know where to start.	2. Student reads dot plot, but counts one dot twice or mixes up the number word sequence. “1, 2, 4, 5”	3. Student looks at bar graph, but struggles to read data (e.g., counts instead of using scale).	4. Student reads displays, but struggles to interpret data.
Observations/Documentation			

5. Student reads displays, but struggles to interpret data to answer “how many” questions.	6. Student reads displays, but struggles to interpret data to answer comparison questions (e.g., how many more/less).	7. Student reads and interprets displays by noting how many more/less than other categories, but struggles to determine whether graphs show same data.	8. Student successfully interprets displays by noting how many more/less than other categories and determines whether graphs show same data.
Observations/Documentation			

Name________________________________ Date _____________________

Master 7

Our Survey

Our question:

____

____

Possible answers: ______________________________

____

____

Our findings:

What this tells us:

Master 8: Activity 3 Assessment
Creating a Survey

Conducting Surveys Behaviours/Strategies		
1. Student thinks of a topic, but is unable to formulate a question that can be addressed through a survey. "My favourite animal is a panda."	2. Student formulates a question that can be addressed through a survey, but does not include sample responses or includes unreasonable responses. "Which fruit do you like best?"	3. Student formulates a question that can be addressed through a survey, but when collecting data, asks some students more than once.
Observations/Documentation		

4. Student formulates a question that can be addressed through a survey, but when collecting data, struggles to record responses using simple records.  "Which fruit do you like best: apples, oranges, strawberries?"	5. Student formulates a question that can be addressed through a survey and collects data using simple records, but struggles to use data to draw conclusions.	6. Student successfully formulates a question that can be addressed through a survey, collects data using simple records, and uses data to draw conclusions.
Observations/Documentation		

Name________________________________ Date ____________________

Master 9a

Graphing Mat (Columns Divided)

Note: Choose a graphing mat with columns divided or with columns not divided, depending on students' needs.

Name________________________________ Date _____________________

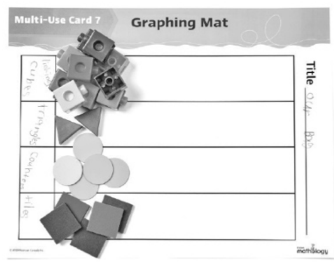
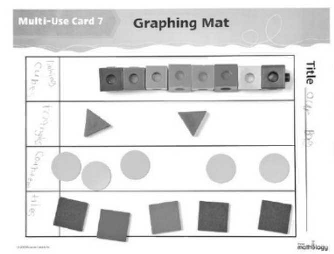
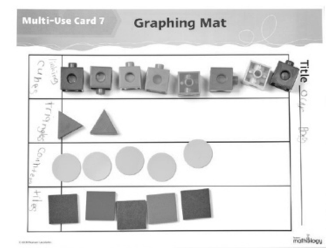
Master 9b

Graphing Mat (Columns not Divided)

Data Management and Probability

Master 10: Activity 4 Assessment

Making Graphs 1

Making Concrete Graphs and Pictographs Behaviours/Strategies			
1. Student labels columns, but is unable to sort objects to create display.	2. Student creates display, but sorts objects into piles or bunches pictures together on graph. 	3. Student creates display, but objects/pictures are not equally spaced and aligned or pictures have different sizes. 	4. Student successfully creates displays using objects or simple pictographs. 
Observations/Documentation			

Reading and Interpreting Graphs Behaviours/Strategies			
1. Student reads displays, but counts objects/pictures twice or mixes up the number word sequence.	2. Student reads displays, but struggles to interpret data to answer “how many” questions.	3. Student reads displays, but struggles to interpret data to answer comparison questions (e.g., how many more/less).	4. Student successfully interprets displays by noting how many more/less than other categories.
Observations/Documentation			

Name________________________________ Date _____________________

Master 11

Dot Plot Template

Graph title: ____

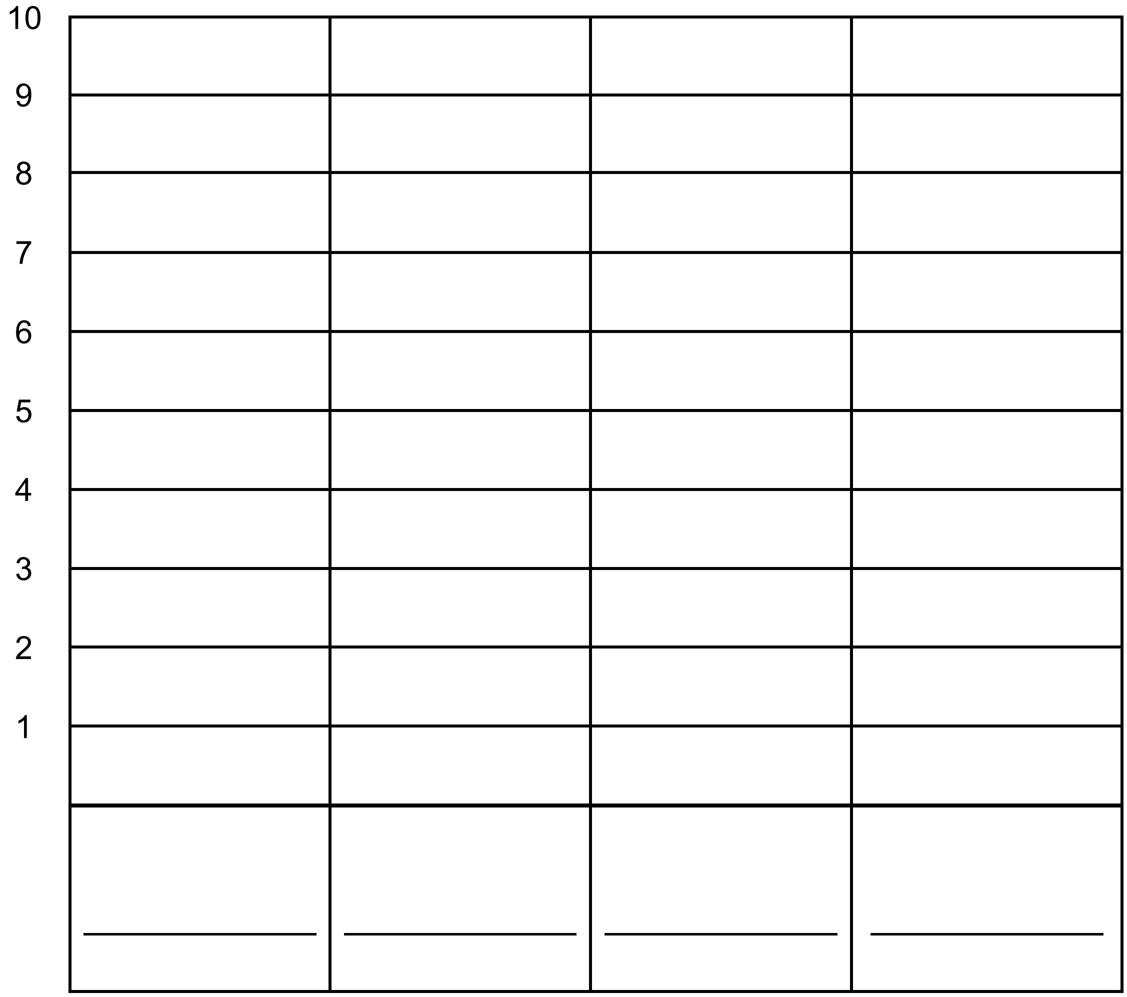
______________	______________	______________	______________

Name________________________________ Date _____________________

Master 12

Bar Graph Template

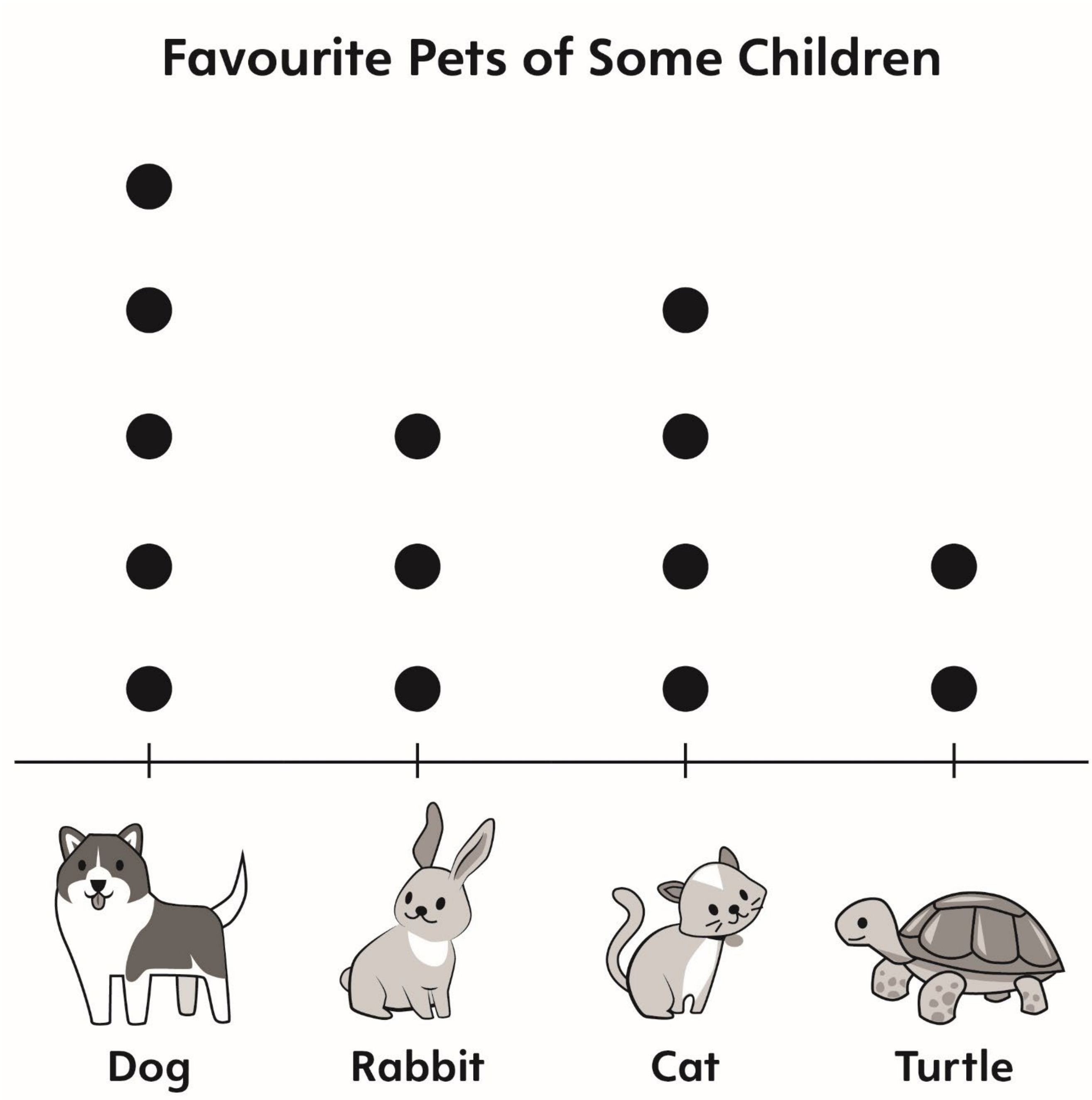
Graph title: ____



Name________________________________ Date _____________________

Master 13

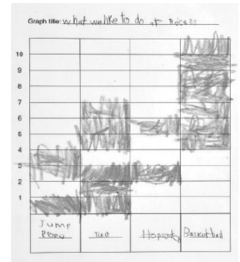
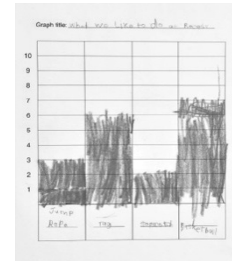
Sample Dot Plot



Data Management and Probability

Master 14: Activity 5 Assessment

Making Graphs 2

Making Dot Plots and Bar Graphs Behaviours/Strategies			
1. Student chooses a template and attempts to create a one-to-one display (e.g., dot plot, bar graph), but does not include labels.	2. Student creates a one-to-one display, but struggles to translate information from tally chart to graph (i.e., numbers in tally chart and graph do not match).	3. Student creates a one-to-one display, but bunches ●s together or does not space ●s or shaded rectangles equally. 	4. Student successfully creates one-to-one displays (e.g., dot plot, bar graph). 
Observations/Documentation			

Reading and Interpreting Graphs Behaviours/Strategies			
1. Student reads displays, but counts ●s or coloured rectangles twice or mixes up the number word sequence. “1, 2, 3, 5, 6”	2. Student reads displays, but struggles to interpret data to answer “how many” questions.	3. Student reads displays, but struggles to interpret data to answer comparison questions (e.g., how many more/less).	4. Student successfully interprets displays by noting how many more/less than other categories.
Observations/Documentation			

Name________________________________ Date _____________________

Master 15a

Tipi Teachings – Learning through Stories

1. Listen to the beginning of the video from Elder Mary Lee.
   a) Where is she from?
   b) Who did she learn from?
   c) What is she going to share?

Name________________________________ Date _____________________

Master 15b

Tipi Teachings – Learning through Stories (cont’d)

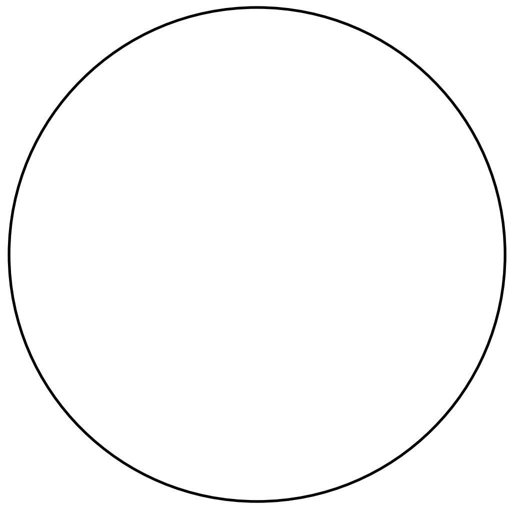
2. Listen to the tipi teachings shared from Elder Mary Lee.
   Answer the following questions to collect data.
   Use the diagrams on the next page to help show your learning.
   Consider recording information using tally marks, words, or counts.

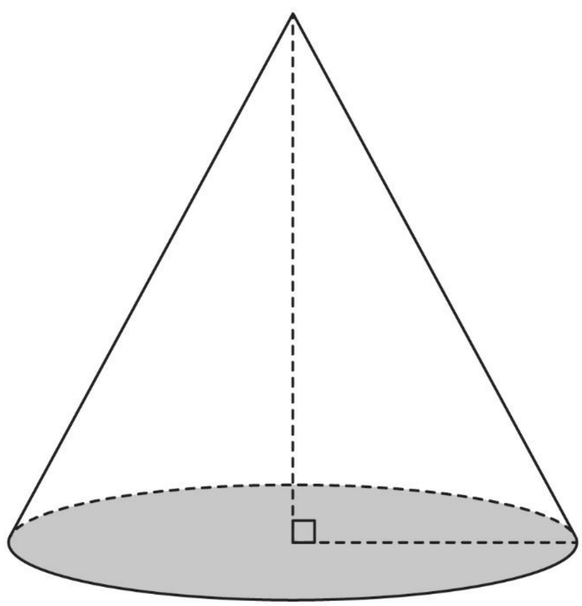
   a) What is the meaning of the first three poles?
   b) What are the first three poles used for?
   c) How many poles are there altogether?
   d) What materials are tipis made from?
   e) What is the meaning of the materials used?
   f) What does the tipi look like?

Name________________________________ Date _____________________

Master 15c

Tipi Teachings – Learning through Stories (cont'd)





Name_________________________________ Date ______________________

Master 15d

Tipi Teachings – Learning through Stories (cont'd)

3. In pairs, compare your diagrams.
   How are they alike?
   How are they different?

Data Management and Probability

Master 16: Activity 6 Assessment

Representing Data through First Nations, Métis, and Inuit Stories

Gathering Data Through Stories Behaviours/Strategies			
1. Student has difficulty gathering data from a story.	2. Student has difficulty representing data from a story.	3. Student can describe one way to gather information from Indigenous stories.	4. Student can gather information from Indigenous stories in various ways.
Observations/Documentation			

Name________________________________ Date _____________________

Master 17

Trees Planted

Black Spruce	Jack Pine	Oak
		
		

Master 18: Activity 7 Assessment

Data Management: Consolidation

Conducting Surveys Behaviours/Strategies			
1. Student thinks of a topic, but is unable to formulate a question or does not include sample responses. "My favourite animal is a dog."	2. Student formulates a question, but struggles to record responses using simple records.  "Which fruit do you like best: apples, oranges, grapes?"	3. Student formulates a question that can be addressed through a survey and collects data, but struggles to use data to draw conclusions.	4. Student successfully formulates a question that can be addressed through a survey, collects data using simple records, and uses data to draw conclusions.
Observations/Documentation			

Making, Reading, and Interpreting Graphs Behaviours/Strategies			
1. Student creates a display, but struggles to translate information from tally chart to graph (i.e., numbers in tally chart and graph do not match).	2. Student creates a display, but bunches items together or does not space items or shaded rectangles equally.	3. Student reads displays, but struggles to interpret data to answer questions.	4. Student successfully interprets displays by noting how many more/less than other categories.
Observations/Documentation			

Master 1a

Pearson mathology

Mathology Grade 2 Correlation – Alberta
Geometry Cluster 1: 2-D Shapes

Organizing Idea:
Geometry: Shapes are defined and related by geometric attributes.

Guiding Question: How can shape influence perception of space? **Learning Outcome:** Students analyze and explain geometric attributes of shape.				
Knowledge	**Understanding**	**Skills & Procedures**	**Grade 2 Mathology**	**Mathology Little Books**
Common geometric attributes include • sides • vertices • faces or surfaces Two-dimensional shapes may have sides that are line segments. Three-dimensional shapes may have faces that are two-dimensional shapes.	Shapes are defined according to geometric attributes. A shape can be visualized as a composition of other shapes.	Sort shapes according to two geometric attributes and describe the sorting rule.	**Geometry Cluster 1: 2-D Shapes** 1: Sorting 2-D Shapes 2: Exploring 2-D Shapes 3: Consolidation **Geometry Math Every Day** 1: Comparing Shapes **Geometry Intervention** 1: Sorting Shapes 2: Analyzing 2-D Shapes	I Spy Awesome Buildings Sharing Our Stories
		Create a picture or design with shapes from verbal instructions, visualization, or memory.	**Geometry Math Every Day** 1: Visualizing Shapes	I Spy Awesome Buildings Sharing Our Stories

Master 1b

A shape can change orientation or position through slides (translations), turns (rotations), or flips (reflections). Shapes can be turned or flipped in the creation of art.	Geometric attributes do not change when a shape is translated, rotated, or reflected.	Describe geometric attributes of two- and three-dimensional shapes in various orientations.	**Geometry Cluster 1: 2-D Shapes** 1: Sorting 2-D Shapes	<u>Grade 1</u> The Tailor Shop

Name________________________________ Date ______________________

Master 2a

Attribute Cards

Blue	Yellow	Red
3 sides	4 sides	No sides
6 sides	Small	Big
3 vertices	More than 3 vertices	No vertices

Name________________________________ Date ______________________

Master 2b

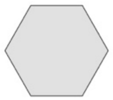
Attribute Cards (for Combined Grades Extension)

2 equal sides	4 equal sides	No equal sides
More than 4 sides	1 right angle	No right angles
4 right angles	3 interior angles	4 interior angles
More than 4 interior angles		

Master 3: Activity 1 Assessment
Sorting 2-D Shapes

Sorting Shapes Using Two Attributes Behaviours/Strategies

1. Student chooses a block, but struggles to analyze the attributes of the block.



"It's flat."

2. Student analyzes the attributes of the blocks, but is unable to name the shape.

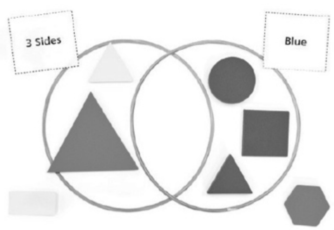
"It has 4 sides and 4 vertices.
I forget what it is called."

3. Student analyzes the attributes of the blocks, but is unable to describe how two shapes are similar/different.

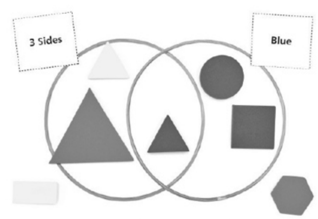
"I don't know how they are alike."

Observations/Documentation

4. Student sorts the blocks using a single attribute at a time, but is unable to sort using two attributes simultaneously (ignores overlap).

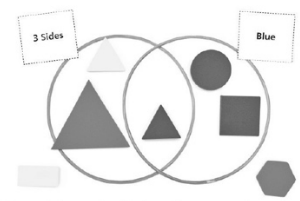


5. Student sorts a set of blocks based on two attributes, but has difficulty describing the sort.



"I don't know how to describe it.
It looks like this."

6. Student analyzes geometric attributes of shapes, sorts them using two attributes, and uses mathematical language to describe the sort.



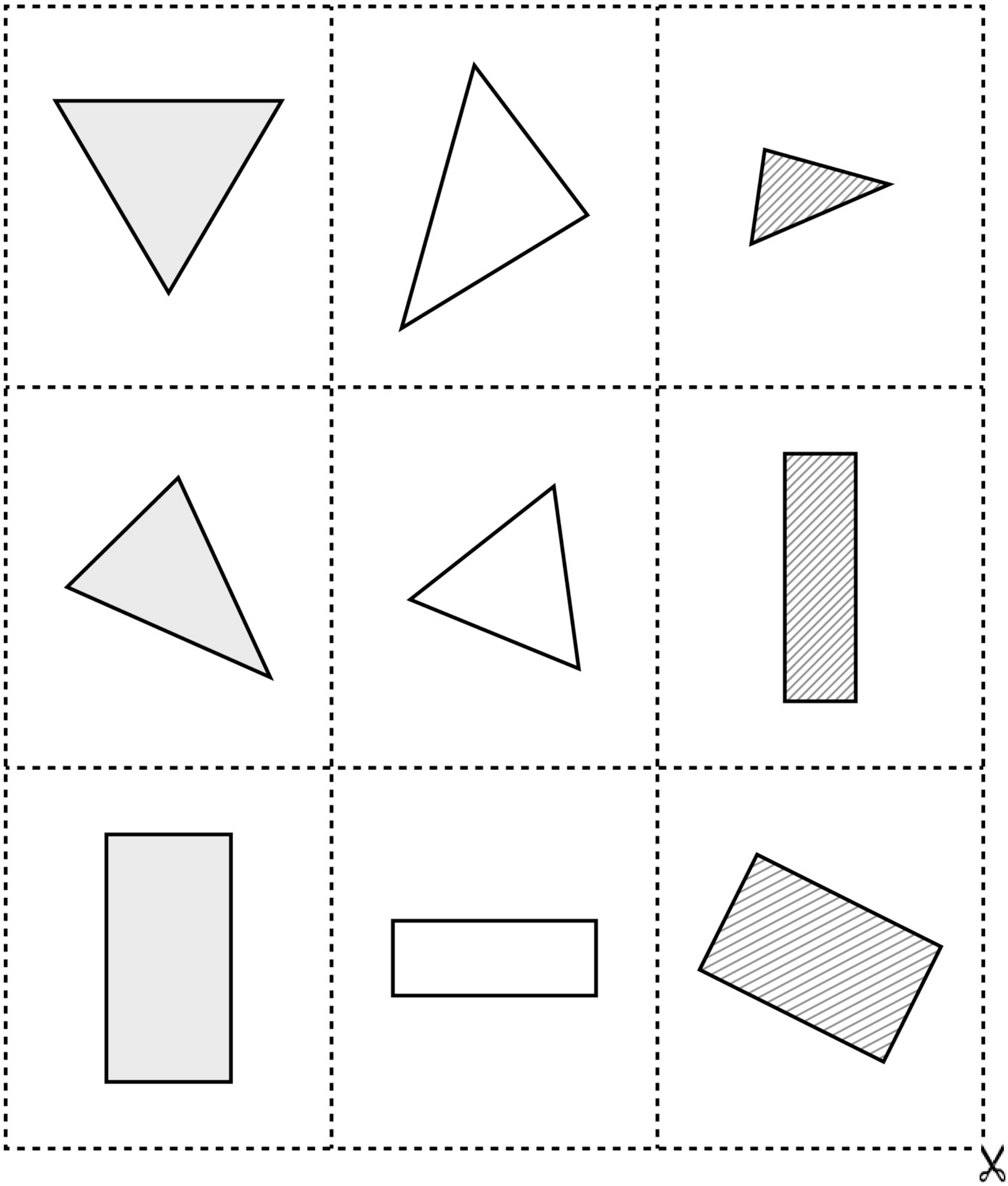
"The blue triangle is in the overlap because
it has both attributes."

Observations/Documentation

Name________________________________ Date _____________________

Master 4a

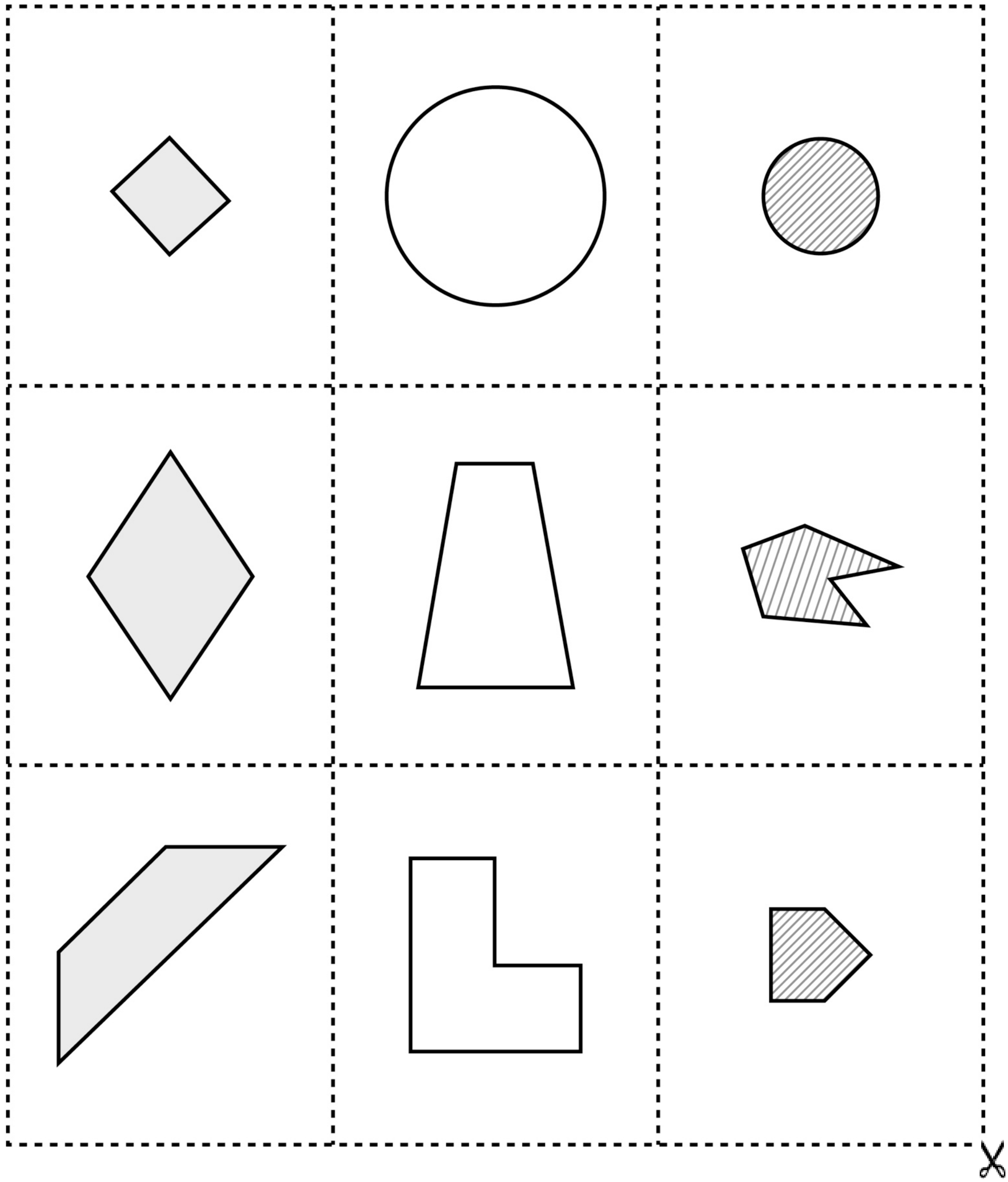
Shape Cards



Name________________________________ Date _____________________

Master 4b

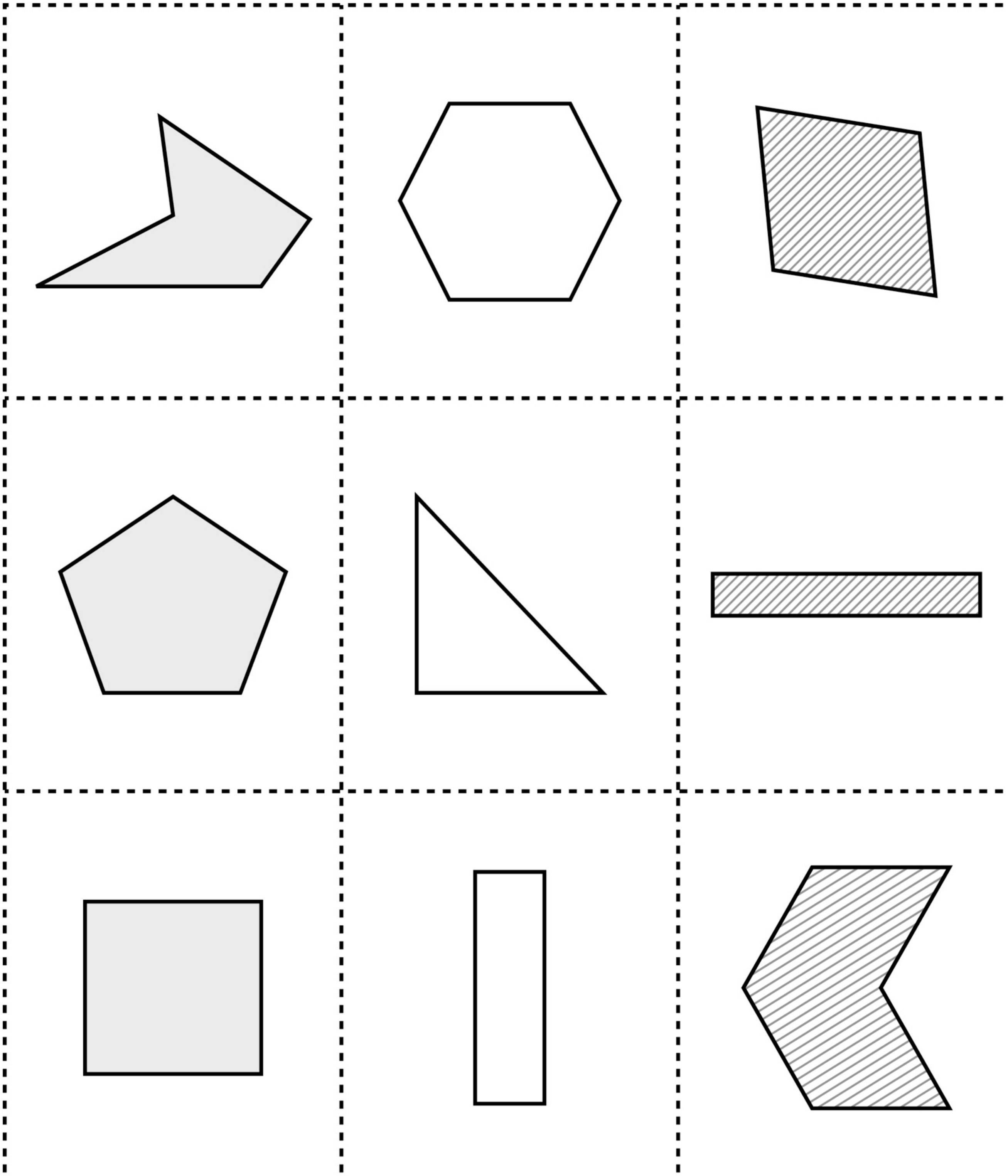
Shape Cards



Name________________________________ Date _____________________

Master 4c

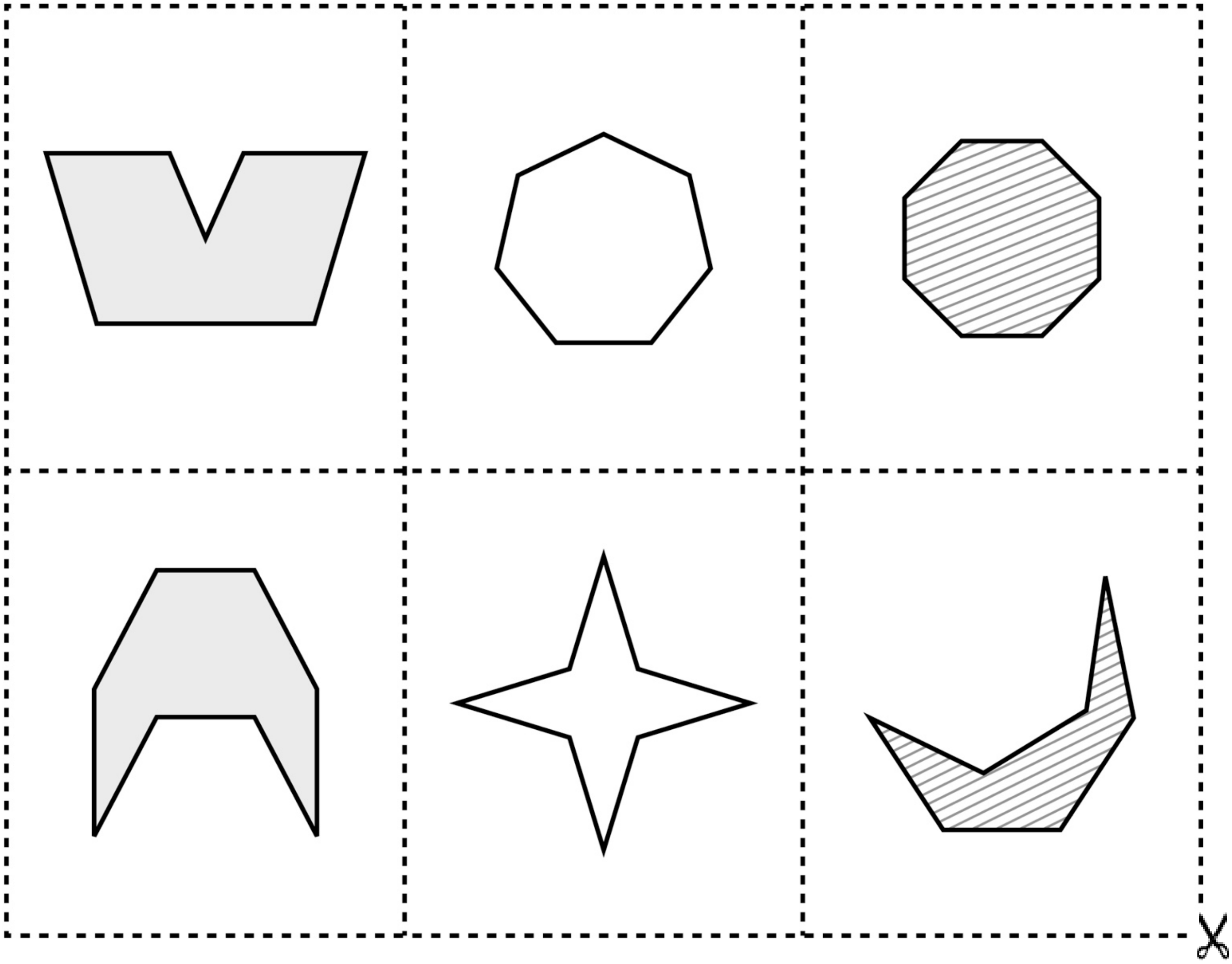
Shape Cards



Name________________________________ Date ____________________

Master 4d

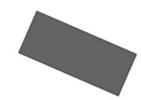
Shape Cards



Master 5: Activity 2 Assessment

Exploring 2-D Shapes

Analyzing and Identifying 2-D Shapes Behaviours/Strategies			
1. Student secretly picks a shape, but struggles to analyze the attributes of the shape and answers questions randomly.	2. Student analyzes attributes of 2-D shapes and answers questions thoughtfully. Partner asks repetitive questions. "Does the shape have 3 sides? Does the shape have 3 vertices?"	3. Student asks questions, but ignores the answers and guesses (unable to identify the 2-D shape).	4. Student asks questions, but they focus on non-geometric attributes (unable to identify the 2-D shape). "Is the shape red?
Observations/Documentation			

5. Student asks questions to identify 2-D shapes, but uses non-mathematical language. "Does it have points? Does it look like a hockey card?"	6. Student asks questions to identify 2-D shapes, but questions are asked in a random order (does not appear to have a strategy). "Does it have 3 sides?" *Yes* "Does it have 4 vertices?" *No* "Does it have straight sides?" *No*	7. Student recognizes 2-D shapes, but cannot name some of them.  "I don't know what this is called."	8. Student successfully identifies 2-D shapes and names them.  "A rectangle"

Name________________________________ Date ______________________

Master 6a

Consolidation Attribute Cards

Has 3 sides	Has 0 sides
Has 4 sides	Has 5 sides
Has 6 sides	Has more than 4 sides

Name________________________________ Date ____________________

Master 6b

Consolidation Attribute Cards

Has 2 sides equal	Has no sides equal
Has 3 vertices	Has 4 vertices
Has more than 4 vertices	Has all sides equal

Name________________________________ Date ____________________

Master 6c

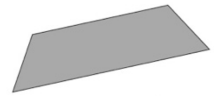
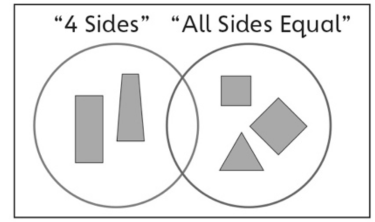
Consolidation Attribute Cards (for Combined Grades Extension)

Has 0 right angles	Has 1 right angle
Has 2 right angles	Has more than 2 right angles
Are regular polygons	Are irregular polygons

Geometry

Master 7: Activity 3 Assessment

2-D Shapes: Consolidation

Sorting Shapes Using Two Attributes Behaviours/Strategies			
1. Student randomly places shapes without thinking about attributes and is unable to sort set of shapes based on two attributes. "I didn't know where to put the shapes."	2. Student chooses a shape, but is unable to analyze its geometric attributes and is unable to sort shapes based on two attributes.  "It looks like a pizza slice."	3. Student sorts some shapes based on two attributes, but struggles when orientation or shapes are unfamiliar.  "This shape doesn't have 4 sides."	4. Student sorts a set of shapes based on single attributes, but struggles to sort using both attributes simultaneously (ignores overlap). 
Observations/Documentation			

5. Student sorts a set of shapes based on two attributes, but struggles to explain why the shapes were placed where they were. "I just know they go where I put them."	6. Student sorts a set of shapes based on two attributes, but struggles to identify the sorting rules used to sort the shapes. "I don't know what attributes they used."	7. Student sorts a set of shapes based on two attributes and identifies the sorting rules in given sorts, but has difficulty communicating them. "I can't explain it."	8. Student sorts a set of shapes based on two attributes and identifies and describes the sorting rules in given sorts.

Master 8a

Mathology Grade 2 Correlation – Alberta
Geometry Cluster 2: 3-D Solids

Organizing Idea:
Geometry: Shapes are defined and related by geometric attributes.

Guiding Question: How can shape influence perception of space? **Learning Outcome:** Students analyze and explain geometric attributes of shape.				
Knowledge	**Understanding**	**Skills & Procedures**	**Grade 2 Mathology**	**Mathology Little Books**
Common geometric attributes include • sides • vertices • faces or surfaces Two-dimensional shapes may have sides that are line segments. Three-dimensional shapes may have faces that are two-dimensional shapes.	Shapes are defined according to geometric attributes. A shape can be visualized as a composition of other shapes.	Sort shapes according to two geometric attributes and describe the sorting rule.	**Geometry Cluster 2: 3-D Solids** 4: Sorting 3-D Solids 5: 3-D Solids Around Us 6: Consolidation **Geometry Math Every Day** 2B: Which Solid Does Not Belong? 2B: Solids Around Us **Geometry Intervention** 3: Sorting Solids 4: Attributes of Solids	I Spy Awesome Buildings Sharing Our Stories

Master 8b

		Relate the faces of three-dimensional shapes to two-dimensional shapes.	**Geometry Cluster 2: 3-D Solids** 4: Sorting 3-D Solids 5: 3-D Solids Around Us 6: Consolidation **Geometry Math Every Day** 2A: What Do You See? 2B: Solids Around Us 2B: Which Solid Does Not Belong? 3B: Name the Solid	I Spy Awesome Buildings Sharing Our Stories
		Create a picture or design with shapes from verbal instructions, visualization, or memory.	**Geometry Math Every Day** 2A: Geometry in Poetry	I Spy Awesome Buildings Sharing Our Stories
A shape can change orientation or position through slides (translations), turns (rotations), or flips (reflections). Shapes can be turned or flipped in the creation of art.	Geometric attributes do not change when a shape is translated, rotated, or reflected.	Describe geometric attributes of two- and three-dimensional shapes in various orientations.	**Geometry Cluster 2: 3-D Solids** 4: Sorting 3-D Solids **Geometry Math Every Day** 2A: What Do You See? 2B: Solids Around Us **Geometry Intervention** 3: Sorting Solids 4: Attributes of Solids	<u>Grade 1</u> The Tailor Shop

Name________________________________ Date ____________________

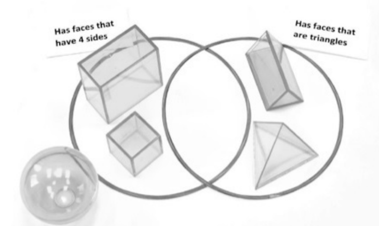
Master 9

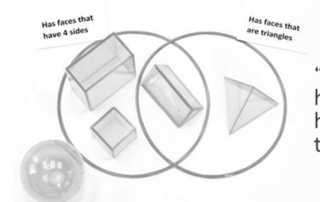
Attribute Cards for 3-D Solids

Has no faces	Has faces, but 4 or fewer	Has more than 4 faces
Has no vertices	Has vertices, but 4 or fewer	Has more than 4 vertices
Has no edges	Has edges	Has flat faces
Has faces that are circles	Has faces that have 4 sides	Has faces that are triangles

Geometry

Master 10: Activity 4 Assessment
Sorting 3-D Solids

Sorting 3-D Solids Using Two Attributes Behaviours/Strategies		
1. Student chooses a 3-D solid, but struggles to analyze its geometric attributes and name the solid.  "It is like an upside-down ice cream cone."	2. Student analyzes some geometric attributes of solids, but struggles to sort them based on two attributes. "I don't know what to do."	3. Student sorts the solids using a single attribute at a time, but is unable to sort using two attributes simultaneously (ignores overlap). 
Observations/Documentation		

4. Student sorts the solids using two attributes, but has difficulty justifying placement of solids.	5. Student sorts the solids using two attributes, but cannot identify the sorting rule.	6. Student successfully analyzes geometric attributes of solids, sorts them based on two attributes, and identifies the sorting rule.  "Has faces that have 4 sides and has faces that are triangles."
Observations/Documentation		

Name________________________________ Date ______________________

Master 11

Exploring Solids Recording Sheet

	Number of Faces	Number of Edges	Number of Vertices	Shapes of Faces
Solid				
Object 1				
Object 2				
Object 3				

Geometry

Master 12: Activity 5 Assessment

3-D Solids Around Us

Identifying 3-D Solids in the Environment Behaviours/Strategies		
1. Student looks at a solid, but struggles to analyze its geometric attributes.  "It looks like a ball."	2. Student analyzes geometric attributes of 3-D solids, but cannot name the solids.  "I forget what this is called."	3. Student identifies some 3-D solids in the environment, but struggles when the orientation of an object does not match his or her mental image of the solid.  
Observations/Documentation		

4. Student identifies some 3-D solids in the environment, but struggles when the size of an object does not match the size of the given solid. 	5. Student identifies 3-D solids in the environment, but struggles to explain why an object in the classroom is an example of the given 3-D solid.	6. Student successfully analyzes geometric attributes of 3-D solids, identifies 3-D solids in the environment, and explains thinking.  "The water cooler cup is a cone. When it is full, it has one face and one vertex."
Observations/Documentation		

Master 13: Activity 6 Assessment

3-D Solids: Consolidation

Identifying 3-D Solids Behaviours/Strategies			
1. Student looks at a 3-D solid, but struggles to analyze its geometric attributes.  "It looks like a ball."	2. Student identifies some 3-D solids in the environment, but struggles when orientation or size of object does not match his or her mental image of solid. 	3. Student identifies 3-D solids in the environment, but struggles to explain why an object is an example of the given 3-D solid.	4. Student successfully analyzes geometric attributes of 3-D solids, identifies 3-D solids in the environment, and explains thinking.
Observations/Documentation			

Constructing 3-D Solids and Their Skeletons Behaviours/Strategies			
1. Student chooses materials, but struggles to construct the solid with given attributes.  "This is my pyramid."	2. Student looks at a 3-D solid, but struggles to construct skeleton and does not know where to start. "I don't know what to do."	3. Student analyzes geometric attributes of a 3-D solid, but makes error(s) constructing skeleton. 	4. Student successfully constructs model and skeleton of a 3-D solid with given attributes.
Observations/Documentation			

Master 14a

Mathology Grade 2 Correlation – Alberta
Geometry Cluster 3: Geometric Relationships

Organizing Idea:
Geometry: Shapes are defined and related by geometric attributes.

Guiding Question: How can shape influence perception of space? **Learning Outcome:** Students analyze and explain geometric attributes of shape.				
Knowledge	**Understanding**	**Skills & Procedures**	**Grade 2 Mathology**	**Mathology Little Books**
Common geometric attributes include • sides • vertices • faces or surfaces Two-dimensional shapes may have sides that are line segments. Three-dimensional shapes may have faces that are two-dimensional shapes.	Shapes are defined according to geometric attributes. A shape can be visualized as a composition of other shapes.	Relate the faces of three-dimensional shapes to two-dimensional shapes.	**Geometry Cluster 3: Geometric Relationships** 8: Describing Solids **Geometry Math Every Day** 3B: Name the Solid	I Spy Awesome Buildings Sharing Our Stories
		Create a picture or design with shapes from verbal instructions, visualization, or memory.	**Geometry Cluster 3: Geometric Relationships** 7: Making Shapes 8: Describing Solids 9: Visualizing Shapes and Solids 10: Creating Pictures and Designs 11: Covering Outlines 12: Creating Symmetrical Designs 15. Consolidation **Geometry Math Every Day** 3A: Fill Me In! 3A: Make me a Picture 3B: Draw the Shape **Geometry Intervention** 5: Covering Outlines 6: Describing Solids	I Spy Awesome Buildings Sharing Our Stories

A shape can change orientation or position through slides (translations), turns (rotations), or flips (reflections). Shapes can be turned or flipped in the creation of art.	Geometric attributes do not change when a shape is translated, rotated, or reflected.	Investigate translation, rotation, and reflection of two- and three-dimensional shapes.	**Geometry Cluster 3: Geometric Relationships** 12: Creating Symmetric Designs 13: Exploring Transformations 14: Slides, Flips, and Turns in Artwork	
		Recognize the translation, rotation, or reflection of shapes represented in artwork.	**Geometry Cluster 3: Geometric Relationships** 14: Slides, Flips, and Turns in Artwork	Sharing Our Stories

Organizing Idea:

Patterns: Awareness of patterns supports problem solving in various situations.

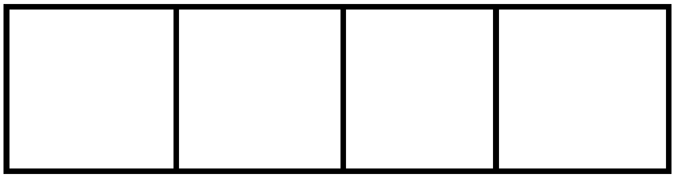
Guiding Question: How can patterns characterize change?
Learning Outcome: Students explain and analyze patterns in a variety of contexts.

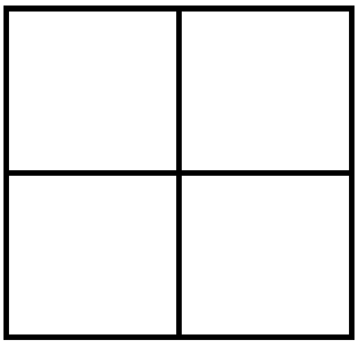
Knowledge	Understanding	Skills & Procedures	Grade 2 Mathology	Mathology Little Books
Change can be an increase or a decrease in the number and size of elements. A hundreds chart is an arrangement of natural numbers that illustrates multiple patterns. Patterns can be found and created in cultural designs.	A pattern can show increasing or decreasing change. A pattern is more evident when the elements are represented, organized, aligned, or oriented in familiar ways.	Describe non-repeating patterns encountered in surroundings, including in art, architecture, cultural designs, and nature.	*Link to other strands:* ***Geometry Cluster 3: Geometric Relationships*** *14: Slides, Flips, and Turns in Artwork*	

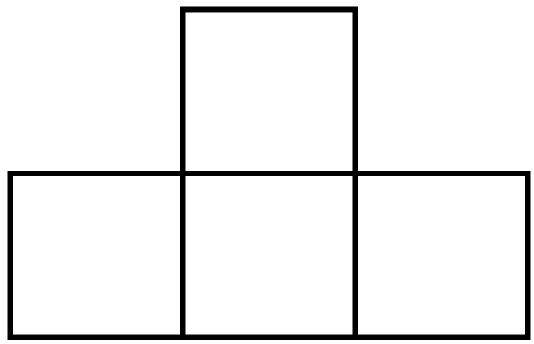
Name________________________________ Date ______________________

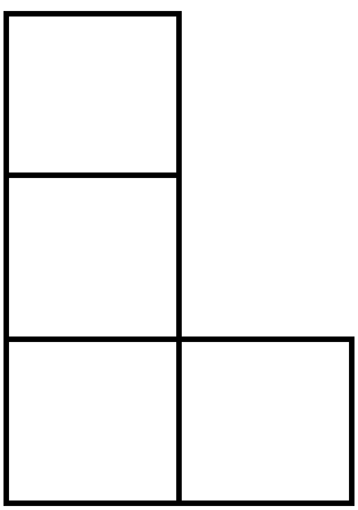
Master 15

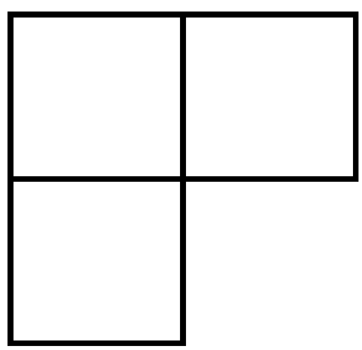
Shapes from Squares







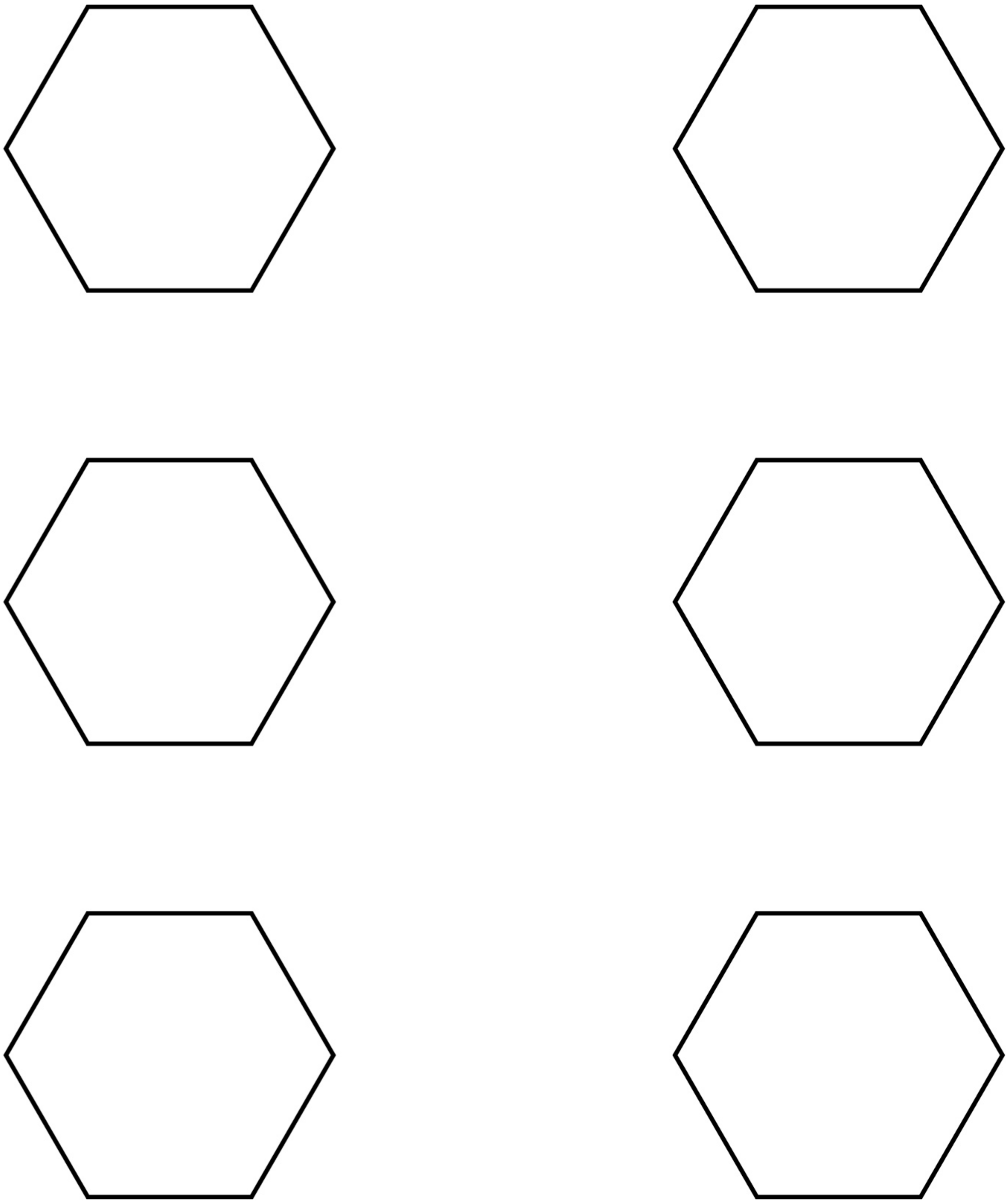




Name________________________________ Date _____________________

Master 16

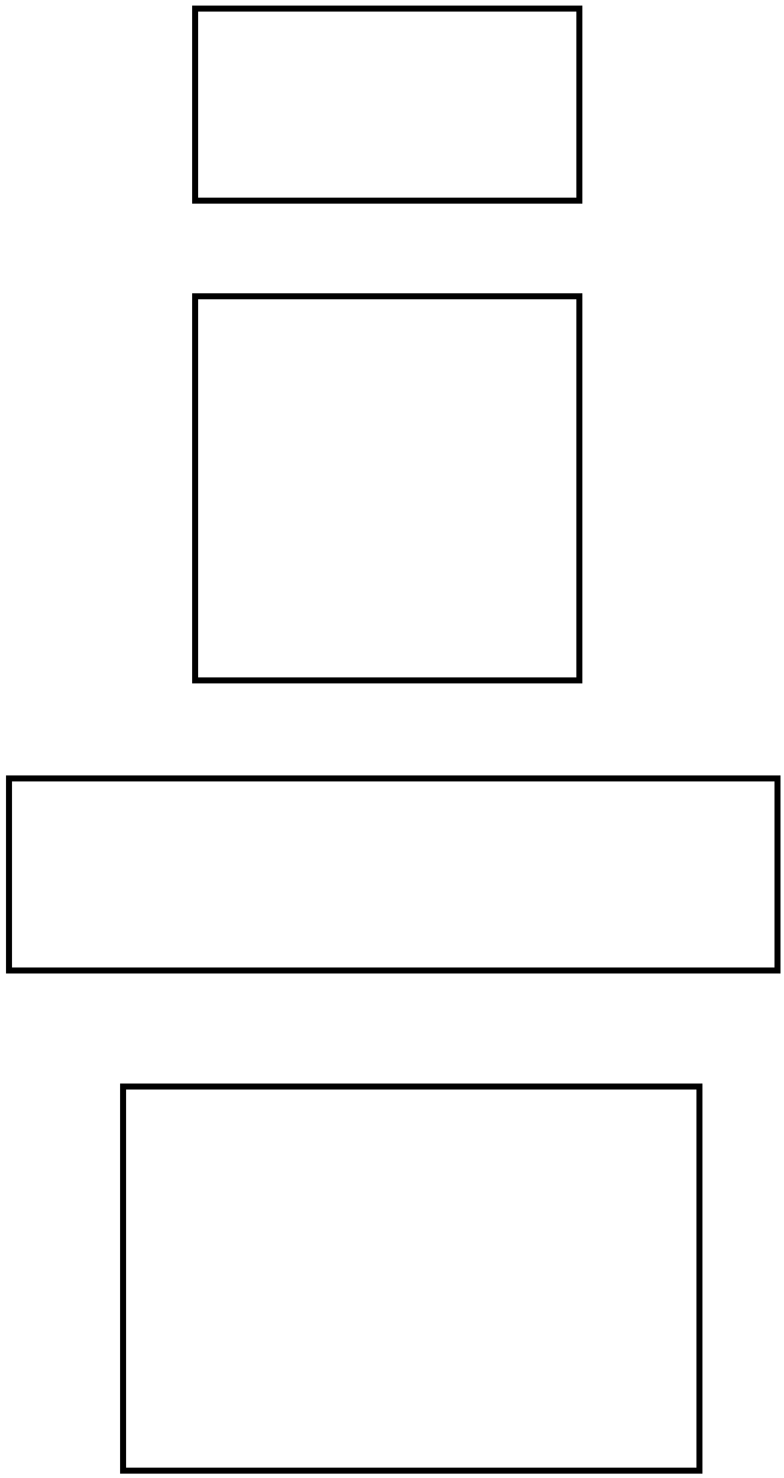
Fill the Hexagons



Name________________________________ Date _____________________

Master 17

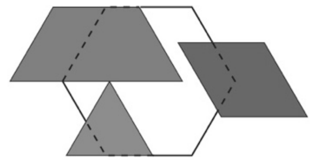
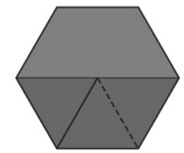
Fill the Rectangles

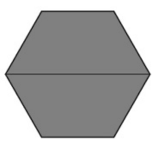
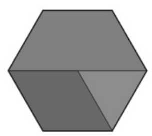
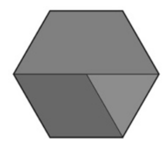


Geometry

Master 18: Activity 7 Assessment

Making Shapes

Constructing 2-D Shapes from Other Shapes Behaviours/Strategies		
1. Student looks at the outline, but does not know which 2-D shapes to use to construct a composite shape (hexagon).	2. Student places blocks randomly with no thought to the outline to construct a composite shape (hexagon) from other 2-D shapes. 	3. Student constructs a composite shape (hexagon) from other 2-D shapes, but leaves gaps or overlaps when using blocks to cover hexagon. 
Observations/Documentation		

4. Student constructs a composite shape (hexagon) from other 2-D shapes, but cannot construct it in a different way. 	5. Student constructs a composite shape (hexagon) from other 2-D shapes, but struggles to describe and identify shapes used.  "I used a red, a green, and a blue block."	6. Student constructs a composite shape (hexagon) from other 2-D shapes in different ways and identifies shapes used.  "I used a trapezoid, a rhombus, and a triangle."
Observations/Documentation		

Geometry

Master 19: Activity 8 Assessment

Describing Solids

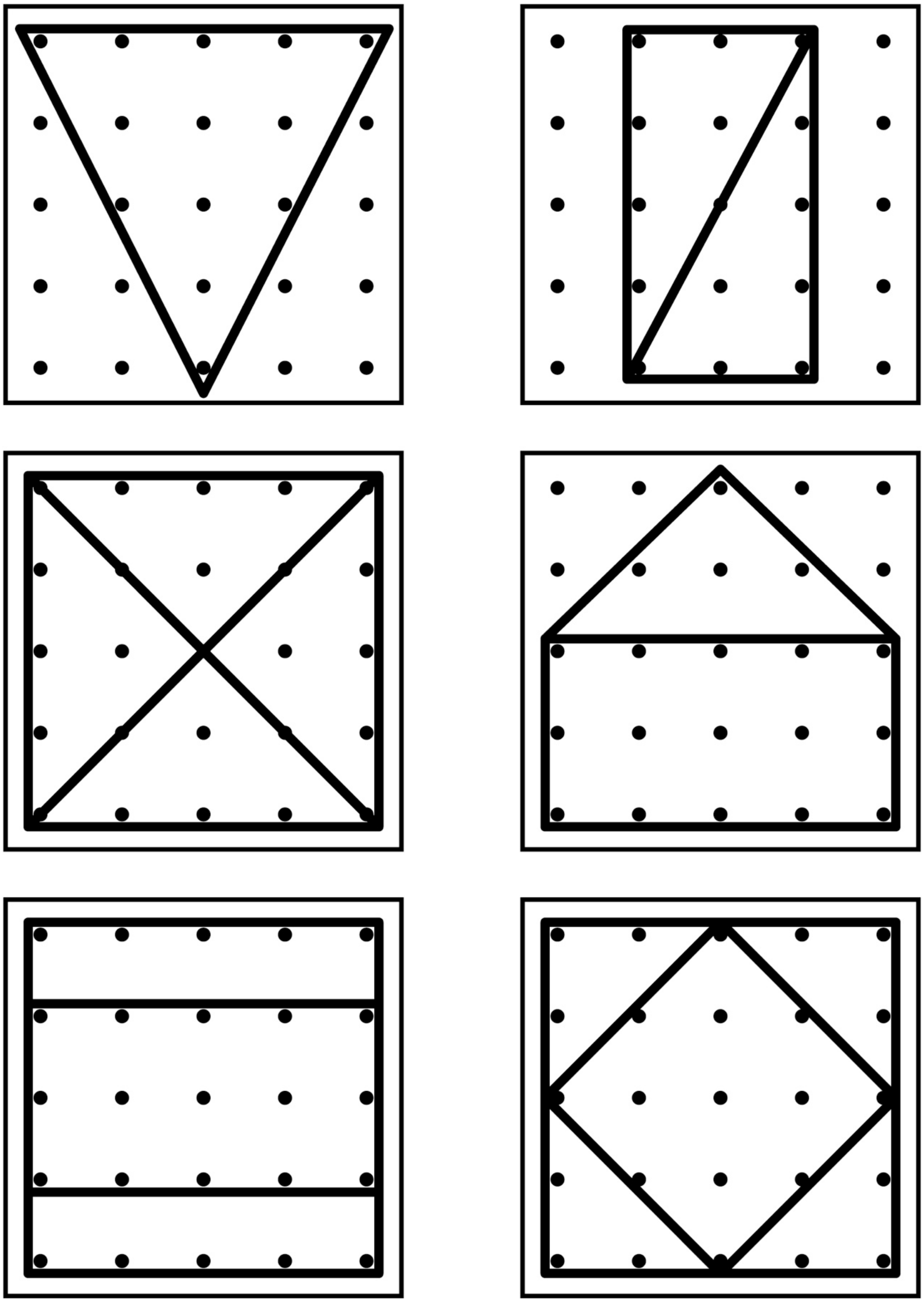
Building Structures with 3-D Solids Behaviours/Strategies			
1. Student chooses solids randomly to construct a structure and gives no thought to the attributes of the solids. "I'll start with the sphere."	2. Student constructs a structure with 3-D solids, but only uses solids with rectangular or square faces.	3. Student constructs a structure with 3-D solids, but it does not match original structure.	4. Student successfully constructs a structure with 3-D solids.
Observations/Documentation			

Describing and Identifying 3-D Solids Behaviours/Strategies			
1. Student chooses a solid, but uses gestures or non-geometric attributes to describe it. "The solid has faces that are shaped like hockey cards."	2. Student describes geometric attributes of solid, but provides an incomplete description. "The solid has faces that are squares."	3. Student describes geometric attributes of solid, but partner ignores description or focuses on only part of the description.	4. Student describes geometric attributes of solids, and partner identifies them with ease.
Observations/Documentation			

Name________________________________ Date _____________________

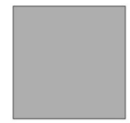
Master 20

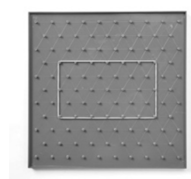
Geoboard Shapes



Geometry

Master 21: Activity 9 Assessment
Visualizing Shapes and Solids

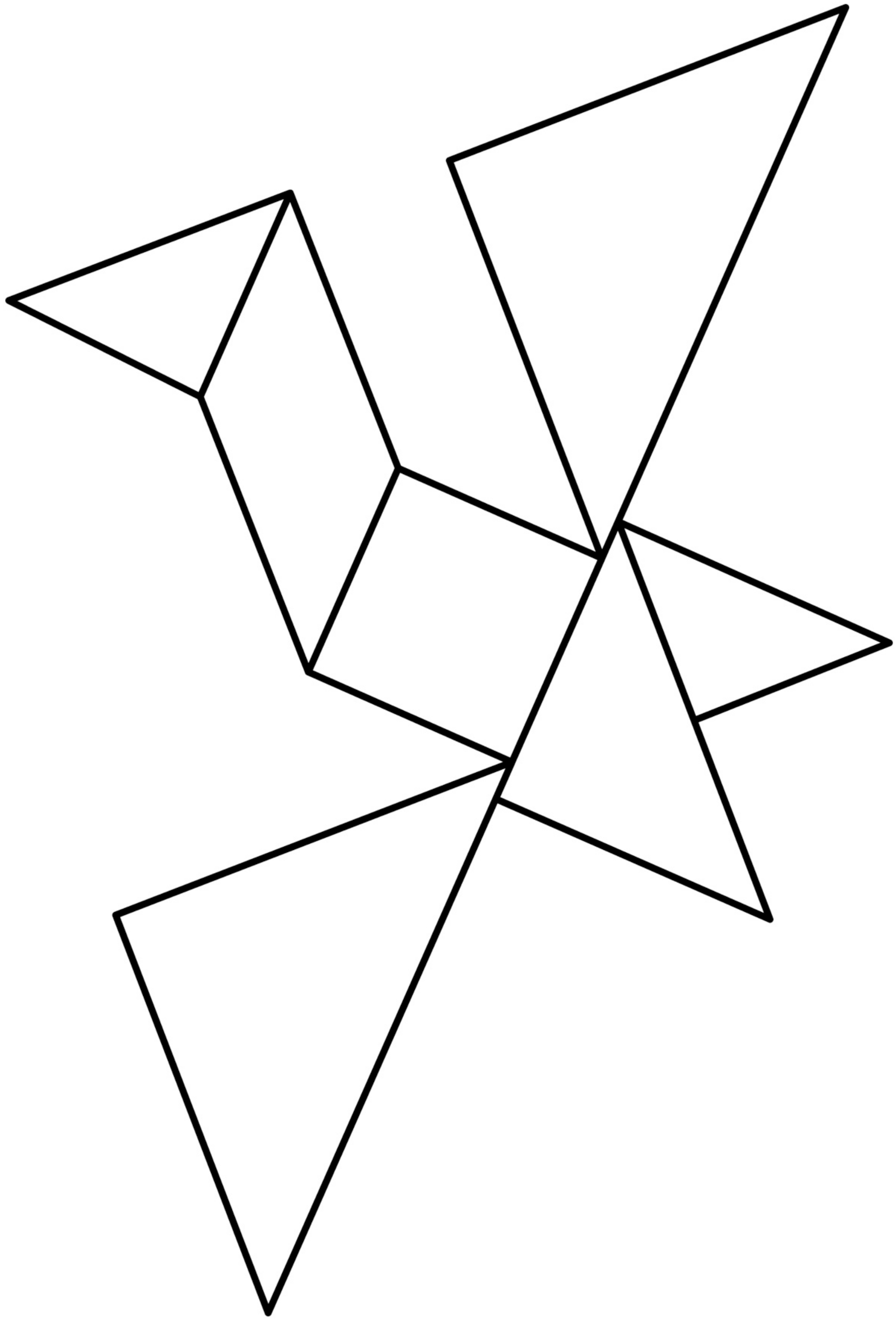
Describing Attributes of Shapes and Solids Behaviours/Strategies			
1. Student chooses a shape/solid, but has difficulty analyzing it and describing its attributes.	2. Student analyzes geometric attributes of a shape/solid, but uses non-math language to describe it.  "It feels like a paper towel roll."	3. Student analyzes geometric attributes of a shape/solid, but gives a general description.  "It has sides and vertices."	4. Student successfully analyzes geometric attributes of 2-D shapes and 3-D solids and uses math language to describe them.
Observations/Documentation			

Visualizing and Creating Shapes and Solids Behaviours/Strategies			
1. Student creates a shape/solid, but guesses and ignores partner's description.	2. Student creates a shape/solid, but focuses on only part of the description and creates incorrect shape/solid.	3. Student creates shapes and solids from description and visualization, but struggles to identify them.  "I forget what this is called."	4. Student successfully creates and identifies shapes and solids from description and visualization.  "I made a cube."
Observations/Documentation			

Name________________________________ Date ____________________

Master 22

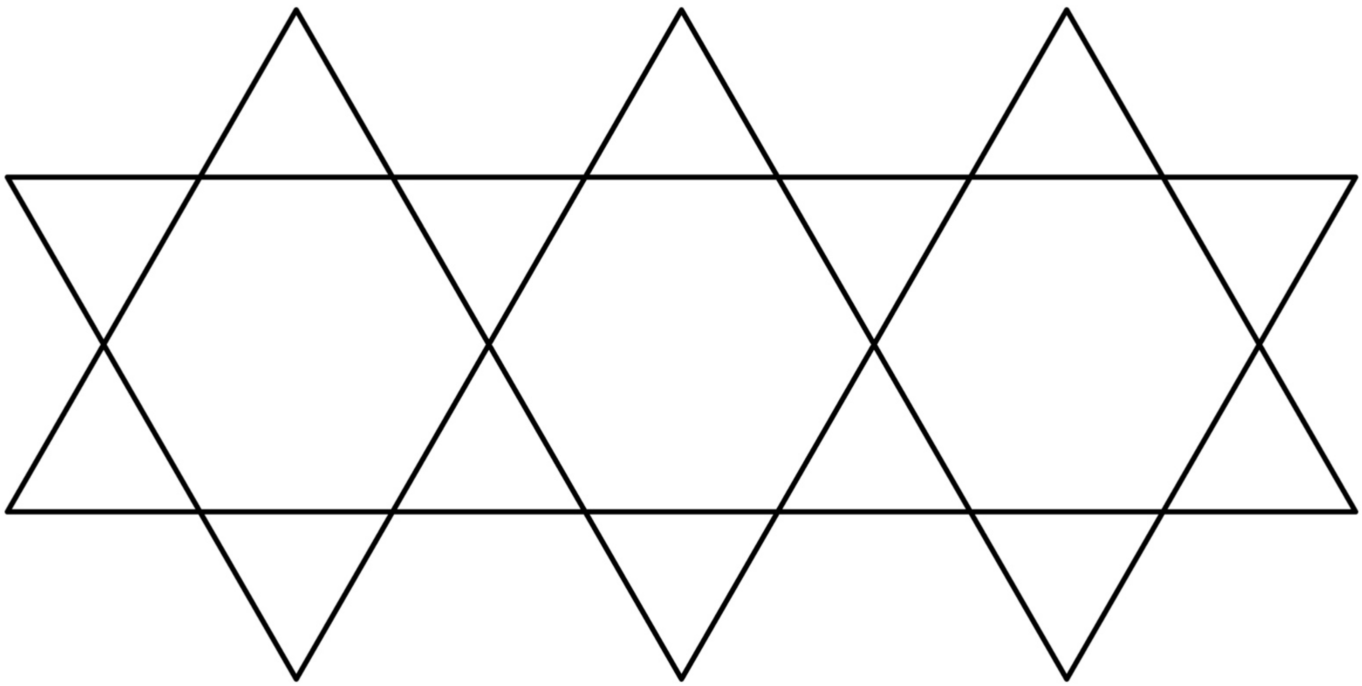
Shape Picture



Name________________________________ Date _____________________

Master 23

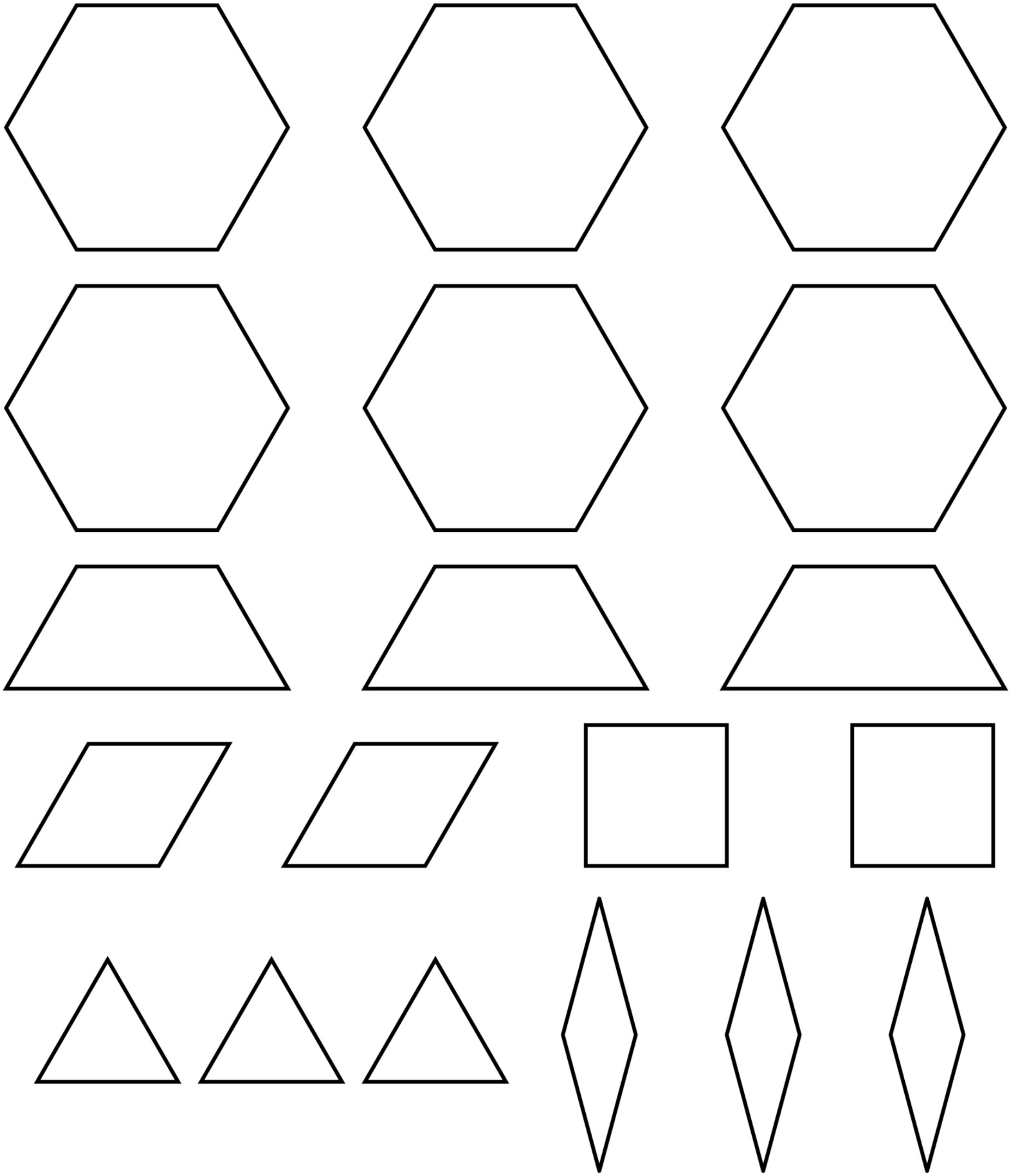
Shape Design



Name________________________________ Date _____________________

Master 24

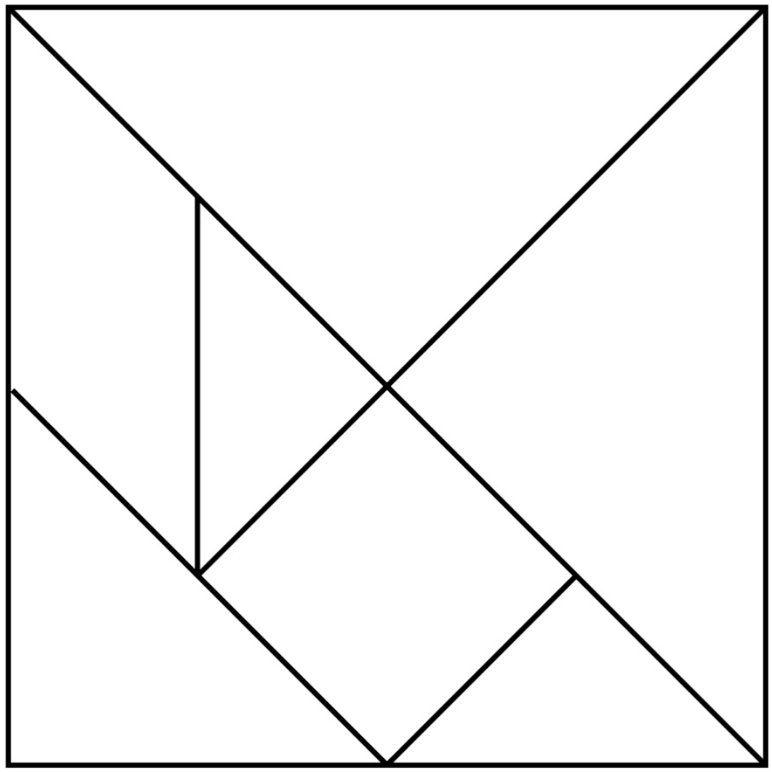
Pattern Block Cutouts



Name________________________________ Date _____________________

Master 25

Tangram Cutouts

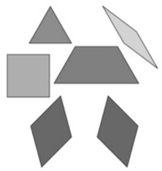


Master 26: Activity 10 Assessment

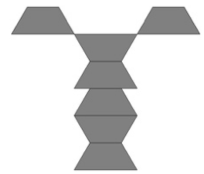
Creating Pictures and Designs

Making Pictures and Designs with 2-D Shapes Behaviours/Strategies

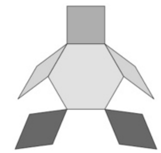
1. Student constructs a composite picture/design with 2-D shapes, but shapes do not touch.



2. Student constructs a composite picture with 2-D shapes, but uses only one shape.

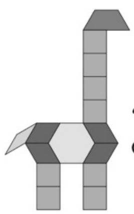


3. Student constructs a composite picture with 2-D shapes, but each shape represents a part of an object (shapes are not combined).



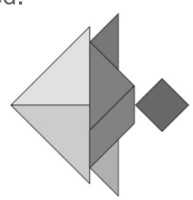
Observations/Documentation

4. Student constructs a composite picture with 2-D shapes and combines shapes to represent parts of the picture, but cannot identify the shapes used.



"I used lots of orange and blue blocks."

5. Student constructs a composite picture/design with 2-D shapes, but struggles to explain how it was created.



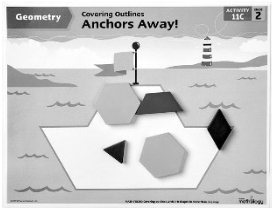
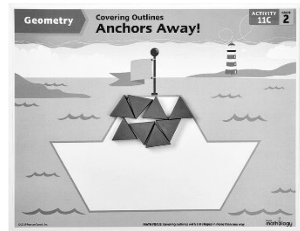
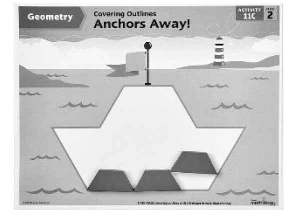
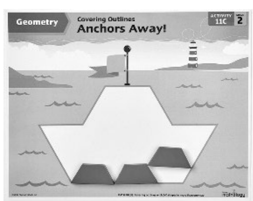
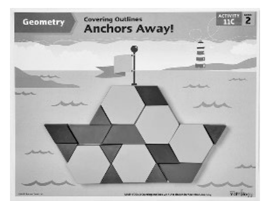
6. Student successfully constructs a composite picture/design with 2-D shapes, explains how it was created, and identifies shapes used.

Observations/Documentation

Geometry

Master 27: Activity 11 Assessment

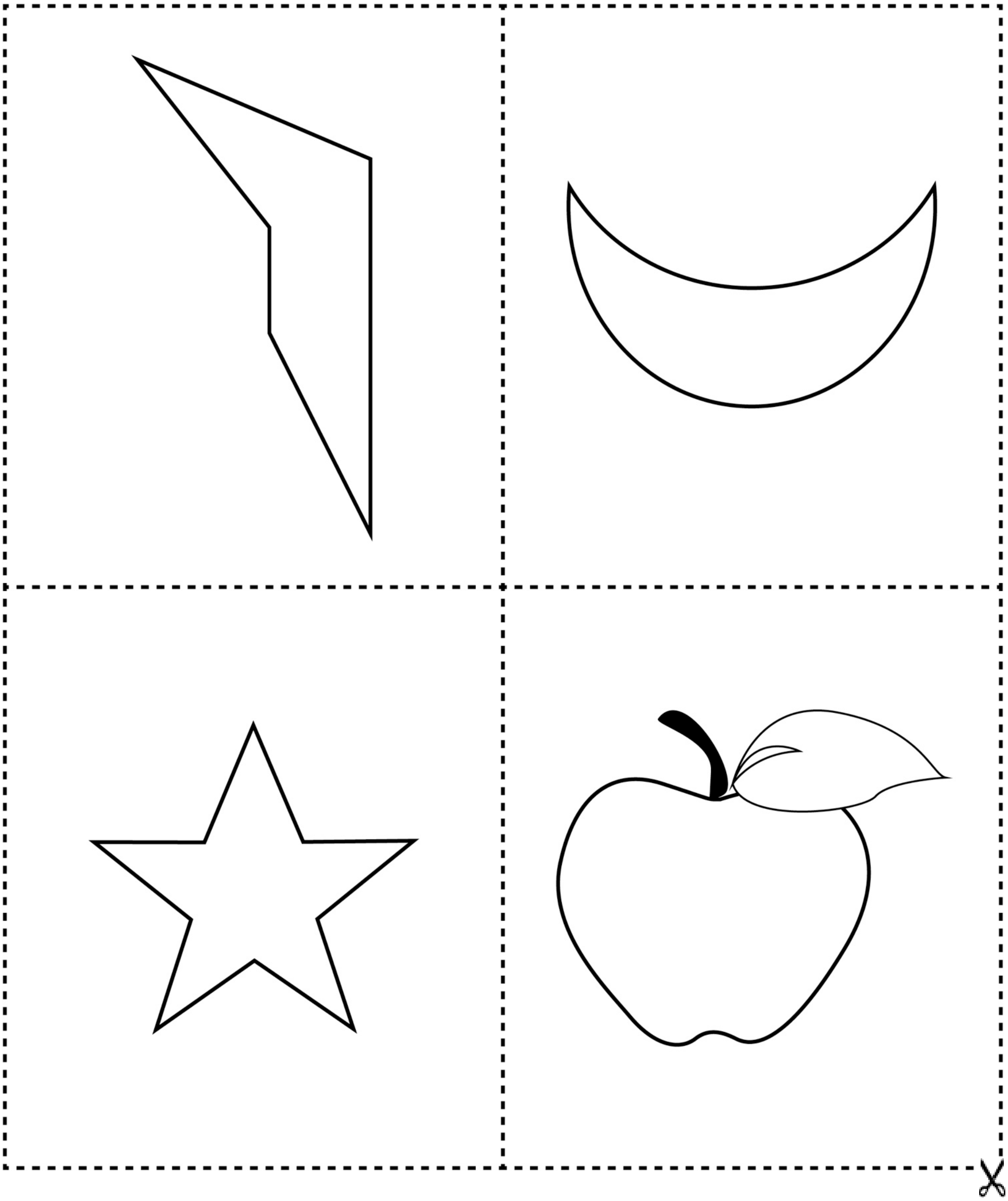
Covering Outlines

Covering Outlines with 2-D Shapes Behaviours/Strategies		
1. Student covers a picture outline with shapes, but places blocks randomly with no thought to outline. 	2. Student covers a picture outline with shapes, but leaves gaps or overlaps. 	3. Student covers a picture outline with shapes, but always tries to place matching blocks in the same relative position. 
Observations/Documentation		
4. Student covers a picture outline with shapes and uses guess and test to fill a space. 	5. Student successfully completes a picture outline with shapes, but thinks there is only one way to cover it. 	6. Student successfully completes a picture outline with shapes in one way and sees more than one way to cover it.
Observations/Documentation		

Name________________________________ Date ____________________

Master 28a

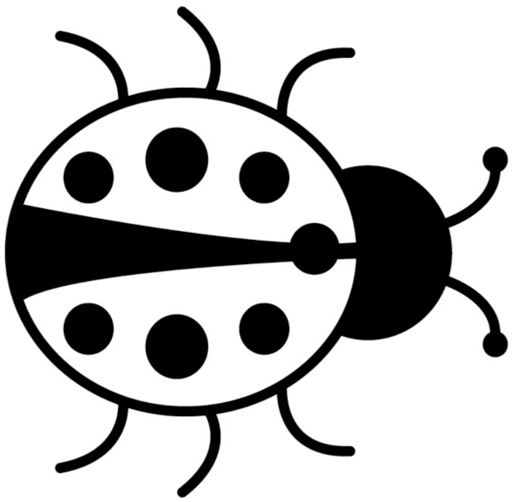
Pictures for Symmetry

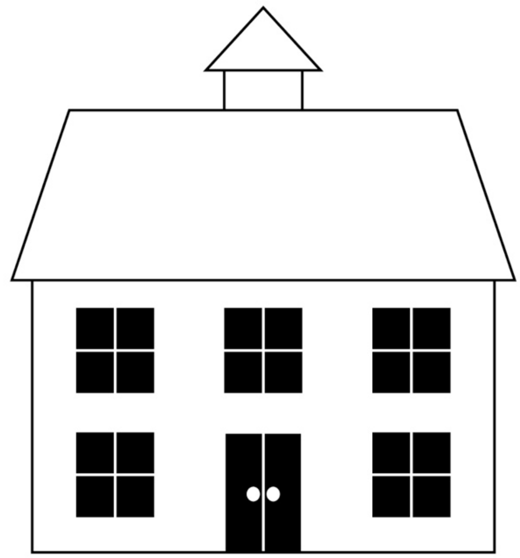


Name________________________________ Date ____________________

Master 28b

Pictures for Symmetry





Name________________________________ Date _____________________

Master 29a

Make It Symmetrical

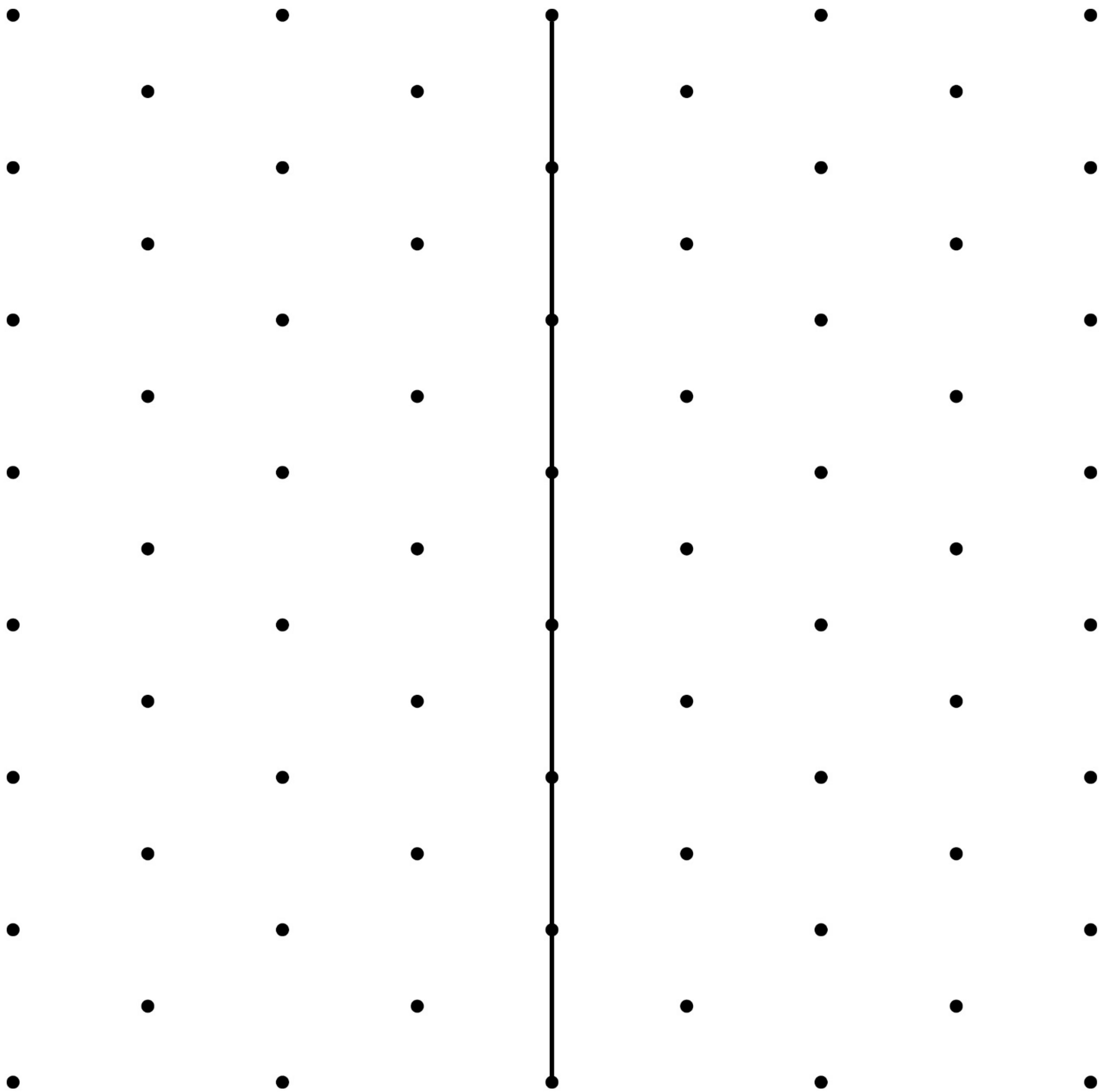
Create a symmetrical design.

Name________________________________ Date _____________________

Master 29b

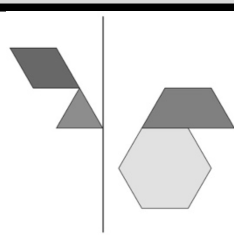
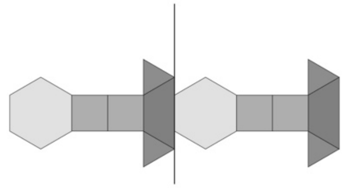
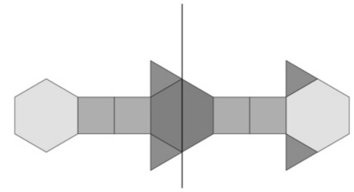
Make It Symmetrical (for Accommodations)

Create a symmetrical design.

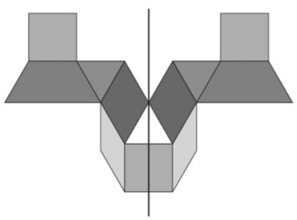


Master 30: Activity 12 Assessment
Creating Symmetrical Designs

Creating Symmetrical Designs Behaviours/Strategies

1. Student constructs a 2-D design, but places blocks randomly and creates an unsymmetrical design. 	2. Student constructs a 2-D design, but places the same blocks with the same orientation on each side of the line. 	3. Student constructs a 2-D design, but places one or more Pattern Blocks incorrectly. 

Observations/Documentation

4. Student constructs a 2-D symmetrical design, but cannot decide if partner's design is symmetrical.  "I don't know if it is symmetrical."	5. Student constructs a 2-D symmetrical design and decides if partner's design is symmetrical, but struggles to describe her or his own design.	6. Student successfully constructs a 2-D symmetrical design, decides if partner's design is symmetrical, and talks about his or her own design using math language.

Observations/Documentation

Name______________________________ Date____________________

Master 31

Amusement Park Rides

Part 1: Roller Coaster

What to Do

- Place a ruler on the track to join points A and B.
- Move your 2-D shape along the ruler.
- Make sure the same side of your shape stays on the ruler.
- Repeat to move to points B, C, D, and E.
- How does your shape move from one point to the next? What is this type of movement called?
- Does the way the shape is placed change? Explain.

Part 2: House of Mirrors

What to Do

- Place your 2-D shape on the floor in front of the mirror.
- Place the Mira so you can see your shape in the mirror.
- Trace around the picture of your shape on the mirror.
- How is the picture on the mirror the same and different from the shape on the floor?
- What is this type of movement called? Why?

Part 3: Train Ride

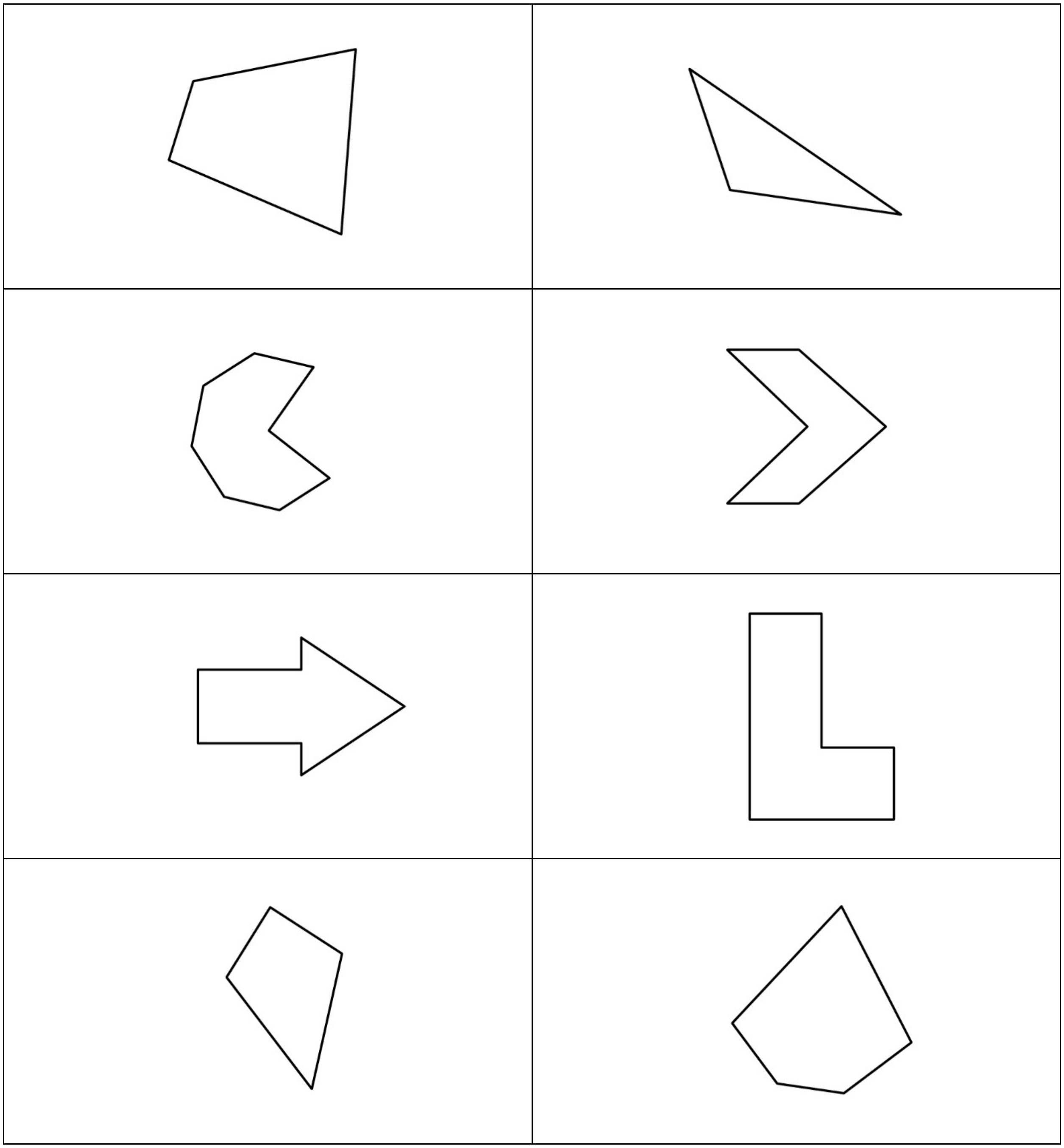
What to Do

- Place your 3-D object on the track at *Start*.
- Move your object around the track, stopping at the aquarium, splash pad, and petting farm.
- Make sure the same face of your object stays on the track.
- What is this type of movement called? Why?
- Does the way the object is placed change? Explain.

Name________________________________ Date_____________________

Master 32

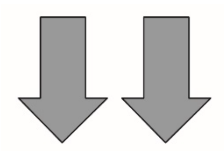
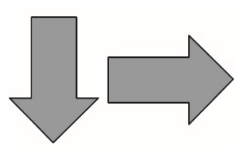
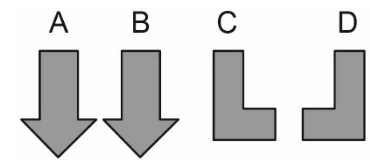
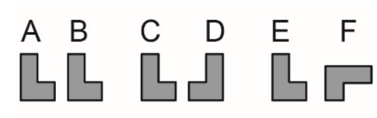
Amusement Park Shapes



Geometry

Master 33: Activity 13 Assessment

Exploring Transformations

Applying Transformations to 2-D Shapes Behaviours/Strategies			
1. Student identifies identical shapes with same orientation  “These shapes have the same size and shape and are facing the same way.”	2. Identifies identical shapes with different orientations  “These shapes are identical because I can picture turning one shape to match the other.”	3. Student identifies translations but struggles to differentiate between reflections and rotations.  "I would translate A to the right to get B. I am not sure if moving C to D is a reflection or a rotation	4. Student predicts and describes transformations of identical shapes and objects.  “When I translate a shape or object from A to B, the orientation stays the same. When I reflect a shape or object from C to D, I see a mirror image. When I rotate a shape or object from E to F, I get a different orientation.”
Observations/Documentation			

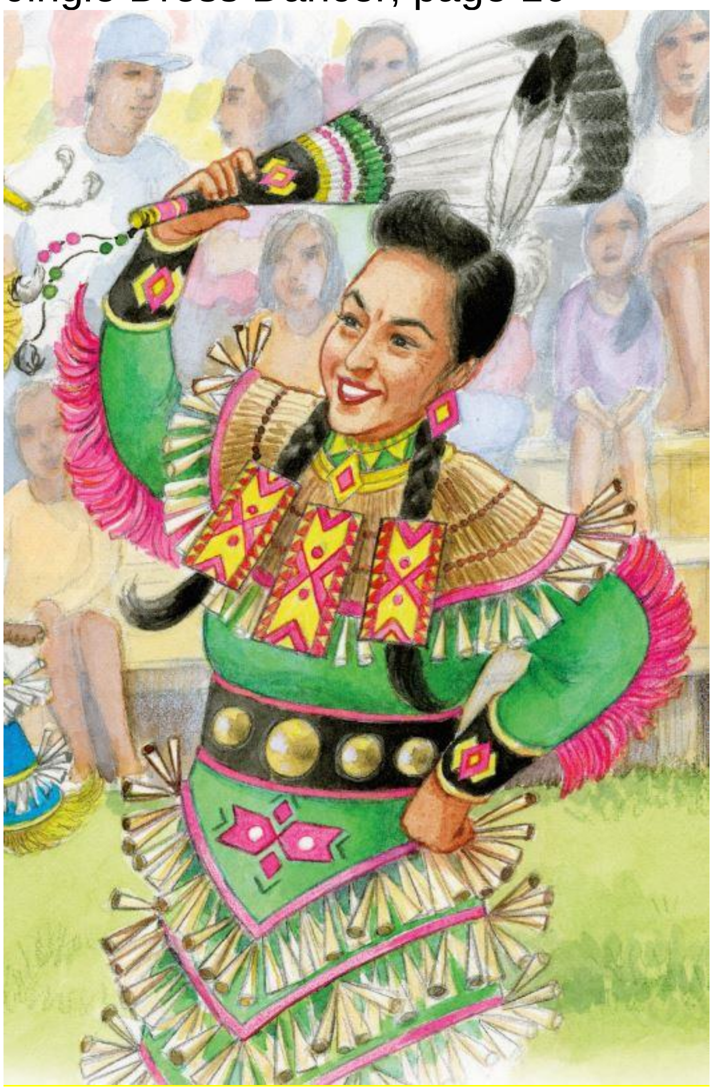
Name________________________________ Date _____________________

Master 34a

Exploring Shapes in Powwow Dancers' Regalia

1. What shape is used within the design?
   Does the shape slide?
   Does the shape flip?
   Does the shape turn?

   a) Jingle Dress Dancer, page 10

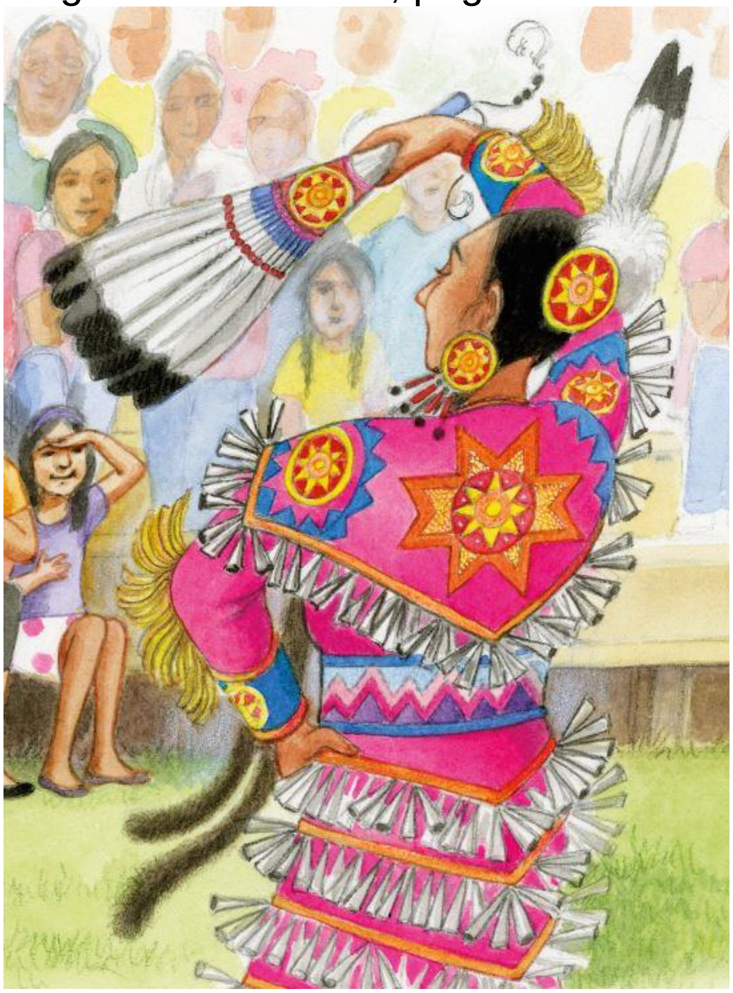


Name________________________________ Date _____________________

Master 34b

Exploring Shapes in Powwow Dancers’ Regalia (cont’d)

b) Jingle Dress Dancer, page 11



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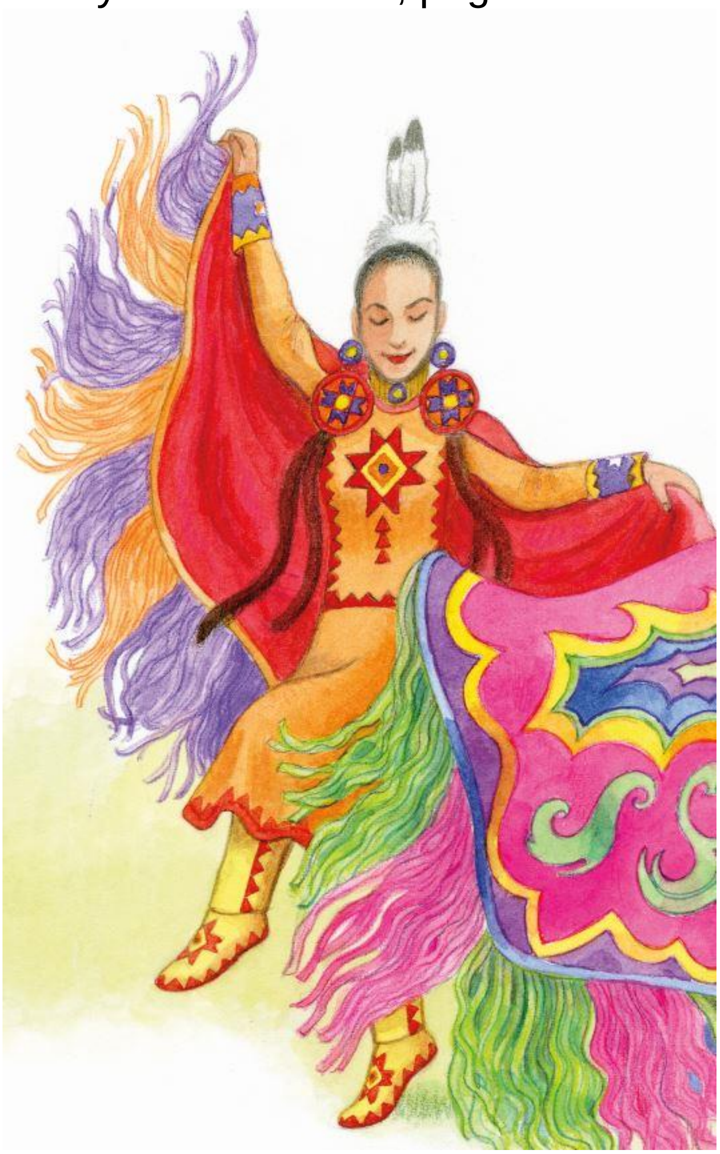
Master 34c

Exploring Shapes in Powwow Dancers’ Regalia (cont’d)

c) Fancy Shawl Dancer, page 13

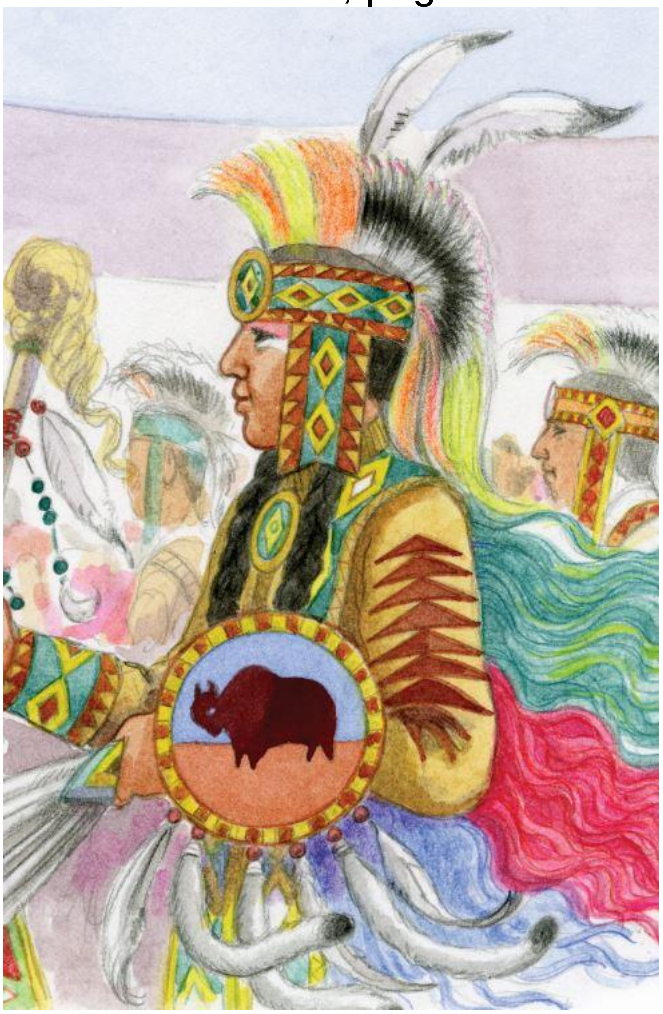


Name________________________________ Date _____________________

Master 34d

Exploring Shapes in Powwow Dancers' Regalia (cont'd)

d) Traditional Dancer, page 20



Name______________________________ Date ____________________

Master 34e

Exploring Shapes in Powwow Dancers’ Regalia (cont’d)

e) Traditional Dancer, page 21

Name________________________________ Date _____________________

Master 34f

Exploring Shapes in Powwow Dancers' Regalia (cont'd)

2. Create a design using a shape with slides, flips, or turns to tell a story about yourself.

Geometry

Master 35: Activity 14 Assessment

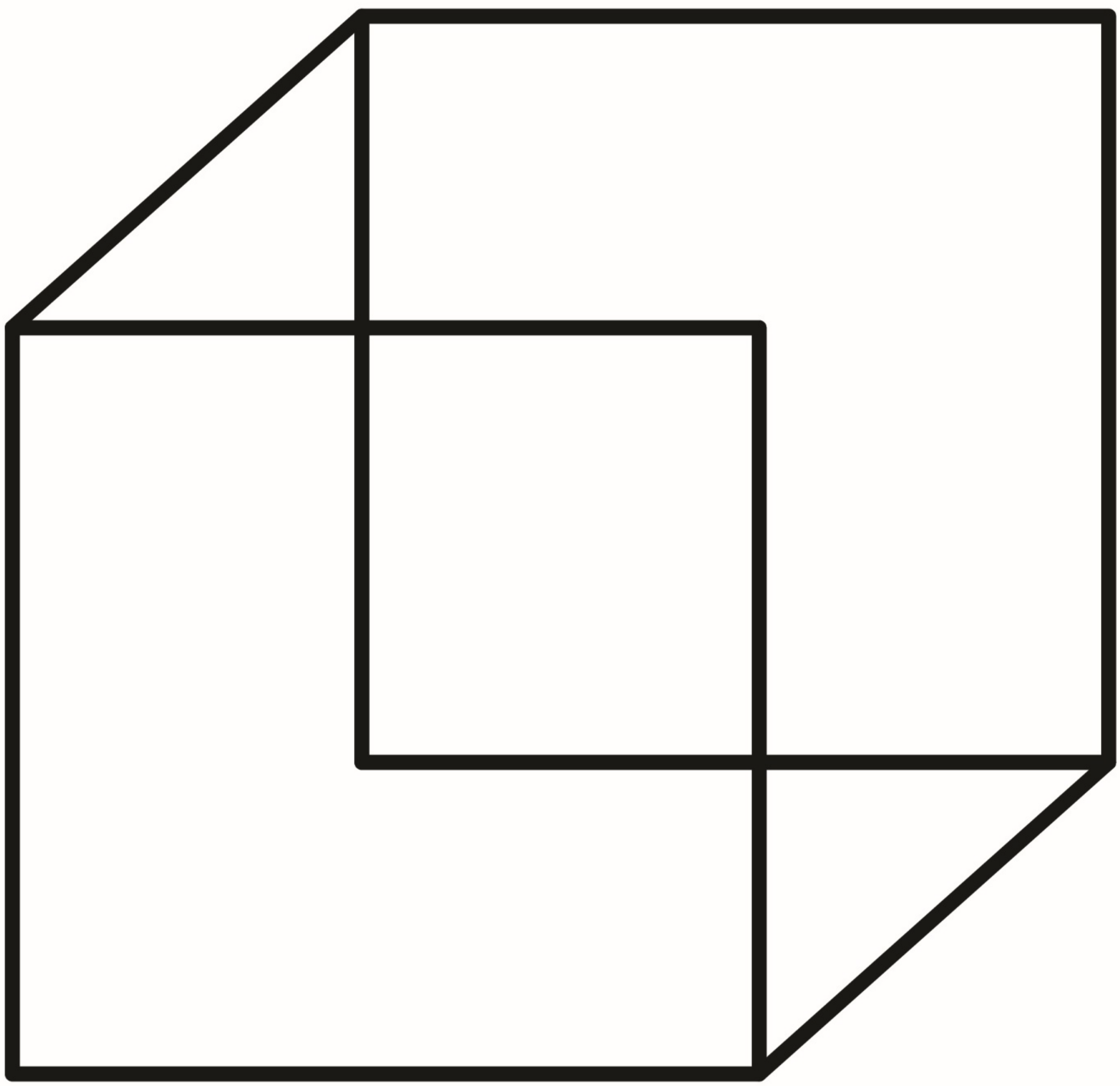
Slides, Flips, and Turns in Artwork

Slides, Flips, and Turns in Artwork Behaviours/Strategies			
1. Student has difficulty distinguishing between slides, flips, and turns of 2-D shapes. "I don't know the difference between a flip and a turn."	2. Student can identify slides, flips, and turns of 2-D shapes, but has difficulty identifying a design when shapes undergo slides, flips, or turns. "I don't see any designs in this image."	3. Student can identify slides, flips, and turns in designs, but has difficulty connecting designs to stories. "I see a straight line of triangles sliding across the blanket."	4. Student identifies designs involving slides, flips, and turns in artwork and creates their own design to tell a story.
Observations/Documentation			

Name________________________________ Date_____________________

Master 36a

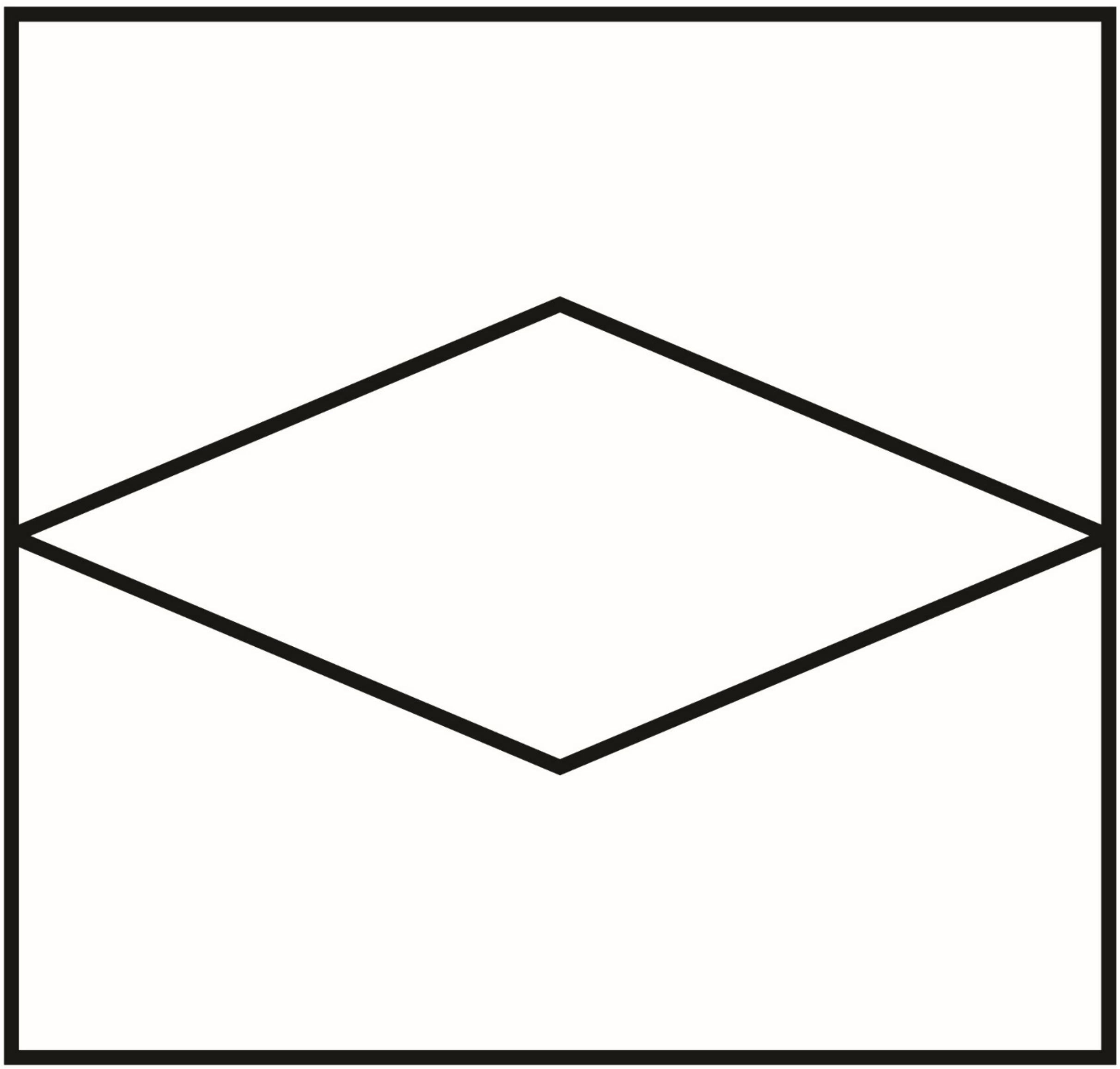
Hidden Shapes 1



Name________________________________ Date_____________________

Master 36b

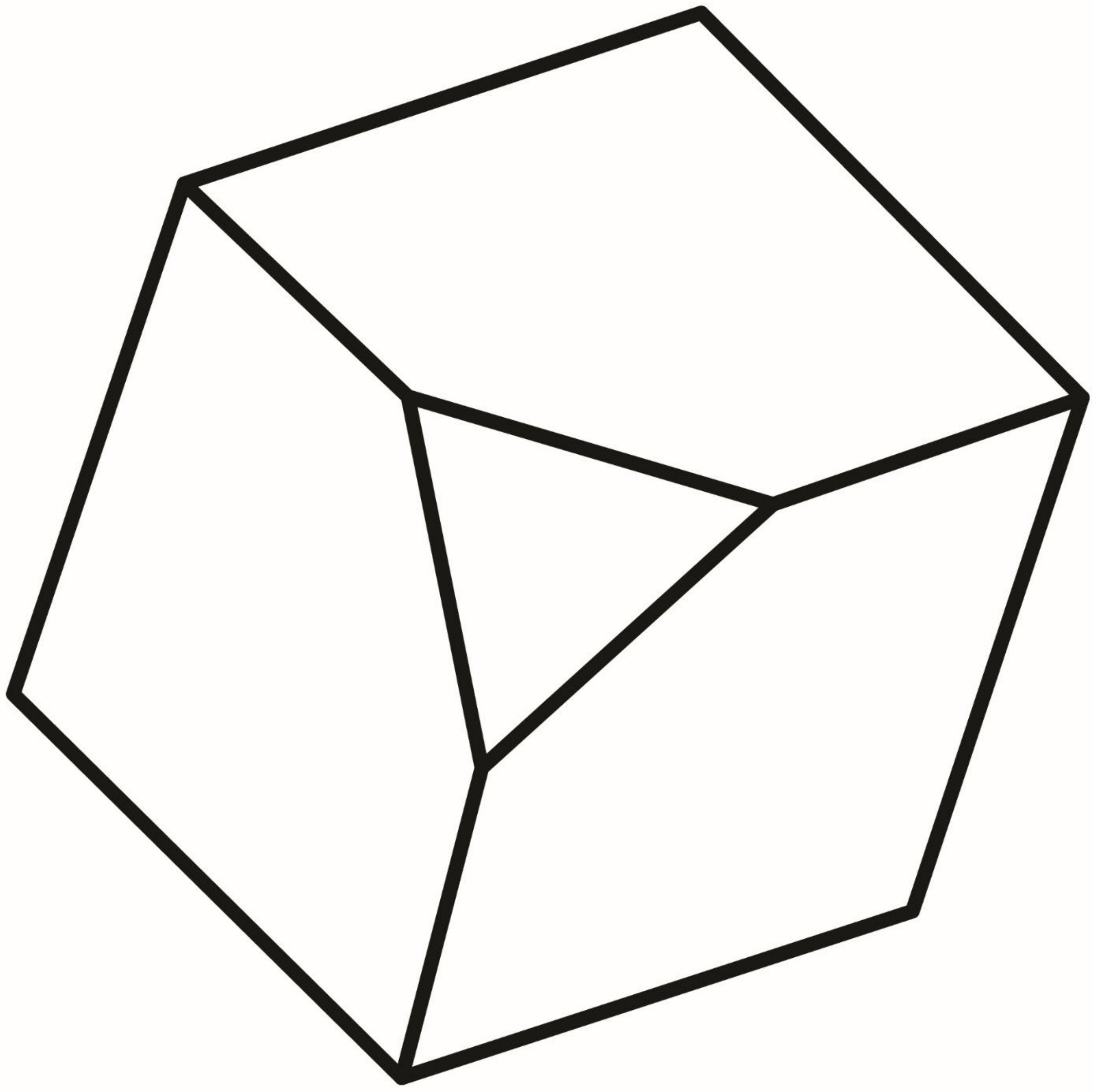
Hidden Shapes 1



Name________________________________ Date_____________________

Master 37a

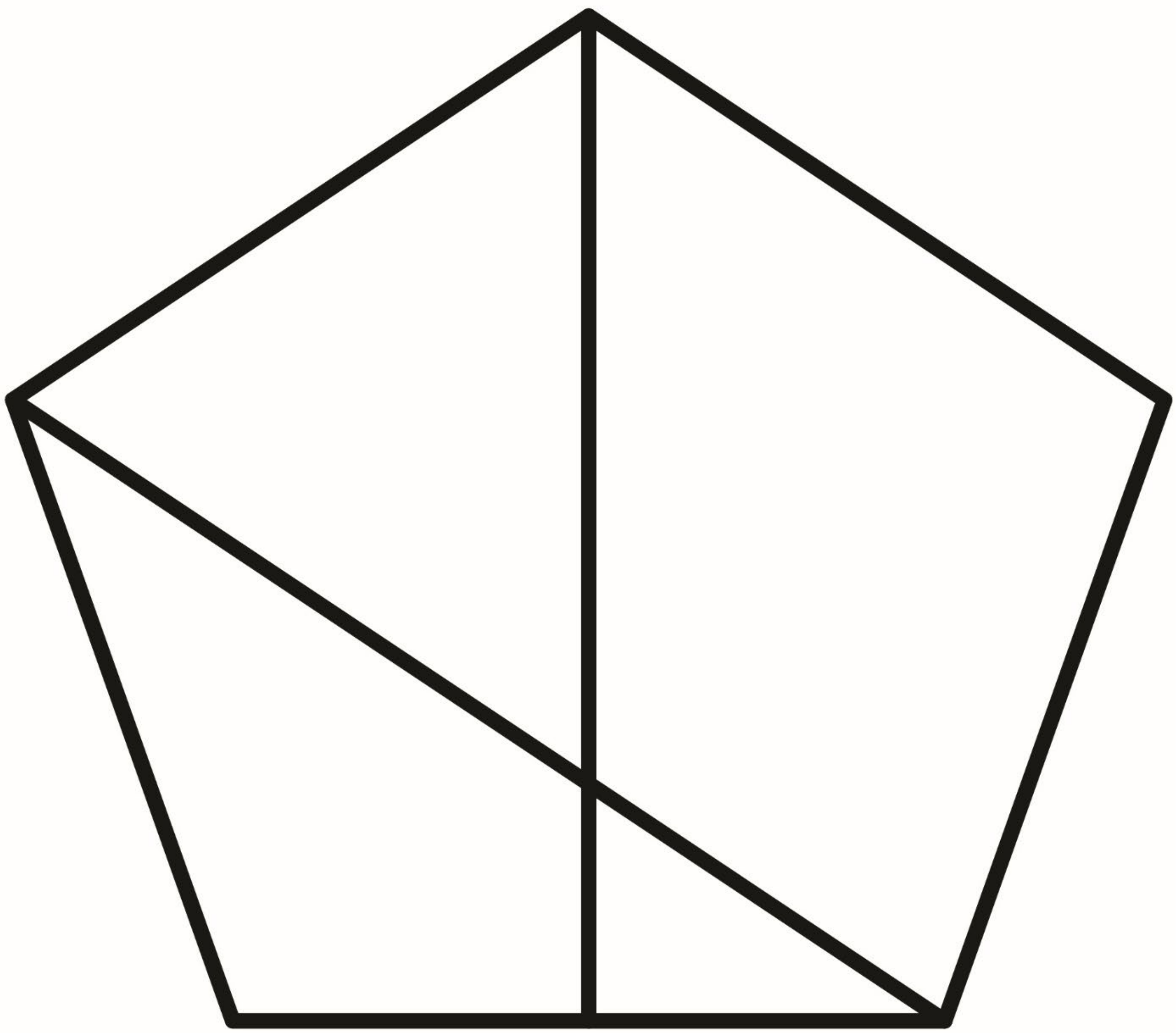
Hidden Shapes 2



Name________________________________ Date_____________________

Master 37b

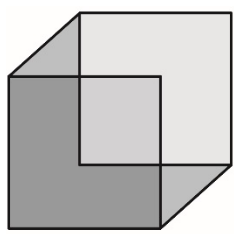
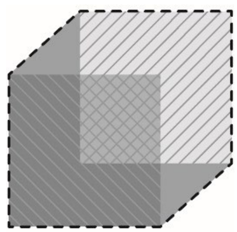
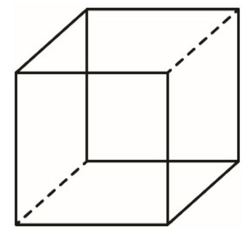
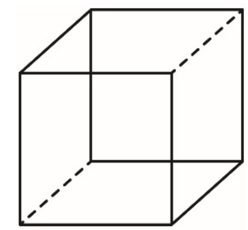
Hidden Shapes 2



Geometry

Master 38: Activity 15 Assessment

Geometric Relationships: Consolidation

<table>
<tr><th colspan="4">Exploring Transformations Behaviours/Strategies</th></tr>
<tr>
<td>1. Student identifies and names simple 2-D shapes in a picture that do not overlap, but does not recognize shapes that overlap with other shapes or are combinations of other shapes.

“I see 3 squares and 2 triangles.”</td>
<td>2. Student identifies many shapes including those created by the overlap or combination of other shapes.

“I see 3 squares and 2 triangles. I also see 3 different hexagons.”</td>
<td>3. Student identifies 2-D shapes in the diagram as well as a 3-D object the diagram could represent.

“I see squares, triangles, and hexagons, but I also see a cube.”</td>
<td>4. Student recognizes the relationships between 2-D shapes and 3-D objects as well as how identical shapes can be related by transformations.

“I see squares, triangles, and hexagons. I also see a cube. The triangles are reflections in a mirror line. One of the larger squares can be translated to the other. The whole shape can be rotated around a point in the centre of the small square.”</td>
</tr>
<tr><th colspan="4">Observations/Documentation</th></tr>
<tr><td></td><td></td><td></td><td></td></tr>
</table>

Name________________________________ Date ______________________

Intervention: Master 59

Do You Like Dogs? (for Before)

Do You Like Dogs?

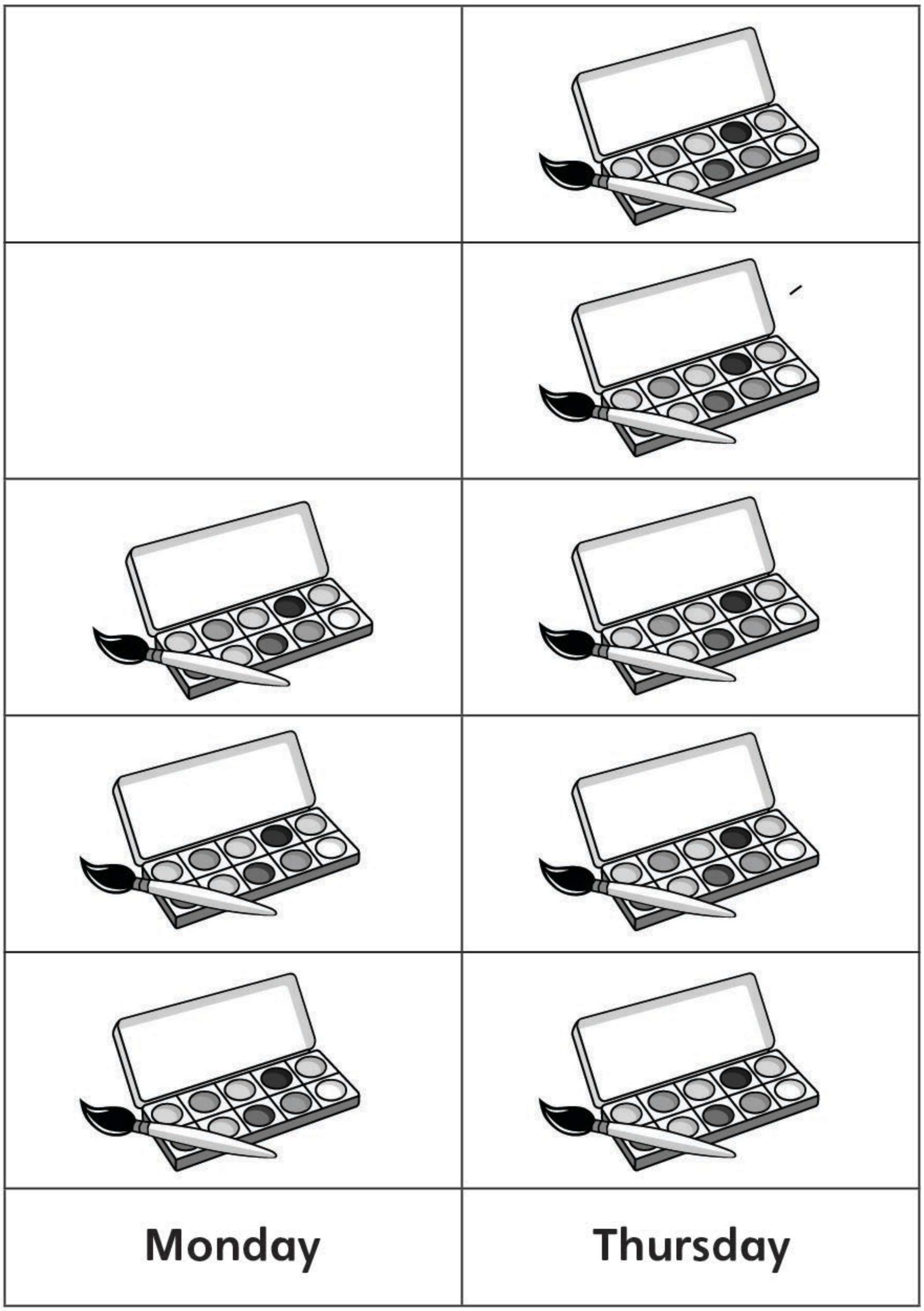
	
	
	
	
Yes	**No**

Name________________________________ Date _____________________

Intervention: Master 60

Children in Evening Art Class

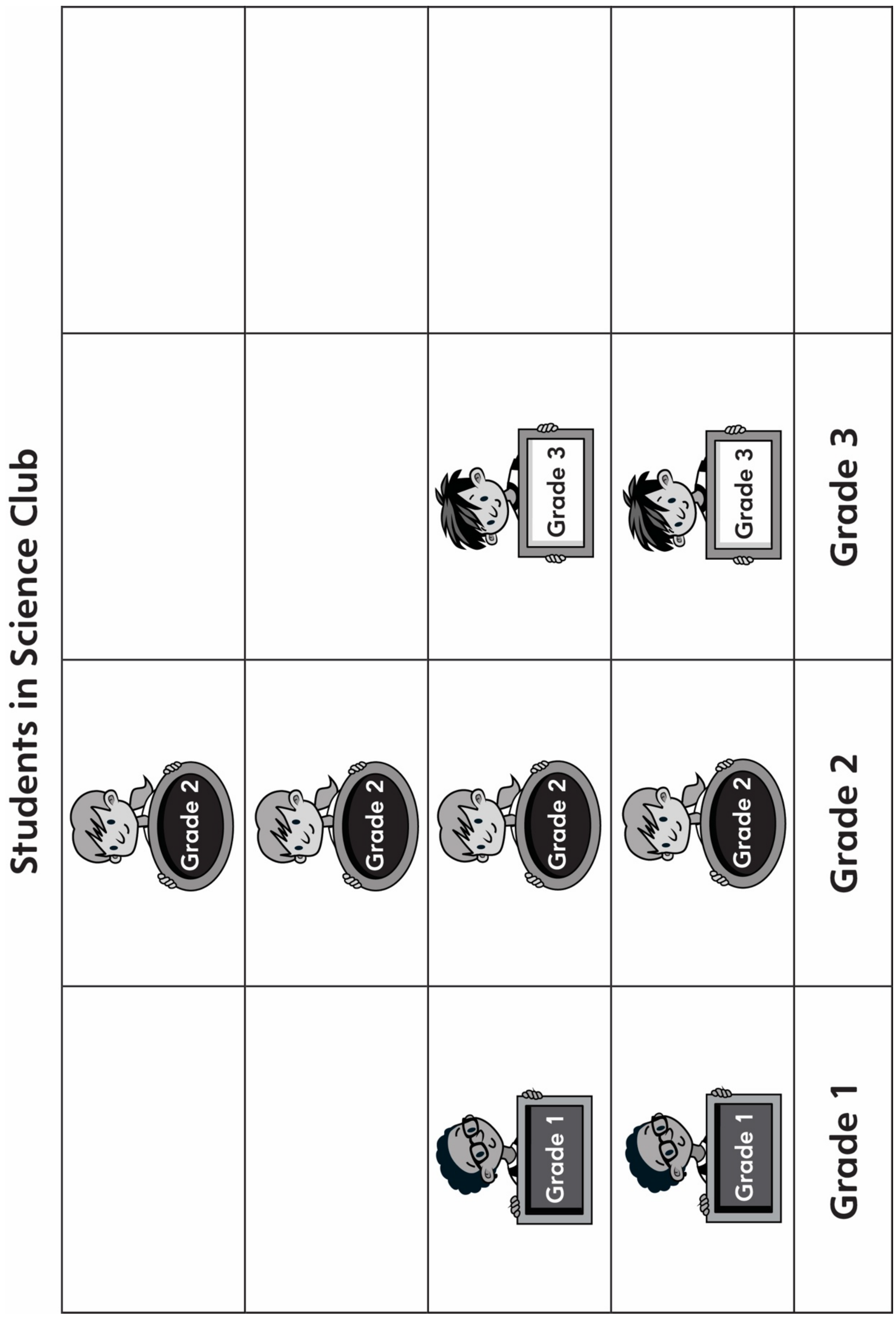
Children in Evening Art Class



Name______________________________ Date ____________________

Intervention: Master 61

Students in Science Club



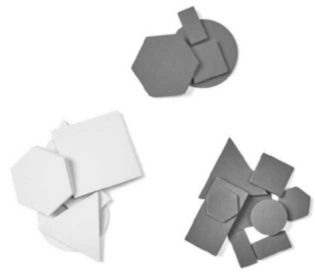
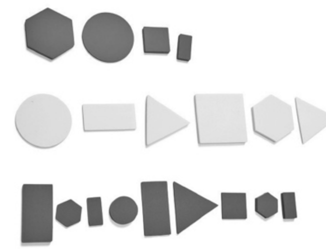
Master 62: Intervention Activity 1 Assessment
Interpreting Pictographs

Interpreting Pictographs Behaviours/Strategies		
1. Student looks at pictographs, but does not know where to start.	2. Student reads pictographs, but counts one picture twice or mixes up the number word sequence. "1, 2, 3, 5, 6"	3. Student reads pictographs, but struggles to interpret data to answer "how many" questions.
Observations/Documentation		

4. Student reads pictographs, but struggles to interpret data to answer comparison questions (e.g., how many more/less). "How do I know how many more children go to art class on Thursdays?"	5. Student reads pictographs and interprets displays by noting how many more/less than other categories, but struggles to use math language when making comparisons.	6. Student successfully reads pictographs and interprets displays by noting how many more/ less than other categories and uses math language to make comparisons.
Observations/Documentation		

Master 63: Intervention Activity 2 Assessment

Sorting Objects

Sorting Objects Behaviours/Strategies			
1. Student sorts a set of objects, but can only sort by colour (cannot sort in different ways).	2. Student sorts a set of objects in different ways, but struggles to determine which group has the most objects. 	3. Student sorts a set of objects in different ways and aligns objects to compare, but thinks the longer line always has more. 	4. Student successfully sorts a set of objects in different ways using a single attribute and makes comparisons.
Observations/Documentation			

Name________________________________ Date ____________________

Intervention: Master 47

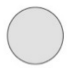
Attribute Cards for Intervention Activity 1

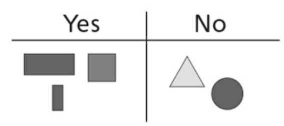
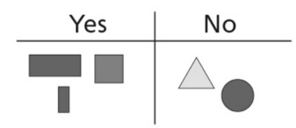
Choose a size	**Choose a colour**
Choose a shape	**Choose a number of sides**
Choose a number of vertices	**Your choice**

Geometry

Master 48: Intervention Activity 1 Assessment

Sorting Shapes

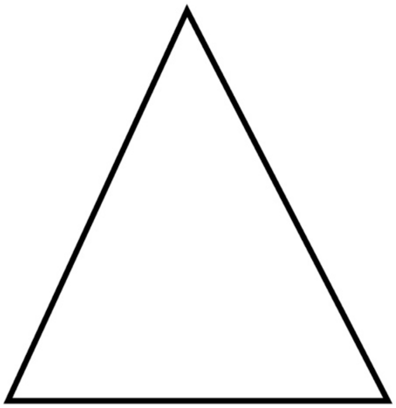
Sorting Shapes Using One Attribute Behaviours/Strategies		
1. Student chooses a familiar 2-D shape, but is unable to name it.  "It looks like a ball."	2. Student names familiar 2-D shapes, but struggles to analyze their non-geometric and geometric attributes.  "It's a rectangle and all I know is that it is red."	3. Student names familiar 2-D shapes and analyzes their attributes, but struggles to compare shapes to find similarities and differences.  "I'm not sure how they are alike."
Observations/Documentation		

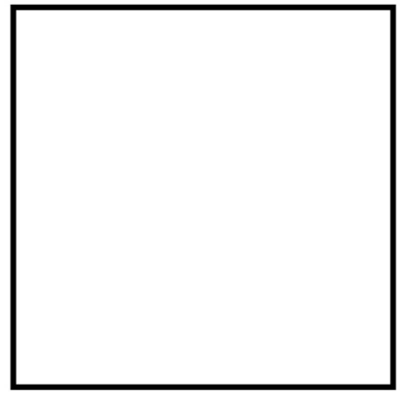
4. Student sorts a set of 2-D shapes in different ways using a single attribute, but always uses a non-geometric attribute. "I like to sort by colour or size."	5. Student successfully sorts a set of 2-D shapes in different ways using a single attribute, but struggles to describe the sort.  "These are the *Yes* shapes and these are the *No* shapes."	6. Student successfully sorts a set of 2-D shapes in different ways using a single attribute and describes the sort using math language.  "The *Yes* shapes have 4 vertices and the *No* shapes do not."
Observations/Documentation		

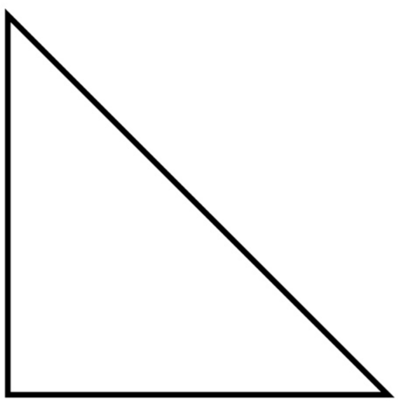
Name________________________________ Date _____________________

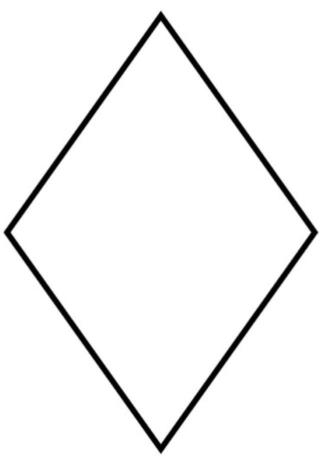
Intervention: Master 49

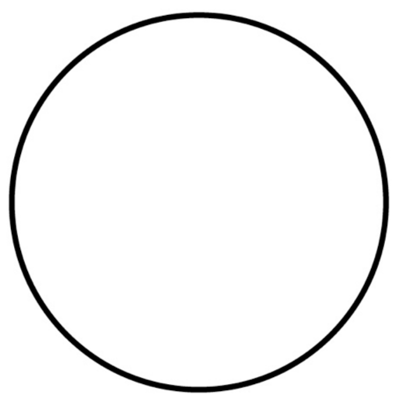
2-D Shapes











Name________________________________ Date ____________________

Intervention: Master 50

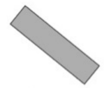
Attribute Cards for Shape Bin

Has 3 sides	**Has 4 sides**	**Has more than 5 sides**
Has 3 vertices	**Has 4 vertices**	**Has 5 vertices**
Has 0 vertices	**Has all sides same length**	**Has 2 sides same length**
Does not have straight sides	**Is a triangle**	

Geometry

Master 51: Intervention Activity 2 Assessment

Analyzing 2-D Shapes

Analyzing Geometric Attributes of 2-D Shapes Behaviours/Strategies		
1. Student analyzes geometric attributes of 2-D shapes, but is only able to identify one shape with a given attribute.  "This is the only shape with 4 sides."	2. Student analyzes geometric attributes of 2-D shapes, but thinks that shapes that are oriented differently do not have the attribute.  "This does not have 4 vertices."	3. Student analyzes geometric attributes of 2-D shapes, but only identifies familiar shapes as having the given attribute.   "Does not have 4 sides" "Has 4 sides"
Observations/Documentation		

4. Student analyzes geometric attributes of 2-D shapes (number of sides), but struggles to identify shapes by number of vertices.  "It has 3 sides. I don't know how many vertices it has."	5. Student successfully analyzes geometric attributes of 2-D shapes, but struggles to draw another shape that has the given geometric attribute. "I don't know what to draw."	6. Student successfully analyzes geometric attributes of 2-D shapes and draws another shape that has the given geometric attribute.
Observations/Documentation		

Name________________________________ Date ____________________

Intervention: Master 52

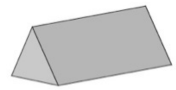
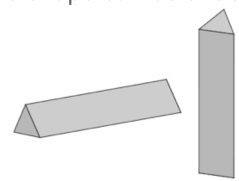
Attribute Cards for Intervention Activity 3

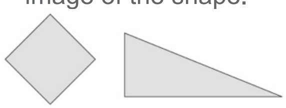
Has vertices	**Has edges**	**Has faces that are circles**
Has faces that are squares	**Has faces that are rectangles**	**Has faces that are triangles**
Slides	**Rolls**	**Stacks**

Geometry

Master 53: Intervention Activity 3 Assessment

Sorting Solids

Sorting 3-D Solids Using One Attribute Behaviours/Strategies		
1. Student turns over an attribute card, but struggles to sort a set of solids using a single attribute and places solids randomly.	2. Student sorts a set of solids using some attributes, but when the attribute involves faces, student struggles to identify the faces of solids.  "What are the faces?"	3. Student sorts a set of solids using some attributes, but when the attribute involves faces, student does not realize that more than one shape can be a face of a solid.  "I see a triangle here. It only has faces that are triangles."
Observations/Documentation		

4. Student sorts a set of solids using some attributes, but when the attribute involves faces, student does not recognize a shape when it does not match his or her mental image of the shape.  "I don't know what these are called."	5. Student successfully sorts a set of solids in different ways using a single attribute, but struggles to explain why a solid was put in the column it was.	6. Student successfully sorts a set of solids in different ways using a single attribute and justifies the sort.
Observations/Documentation		

Name________________________________ Date _____________________

Intervention: Master 54

Identifying Solids: Questions You Might Ask

Does the solid ________ (roll, slide, stack)?

Does it have _________ (vertices, edges)?

Does it have ______ (faces, edges, vertices)?

Does it have faces that are ________ (circles, rectangles, squares, triangles)?

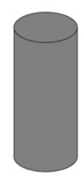
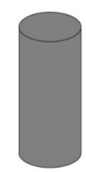
Does it have _______ vertices?
(number)

Does it have _______ edges?
(number)

Master 55: Intervention Activity 4 Assessment

Attributes of Solids

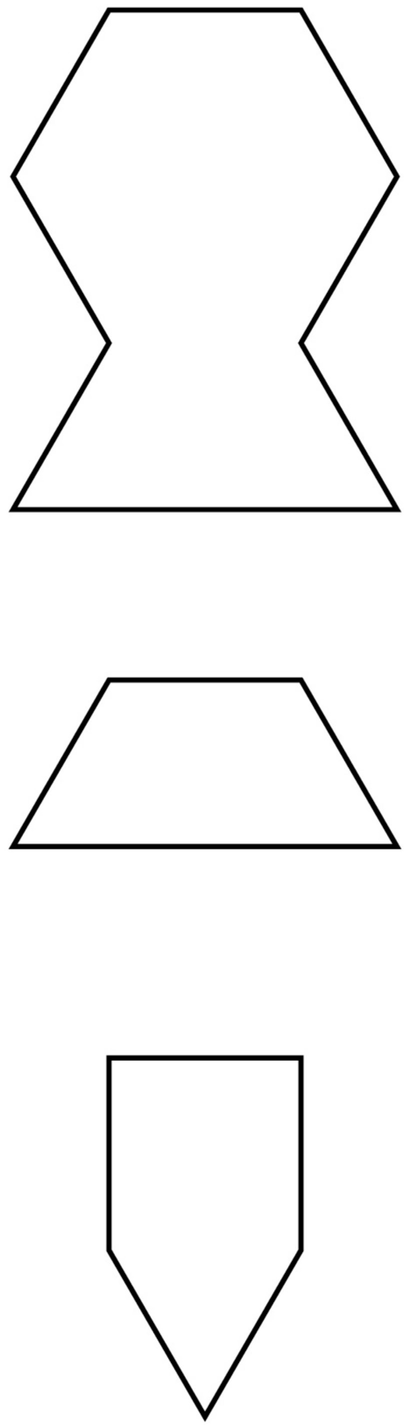
Analyzing and Identifying 3-D Solids Behaviours/Strategies		
1. Student struggles to analyze attributes of 3-D solids and answers questions randomly.	2. Student struggles to identify 3-D solids and guesses (ignores answers to questions).	3. Student attempts to identify 3-D solids, but uses non-math language when asking questions. "Does it have points? Does it look like a ball?"
Observations/Documentation		

4. Student attempts to identify 3-D solids, but asks questions in a random order and does not appear to have a strategy. "Does the solid have vertices?" *No* "Does the solid have edges?" *No* "Does the solid have faces?" *No*	5. Student recognizes 3-D solids, but cannot name some of them.  "I don't know what this is called."	6. Student successfully analyzes attributes of 3-D solids, identifies 3-D solids, and names them.  "It's a cylinder."
Observations/Documentation		

Name________________________________ Date _____________________

Intervention: Master 56

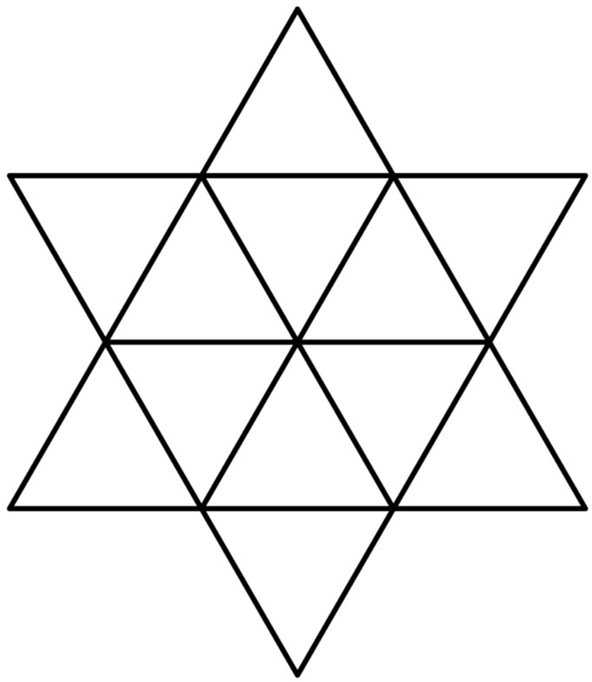
Pattern Block Outlines (for Before)

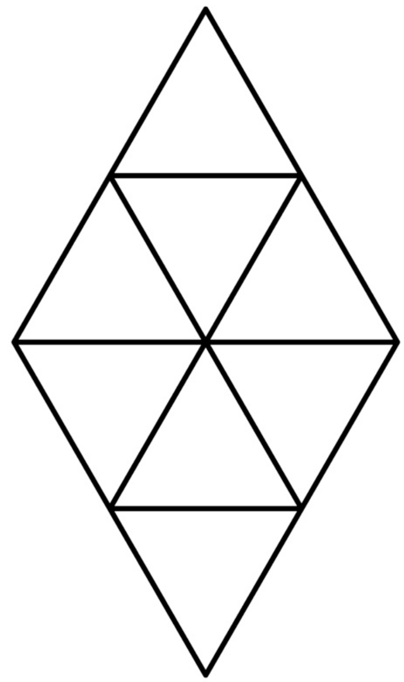


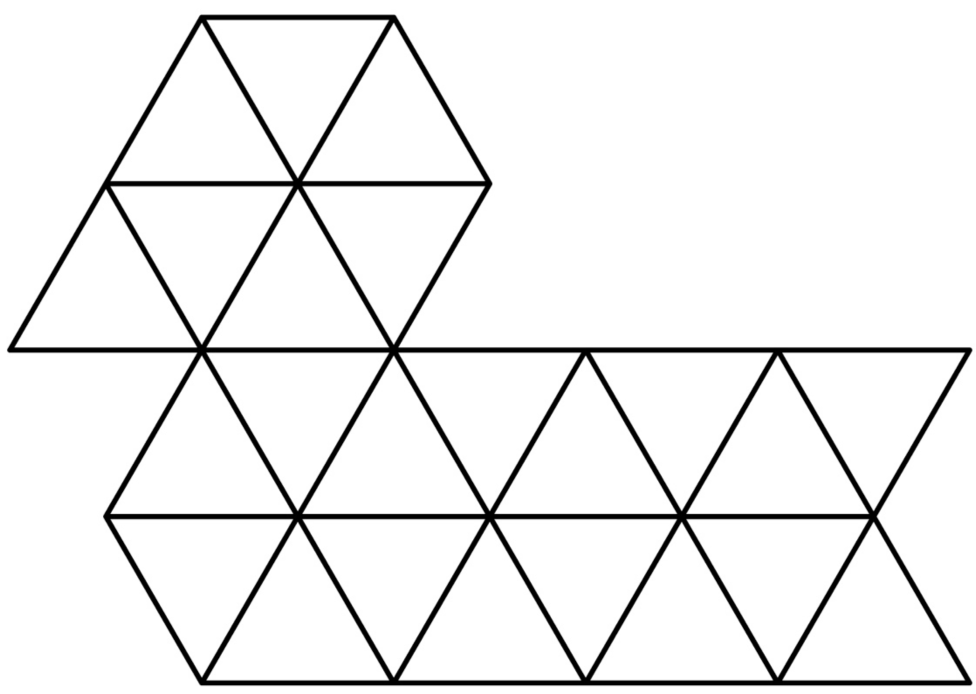
Name_________________________________ Date ______________________

Intervention: Master 57a

Fill Me!



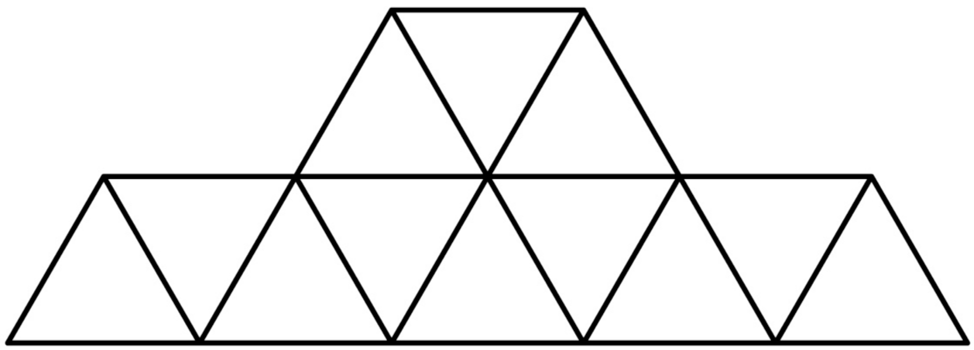


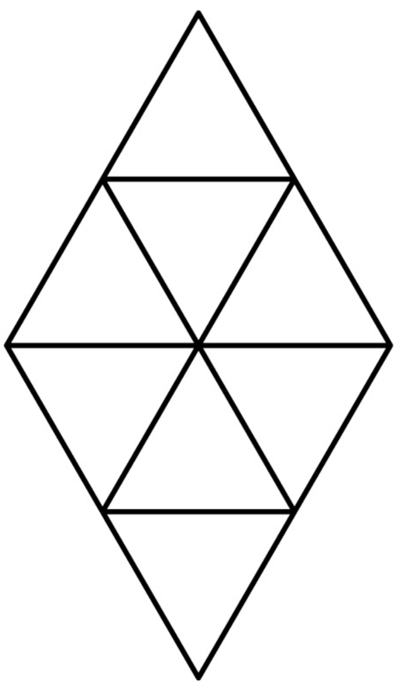


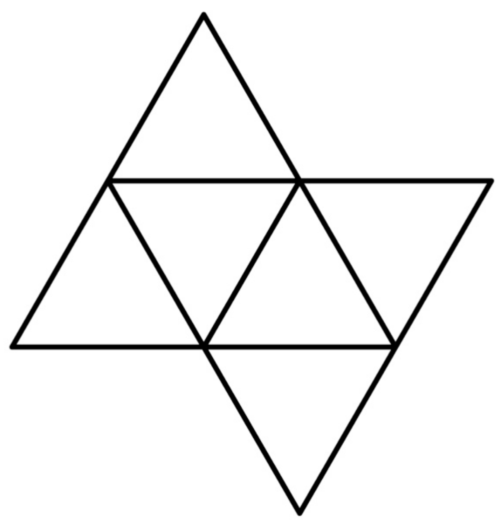
Name________________________________ Date ____________________

Intervention: Master 57b

Fill Me!
(for Accommodations)



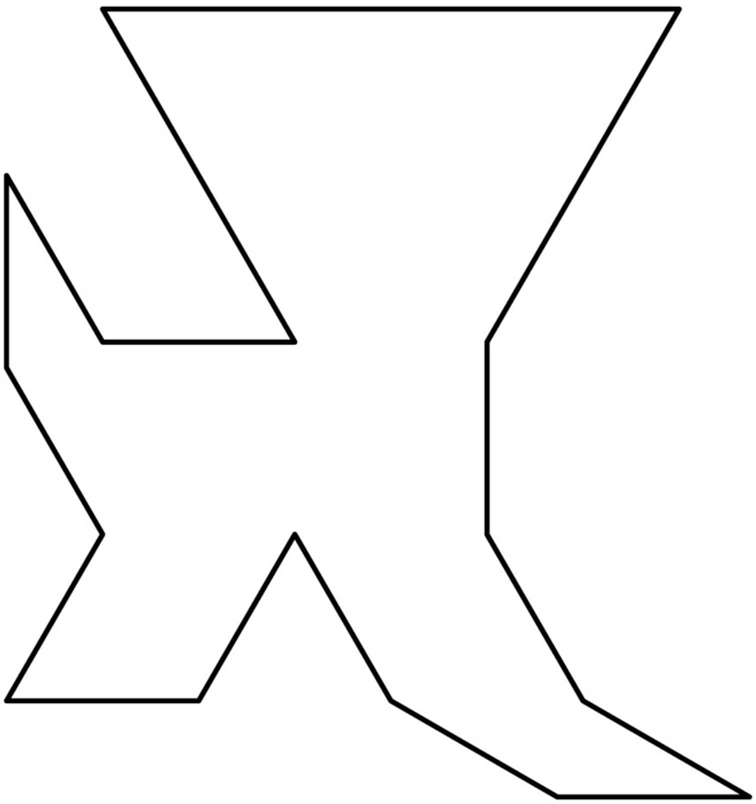


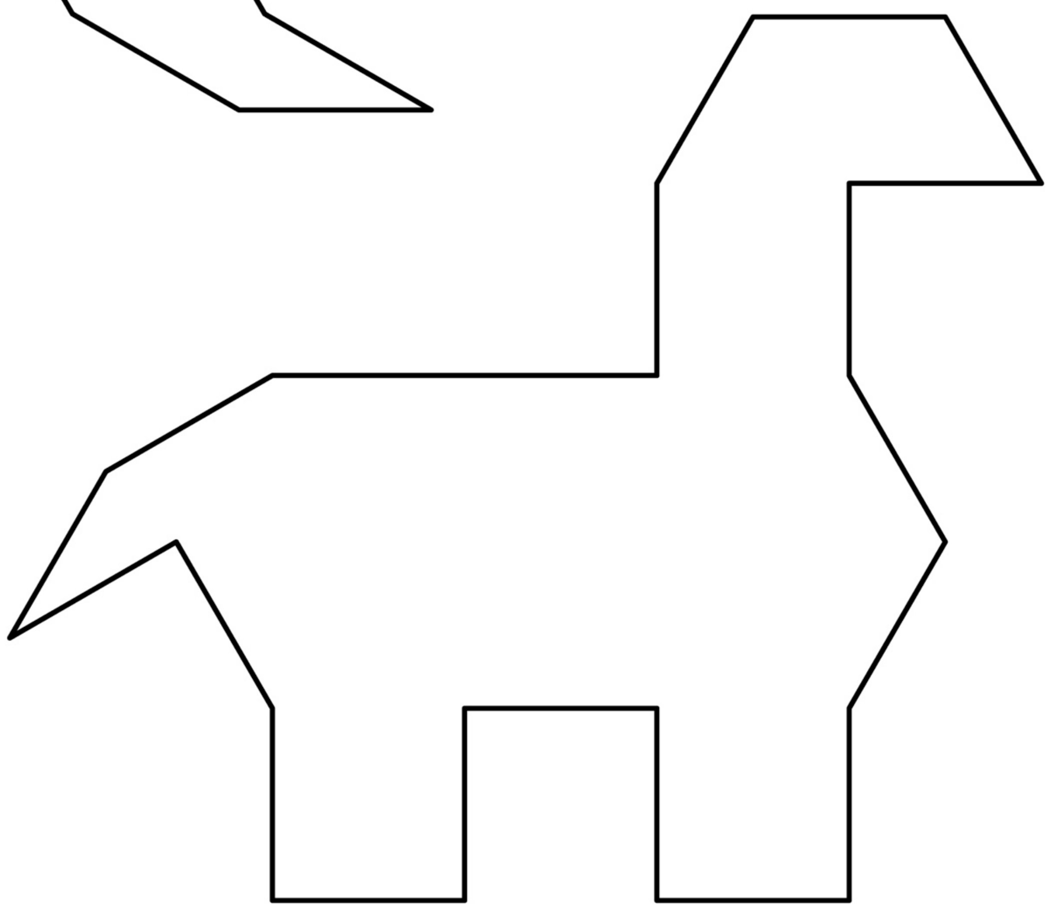


Name________________________________ Date _____________________

Intervention: Master 57c

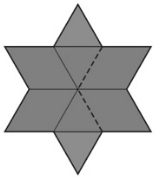
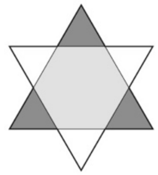
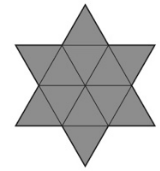
Fill Me!
(for Extension)

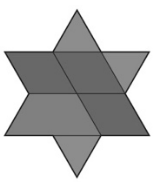
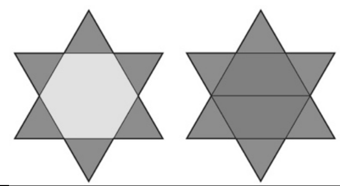




Geometry

Master 58: Intervention Activity 5 Assessment
Covering Outlines

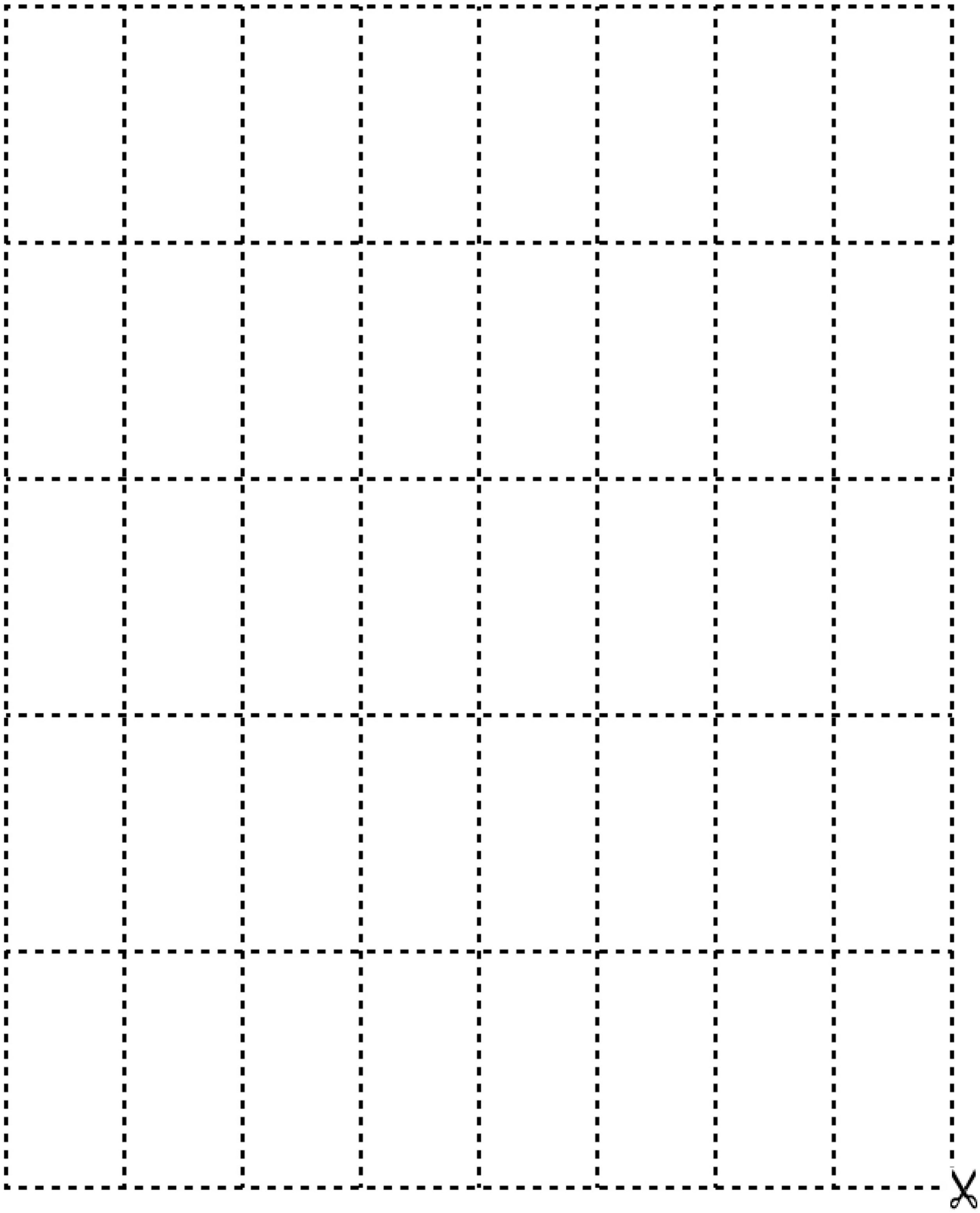
Covering Outlines in Different Ways Behaviours/Strategies		
1. Student covers a picture outline with shapes, but places blocks randomly or with gaps/overlaps. 	2. Student covers a picture outline with shapes, but always tries to place matching blocks in the same relative position.  "I don't see shapes that will fit."	3. Student covers a picture outline with shapes, but uses all green triangles. 
Observations/Documentation		

4. Student successfully completes a picture outline with shapes in one way, but removes all blocks to show another way. 	5. Student successfully completes a picture outline with shapes in one way and trades blocks to show another way, but struggles to describe/name the shapes used.	6. Student successfully completes a picture outline with shapes in more than one way and uses math language to describe/name shapes used. 
Observations/Documentation		

Name________________________________ Date _____________________

Intervention: Master 38

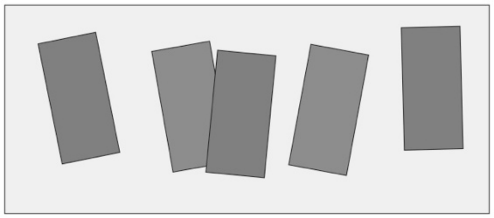
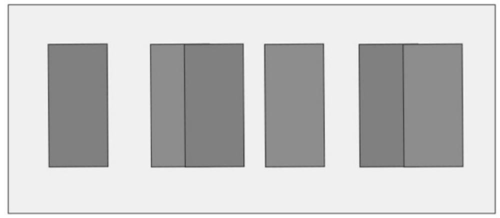
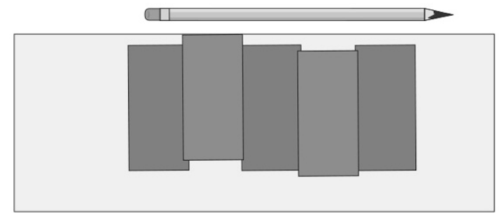
Uniform Units



Measurement

Master 39: Intervention Activity 1 Assessment

Exploring Length

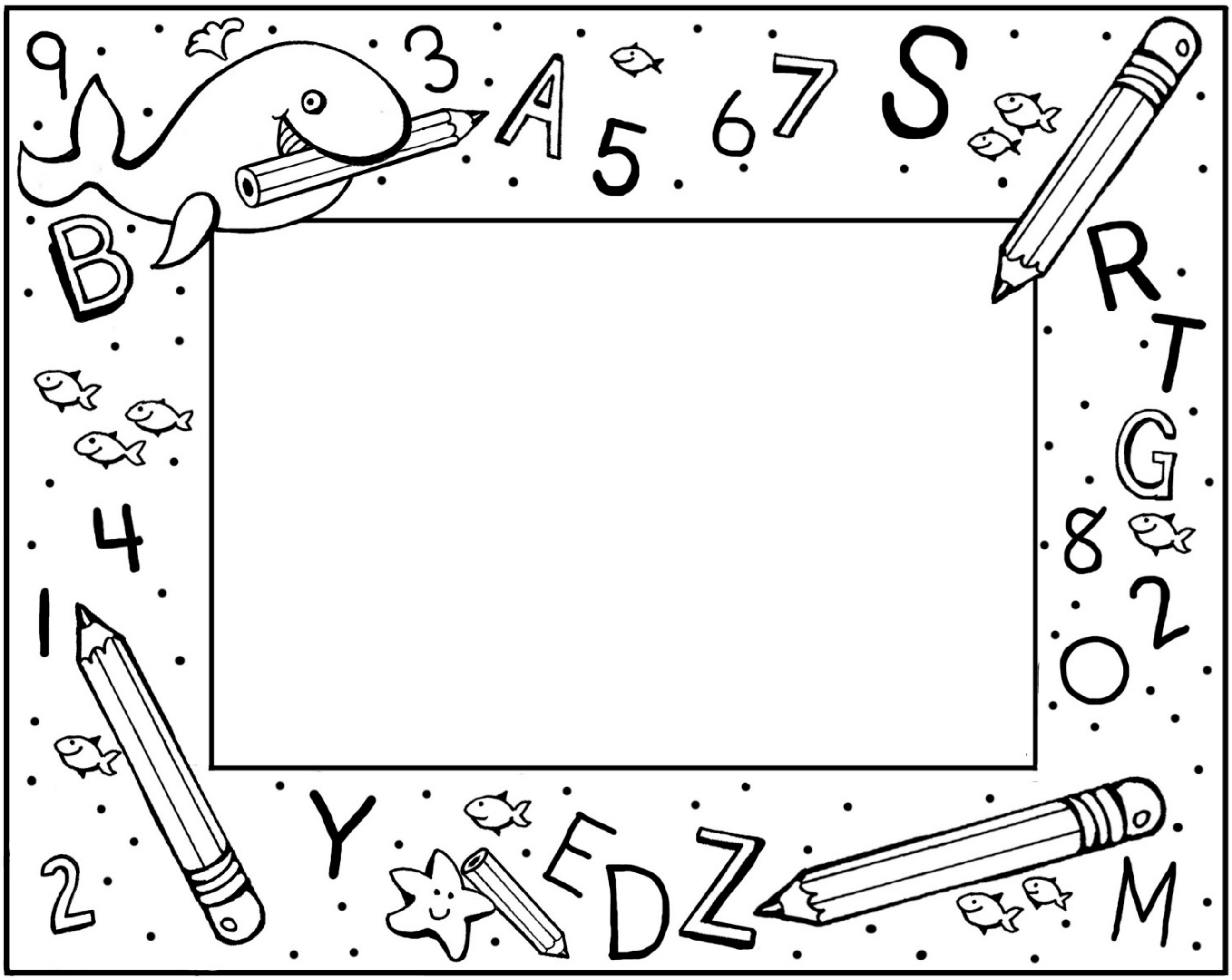
Measuring Length with Non-Standard Units Behaviours/Strategies		
1. Student measures objects by length using multiple copies of a non-standard unit, but ruler has big gaps or overlaps. 	2. Student measures objects by length using multiple copies of a non-standard unit, but ruler has some gaps or overlaps. 	3. Student measures objects by length using multiple copies of a non-standard unit, but does not align the base of the first unit with the end of the object being measured. 
Observations/Documentation		

4. Student measures objects by length using multiple copies of a non-standard unit, but loses count when measuring.	5. Student measures objects by length using multiple copies of a non-standard unit, but forgets to include the unit when stating the measures. "It is 6 long."	6. Student successfully measures objects by length using multiple copies of a non-standard unit and includes the unit in measures.
Observations/Documentation		

Name________________________________ Date _____________________

Intervention: Master 40

Picture Frame

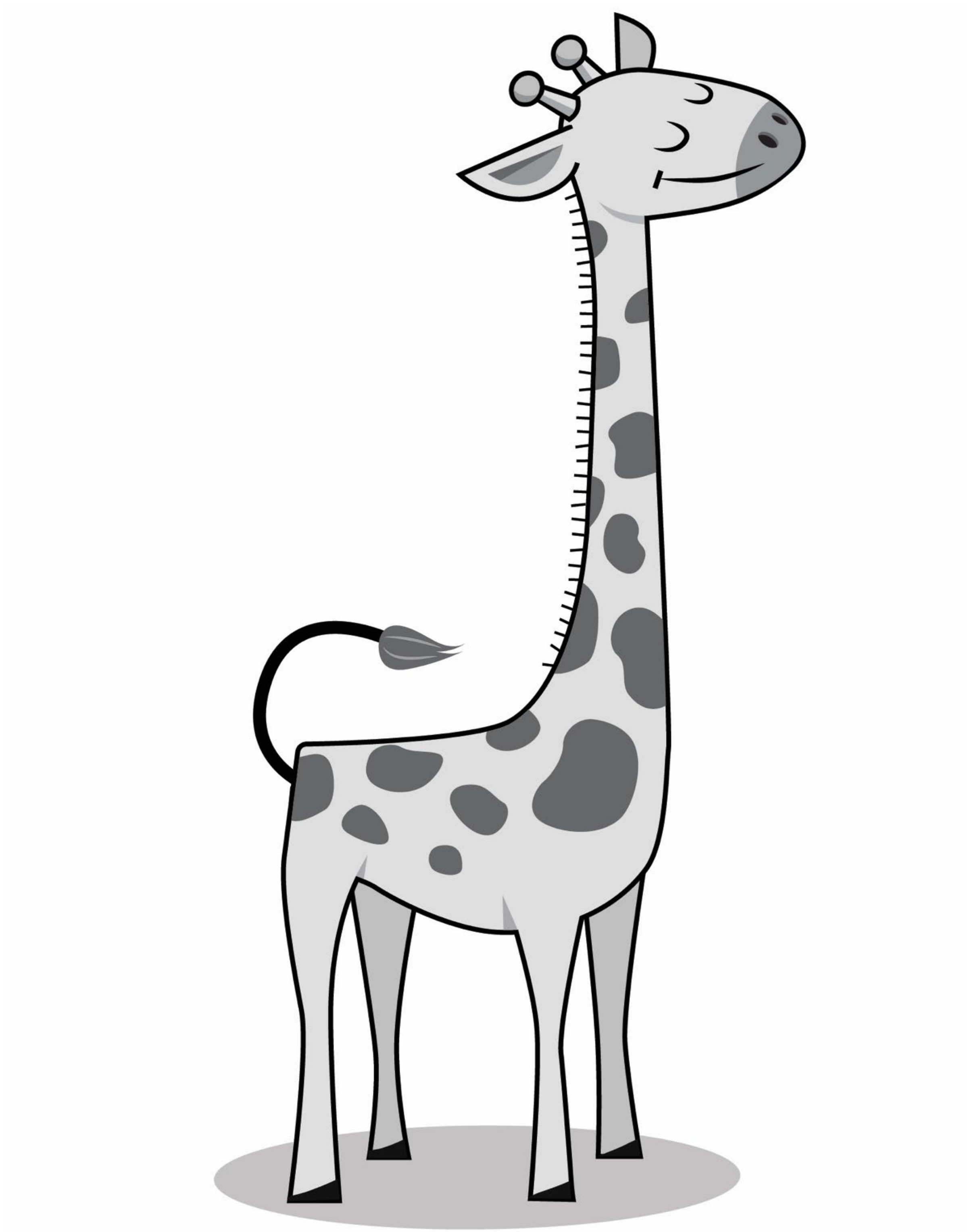


Name________________________________ Date ____________________

Intervention: Master 41a

Measuring Other Animals

How long is my neck?

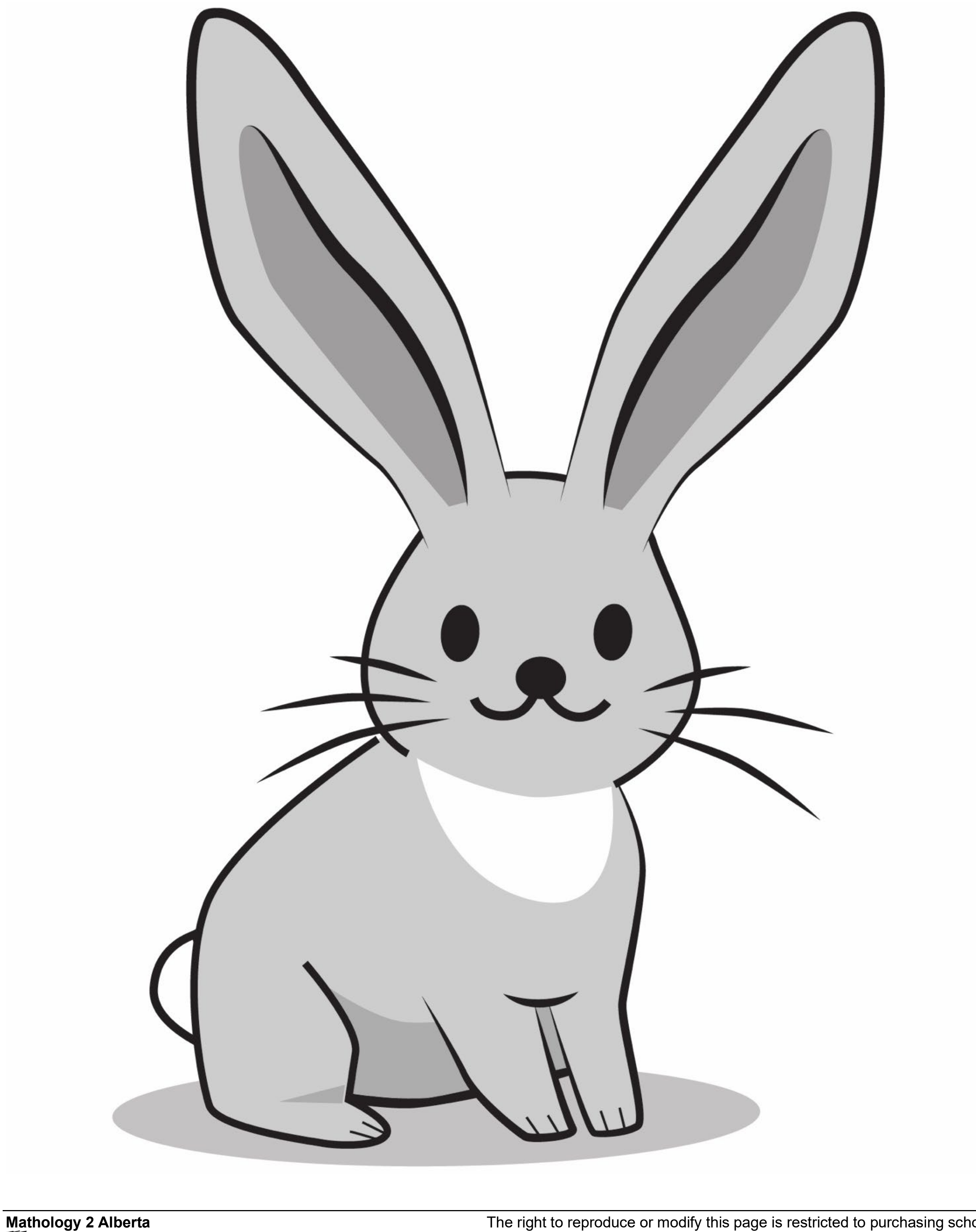


Name________________________________ Date _____________________

Intervention: Master 41b

Measuring Other Animals

How long are my ears?

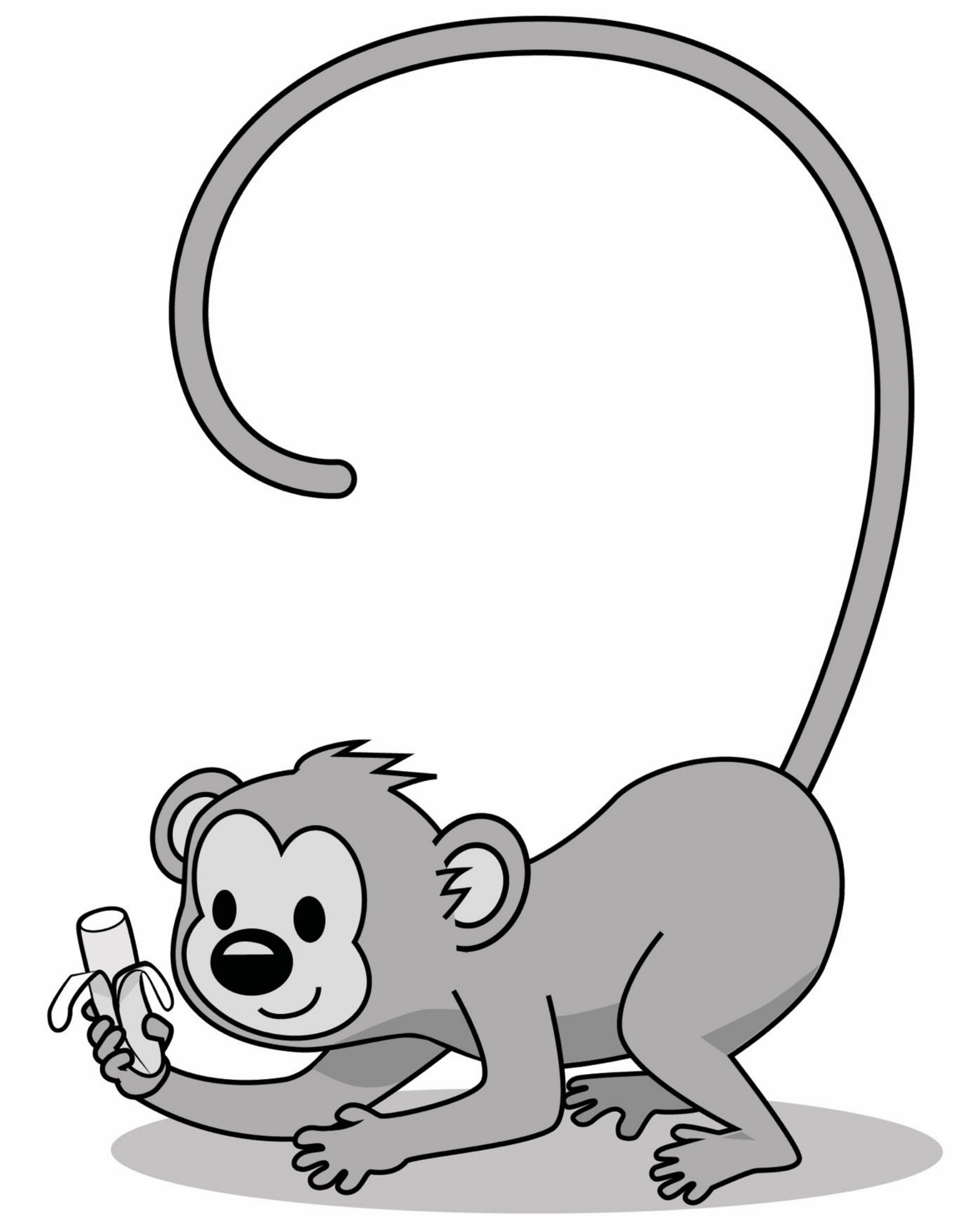


Name________________________________ Date _____________________

Intervention: Master 41c

Measuring Other Animals

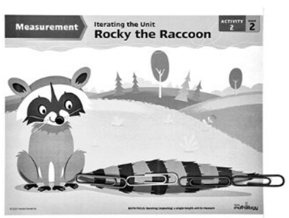
How long is my tail?



Measurement

Master 42: Intervention Activity 2 Assessment
Iterating the Unit

Iterating the Unit to Measure Length Behaviours/Strategies		
1. Student looks at the tail, but struggles to estimate its length with non-standard units. "About 200 paper clips!"	2. Student measures length by iterating a single non-standard unit, but struggles to iterate the unit (leaves gaps or overlaps).	3. Student measures length by iterating a single non-standard unit, but has difficulty keeping track of the count. "I am not sure how many paper clips I used."
Observations/Documentation		

4. Student measures length by iterating a single non-standard unit, but ignores leftover amount.  "3 paper clips"	5. Student measures length by iterating a single non-standard unit, but forgets to include the unit when stating the measure. "It is about 3 long."	6. Student successfully measures length by iterating a single non-standard unit and includes units with measures. "It is a little more than 3 paper clips long."
Observations/Documentation		

Name________________________________ Date ____________________

Intervention: Master 43

Full-Year Calendar

JANUARY

S	M	T	W	T	F	S

FEBRUARY

S	M	T	W	T	F	S

MARCH

S	M	T	W	T	F	S

APRIL

S	M	T	W	T	F	S

MAY

S	M	T	W	T	F	S

JUNE

S	M	T	W	T	F	S

JULY

S	M	T	W	T	F	S

AUGUST

S	M	T	W	T	F	S

SEPTEMBER

S	M	T	W	T	F	S

OCTOBER

S	M	T	W	T	F	S

NOVEMBER

S	M	T	W	T	F	S

DECEMBER

S	M	T	W	T	F	S

Name________________________________ Date ____________________

Intervention: Master 44a

Months of the Year Game Board

1	2	3	4
5	6	7	8
9	10	11	12

Name______________________________ Date ____________________

Intervention: Master 44b

Months of the Year Game Board (for Extension)

Sixth	First	Eleventh	Third
Seventh	Ninth	Eighth	Twelfth
Fifth	Tenth	Fourth	Second

Name________________________________ Date _____________________

Intervention: Master 45

Month Cards

July	September	May	December
March	June	January	October
February	August	November	April

Measurement

Master 46: Intervention Activity 3 Assessment

Months of the Year

Ordering Months of the Year Behaviours/Strategies			
1. Student understands the attributes of a calendar (months in a year), but cannot say the months in order.	2. Student understands the attributes of a calendar (months in a year) and says the months in order, but loses track of the count. September "January, February, March, … How many months have I said?"	3. Student understands the attributes of a calendar (months in a year) and orders the months, but is unable to name things he or she might do in a particular month. "I don't know what I do in June."	4. Student understands the attributes of a calendar (months in a year), successfully orders the months, and associates months with events/activities.
Observations/Documentation			

Name_______________________________ Date ____________________

Intervention: Master 1

Memories of Mooshoom and Noohkoom (A Métis Story)

By Amanda Norton and Jillian Laursen

When I was a young girl, I would go up north to visit my Mooshoom (grandfather) and Noohkoom (grandmother). Many of my fondest memories are when we would go fishing together.

My Mooshoom would throw out his net; it was amazing.
He would catch 40 or more fish in a morning.
My siblings and I would line up the fish.
We counted them by 2s to help us count faster.
The fish just kept coming in.

My Noohkoom would take two fish and put them on two birch branches.
She would cook them on the open fire.
With the fish, we always ate Noohkoom's famous bannock.

While Noohkoom was making lunch, we would help Mooshoom clean the fish.
We put them in packages of 5 to sell when we returned to the city.

Number

Master 2: Intervention Activity 1 Assessment

Skip-Counting with Objects

Skip-Counting with Objects Behaviours/Strategies		
1. Student successfully counts by 1s, but struggles to partition into and skip-count by equal-sized units as he or she does not associate the skip-counting number with a quantity.  “Why do I count by 5s?”	2. Student partitions into and skip-counts by equal-sized units to 10, but struggles to know which number comes next. “2, 4, 6, 8, 10, ?”	3. Student partitions into and skip-counts by equal-sized units, but mixes up the numbers in the skip-counting sequence. “10, 20, 40, 30, 50”
Observations/Documentation		

4. Student partitions into and skip-counts by equal-sized units, but does not recognize that the last counting number tells how many. “10, 20, 30, 40, 50 I’m not sure how many there are.”	5. Student partitions into and skip-counts by equal-sized units, but does not recognize that the results will be the same no matter how the objects are counted. “There were 50 when I counted by 5s. I’m not sure how many there will be when I count by 10s.”	6. Student partitions into and skip-counts by equal-sized units and recognizes that the results will be the same no matter how the objects are counted.
Observations/Documentation		

Name_______________________________ Date ____________________

Intervention: Master 3

Comparing Quantities
Recording Sheet

Compare your objects.

Who used more cubes? ___________________________

How many more? _______________

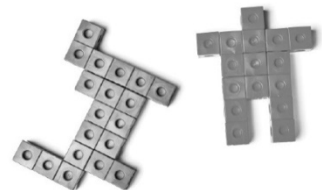
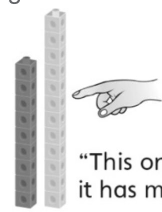
Show how you found out.

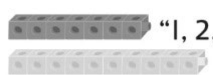
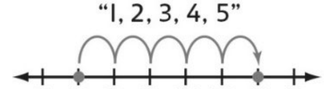
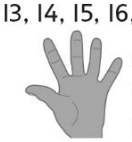
Complete one of these sentences.

I used _____________ more cubes than ________________________.

I used _____________ fewer cubes than ________________________.

Master 4: Intervention Activity 2 Assessment
Comparing Quantities

Comparing Quantities Behaviours/Strategies			
1. Student perceptually compares quantities, comparing based on "how things look." "Mine has more because it looks bigger."	2. Student compares quantities using one-to-one matching or counting (takes objects apart). 	3. Student compares quantities using grouping (groups cubes together to make towers).  	4. Student efficiently compares quantities using benchmarks of 5 and 10.
Observations/Documentation			

Finding How Many More or Less Behaviours/Strategies			
1. Student builds objects, but struggles to determine how many more one quantity is compared to the other.  	2. Student determines how many more/less by grouping (groups cubes to make trains and then aligns the trains).  	3. Student determines how many more/less using counting (finds distance between numbers on a number line or hundred chart).  	4. Student successfully compares quantities and determines how many more/less one quantity is compared to another (e.g., counts on or back, tracking with fingers). 
Observations/Documentation			

Name_________________________________ Date ______________________

Intervention: Master 5

Adding Tens Recording Sheet

Start Number	Number of Tens Added	End Number

Master 6: Intervention Activity 3 Assessment

Adding Tens

Determining 10 or Multiples of 10 More Behaviours/Strategies

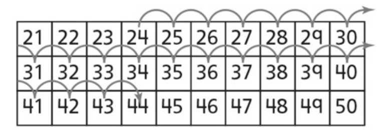
1. Student counts three times to determine 10 or multiples of 10 more than a number (models with counters/cubes).

"I, 2, 3, …, I3, I4, I5"
"I, 2, 3, …, 23, 24, 25"
"I, 2, 3, …, 8, 9, I0"

2. Student counts on to determine 10 or multiples of 10 more than a number (models with counters/cubes).

"I6, I7, I8, …, 23, 24, 25"

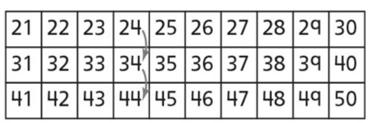
3. Student counts on by ones on a hundred chart to determine 10 or multiples of 10 more than a number.



"24 and 20 is 44."

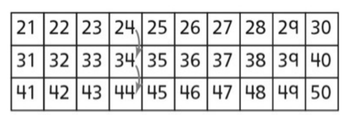
Observations/Documentation

4. Student takes jumps of 10 forward on a hundred chart to determine 10 or multiples of 10 more than a number, but does not recognize how the tens digit changes.



"24 and 2 tens is 44. I don't see any patterns."

5. Student takes jumps of 10 forward on a hundred chart to determine 10 or multiples of 10 more than a number and recognizes that the tens digit increases by 1 for each ten added.



"I added 2 tens and the tens digit increased by 2."

6. Student fluently determines 10 or multiples of 10 more than a number without using the hundred chart.

Observations/Documentation

Name________________________________ Date _____________________

Intervention: Master 7

Taking Away Tens Recording Sheet

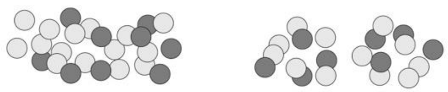
Start Number	Number of Tens Taken Away	End Number

Master 8: Intervention Activity 4 Assessment

Taking Away Tens

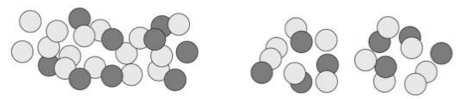
Determining 10 or Multiples of 10 Less Behaviours/Strategies

1. Student counts three times to determine 10 or multiples of 10 less than a number (models with counters/cubes).



"1, 2, 3, ..., 42, 43, 44" "1, 2, 3, ..., 18, 19, 20"
"1, 2, 3, ..., 22, 23, 24"

2. Student counts back to determine 10 or multiples of 10 less than a number (models with counters/cubes).



"44" "43, 42, 41, ..., 26, 25, 24"

3. Student counts back by ones on a hundred chart to determine 10 or multiples of 10 less than a number.

51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80

"76 take away 20 is 56."

Observations/Documentation

4. Student takes jumps of 10 backward on a hundred chart to determine 10 or multiples of 10 less than a number, but does not recognize how the tens digit changes.

51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80

"76 take away 2 tens is 56. I don't see any patterns."

5. Student takes jumps of 10 backward on a hundred chart to determine 10 or multiples of 10 less than a number and recognizes that the tens digit decreases by 1 for each ten taken away.

51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80

"I took away 2 tens and the tens digit decreased by 2."

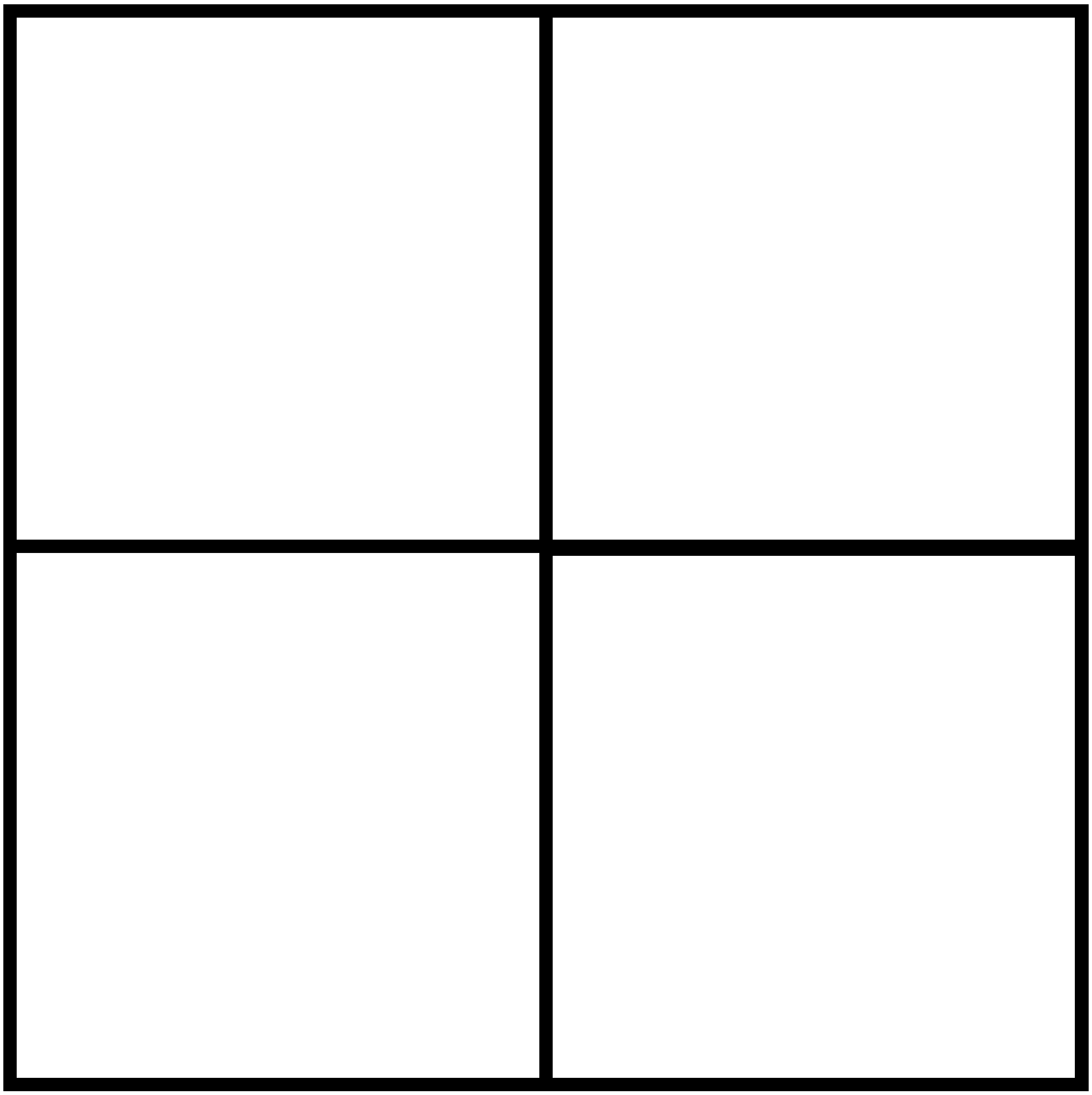
6. Student fluently determines 10 or multiples of 10 less than a number without using the hundred chart.

Observations/Documentation

Name________________________________ Date _____________________

Intervention: Master 9

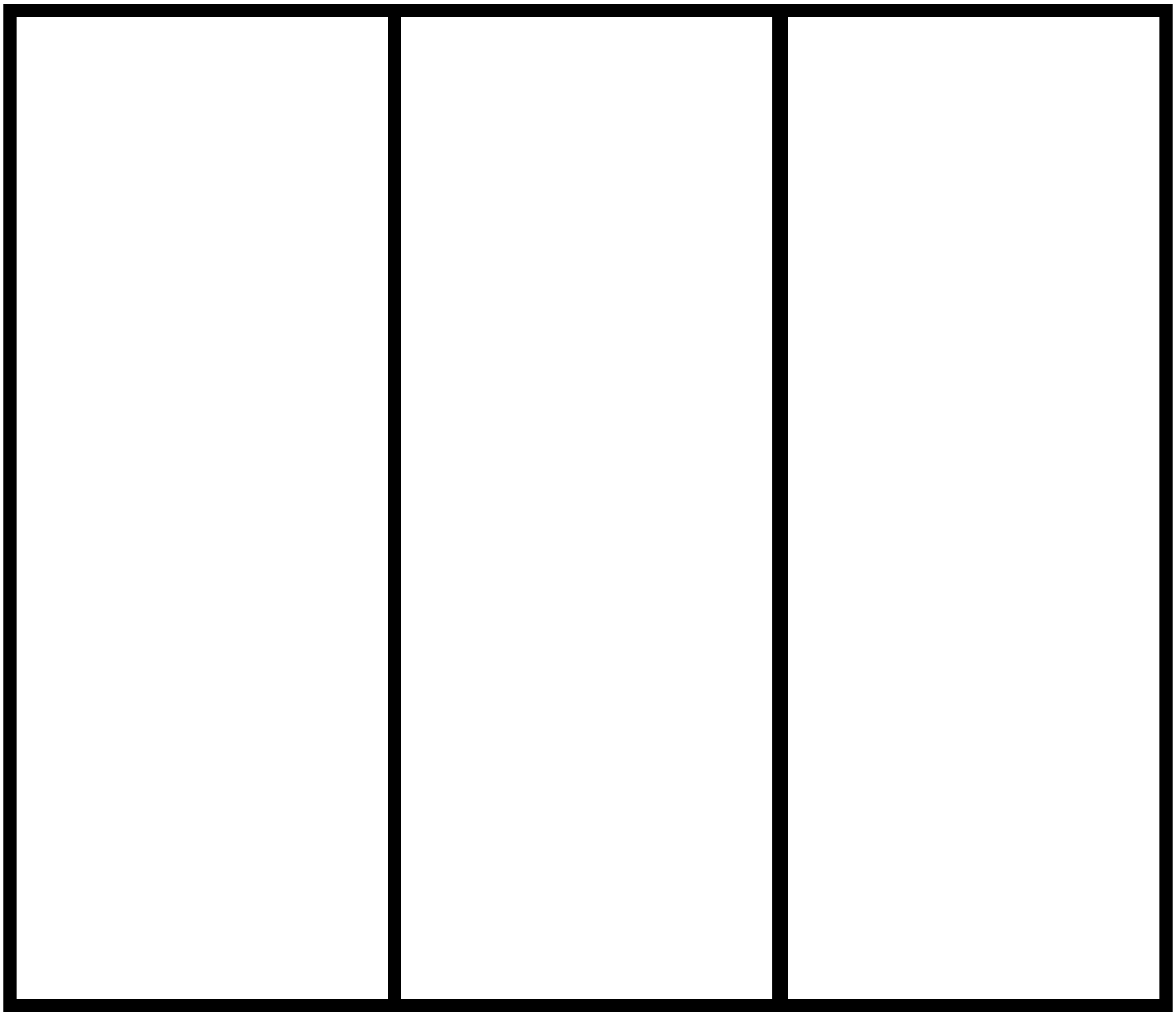
Paper Square Showing Fourths



Name________________________________ Date _____________________

Intervention: Master 10

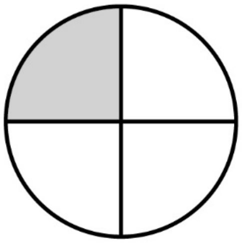
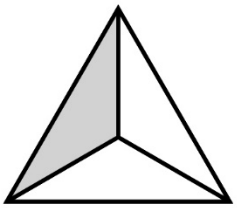
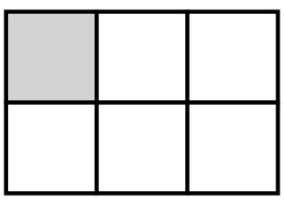
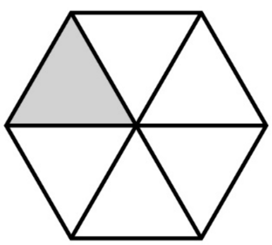
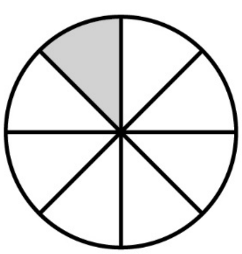
Paper Rectangle Showing Thirds



Name________________________________ Date ____________________

Intervention: Master 11a

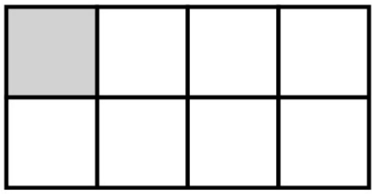
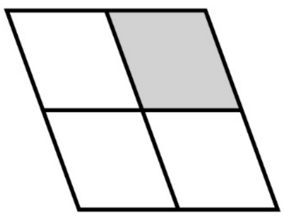
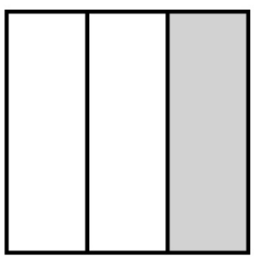
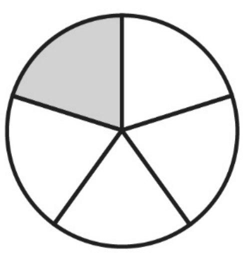
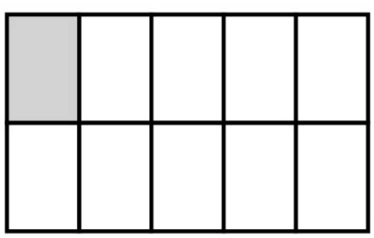
Matching Cards

	One-fourth
	One-third
	One-sixth
	One-sixth
	One-eighth

Name________________________________ Date ______________________

Intervention: Master 11b

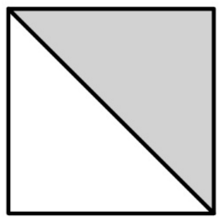
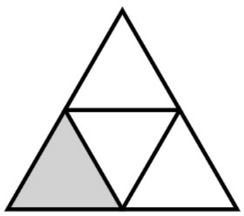
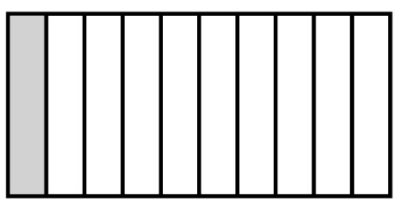
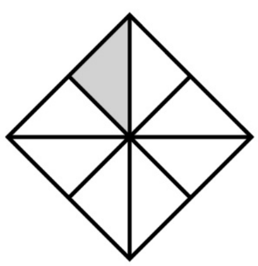
Matching Cards

	One-eighth
	One-fourth
	One-third
	One-fifth
	One-tenth

Name________________________________ Date ____________________

Intervention: Master 11c

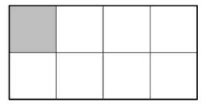
Matching Cards

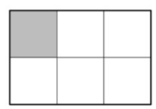
	One-half
	One-fourth
	One-tenth
	One-eighth

Number

Master 12: Intervention Activity 5 Assessment

Naming Fractional Amounts

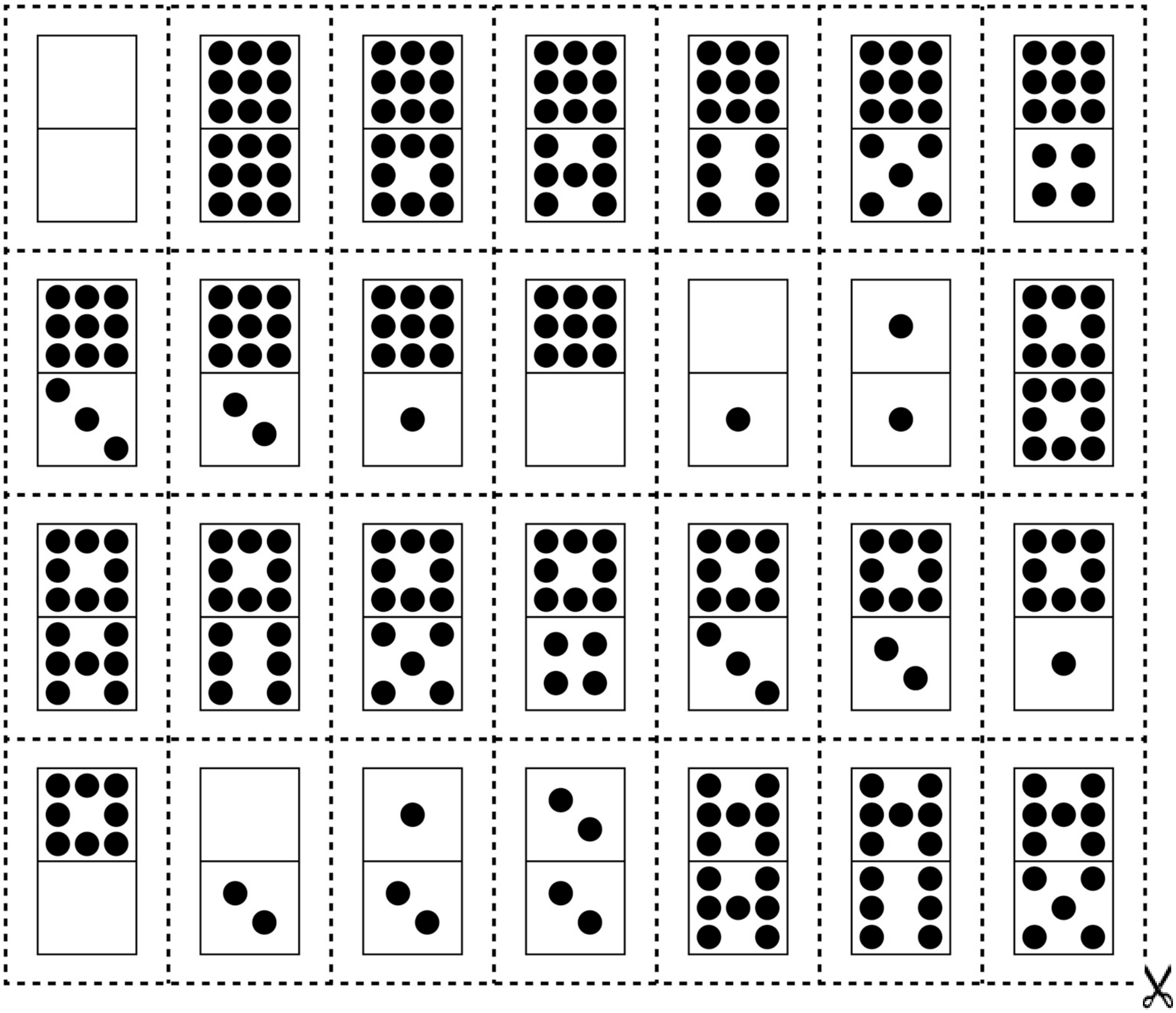
Naming Fractional Amounts Behaviours/Strategies		
1. Student turns over two cards, but struggles to visually compare fraction sizes and name fractional amounts as he or she cannot name the unit (i.e., does not know fraction words).	2. Student turns over two cards, but struggles to visually compare fraction sizes and name fractional amounts, and matches number of shaded parts to first word on card.  "one-eighth"	3. Student visually compares fraction sizes and names some fractional amounts, but struggles with sixths, eighths, and tenths.
Observations/Documentation		

4. Student visually compares fraction sizes and names fractional amounts, but struggles to explain thinking.	5. Student visually compares fraction sizes and names fractional amounts, but does not realize that each shape can represent two fractional amounts.  "This shows one-sixth only."	6. Student successfully visually compares fraction sizes, names fractional amounts, and explains thinking using math language.
Observations/Documentation		

Name________________________________ Date _____________________

Intervention: Master 13a

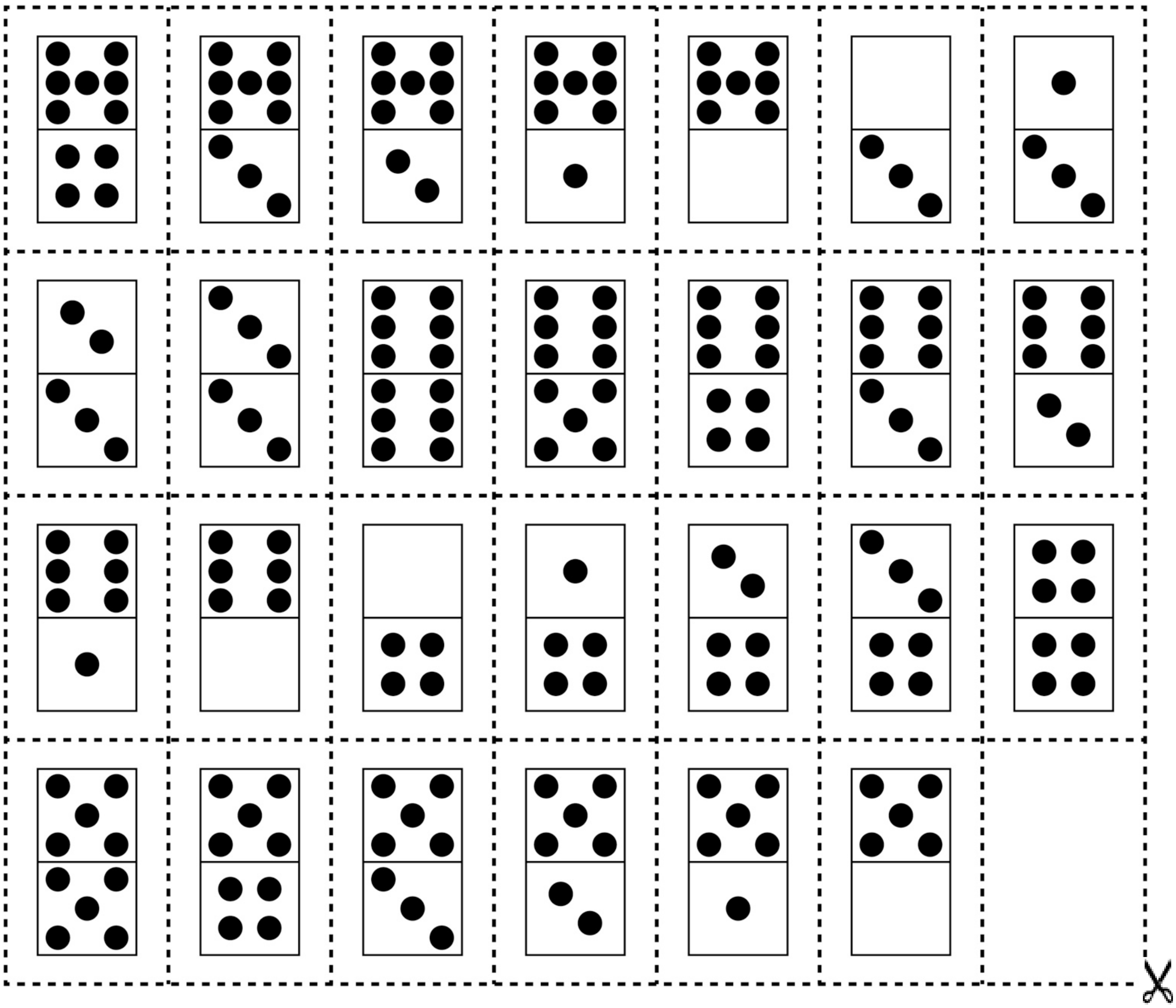
Domino Cards



Name________________________________ Date _____________________

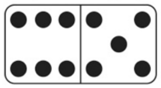
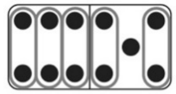
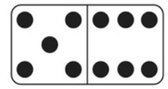
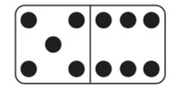
Intervention: Master 13b

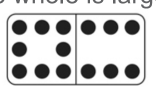
Domino Cards



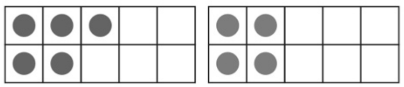
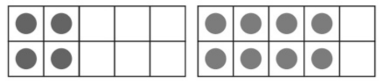
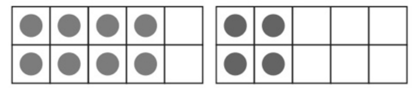
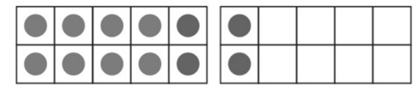
Master 14: Intervention Activity 6 Assessment

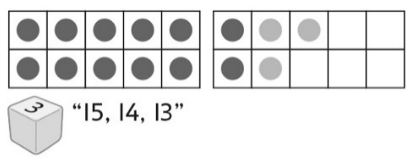
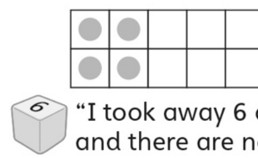
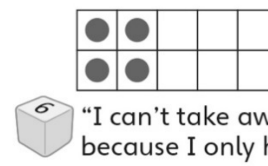
Making 20

Composing Quantities from Parts Behaviours/Strategies			
1. Student counts three times to compose quantities from parts. “1, 2, 3, 4, 5, 6” “1, 2, 3, 4, 5”  “1, 2, 3, …, 9, 10, 11”	2. Student skip-counts by 2s to compose quantities from parts.  “2, 4, 6, 8, 10, 11”	3. Student instantly recognizes one of the parts (perceptual subitizing), and then counts on to compose quantities from parts.  “5” “6, 7, 8, 9, 10, 11”	4. Student uses number relationships to compose quantities from parts.  “I know 5 and 5 is 10, so 5 and 6 is 1 more, or 11.”
Observations/Documentation			

Decomposing the Whole Behaviours/Strategies			
1. Student chooses randomly to find dominoes with parts that make the same whole. “Let’s try this one.”	2. Student finds dominoes with parts that make the same whole when the whole is small, but struggles when the whole is large.  “I don’t know how to find another with this whole. There are too many dots.”	3. Student finds all dominoes with parts that make the same whole, but does not see patterns in the parts. “I sorted them, but I don’t see any patterns.”	4. Student uses patterns to systematically find all dominoes with parts that make the same whole.
Observations/Documentation			

Master 15: Intervention Activity 7 Assessment
Adding and Subtracting to 20

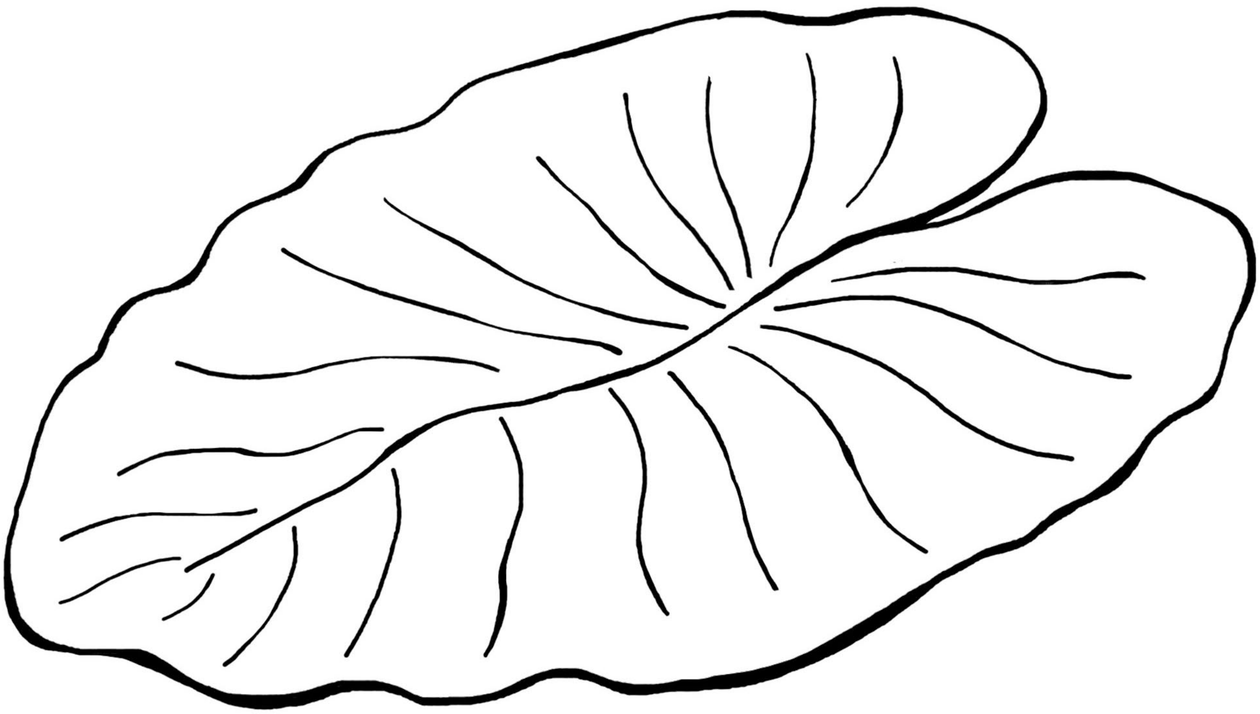
Addition Computational Behaviours/Strategies			
1. Student counts three times to add quantities.  “1, 2, 3, 4, 5” “1, 2, 3, 4” “1, 2, 3, …, 7, 8, 9”	2. Student counts on from the smaller set to add quantities.  “4” “5, 6, 7, …, 10, 11, 12”	3. Student counts on from the larger set to add quantities.  “8” “9, 10, 11, 12”	4. Student fluently adds quantities and demonstrates an understanding of addition.  “10” “11, 12”
Observations/Documentation			

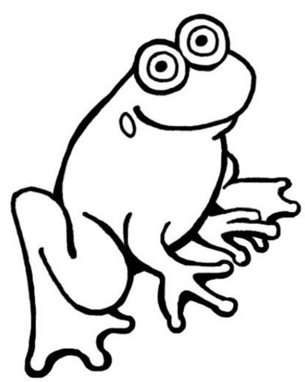
Subtraction Computational Behaviours/Strategies			
1. Student counts three times to subtract quantities (e.g., counts counters in ten-frames, counts to remove counters, and then counts the leftover counters from 1).	2. Student counts back to subtract quantities, but begins the count with the number of counters in the ten-frames.  “15, 14, 13”	3. Student counts back to subtract quantities, but removes more counters than there are.  “I took away 6 counters and there are none left.”	4. Student fluently subtracts quantities and demonstrates an understanding of subtraction.  “I can’t take away 6 because I only have 4.”
Observations/Documentation			

Name________________________________ Date _____________________

Intervention: Master 16

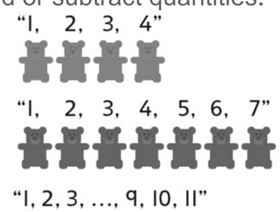
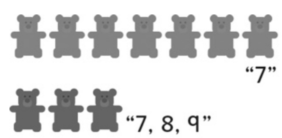
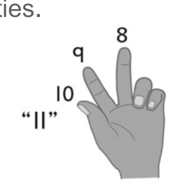
My Frog Story





Master 17: Intervention Activity 8 Assessment
Solving Story Problems

Conceptualizing Addition and Subtraction Behaviours/Strategies			
1. Student plays with toy animals, but has difficulty using them to create an addition or subtraction problem. Story is not a math problem. "Bears live in trees in the day. Bears sleep in caves at night."	2. Student attempts to create an addition or subtraction problem, but does not ask a question. "There are 8 bears in the trees. 3 bears come from the cave to join them."	3. Student creates an addition or subtraction problem and acts it out, but cannot use symbols and equations to represent it.	4. Student creates an addition or subtraction problem, acts it out, and uses symbols and equations to represent it. "There are 4 bears in the cave. 2 bears climb down the trees to join them. How many bears are now in the cave?" "4 + 2 = 6"
Observations/Documentation			

Addition and Subtraction Computational Behaviours/Strategies			
1. Student counts three times to add or subtract quantities. 	2. Student counts on or back to add or subtract, but begins the count with the number of objects in a part or the whole. 	3. Student counts on or back with concrete materials to add or subtract quantities. 	4. Student counts on or counts back fluently to add or subtract quantities. 
Observations/Documentation			

Name________________________________ Date ______________________

Intervention: Master 18

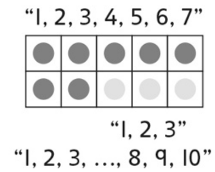
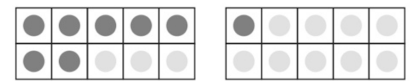
Ten on a Bus Recording Sheet

Dogs	Cats

Number

Master 19: Intervention Activity 9 Assessment

Making 10

Decomposing 10 into Parts Behaviours/Strategies		
1. Student selects counters randomly to decompose 10 into parts.	2. Student decomposes 10 into parts, but counts three times to confirm how many.  	3. Student decomposes 10 into parts, but removes all counters and starts again to find a new way. 
Observations/Documentation		

4. Student decomposes 10 into parts, but does not find all the ways.	5. Student finds many ways to decompose 10 into parts, but does not consider 0 and 10.	6. Student uses patterns to systematically find all ways to decompose 10 into parts.
Observations/Documentation		

Name________________________________ Date ______________________

Intervention: Master 20

Number Cards (1–10)

1	2
3	4
5	6
7	8
9	10

Number

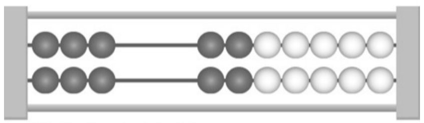
Master 21: Intervention Activity 10 Assessment

Finding Doubles

Adding to Determine Doubles to 10 Behaviours/Strategies

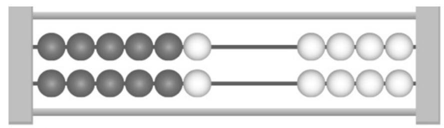
1. Student counts three times to determine doubles when adding with quantities to 20.

“1, 2, 3” “1, 2, 3”



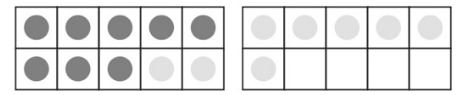
“1, 2, 3, 4, 5, 6”

2. Student counts on to determine doubles when adding with quantities to 20.



“6”
“7, 8, 9, 10, 11, 12”

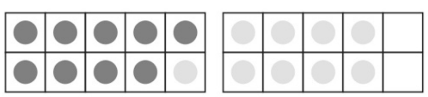
3. Student makes 10 and counts all to determine doubles when adding with quantities to 20.



“1, 2, 3, ..., 10, 11, ..., 14, 15, 16”

Observations/Documentation

4. Student makes 10 and counts on to determine doubles when adding with quantities to 20.



“10” “11, 12, 13, ..., 16, 17, 18”

5. Student fluently adds with quantities to 20 to determine doubles, but struggles to write the addition sentence.

“I don’t know what to write.”

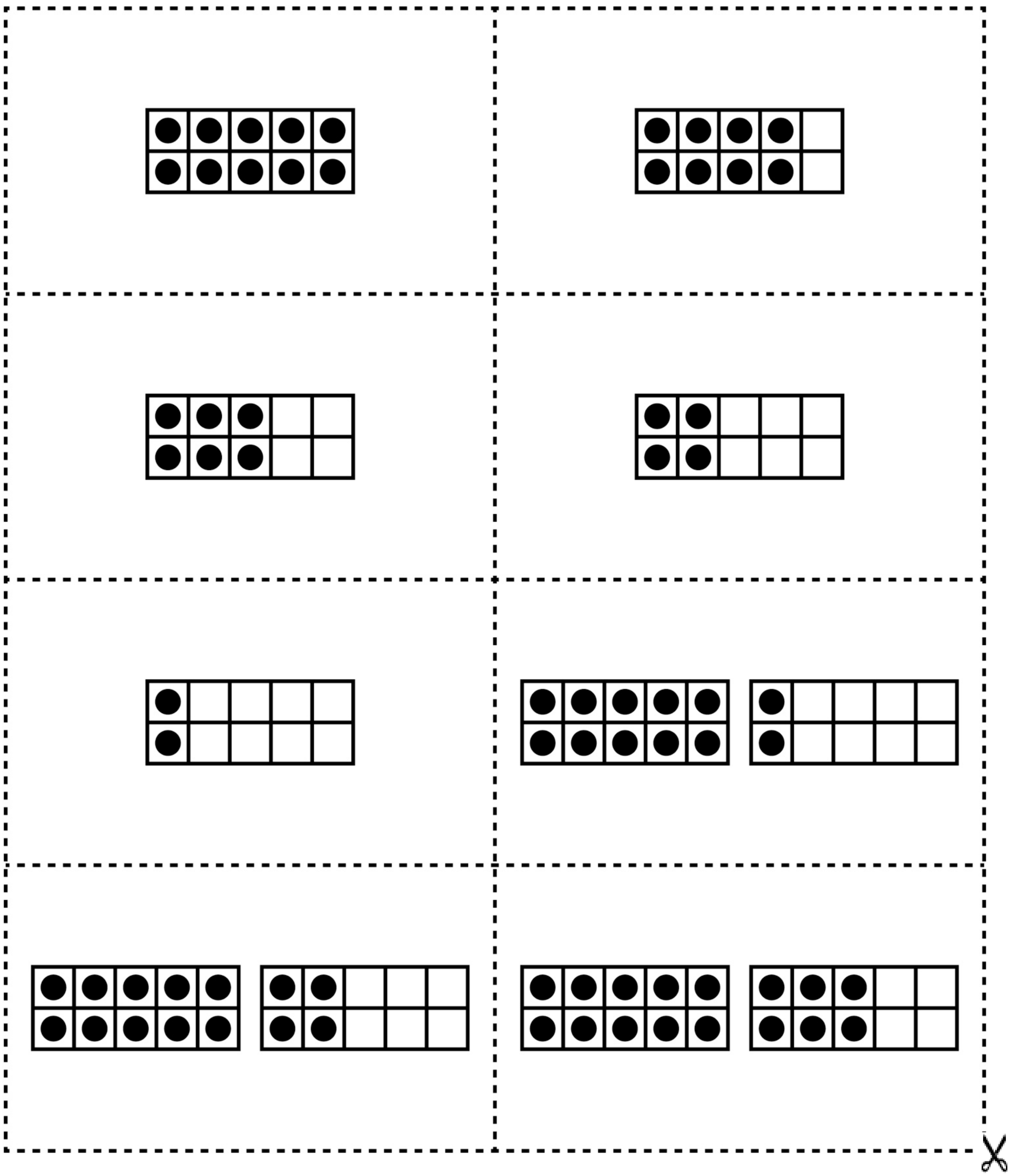
6. Student fluently adds with quantities to 20 to determine doubles and writes addition sentences.

Observations/Documentation

Name_________________________________ Date ______________________

Intervention: Master 22a

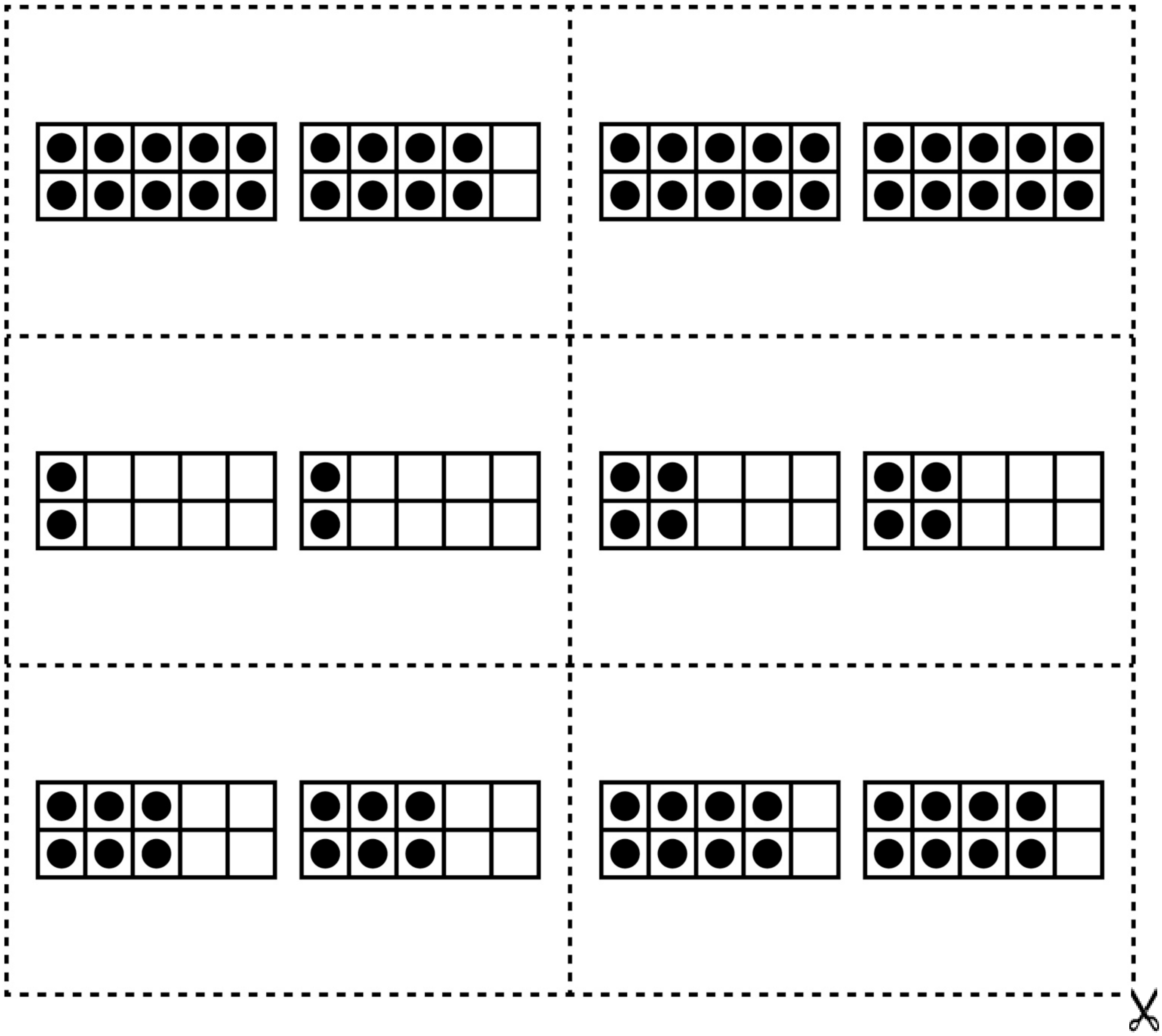
Ten-Frame Cards



Name________________________________ Date _____________________

Intervention: Master 22b

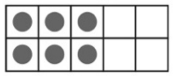
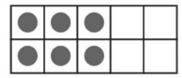
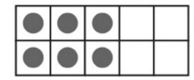
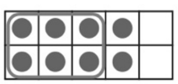
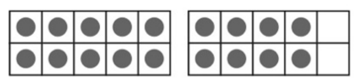
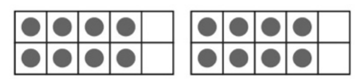
Ten-Frame Cards



Number

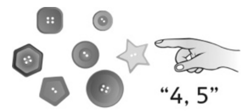
Master 23: Intervention Activity 11 Assessment

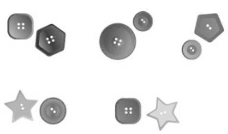
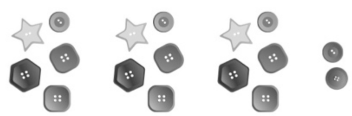
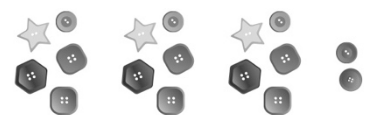
How Many Do You See?

Grouping Objects to Find How Many Behaviours/Strategies		
1. Student counts by 1s rather than grouping objects, but mixes up number sequence or does not coordinate number words with counting actions.  "1, 2, 3, 5, 6, 7"	2. Student accurately counts by 1s, but does not group objects.  "1, 2, 3, 4, 5, 6"	3. Student groups objects by 2s and skip-counts.  "2, 4, 6"
Observations/Documentation		
4. Student groups some objects and subitizes, and then counts on by 1s.  "6" "7, 8"	5. Student groups objects by 10s (uses structure of ten-frame to determine how many).  "10 and 8 more is 18."	6. Student groups objects flexibly and uses number relationships to determine how many.  "I can move 2 counters to the first ten-frame. That leaves 6 counters in the second ten-frame. 10 and 6 is 16."
Observations/Documentation		

Master 24: Intervention Activity 12 Assessment

Messy and Organize It

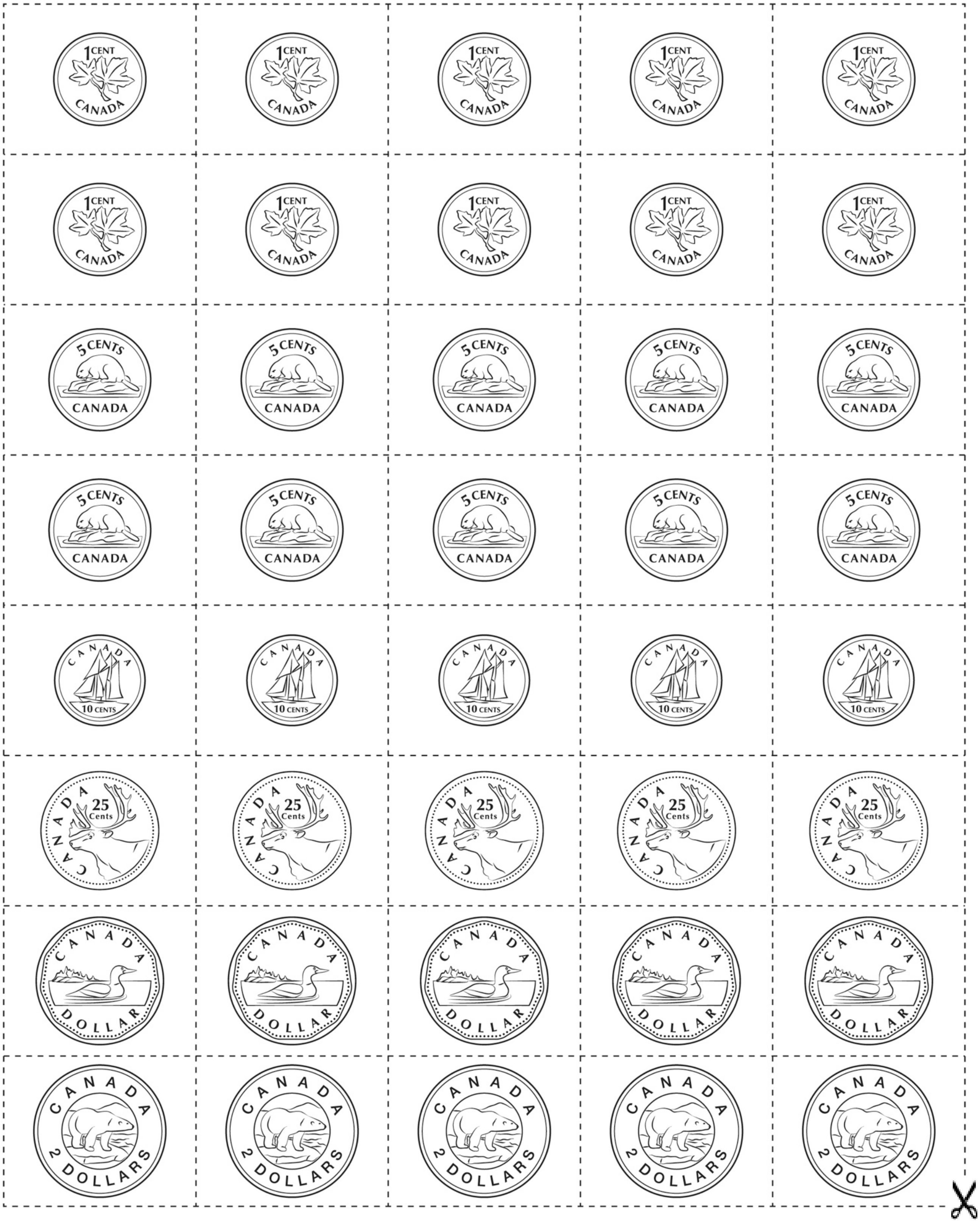
Grouping Objects Behaviours/Strategies		
1. Student counts by 1s rather than grouping objects, but mixes up number sequence. “1, 2, 3, 5”	2. Student counts by 1s rather than grouping objects, but does not coordinate number words with counting actions (e.g., misses items in the count, or counts items more than once). 	3. Student groups objects, but not all groups are equal. 
Observations/Documentation		

4. Student groups objects, but always makes groups of 2 regardless of the quantity. 	5. Student groups objects in 2s, 5s, and 10s, but ignores the leftover items. “5, 10, 15. There are 15 items.” 	6. Student flexibly groups objects in 2s, 5s, and 10s, and includes any leftover items in the total. “5, 10, 15, 16, 17. There are 17 items.” 
Observations/Documentation		

Name________________________________ Date _____________________

Intervention: Master 25

Coin Cutouts



Number

Master 26: Intervention Activity 13 Assessment

Counting Coins

Identifying and Sorting Coins Behaviours/Strategies			
1. Student looks at coins, but is unable to sort them using a single attribute.	2. Student sorts a set of objects (coins) using a single attribute, but puts coins in wrong jars.  	3. Student sorts a set of objects (coins) using a single attribute, but does not remember the values of the coins. "I don't remember how much a nickel is worth."	4. Student successfully sorts a set of objects (coins) using a single attribute and associates each coin with a value.
Observations/Documentation			

Determining the Value of a Collection of Coins Behaviours/Strategies			
1. Student sorts coins, but is unable to find value of coins as they do not associate value of coin with a skip-counting number. "A dime is 10 cents. What number do I skip-count by?"	2. Student sorts coins, but is unable to skip-count by factors of 10 or 100. "10, 20, 30, 50, 60"	3. Student skip-counts by factors of 10, but struggles to skip-count by factors of 100 (e.g., 25). "25, ?"	4. Student successfully skip-counts by factors of 10 and 100.
Observations/Documentation			

Name________________________________ Date ______________________

Intervention: Master 27

Activity Choices

Camping	Skating
Swimming	Skiing
Snowshoeing	Canoeing

Number

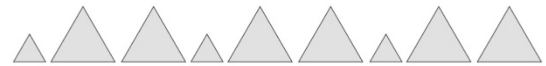
Master 28: Intervention Activity 14 Assessment

Wants and Needs

Distinguishing Between Wants and Needs Behaviours/Strategies			
1. Student chooses activity, but struggles to draw appropriate items and cannot identify the difference between wants and needs.	2. Student draws items that are needs, but struggles to draw items that are wants.	3. Student draws items that are wants or needs, but is unable to explain why they are wants or needs.	4. Student draws items that are wants or needs and confidently explains why they are wants or needs.
Observations/Documentation			

Master 29: Intervention Activity 1 Assessment

Finding the Core

Identifying the Core Behaviours/Strategies		
1. Student chooses a pattern, but struggles to identify the core of the pattern and cannot identify the attribute that is changing.	2. Student identifies the attribute that is changing, but struggles to identify the core of the pattern.	3. Student identifies the core of a pattern when it involves colour or shape, but struggles when the attribute that is changing is size, thickness, or number.  "This is hard. They are all yellow triangles."
Observations/Documentation		

4. Student identifies the core of a pattern, but struggles to identify what would come next in the pattern.  "Yellow would come next."	5. Student identifies the core of a pattern and what comes next in the pattern, but struggles to use math language to describe the core.	6. Student successfully identifies the core of a pattern and what comes next in the pattern, and uses math language to explain thinking.
Observations/Documentation		

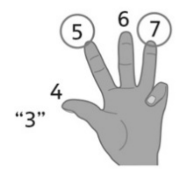
Patterning and Algebra

Master 30: Intervention Activity 2 Assessment
Representing Patterns

Representing Patterns in Different Ways Behaviours/Strategies		
1. Student chooses a pattern, but struggles to identify the core of the pattern. “How do I find the core?”	2. Student identifies the core of the pattern, but struggles to represent the core with letters. Core: ABC 	3. Student identifies the core of the pattern and represents the core with letters, but has difficulty selecting objects to make another pattern.
Observations/Documentation		
4. Student identifies the core of the pattern and represents the core with letters, but has difficulty using the core to make another pattern using different materials.  My pattern: 	5. Student represents the same pattern in different ways, but struggles to use math language to explain how the patterns are alike and how they are different.	6. Student successfully identifies the core of a pattern, represents the same pattern in different ways, and uses math language to explain how the patterns are alike and how they are different. Core: ABB  My pattern: 
Observations/Documentation		

Master 31: Intervention Activity 3 Assessment

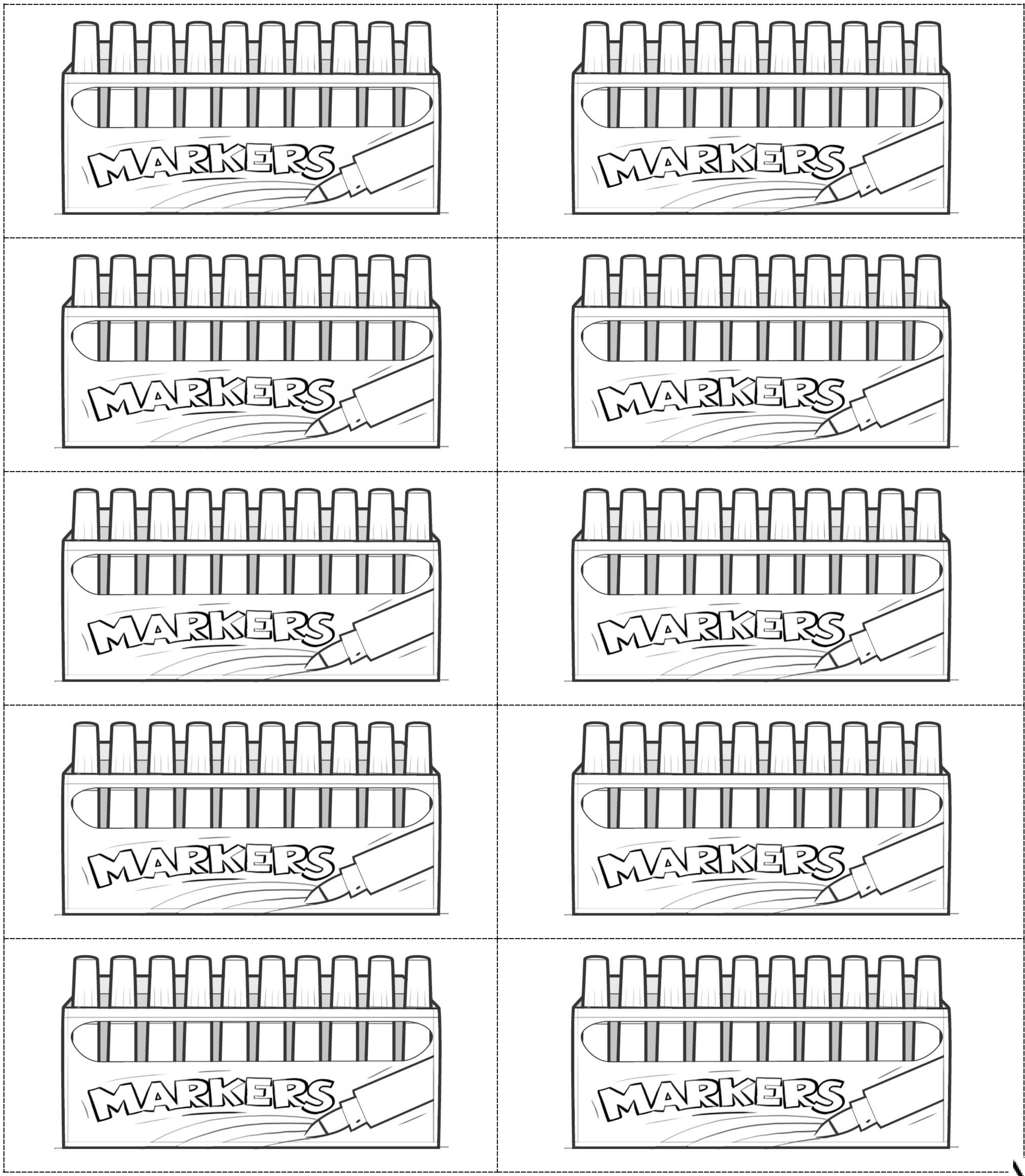
Skip-Counting

Skip-Counting Forward Behaviours/Strategies			
1. Student enters numbers into calculator, but struggles to skip-count by 2s and 10s and mixes up the numbers or omits numbers in the skip-counting sequence. “10, 20, 40, 50, 70”	2. Student skip-counts by 2s and 10s, but struggles when the start number is not a multiple of the number. “3, 10, 20, 30, ...”	3. Student skip-counts by 2s and 10s from any given number, but uses fingers or hundred chart to help.  	4. Student fluently skip-counts by 2s and 10s from any given number.
Observations/Documentation			

Name________________________________ Date _____________________

Intervention: Master 32a

On and Off the Shelf Cards



Name________________________________ Date _____________________

Intervention: Master 32b

On and Off the Shelf Cards










Master 33: Intervention Activity 4 Assessment

Repeated Addition and Subtraction

Using Repeated Addition and Subtraction Behaviours/Strategies		
1. Student counts all items by 1s and does not recognize number patterns in repeated units.  "1, 2, 3, 4, 5, 6"	2. Student counts on or back to count items and does not recognize number patterns in repeated units.  "4" "5, 6"	3. Student recognizes number patterns in repeated units and skip-counts forward to find how many.  "4" "6"
Observations/Documentation		
4. Student recognizes number patterns in repeated units and uses addition or subtraction to find how many, but does not see relation to repeated addition or subtraction.	5. Student recognizes number patterns in repeated units and uses repeated addition or subtraction of groups to solve problems, but is unable to use math language to explain thinking.	6. Student recognizes number patterns in repeated units and uses repeated addition or subtraction of groups to solve problems.
Observations/Documentation		

Name________________________________ Date _____________________

Intervention: Master 34

Spill and Fill

________ + ________ = ________ + ________

________ + ________ = ________ + ________

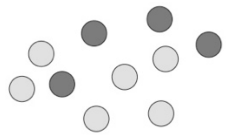
________ + ________ = ________ + ________

Master 35: Intervention Activity 5 Assessment

Exploring 10

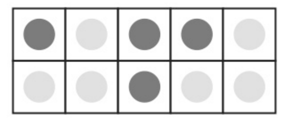
Decomposing 10 to Write Equalities Behaviours/Strategies

1. Student spills counters, but does not understand conservation of number (rearranging counters does not change the quantity) and counts each time the counters are spilled



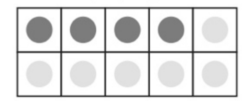
"1, 2, 3, …, 8, 9, 10"

2. Student places counters randomly on ten frames and struggles to count the number of each colour.



3. Student groups counters of the same colour together on ten-frames and counts all counters by 1s.

"1, 2, 3, 4"



"1, 2, 3, 4, 5, 6"

Observations/Documentation

1.	2.	3.

4. Student counts or subitizes counters, but struggles to understand equality (does not associate two full ten-frames with equality).

5. Student understands equality, but has difficulty recording different expressions of the same quantity as equalities (cannot write number sentence).

6. Student understands equality and successfully records different expressions of the same quantity as equalities.

$3 + 7 = 4 + 6$
$2 + 8 = 5 + 5$

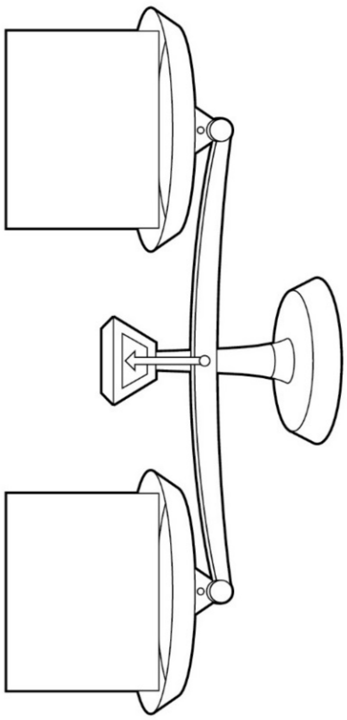
Observations/Documentation

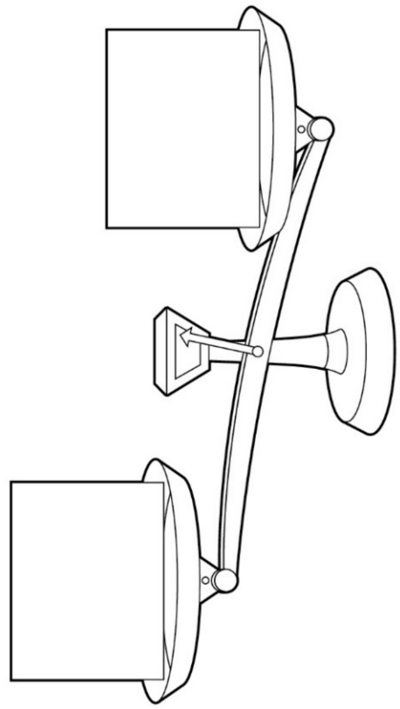
4.	5.	6.

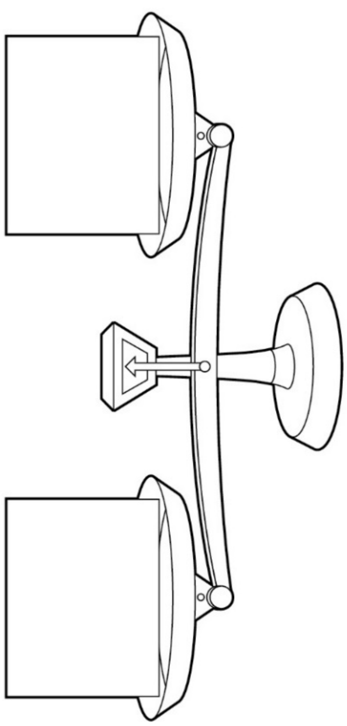
Name________________________________ Date _____________________

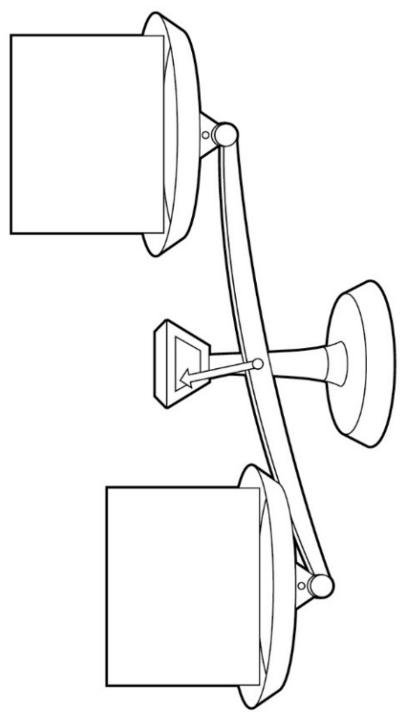
Intervention: Master 36

Balancing Sets Recording Sheet



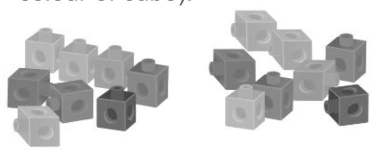
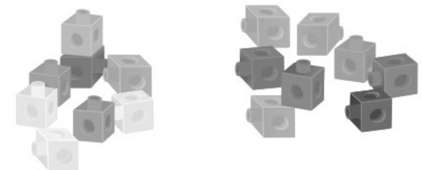


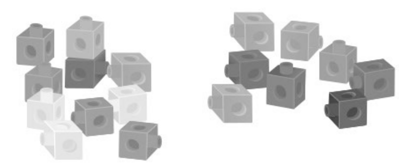




Master 37: Intervention Activity 6 Assessment

Balancing Sets

Creating Equal Sets Behaviours/Strategies			
1. Student places cubes in one pan, but struggles to create an equal set and randomly puts cubes in the other pan.	2. Student creates a set that is equal to a given set, but thinks the sets must be identical (e.g., uses same number of each colour of cube). 	3. Student creates a set that is equal to a given set (e.g., counting or matching), but does not associate equal with balanced pans.	4. Student successfully creates a set that is equal to a given set. 
Observations/Documentation			

Creating Not Equal Sets Behaviours/Strategies			
1. Student places cubes in one pan, but struggles to create a not equal set and randomly puts cubes in the other pan.	2. Student creates a set that is not equal to a given set, but does not know whether the new set has more or fewer cubes.	3. Student creates a set that is not equal to a given set and knows which set has more, but does not associate more with the heights of the pans.	4. Student successfully creates a set that is not equal to a given set. 
Observations/Documentation			

Master 1a

Mathology Grade 2 Correlation – Alberta
Measurement Cluster 1: Length

Organizing Idea:
Measurement: Attributes such as length, area, volume, and angle are quantified by measurement.

Guiding Question: How can length contribute to interpretations of space?
Learning Outcome: Students communicate length using units.

Knowledge	Understanding	Skills & Procedures	Grade 2 Mathology	Mathology Little Books
Tiling is the process of measuring a length by using many copies of a unit without gaps or overlaps. Iterating is the process of measuring a length by repeating one copy of a unit without gaps or overlaps. The unit can be chosen based on the length to be measured.	Length is quantified by measurement. Length is measured with equal-sized units that themselves have length. The number of units required to measure a length is inversely related to the size of the unit.	Measure length with non-standard units by tiling, iterating, or using a self-created measuring tool.	**Measurement Cluster 1: Length** 1: Measuring Length 1 2: Measuring Length 2 3: Measurement Distance Around 6: First Nations, Métis, and Inuit Use of Land to Estimate Length 7: Consolidation **Measurement Math Every Day** 1A: Estimation Scavenger Hunt 1A: Estimation Station **Measurement Intervention** 1: Exploring Length 2: Iterating the Unit	Getting Ready for School The Discovery <u>Grade 1</u> The Amazing Seed

Master 1b

Length can be measured with non-standard units or standard units. Non-standard units found in nature can be used to measure length on the land. Standard units, such as centimetres, can enable a common language around measurement.		Compare and order measurements of different lengths measured with the same non-standard units and explain the choice of unit.	**Measurement Cluster 1: Length** 2: Measuring Length 2 3: Measuring Distance Around **Measurement Math Every Day** 1B: Which Unit?	Getting Ready for School The Discovery
		Compare measurements of the same length measured with different non-standard units.	**Measurement Cluster 1: Length** 1: Measuring Length 1 7: Consolidation	The Discovery <u>Grade 1</u> Animal Measures
		Measure length with standard units by tiling or iterating with a centimetre.	**Measurement Cluster 1: Length** 5: Using a Centicube Ruler	
		Compare and order measurements of different lengths measured with centimetres.	**Measurement Cluster 1: Length** 5: Using a Centicube Ruler	
A referent is a personal or familiar representation of a known length. A common referent from the land or body parts can be used to measure length.	Length can be estimated when a measuring tool is not available.	Identify referents for a centimetre.	**Measurement Cluster 1: Length** 4: Benchmarks and Estimation	
		Estimate length by visualizing the iteration of a referent for a centimetre.	**Measurement Cluster 1: Length** 4: Benchmarks and Estimation **Measurement Math Every Day** 1A: Estimation Station 1B: What Am I?	Getting Ready for School
		Investigate First Nations, Métis, or Inuit use of the land in estimations of length.	**Measurement Cluster 1: Length** 6: First Nations, Métis, and Inuit Use of Land to Estimate Length	

Name________________________________ Date _____________________

Master 2a

Measuring Carrots Recording Sheet

Measuring with Centicubes

Carrot Number	Estimate	Measure
1		
2		
3		
4		
5		

Name________________________________ Date ____________________

Master 2b

Measuring Carrots Recording Sheet

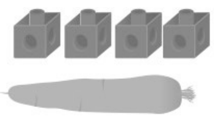
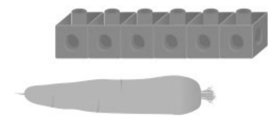
Measuring with Paper Clips

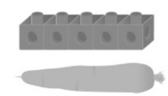
Carrot Number	Estimate	Measure
1		
2		
3		
4		
5		

Measurement

Master 3: Activity 1 Assessment

Measuring Length 1

Estimating and Measuring Length Behaviours/Strategies		
1. Student estimates objects by length with nonstandard units, but estimates are extreme/ unreasonable. "About 100 cubes!"	2. Student measures objects by length using multiple copies of a non-standard unit, but units are not placed end-to-end. 	3. Student measures objects by length using multiple copies of a non-standard unit, but does not align the base of the first unit with the end of the object being measured. 
Observations/Documentation		

4. Student measures objects by length using multiple copies of a non-standard unit, measures with cubes, and assumes the same count for paper clips.	5. Student measures objects by length using multiple copies of a non-standard unit, but thinks turning an object will affect its length.	6. Student successfully estimates and measures objects by length using multiple copies of a non-standard unit and realizes that turning an object does not affect its length.  "It is 5 cubes long."
Observations/Documentation		

Name________________________________ Date ______________________

Master 4

Which is Longer? Recording Sheet

	Estimate	Measure
Wolf paw print		
My hand		

Which is longer? ________________________________

Master 5: Activity 2 Assessment
Measuring Length 2

Estimating, Measuring, and Comparing Length Behaviours/Strategies			
1. Student estimates objects by length with non-standard units, but estimates are very large or very small. "About 100 cubes!"	2. Student measures objects by length by iterating a single non-standard unit, but there are many gaps or overlaps.	3. Student measures objects by length by iterating a single non-standard unit, but has difficulty tracking the length of the cube while measuring.	4. Student measures objects by length by iterating a single non-standard unit, but has difficulty keeping track of the count. "I forget how many times I moved the cube."
Observations/Documentation			

5. Student measures objects by length by iterating a single non-standard unit, but forgets to include the unit when stating the measure. "It is 5 long."	6. Student measures objects by length by iterating a single non-standard unit, but gives the length as a whole number and ignores the leftover amount. "It is 5 cubes long."	7. Student successfully estimates and measures objects by length by iterating a single non-standard unit, but struggles to compare lengths. "I'm not sure which is longer."	8. Student successfully estimates, measures, and compares objects by length by iterating a single non-standard unit. "My hand is longer. It is a little more than 6 cubes long."
Observations/Documentation			

Name______________________________ Date ____________________

Master 6

How Big Around? Recording Sheet

Can	Estimate	Measure
1		
2		
3		

Order cans from least to greatest distance around:

__________ __________ __________

Master 7: Activity 3 Assessment

Measuring Distance Around

Estimating, Measuring, and Comparing Distance Around Behaviours/Strategies			
1. Student attempts to estimate objects by length (distance around) with non-standard units, but estimates are extreme/ unreasonable. "About 100 paper clips!"	2. Student estimates objects by length (distance around) with non-standard units, but struggles to use string to measure. 	3. Student measures objects by length (distance around) using multiple copies of a non-standard unit, but units are not placed end-to-end (there are gaps or overlaps). 	4. Student measures objects by length (distance around) using multiple copies of a non-standard unit, but does not align the base of the first unit with the end of the object being measured. 
Observations/Documentation			

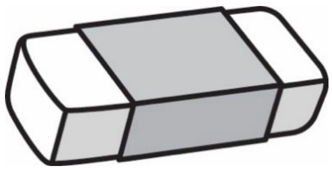
5. Student measures objects by length (distance around) by iterating a single non-standard unit, but has difficulty tracking the length of the paper clip or loses track of the count. "I forget how many times I moved the paper clip."	6. Student measures objects by length (distance around) with non-standard units, but forgets to include the unit when stating the measure. "It is 8 long."	7. Student measures objects by length (distance around) with non-standard units, but struggles to compare and order objects.	8. Student successfully estimates, measures, compares, and orders objects by length (distance around) with non-standard units.
Observations/Documentation			

Name________________________________ Date ____________________

Master 8

Measurement Hunt

Length of Eraser



Our estimate is

____

Our measure is

____

Length of Teacher's Desk

Our estimate is

____

Our measure is

____

Length of Pencil

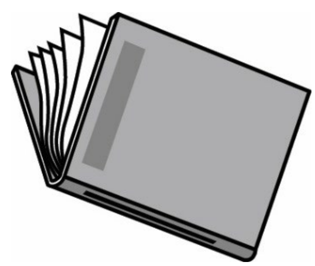
Our estimate is

____

Our measure is

____

Length of Book



Our estimate is

____

Our measure is

____

Measurement

Master 9: Activity 4 Assessment
Benchmarks and Estimation

Using Benchmarks to Estimate and Measure Length Behaviours/Strategies		
1. Student finds object in classroom, but struggles to use benchmarks to estimate length in standard units (estimate is extreme or unreasonable).  "About 100 fingers!"	2. Student estimates length in standard units, but does not use appropriate benchmark to estimate and measure. "I am using a paper clip to measure in centimetres."	3. Student selects and uses appropriate benchmarks to estimate and measure length in standard units, but leaves gaps or overlaps or has difficulty tracking the finger/step while measuring.
Observations/Documentation		

4. Student uses the measurement of familiar objects as benchmarks to estimate and measure length in standard units, but loses track of the count when measuring. "I forget how many fingers I used."	5. Student uses the measurement of familiar objects as benchmarks to estimate and measure length in standard units, but forgets to include the unit when stating the measure. "It is 7 long."	6. Student successfully uses the measurement of familiar objects as benchmarks to estimate and measure length in standard units and includes units with measures. "The length of the pencil is about 20 finger widths, or about 20 cm."
Observations/Documentation		

Name________________________________ Date _____________________

Master 10

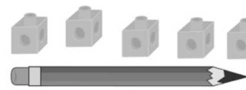
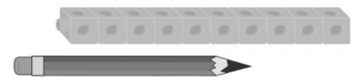
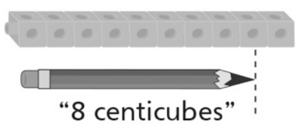
Recording Sheet

Object	Estimate	Measure

Measurement

Master 11: Activity 5 Assessment

Using a Centicube Ruler

Measuring Length with Standard-Sized Objects Behaviours/Strategies		
1. Student records object, but struggles to estimate its length with standard-sized objects. “About 100 cubes!”	2. Student uses standard-sized objects to measure, but does not join cubes and leaves gaps or overlaps. 	3. Student uses standard-sized objects to measure (e.g., 10-centicube rod), but does not line up the base of the first cube with the end of the object being measured. 
Observations/Documentation		
4. Student uses standard-sized objects to measure (e.g., 10-centicube rod), but ignores the leftover amount.  	5. Student uses standard-sized objects to measure (e.g., 10-centicube rod), but forgets to include the unit when stating the measure. “It is 8 long.”	6. Student successfully uses standard-sized objects to measure (e.g., 10-centicube rod), and includes the unit with the measure. “It is a little more than 8 centicubes long.”
Observations/Documentation		

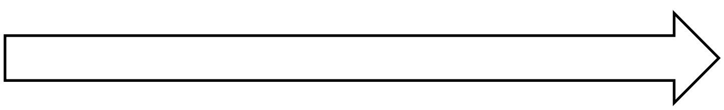
Name________________________________ Date _____________________

Master 32a

Let’s Estimate! Let’s Measure!

How to play Run and Scream:

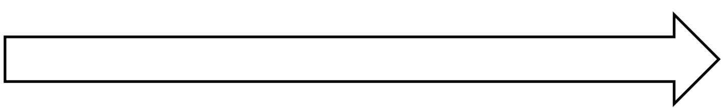
- Work in pairs.
- One student holds the *Run and Scream* stick and the other student marks the starting point.
- The student holding the stick starts to run and scream.
- As soon as the student needs to take a breath of air, the student will drop the *Run and Scream* stick on the ground.
- Work together to estimate and measure the distance run.
- The goal of the game is to run and scream as far as you can.



Estimate: _____________

Actual: _____________

What did you choose to measure with? ______________________



Estimate: _____________

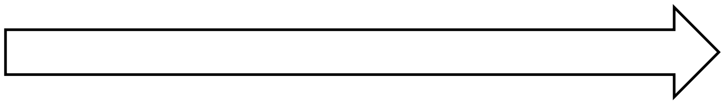
Actual: _____________

What did you choose to measure with? ______________________

Name________________________________ Date _____________________

Master 32b

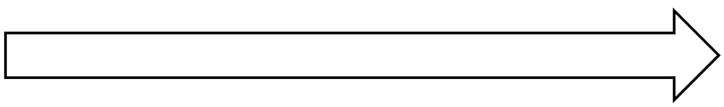
Let’s Estimate! Let’s Measure! (cont’d)



Estimate: ______________

Actual: ______________

What did you choose to measure with? _________________________



Estimate: ______________

Actual: ______________

What did you choose to measure with? _________________________

Greatest distance: ________________

Least distance: _________________

Measurement

Master 33: Activity 6 Assessment

First Nations, Métis, and Inuit Use of Land to Estimate Length

Using Land to Estimate Lengths Behaviours/Strategies			
1. Student does not know what length is. "I don't know what length means."	2. Student identifies a length to measure but has difficulty measuring using non-standard units. "I want to measure the distance from here to the *Run and Scream* stick, but I don't know how to start."	3. Student can measure a length using non-standard units, but has difficulty estimating using non-standard units. "I can count the number of footsteps it takes to get to the *Run and Scream* stick, but I don't know how to estimate the distance."	4. Student consistently recognizes how First Nations, Métis, and Inuit use of the land can be used for estimation and measurement.
Observations/Documentation			

Name________________________________ Date ______________________

Master 12a

Measurement Recording Sheet

Object	Tool or Unit Used	Estimate	Measure
1			
2			
3			

Name________________________________ Date _____________________

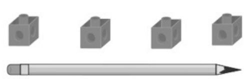
Master 12b

Measurement Recording Sheet

Write one thing that is important to remember when measuring length:

Master 13: Activity 7 Assessment
Length: Consolidation

Measuring Behaviours/Strategies		
1. Student estimates length using non-standard units or a benchmark for 1 centimetre, but estimates are unreasonable.	2. Student does not select an appropriate non-standard unit to measure. “I will use the pan balance to measure length.”	3. Student measures length, but focuses on using one measuring tool. “I like to measure length with paper clips”
Observations/Documentation		

4. Student measures objects by length using non-standard units, or a benchmark for 1 centimetre, but leaves gaps or overlaps. 	5. Student successfully measures objects by length using non-standard units or a benchmark for 1 centimetre, but does not include a unit with the measure. “Its length is 6.”	6. Student successfully measures objects by length using non-standard units or a benchmark for 1 centimetre.
Observations/Documentation		

Master 14a

Mathology Grade 2 Correlation – Alberta
Measurement Cluster 2: Time

Organizing Idea:
Patterns: Awareness of patterns supports problem solving in various situations.

Guiding Question: How can patterns characterize change?
Learning Outcome: Students explain and analyze patterns in a variety of contexts.

Knowledge	Understanding	Skills & Procedures	Grade 2 Mathology	Mathology Little Books
Change can be an increase or a decrease in the number and size of elements. A hundreds chart is an arrangement of natural numbers that illustrates multiple patterns. Patterns can be found and created in cultural designs.	A pattern can show increasing or decreasing change. A pattern is more evident when the elements are represented, organized, aligned, or oriented in familiar ways.	Describe non-repeating patterns encountered in surroundings, including in art, architecture, cultural designs, and nature.	*Link to other strands:* ***Measurement Cluster 2: Time*** *13: First Nations Winter Counts*	

Master 14b

Organizing Idea:
Time: Duration is described and quantified by time.

Guiding Question: How can duration support interpretation of time? **Learning Outcome:** Students relate duration to time.				
Knowledge	**Understanding**	**Skills & Procedures**	**Grade 2 Mathology**	**Mathology Little Books**
Events can be related to calendar dates. Duration can be described using comparative language such as longer or shorter. Duration can be measured in non-standard units, including events, natural cycles, or personal referents. Winter counts are First Nations symbolic calendars that record oral traditions and significant events.	Time can be communicated in various ways. Duration is the measure of an amount of time from beginning to end.	Express significant events using calendar dates.	**Measurement Cluster 2: Time** 8: Days and Weeks **Measurement Math Every Day** 2: Calendar Questions 2: Monthly Mix-Up	
		Describe the duration between or until significant events using comparative language.	**Measurement Cluster 2: Time** 11: Duration of Time 12: Measuring the Duration of Time	Grade 3 Goat Island
		Describe the duration of events using non-standard units.	**Measurement Cluster 2: Time** 10: Measuring Time 11: Duration of Time 12: Measuring the Duration of Time	Getting Ready for School Grade 3 Goat Island
		Relate First Nations' winter counts to duration.	**Measurement Cluster 2: Time** 13: First Nations Winter Counts	
Time can be described using standard units such as days or minutes.	Duration is quantified by measurement.	Describe the relationship between days, weeks, months, and years.	**Measurement Cluster 2: Time** 8: Days and Weeks 9: Months in a Year 14: Consolidation **Measurement Intervention** 3: Months of the Year	Grade 3 Goat Island
		Describe the duration between or until significant events using standard units of time.	**Measurement Cluster 2: Time** 12: Measuring the Duration of Time 14: Consolidation	

Name________________________________ Date _____________________

Master 15

Calendar Page

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday

Name________________________________ Date _____________________

Master 16

June Calendar Page

June

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
			1	2	3	4
5	6 Zoo Trip	7	8	9	10	11
12	13	14	15	16 Charlie’s Birthday	17	18
19	20	21 National Indigenous Peoples Day	22	23	24	25
26	27 Fun Day	28	29	30 Last Day of School		

Name________________________________ Date ____________________

Master 17a

Calendar Puzzle Cards

I am the 3rd day of the week.	I am the 5th day of the week.	I am the 1st day of the week.	I am the 7th day of the week.
I am the day before Wednesday the 8th	I am the day after Friday the 10th.	I am the day before Thursday the 2nd.	I am the day after Saturday the 4th.
I am the second Wednesday in the month.	I am the fifth Thursday in the month.	I am the third Monday in the month.	I am the fourth Sunday in the month.
I am 1 week after the field trip to the zoo.	I am 1 week before Charlie's birthday.	I am 1 week after National Indigenous Peoples Day.	I am 1 week before the last day of school.

Name_______________________________ Date ____________________

Master 17b

Calendar Puzzle Cards (for Accommodations)

I am the 3rd day of the week.	I am the 5th day of the week.	I am the 1st day of the week.	I am the 7th day of the week.
I am the 2nd day of the week.	I am the 4th day of the week.	I am the 6th day of the week.	I am the day after Saturday the 4th.
I am the day before Wednesday the 8th.	I am the day after Friday the 10th.	I am the day before Thursday the 2nd.	I am the day after Sunday the 19th.

Name________________________________ Date ____________________

Master 17c

Calendar Puzzle Cards (for Extension)

I am 2 weeks after Thursday the 9th.	I am 3 weeks after Tuesday the 7th.	I am 2 weeks before Friday the 24th.	I am 3 weeks before Monday the 27th.
I am 3 days before Wednesday the 8th.	I am 4 days after Friday the 10th.	I am 4 days before Thursday the 9th.	I am 5 days after Saturday the 4th.
I am 2 days after the 2nd Wednesday in the month.	I am 3 days before the 5th Thursday in the month.	I am 4 days after the 3rd Monday in the month.	I am 2 weeks before the 4th Sunday in the month.
I am 5 days before the field trip to the zoo.	I am 6 days before Charlie's birthday.	I am 5 days after National Indigenous Peoples Day.	I am 4 days before the last day of school.

Measurement

Master 18: Activity 8 Assessment

Days and Weeks

Relating Days and Weeks Behaviours/Strategies		
1. Student chooses a card, but does not know or cannot read the days of the week on the calendar.	2. Student reads the days on the calendar, but struggles with the use of ordinal numbers in context. I am the second Wednesday in the month. "I don't know what second means."	3. Student chooses a card, but struggles to count forward or backward 7 from a given number to count on or back one week.
Observations/Documentation		

4. Student understands the attributes of a calendar, but does not recognize patterns on a calendar page.	5. Student understands the attributes of a calendar, but does not provide a complete description when providing a date. "Monday 6th" or "Monday 6"	6. Student understands the relationship of units of time (e.g., days and weeks) and successfully solves all calendar problems.
Observations/Documentation		

Name_______________________________ Date ____________________

Master 19

Full-Year Calendar

Cut out each row and tape them together to make a linear arrangement.

JANUARY

S	M	T	W	T	F	S

FEBRUARY

S	M	T	W	T	F	S

MARCH

S	M	T	W	T	F	S

APRIL

S	M	T	W	T	F	S

MAY

S	M	T	W	T	F	S

JUNE

S	M	T	W	T	F	S

JULY

S	M	T	W	T	F	S

AUGUST

S	M	T	W	T	F	S

SEPTEMBER

S	M	T	W	T	F	S

OCTOBER

S	M	T	W	T	F	S

NOVEMBER

S	M	T	W	T	F	S

DECEMBER

S	M	T	W	T	F	S

Name________________________________ Date _____________________

Master 20a

Month Clue Cards

1st month __________	Last month __________	Month between September and November __________	3rd month __________
Month before August __________	5th month __________	Month between January and March __________	Ninth month __________
Month before December __________	Sixth month __________	Month after March __________	Eighth month __________

Name________________________________ Date _____________________

Master 20b

Month Clue Cards (for Accommodations)

1st month ________	12th month ________	10th month ________	3rd month ________
7th month ________	5th month ________	2nd month ________	9th month ________
11th month ________	6th month ________	4th month ________	8th month ________

Measurement

Master 21: Activity 9 Assessment

Months in a Year

Relating Months and Years Behaviours/Strategies		
1. Student chooses a card, but does not know the months of the year.	2. Student reads the months on the calendar, but struggles with the use of ordinal numbers in context. Ninth month "I don't know what ninth means."	3. Student understands the use of ordinal numbers in context, but struggles to say the number name sequence starting with 1 and counting forward. Ninth month "1, 2, 3, 5, 6, 8, 9" "July."
Observations/Documentation		

4. Student understands the use of ordinal numbers in context, but relies on a calendar to answer clue cards.	5. Student understands the use of ordinal numbers in context, but is unable to order the months without referring to a calendar.	6. Student understands the relationship of units of time (e.g., months and years), successfully answers all clue cards, and orders the cards by month.
Observations/Documentation		

Name________________________________ Date _____________________

Master 22a

How to Make a Pendulum

Materials (per student)

- Length of string/yarn (about 40 cm)
- 4 pony beads
- Tape

Note: Give each student a length of string taped at one end (makes it easier to put the beads on)

Instructions

Put four beads of different colours on the string. Move them to the middle of the string.

- Thread the string back through all four beads to make a circle. (See pictures).
- Pull each end of the string.
- Tie a knot to secure the beads.
- Tie the two ends of the string together (optional).

Name________________________________ Date _____________________

Master 22b

How to Make a Pendulum

Name________________________________ Date ____________________

Master 23

Pendulum Activity Cards

Tie your shoes. Number of swings: __________	Draw a tree. Number of swings: __________	Get a drink. Number of swings: __________
Do 5 jumping jacks. Number of swings: __________	Write your name. Number of swings: __________	Take your shoes off and then put them on. Number of swings: __________
Say the alphabet. Number of swings: __________	Draw a self-portrait. Number of swings: __________	Make a tower of 10 linking cubes. Number of swings: __________

Measurement

Master 24: Activity 10 Assessment
Measuring Time

Measuring Time Intervals Behaviours/Strategies		
1. Student explores measurement of non-visible attributes (time), but starts the pendulum before or after partner starts the activity.	2. Student starts the pendulum, but struggles to say the number name sequence starting with 1 and counting forward. "1, 2, 3, 5, 6, 8, 9"	3. Student explores measurement of non-visible attributes (time), but when counting pendulum swings, loses track of the count. "I forget what swing I am at."
Observations/Documentation		
4. Student explores measurement of non-visible attributes (time), but thinks the time it takes to do an activity should be the same for everyone. "It took 8 swings for me to do the activity. It should take everyone 8 swings."	5. Student explores measurement of non-visible attributes (time), but struggles to determine which activity took the longest. "8 swings, 15 swings, 12 swings, 14 swings, 20 swings, 11 swings. How do I know which activity took the longest?"	6. Student successfully explores measurement of non-visible attributes (time) and determines which activity took the longest.
Observations/Documentation		

Name______________________________ Date ____________________

Master 25

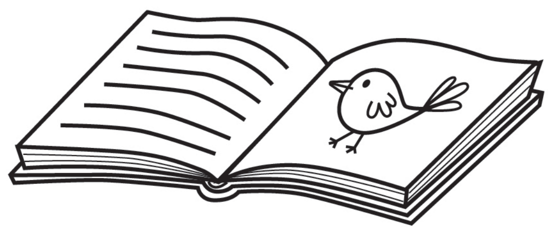
Duration of Time Activity Cards

Hop 25 times on each foot

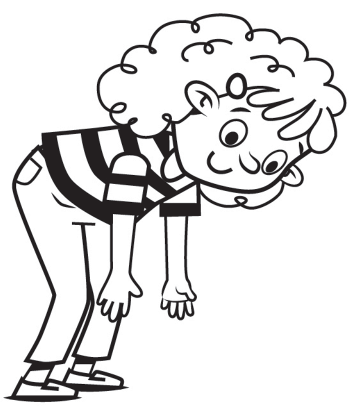
Count to 100

Print your name 10 times

Find a picture of a bird in a book



Do 25 toe touches



Building a tower of 25 linking cubes

Name______________________________ Date ____________________

Master 26

Duration of Time Recording Sheet

Activity	Number of Flips/Claps
25 Hops on Each Foot	
Count to 100	
Print Your Name 10 Times	
Find a Bird in a Book	
25 Toe Touches	
Build a Tower of 25 Linking Cubes	

Measurement

Master 27: Activity 11 Assessment

Duration of Time

Describing Duration of Time Behaviours/Strategies		
1. Student has difficulty accurately predicting which activity will take the longest.	2. Student starts the timer before or after partner starts the activity.	3. Student flips the timer but loses track of the number of times it was flipped.
Observations/Documentation		

4. Student thinks the time it takes to do an activity should be the same for everyone.	5. Student measures the duration of time but has difficulty using measurement language when describing the results.	6. Student measures and compares the duration of time and uses appropriate language to describe the results.
Observations/Documentation		

Measurement

Master 28: Activity 12 Assessment
Measuring the Duration of Time

Measuring the Duration of Time Behaviours/Strategies			
1. Student uses non-standard units to measure duration of time. "I used a sand timer and in one flip, I did 30 jumping jacks."	2. Student uses benchmarks to estimate and measure time. "Two episodes of my favourite TV show take 1 hour."	3. Student uses standard units to measure duration of time. "I used a stopwatch. Recess lasts 20 minutes. I used a calendar. The school week lasts 5 days."	4. Student selects and uses appropriate unit to measure time. "I would measure a school day in hours and the time it takes to walk to the library in minutes."
Observations/Documentation			

Name_________________________________ Date ______________________

Master 29a

Design Your Winter Count

Let’s create your own winter count using symbols.
What significant events or stories will you share?

Step 1: Plan your winter count.
Draw symbols to describe a significant event or story that has meaning to you.

Symbols	Event
	______________________________
	______________________________

Name________________________________ Date ____________________

Master 29b

Design Your Winter Count (cont'd)

Symbol **Event**

Name________________________________ Date ______________________

Master 29c

Design Your Winter Count (cont'd)

Step 2:
How many days, months, or seasons will your winter count illustrate?
How will you organize your symbols?
Display your winter count using the symbols shared.

Measurement

Master 30: Activity 13 Assessment

First Nations Winter Counts

Winter Counts Behaviours/Strategies			
1. Student is unable to recall significant events or stories.	2. Student is unable to use symbols to describe significant events or stories.	3. Student can use symbols to describe events or stories, but is unable to connect symbols to duration of time.	4. Student uses symbols to describe significant events and stories and recognizes how symbols illustrate the duration of time.
Observations/Documentation			

Measurement

Master 31: Activity 14 Assessment

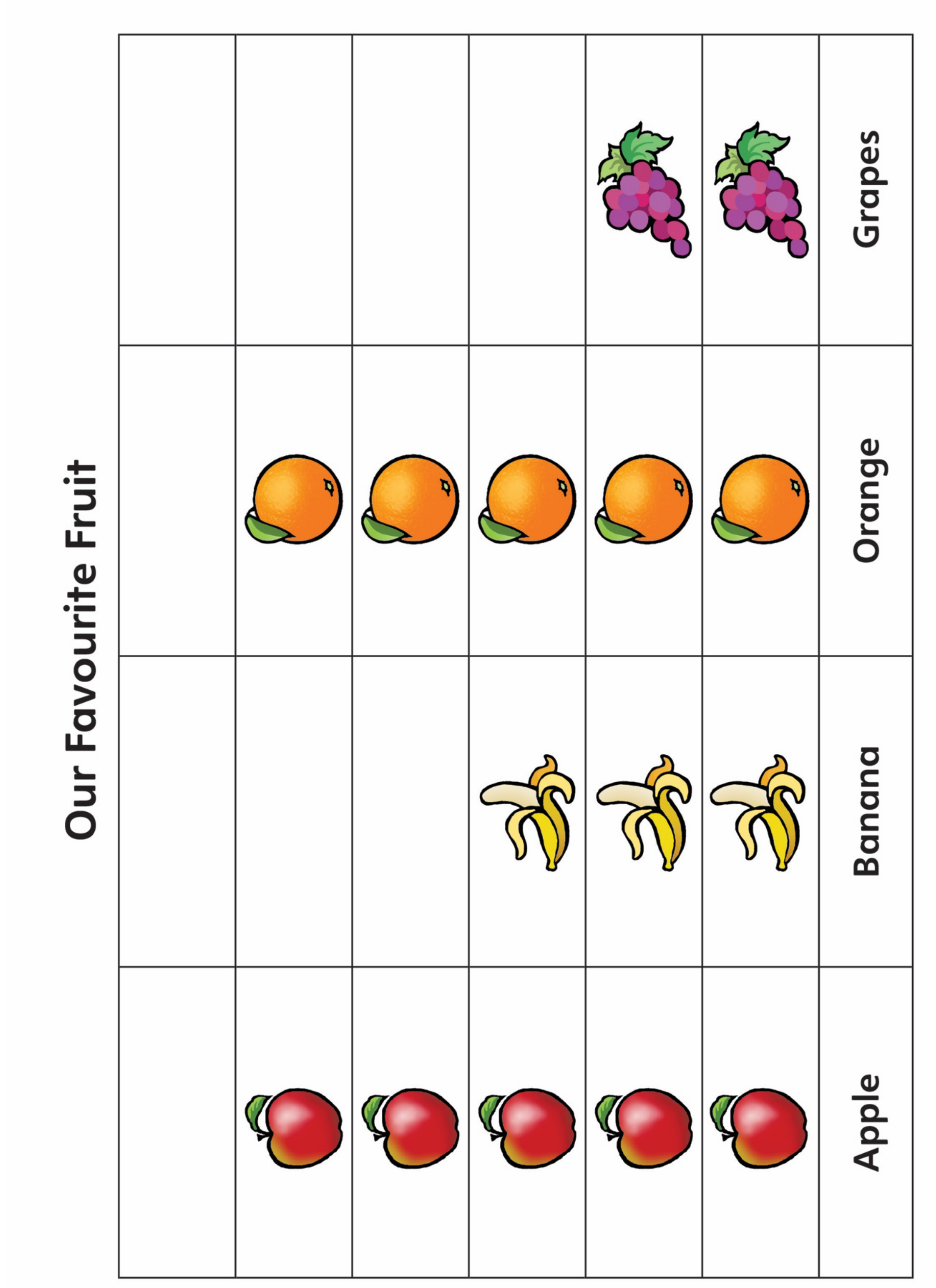
Time: Consolidation

Understanding Time Behaviours/Strategies			
1. Student struggles to read and understand the relationship between the days of the week or months of the year on the calendar.	2. Student understands the relationship between units of time (e.g., days, months, years), but struggles to recognize that duration of times can be measured with non-standard units. "Two episodes of my favourite TV show take 1 hour."	3. Student uses non-standard units to measure duration of activities, but struggles to recognize and use standard units of measure such as hours, minutes, and seconds. "20 Jumping Jacks took 3 flips of the timer. 10 pushups took 5 swings of the pendulum. How can I tell which took longer?"	4. Student understands the relationship between units of time (e.g., days and weeks, months and years), uses non-standard units of time to measure duration, and successfully identifies a need for a standard unit of measure for duration of time (e.g., hours, minutes, seconds).
Observations/Documentation			

Name________________________________ Date ______________________

Math Every Day: Master 16a

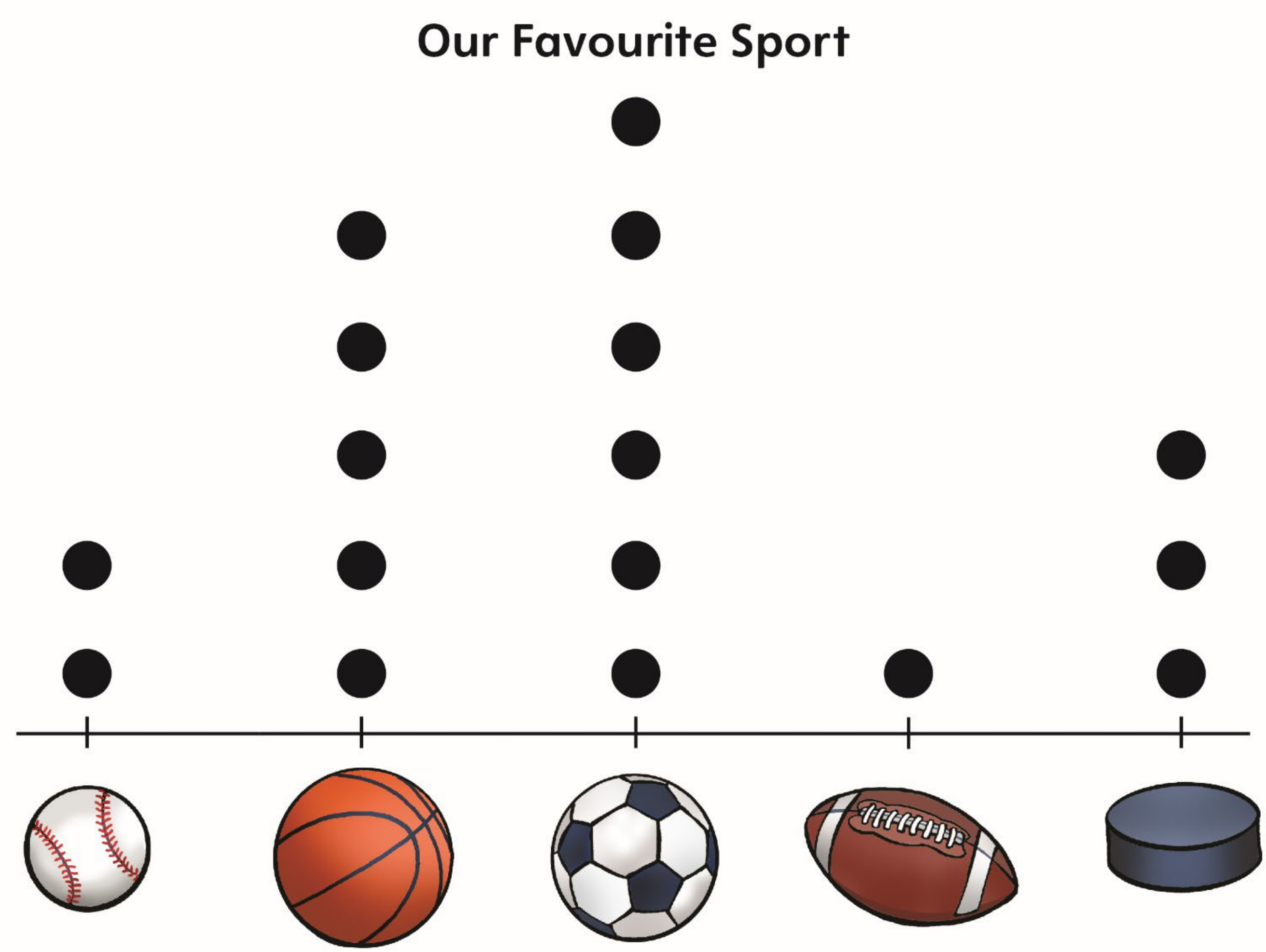
Sample Graphs



Name________________________________ Date _____________________

Math Every Day: Master 16b

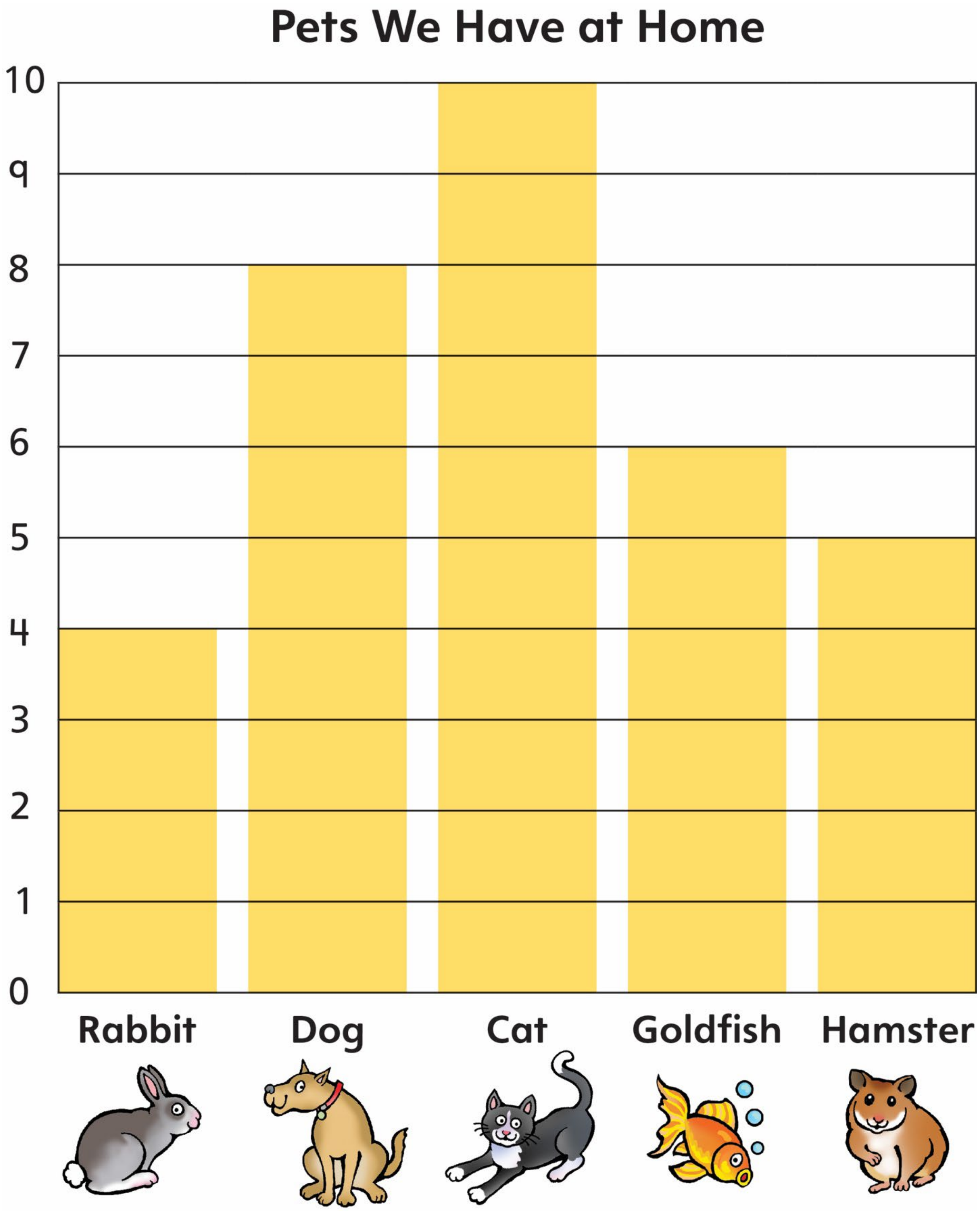
Sample Graphs



Name________________________________ Date ______________________

Math Every Day: Master 16c

Sample Graphs



Name________________________________ Date _____________________

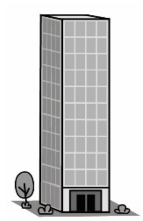
Math Every Day: Master 13

Geometry Poem

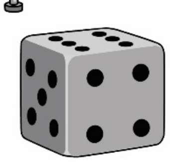
Solids aren’t flat, they’re fat.

A cone is like a pointy hat. 

A sphere is like a full moon in the sky. 

A prism is a building high. 

A cylinder is like a tall flag pole. 

A cube is something fun you roll. 

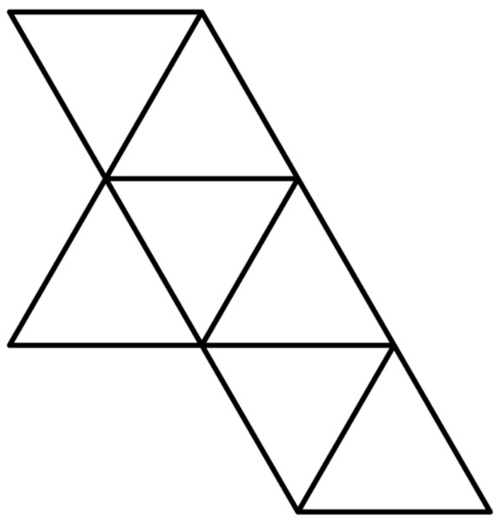
Solids are here. Solids are there.

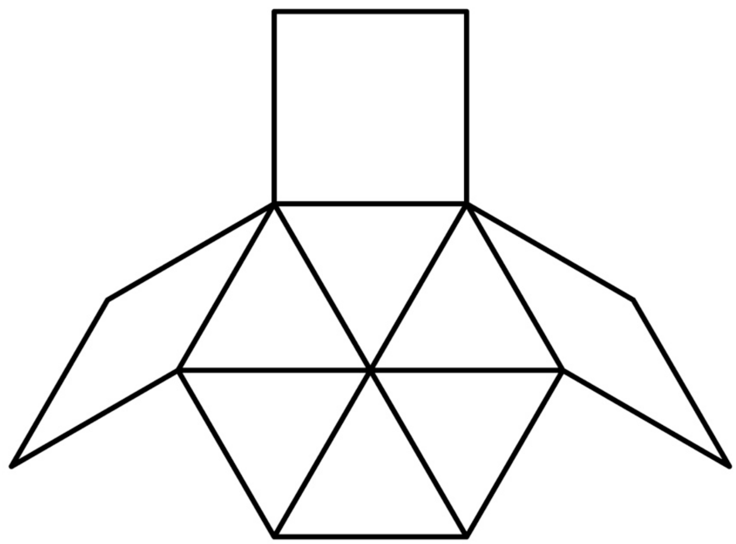
Solids are almost everywhere.

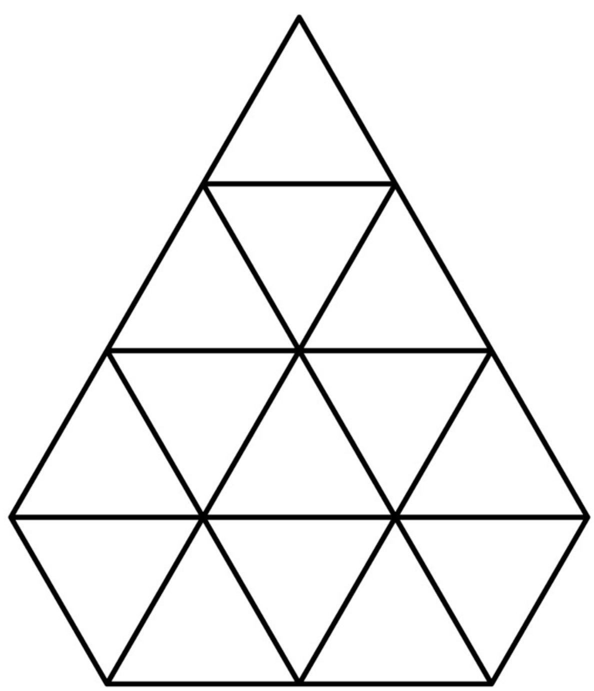
Name________________________________ Date _____________________

Math Every Day: Master 14a

Fill Me In!
Pattern Block Outlines



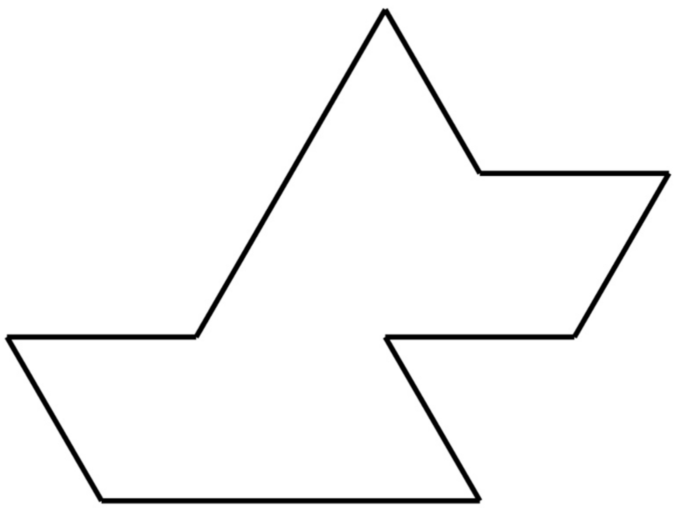


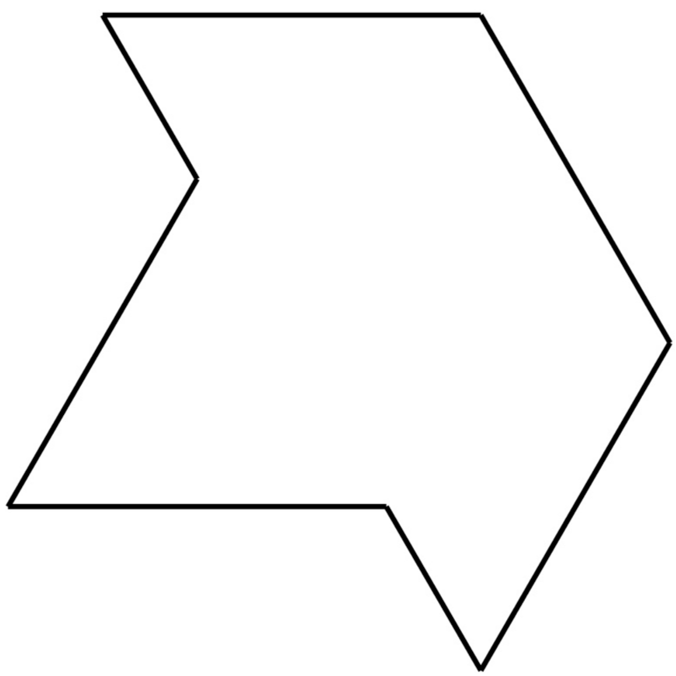


Name________________________________ Date _____________________

Math Every Day: Master 14b

Fill Me In!
Pattern Block Outlines



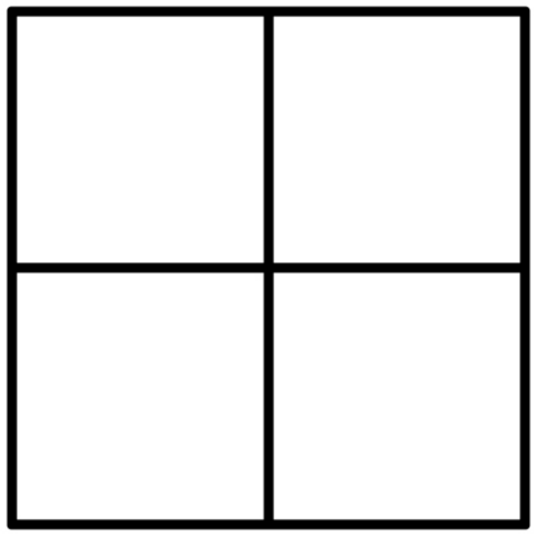


Name______________________________ Date ____________________

Math Every Day: Master 15a

Draw the Shape Cards

A.

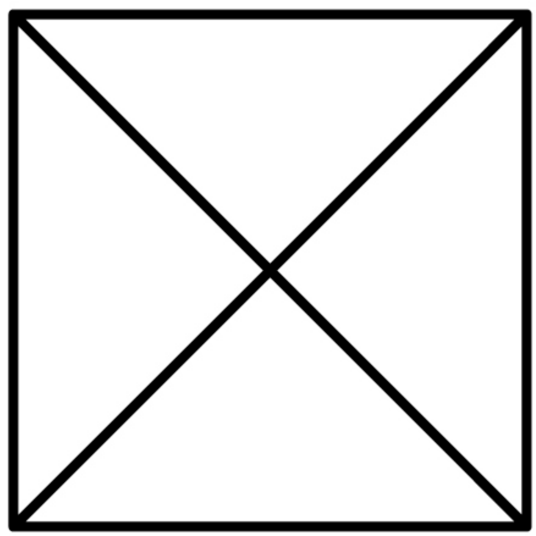


Name________________________________ Date ____________________

Math Every Day: Master 15b

Draw the Shape Cards

B.

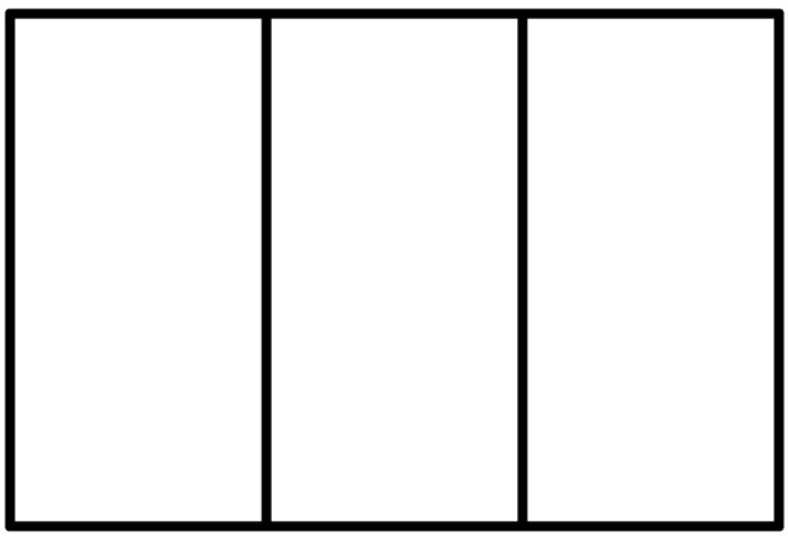


Name________________________________ Date _____________________

Math Every Day: Master 15c

Draw the Shape Cards

C.

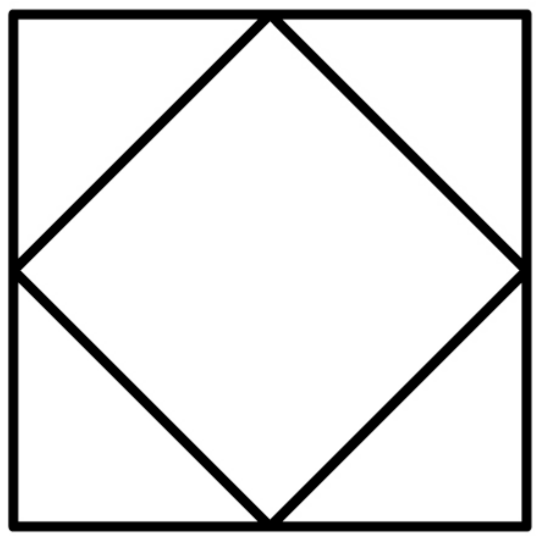


Name________________________________ Date ______________________

Math Every Day: Master 15d

Draw the Shape Cards

D.

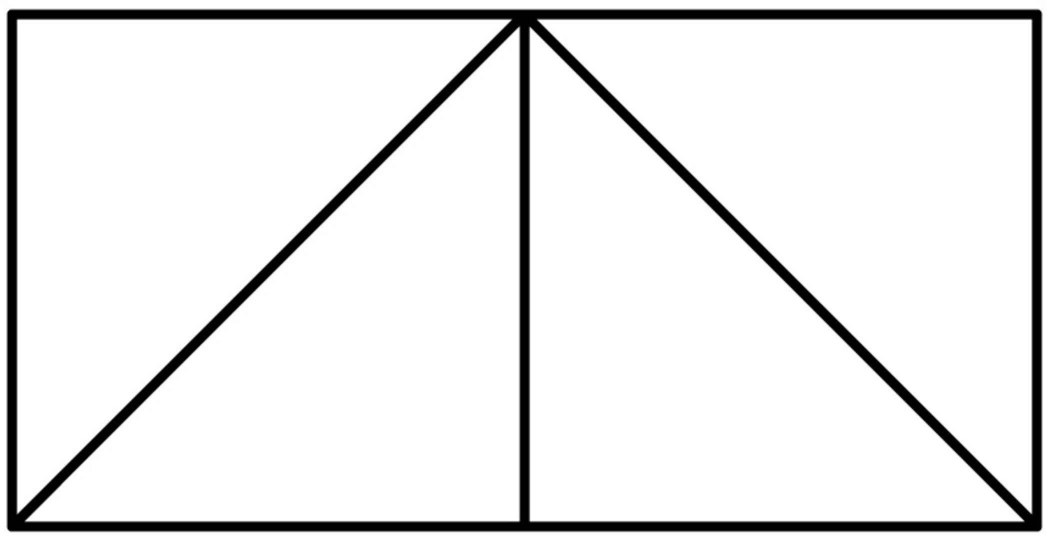


Name________________________________ Date _____________________

Math Every Day: Master 15e

Draw the Shape Cards

E.

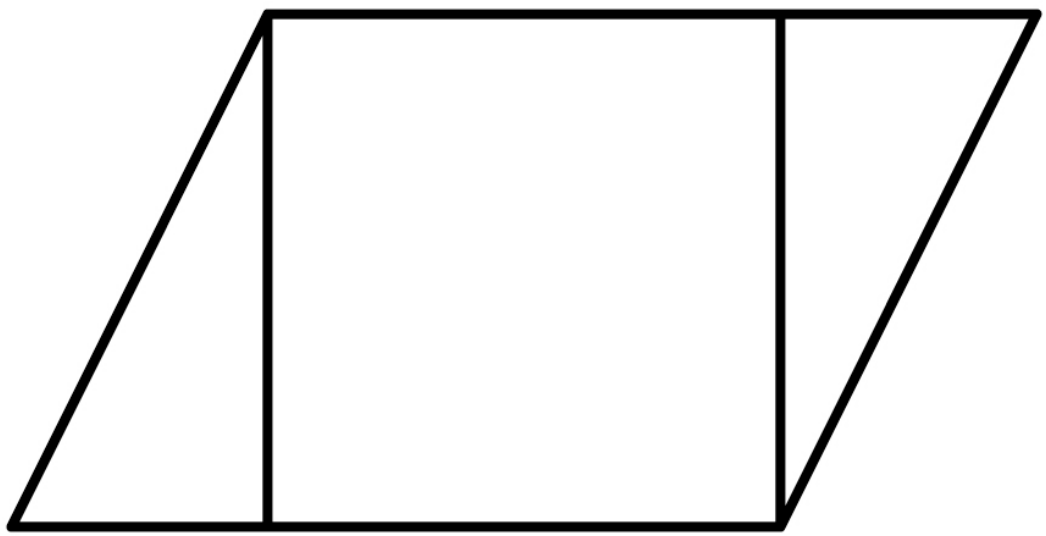


Name________________________________ Date ____________________

Math Every Day: Master 15f

Draw the Shape Cards

F.



Name________________________________ Date ______________________

Math Every Day: Master 9a

Number Cards (1–12)

1	2
3	4
5	6

Name________________________________ Date _____________________

Math Every Day: Master 9b

Number Cards (1–12)

7	8
9	10
11	12

Name________________________________ Date _____________________

Math Every Day: Master 10a

Ordinal Number Cards (1st–12th)

First	Second
Third	Fourth
Fifth	Sixth

Name________________________________ Date _____________________

Math Every Day: Master 10b

Ordinal Number Cards (1st–12th)

Seventh	Eighth
Ninth	Tenth
Eleventh	Twelfth

Name________________________________ Date _____________________

Math Every Day: Master 11a

Month Cards

January	February
March	April
May	June

Name________________________________ Date _____________________

Math Every Day: Master 11b

Month Cards

July	August
September	October
November	December

Name________________________________ Date _____________________

Math Every Day: Master 12a

Calendar Clue Cards

Month between December and February	Month before March
Month after April	Month before July
Month after August	Month before November

Name________________________________ Date ____________________

Math Every Day: Master 12b

Calendar Clue Cards

Month after February	Month between March and May
Month after June	Month between July and September
Month before December	Month between November and January

Name________________________________ Date ____________________

Master 1a

Hundred Charts (101–200)

101	102	103	104	105	106	107	108	109	110
111	112	113	114	115	116	117	118	119	120
121	122	123	124	125	126	127	128	129	130
131	132	133	134	135	136	137	138	139	140
141	142	143	144	145	146	147	148	149	150
151	152	153	154	155	156	157	158	159	160
161	162	163	164	165	166	167	168	169	170
171	172	173	74	175	176	177	178	179	180
181	182	183	184	185	186	187	188	189	190
191	192	193	194	195	196	197	198	199	200

Name________________________________ Date ____________________

Master 1b

Hundred Charts (201–300)

201	202	203	204	205	206	207	208	209	210
211	212	213	214	215	216	217	218	219	220
221	222	223	224	225	226	227	228	229	230
231	232	233	234	235	236	237	238	239	240
241	242	243	244	245	246	247	248	249	250
251	252	253	254	255	256	257	258	259	260
261	262	263	264	265	266	267	268	269	270
271	272	273	274	275	276	277	278	279	280
281	282	283	284	285	286	287	288	289	290
291	292	293	294	295	296	297	298	299	300

Name________________________________ Date ______________________

Master 1c

Hundred Charts (301–400)

301	302	303	304	305	306	307	308	309	310
311	312	313	314	315	316	317	318	319	320
321	322	323	324	325	326	327	328	329	330
331	332	333	334	335	336	337	338	339	340
341	342	343	344	345	346	347	348	349	350
351	352	353	354	355	356	357	358	359	360
361	362	363	364	365	366	367	368	369	370
371	372	373	374	375	376	377	378	379	380
381	382	383	384	385	386	387	388	389	390
391	392	393	394	395	396	397	398	399	400

Name________________________________ Date ____________________

Master 1d

Hundred Charts (401–500)

401	402	403	404	405	406	407	408	409	410
411	412	413	414	415	416	417	418	419	420
421	422	423	424	425	426	427	428	429	430
431	432	433	434	435	436	437	438	439	440
441	442	443	444	445	446	447	448	449	450
451	452	453	454	455	456	457	458	459	460
461	462	463	464	465	466	467	468	469	470
471	472	473	474	475	476	477	478	479	480
481	482	483	484	485	486	487	488	489	490
491	492	493	494	495	496	497	498	499	500

Name_______________________________ Date ____________________

Master 1e

Hundred Charts (501–600)

501	502	503	504	505	506	507	508	509	510
511	512	513	514	515	516	517	518	519	520
521	522	523	524	525	526	527	528	529	530
531	532	533	534	535	536	537	538	539	540
541	542	543	544	545	546	547	548	549	550
551	552	553	554	555	556	557	558	559	560
561	562	563	564	565	566	567	568	569	570
571	572	573	574	575	576	577	578	579	580
581	582	583	584	585	586	587	588	589	590
591	592	593	594	595	596	597	598	599	600

Name________________________________ Date _____________________

Master 1f

Hundred Charts (601–700)

601	602	603	604	605	606	607	608	609	610
611	612	613	614	615	616	617	618	619	620
621	622	623	624	625	626	627	628	629	630
631	632	633	634	635	636	637	638	639	640
641	642	643	644	645	646	647	648	649	650
651	652	653	654	655	656	657	658	659	660
661	662	663	664	665	666	667	668	669	670
671	672	673	674	675	676	677	678	679	680
681	682	683	684	685	686	687	688	689	690
691	692	693	694	695	696	697	698	699	700

Name________________________________ Date ______________________

Master 1g

Hundred Charts (701–800)

701	702	703	704	705	706	707	708	709	710
711	712	713	714	715	716	717	718	719	720
721	722	723	724	725	726	727	728	729	730
731	732	733	734	735	736	737	738	739	740
741	742	743	744	745	746	747	748	749	750
751	752	753	754	755	756	757	758	759	760
761	762	763	764	765	766	767	768	769	770
771	772	773	774	775	776	777	778	779	780
781	782	783	784	785	786	787	788	789	790
791	792	793	794	795	796	797	798	799	800

Name________________________________ Date ____________________

Master 1h

Hundred Charts (801–900)

801	802	803	804	805	806	807	808	809	810
811	812	813	814	815	816	817	818	819	820
821	822	823	824	825	826	827	828	829	830
831	832	833	834	835	836	837	838	839	840
841	842	843	844	845	846	847	848	849	850
851	852	853	854	855	856	857	858	859	860
861	862	863	864	865	866	867	868	869	870
871	872	873	874	875	876	877	878	879	880
881	882	883	884	885	886	887	888	889	890
891	892	893	894	895	896	897	898	899	900

Name______________________________ Date ____________________

Master 1i

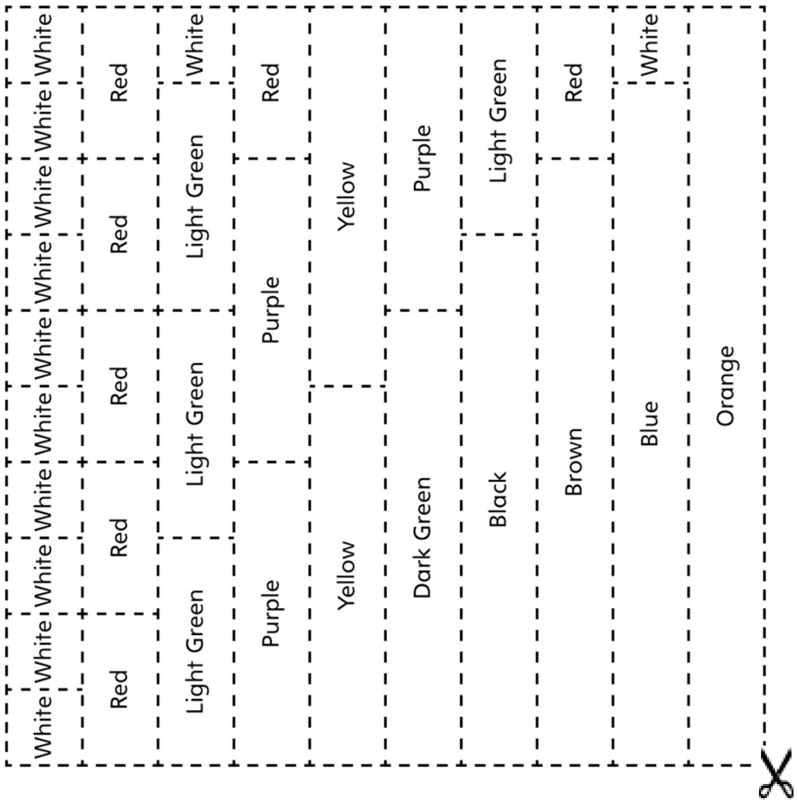
Hundred Charts (901–1000)

901	902	903	904	905	906	907	908	909	910
911	912	913	914	915	916	917	918	919	920
921	922	923	924	925	926	927	928	929	930
931	932	933	934	935	936	937	938	939	940
941	942	943	944	945	946	947	948	949	950
951	952	953	954	955	956	957	958	959	960
961	962	963	964	965	966	967	968	969	970
971	972	973	974	975	976	977	978	979	980
981	982	983	984	985	986	987	988	989	990
991	992	993	994	995	996	997	998	999	1000

Name________________________________ Date ____________________

Math Every Day: Master 2

Coloured Rods

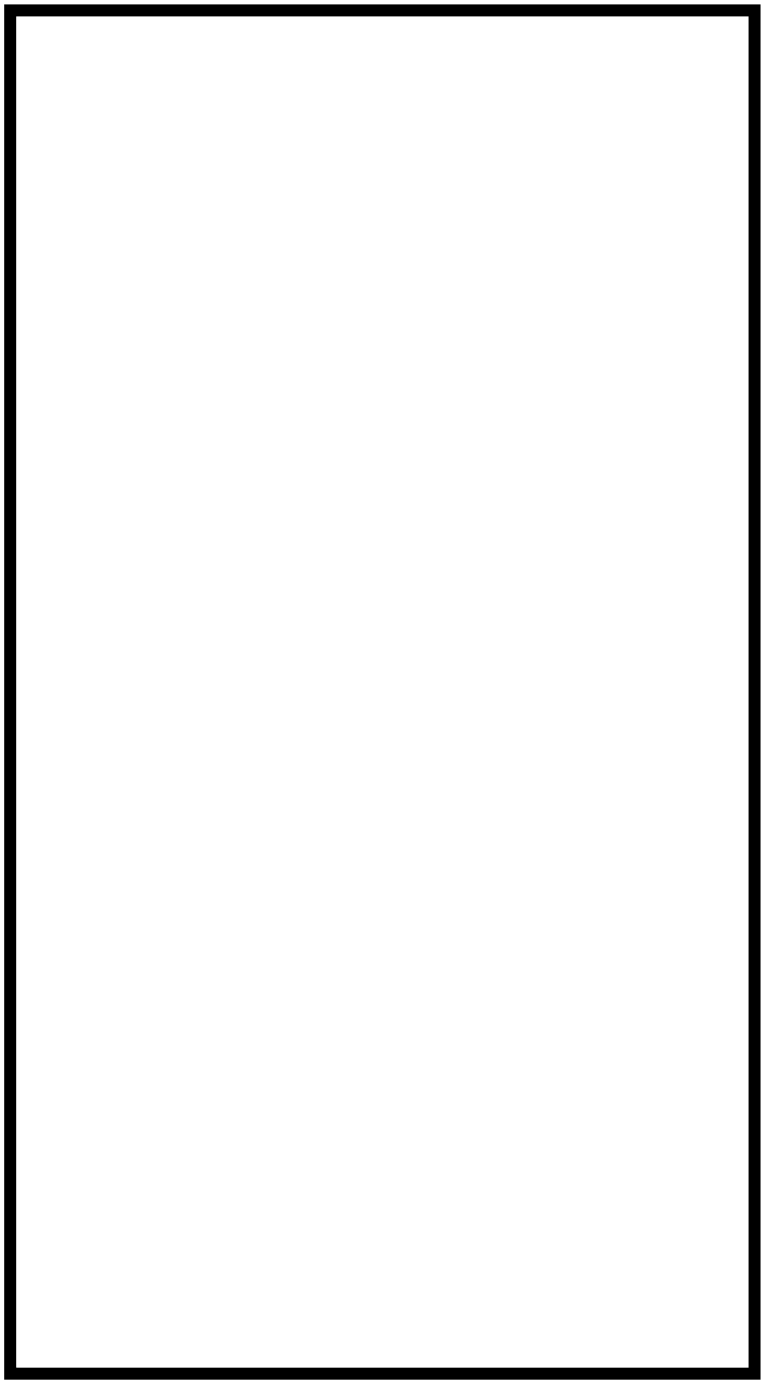


Name________________________________ Date _____________________

Math Every Day: Master 3a

Paper Shapes

Rectangle

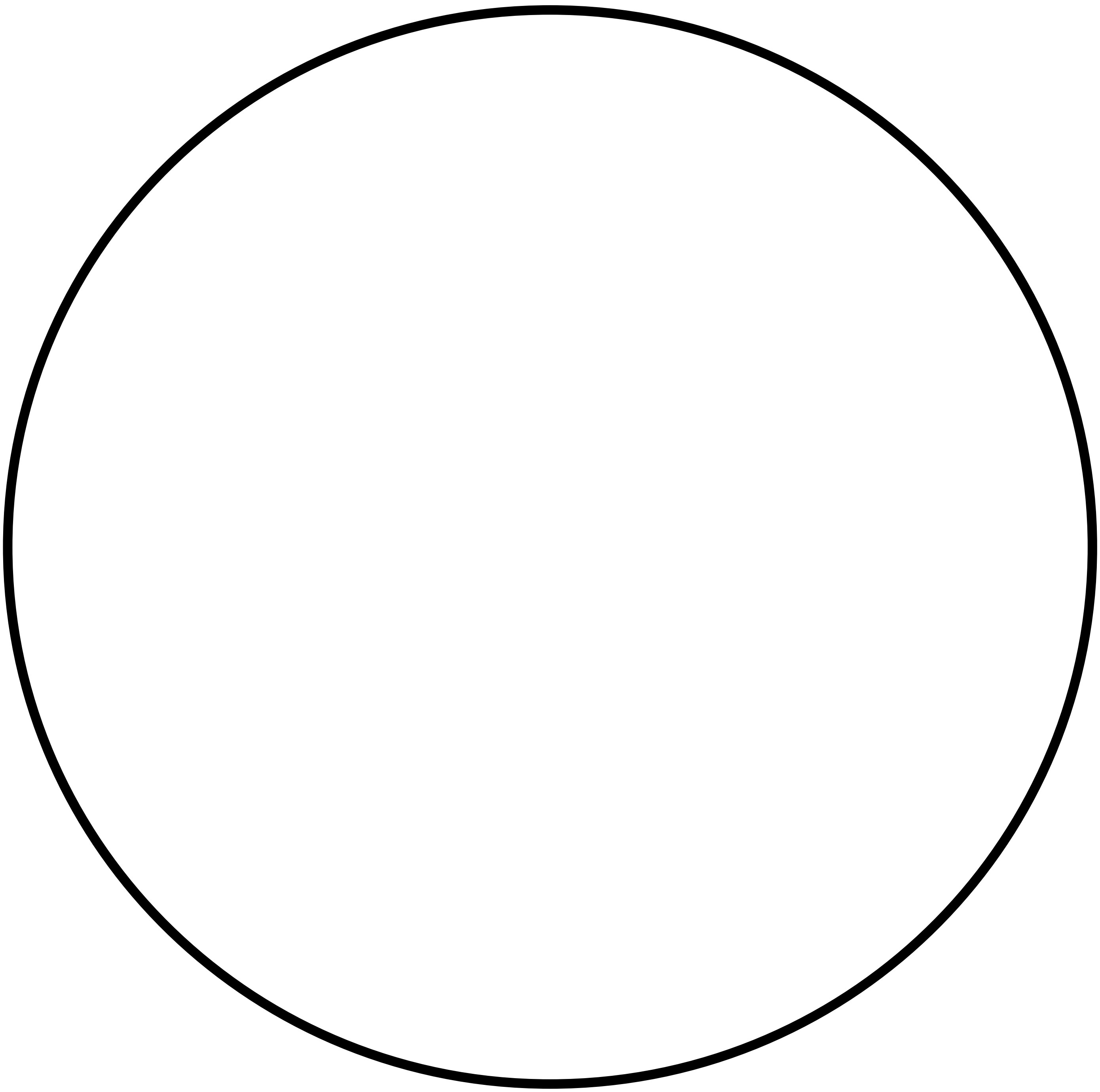


Name________________________________ Date _____________________

Math Every Day: Master 3b

Paper Shapes

Circle

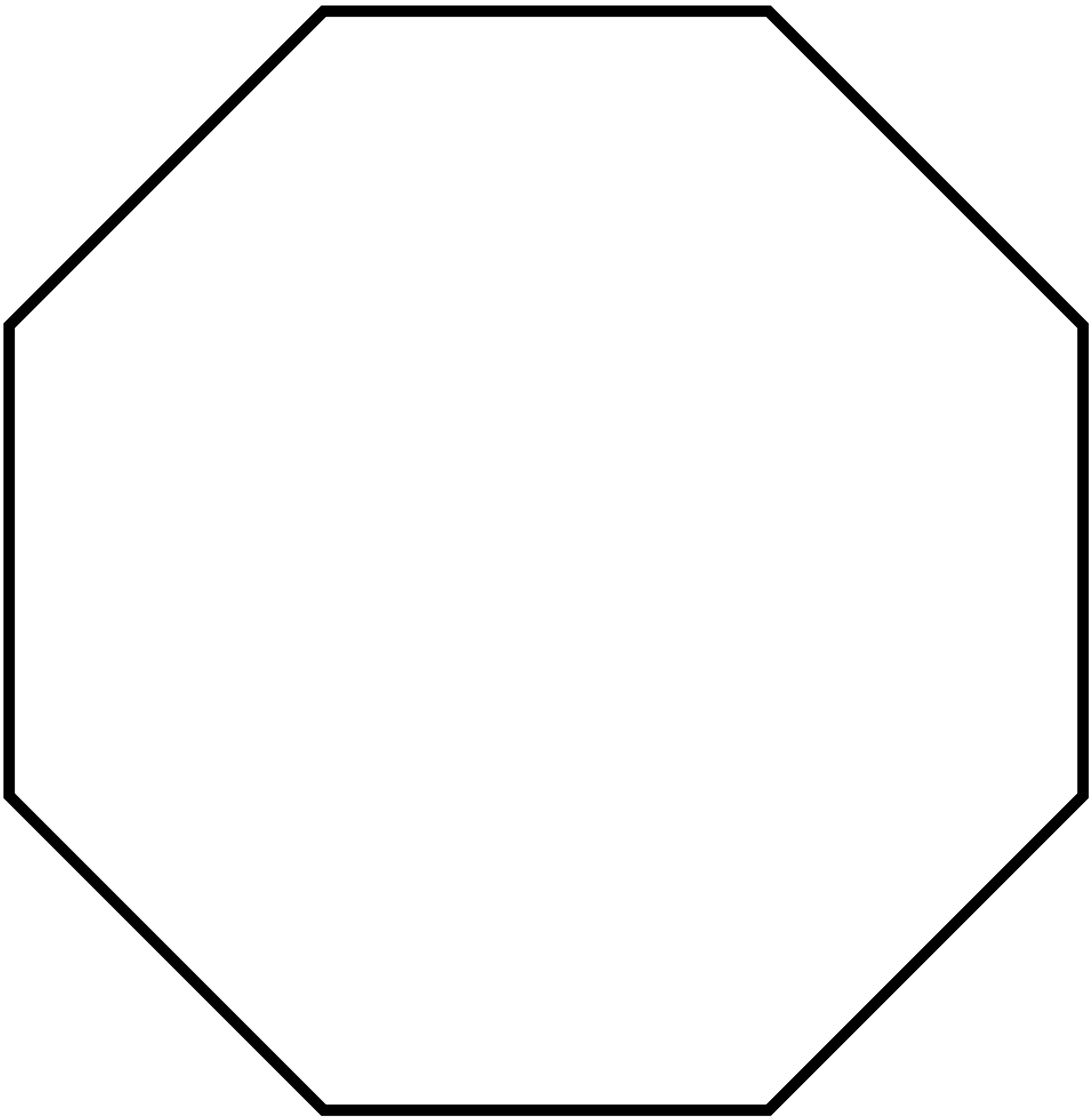


Name________________________________ Date _____________________

Math Every Day: Master 3c

Paper Shapes

Octagon

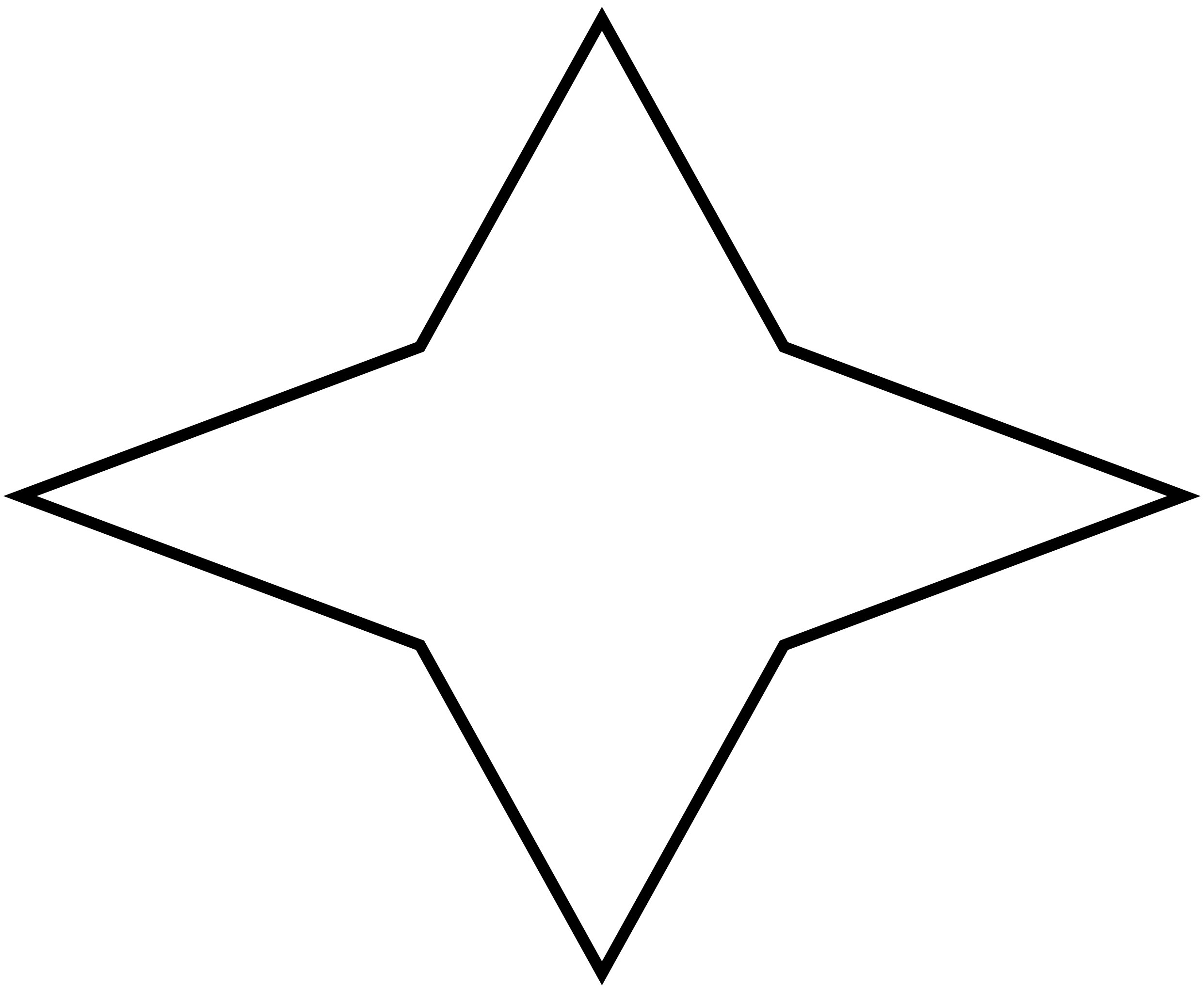


Name________________________________ Date _____________________

Math Every Day: Master 3d

Paper Shapes

8-Sided Shape



Name_______________________________ Date ____________________

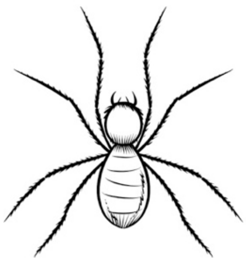
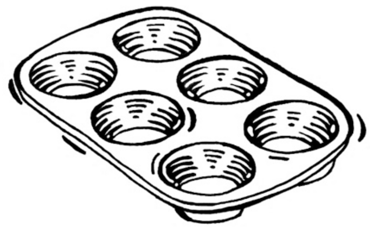
Math Every Day: Master 4

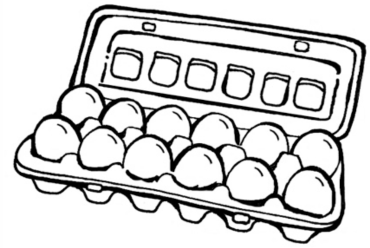
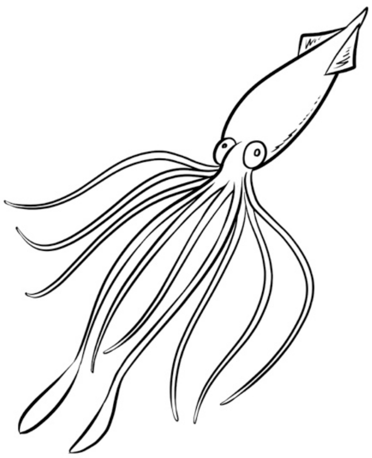
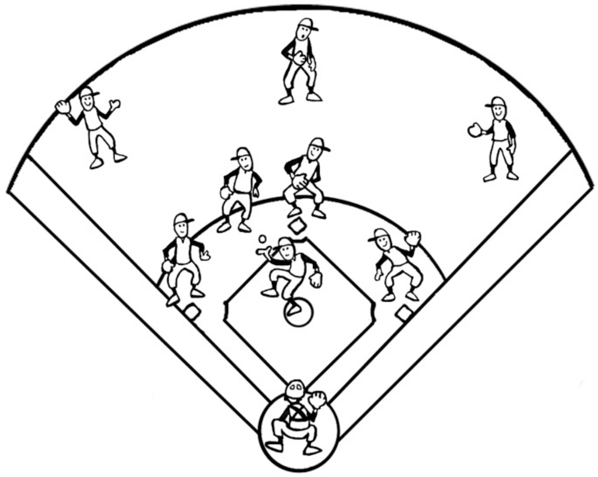
At the Beach

Name________________________________ Date ____________________

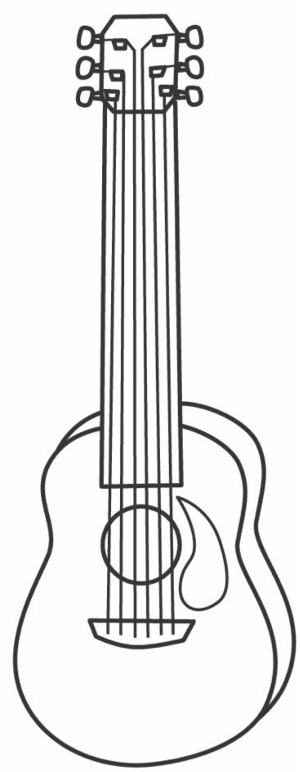
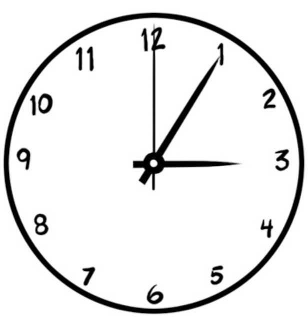
Math Every Day: Master 5

Images of Everyday Items

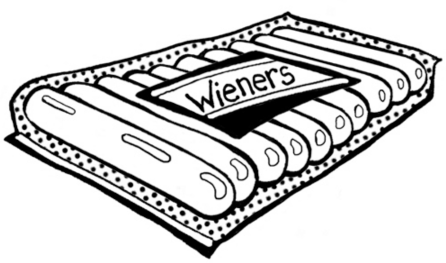




SUN	MON	TUE	WED	THU	FRI	SAT
1	2	3	4	5	6	7

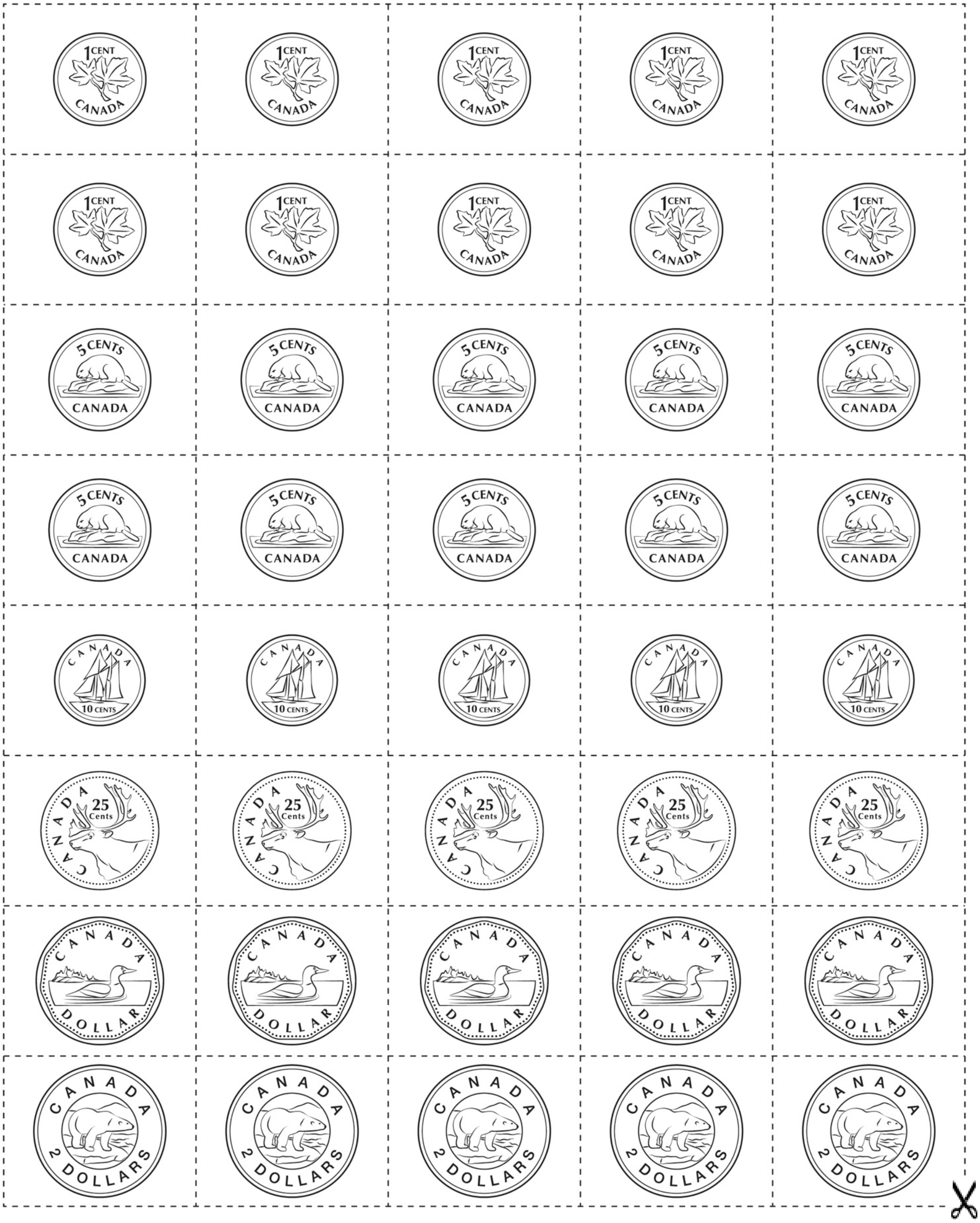




Name_______________________________ Date ____________________

Math Every Day: Master 6

Coin Cutouts



Name________________________________ Date _____________________

Math Every Day: Master 7

Repeating Patterns Around Us

Wall Art

Name________________________________ Date ____________________

Crosswalk

Paving Stones

Name_________________________________ Date ______________________

Garden Path

Name________________________________ Date ______________________

Math Every Day: Master 8

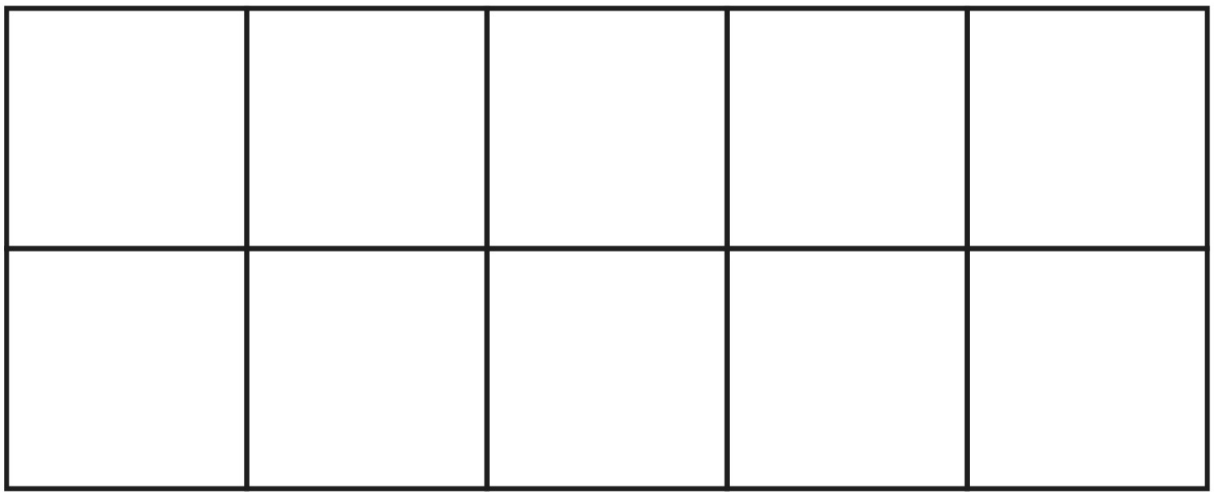
What's Missing? Number Sentences

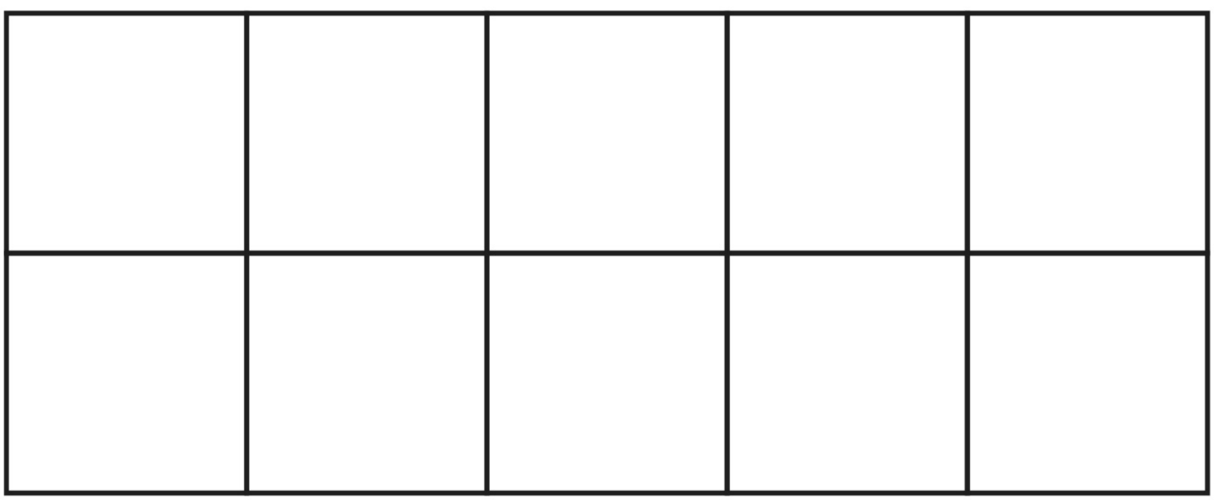
$3 + 6 = \square$	$8 + \square = 15$
$3 + 6 = 4 + \square$	$\square + 3 + 7 = 4 + 11$
$3 + 2 + \square = 4 + 5$	$\square + 10 = 11 + 4$
$3 + \square + 5 = 6 + 3$	$5 + 3 + 7 = 2 + \square + 4$
$3 + 3 + 3 = 2 + \square + 3$	$5 + 10 = 2 + \square$
$\square - 5 = 4$	$5 + 5 = \square + 4$
$9 - 5 = 3 + \square$	$5 + \square + 3 = 4 + 2 + 4$
$9 - \square - 1 = 1 + 3$	$7 + 3 = 2 + \square$
$\square - 1 = 2 + 2$	$\square - 2 + 3 = 2 + 9 - 1$
$4 = \square - 3 + 2$	$12 - 2 = \square + 9$

Name________________________________ Date _____________________

Multi-Use Master 1

Ten-Frames





Name________________________________ Date ______________________

Multi-Use Master 2

Place-Value Mat

My Number

Ones

Tens

Hundreds

Name________________________________ Date _____________________

Multi-Use Master 3

Five-Frames

Name________________________________ Date _____________________

Multi-Use Master 4

Part-Part-Whole Mat

Whole	Part
	Part

Name________________________________ Date ______________________

Multi-Use Master 5

Hundred Chart

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

Name________________________________ Date _____________________

Multi-Use Master 6

Sorting Mat

Yes	No

Name________________________________ Date _____________________

Multi-Use Master 7

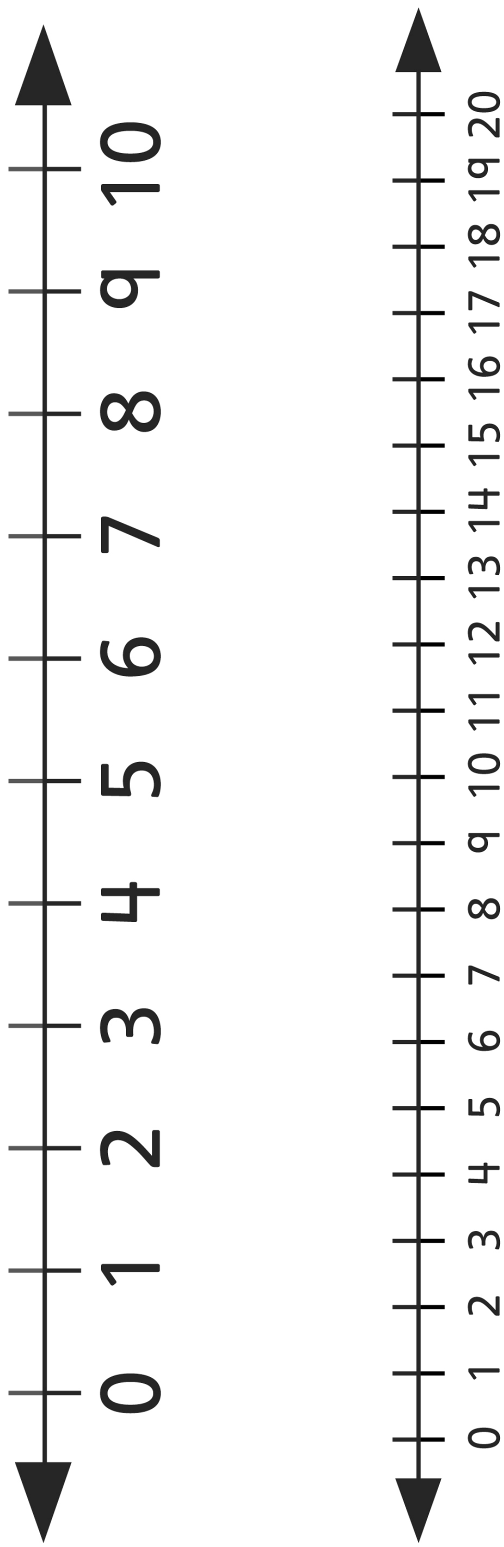
Graphing Mat

Title ______________________________

Name________________________________ Date ____________________

Multi-Use Master 8

Number Lines



Name________________________________ Date _____________________

Multi-Use Master 9

Open Number Line

Master 1a

Mathology Grade 2 Correlation – Alberta
Number Cluster 1: Counting

Organizing Idea:
Number: Quantity is measured with numbers that enable counting, labelling, comparing, and operating.

Guiding Question: How can quantity contribute to a sense of number? **Learning Outcome:** Students analyze quantity to 1000.				
Knowledge	**Understanding**	**Skills & Procedures**	**Grade 2 Mathology**	**Mathology Little Books**
A quantity can be skip counted in various ways according to context. Quantities of money can be skip counted in amounts that are represented by coins and bills (denominations).	A quantity can be interpreted as a composition of groups.	Count within 1000, forward and backward by 1s, starting at any number.	**Number Cluster 1: Counting** 1: Counting to 1000 4: Consolidation **Number Intervention** 1: Skip-Counting with Objects	Ways to Count (numbers to 100) Family Fun Day (numbers to 100) What Would You Rather? (numbers to 100) Grade 3 Fantastic Journeys (numbers to 1000) Finding Buster (numbers to 1000) How Numbers Work (3-digit numbers)

		Skip count by 20s, 25s, or 50s, starting at 0.	**Number Cluster 1: Counting** 2: Skip-Counting Forward **Number Math Every Day** 1A: Skip-Counting on a Hundred Chart 1B: Skip-Counting with Actions 1B: What's Wrong? What's Missing?	Ways to Count (numbers to 100) Family Fun Day (numbers to 100) What Would You Rather? (numbers to 100) <u>Grade 3</u> Fantastic Journeys (numbers to 1000) Finding Buster (numbers to 1000)
		Skip count by 2s and 10s, starting at any number.	**Number Cluster 1: Counting** 3: Skip-Counting Flexibly 4: Consolidation **Number Math Every Day** 1A: Skip-Counting on a Hundred Chart 1A: Skip-Counting from Any Number 1B: Skip-Counting with Actions 1B: What's Wrong? What's Missing? **Number Intervention** 1: Skip-Counting with Objects	Ways to Count (numbers to 100) Family Fun Day (numbers to 100) What Would You Rather? (numbers to 100)

Master 2: Activity 1 Assessment

Counting to 1000

Counting to 1000 (by 1s) Behaviours/Strategies			
1. Student counts on to 20. "13, 14, 15, 16, 17, 18, 19"	2. Student counts on and back within 100, bridging tens. "48, 49, 50, 51, 52"	3. Student counts on and back within 1000, bridging hundreds. "498, 499, 500, 501, 502"	4. Student flexibly counts on and back within 1000, bridging tens and hundreds. "603, 602, 601, 600, 599"
Observations/Documentation			

Name________________________________ Date _____________________

Master 3a

Hundred Charts (101–200)

101	102	103	104	105	106	107	108	109	110
111	112	113	114	115	116	117	118	119	120
121	122	123	124	125	126	127	128	129	130
131	132	133	134	135	136	137	138	139	140
141	142	143	144	145	146	147	148	149	150
151	152	153	154	155	156	157	158	159	160
161	162	163	164	165	166	167	168	169	170
171	172	173	74	175	176	177	178	179	180
181	182	183	184	185	186	187	188	189	190
191	192	193	194	195	196	197	198	199	200

Name________________________________ Date ______________________

Master 3b

Hundred Charts (201–300)

201	202	203	204	205	206	207	208	209	210
211	212	213	214	215	216	217	218	219	220
221	222	223	224	225	226	227	228	229	230
231	232	233	234	235	236	237	238	239	240
241	242	243	244	245	246	247	248	249	250
251	252	253	254	255	256	257	258	259	260
261	262	263	264	265	266	267	268	269	270
271	272	273	274	275	276	277	278	279	280
281	282	283	284	285	286	287	288	289	290
291	292	293	294	295	296	297	298	299	300

Name________________________________ Date ______________________

Master 3c

Hundred Charts (301–400)

301	302	303	304	305	306	307	308	309	310
311	312	313	314	315	316	317	318	319	320
321	322	323	324	325	326	327	328	329	330
331	332	333	334	335	336	337	338	339	340
341	342	343	344	345	346	347	348	349	350
351	352	353	354	355	356	357	358	359	360
361	362	363	364	365	366	367	368	369	370
371	372	373	374	375	376	377	378	379	380
381	382	383	384	385	386	387	388	389	390
391	392	393	394	395	396	397	398	399	400

Name_______________________________ Date ____________________

Master 3d

Hundred Charts (401–500)

401	402	403	404	405	406	407	408	409	410
411	412	413	414	415	416	417	418	419	420
421	422	423	424	425	426	427	428	429	430
431	432	433	434	435	436	437	438	439	440
441	442	443	444	445	446	447	448	449	450
451	452	453	454	455	456	457	458	459	460
461	462	463	464	465	466	467	468	469	470
471	472	473	474	475	476	477	478	479	480
481	482	483	484	485	486	487	488	489	490
491	492	493	494	495	496	497	498	499	500

Name_______________________________ Date ____________________

Master 3e

Hundred Charts (501–600)

501	502	503	504	505	506	507	508	509	510
511	512	513	514	515	516	517	518	519	520
521	522	523	524	525	526	527	528	529	530
531	532	533	534	535	536	537	538	539	540
541	542	543	544	545	546	547	548	549	550
551	552	553	554	555	556	557	558	559	560
561	562	563	564	565	566	567	568	569	570
571	572	573	574	575	576	577	578	579	580
581	582	583	584	585	586	587	588	589	590
591	592	593	594	595	596	597	598	599	600

Name________________________________ Date _____________________

Master 3f

Hundred Charts (601–700)

601	602	603	604	605	606	607	608	609	610
611	612	613	614	615	616	617	618	619	620
621	622	623	624	625	626	627	628	629	630
631	632	633	634	635	636	637	638	639	640
641	642	643	644	645	646	647	648	649	650
651	652	653	654	655	656	657	658	659	660
661	662	663	664	665	666	667	668	669	670
671	672	673	674	675	676	677	678	679	680
681	682	683	684	685	686	687	688	689	690
691	692	693	694	695	696	697	698	699	700

Name________________________________ Date ______________________

Master 3g

Hundred Charts (701–800)

701	702	703	704	705	706	707	708	709	710
711	712	713	714	715	716	717	718	719	720
721	722	723	724	725	726	727	728	729	730
731	732	733	734	735	736	737	738	739	740
741	742	743	744	745	746	747	748	749	750
751	752	753	754	755	756	757	758	759	760
761	762	763	764	765	766	767	768	769	770
771	772	773	774	775	776	777	778	779	780
781	782	783	784	785	786	787	788	789	790
791	792	793	794	795	796	797	798	799	800

Name______________________________ Date ____________________

Master 3h

Hundred Charts (801–900)

801	802	803	804	805	806	807	808	809	810
811	812	813	814	815	816	817	818	819	820
821	822	823	824	825	826	827	828	829	830
831	832	833	834	835	836	837	838	839	840
841	842	843	844	845	846	847	848	849	850
851	852	853	854	855	856	857	858	859	860
861	862	863	864	865	866	867	868	869	870
871	872	873	874	875	876	877	878	879	880
881	882	883	884	885	886	887	888	889	890
891	892	893	894	895	896	897	898	899	900

Name________________________________ Date ______________________

Master 3i

Hundred Charts (901–1000)

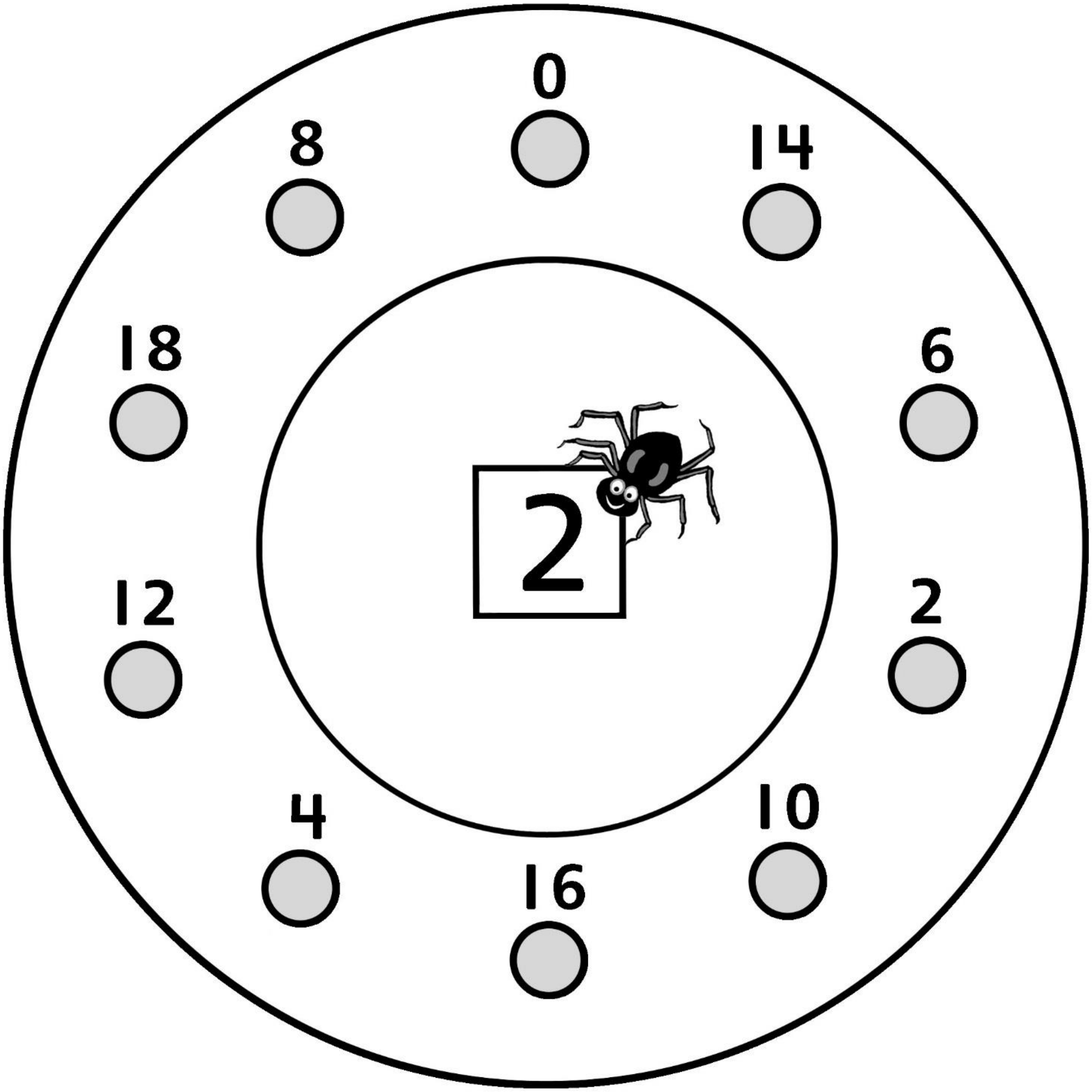
901	902	903	904	905	906	907	908	909	910
911	912	913	914	915	916	917	918	919	920
921	922	923	924	925	926	927	928	929	930
931	932	933	934	935	936	937	938	939	940
941	942	943	944	945	946	947	948	949	950
951	952	953	954	955	956	957	958	959	960
961	962	963	964	965	966	967	968	969	970
971	972	973	974	975	976	977	978	979	980
981	982	983	984	985	986	987	988	989	990
991	992	993	994	995	996	997	998	999	1000

Name________________________________ Date _____________________

Master 4a

Skip-Counting by 2s Spider Webs

Start at 0. Skip-count by 2s.

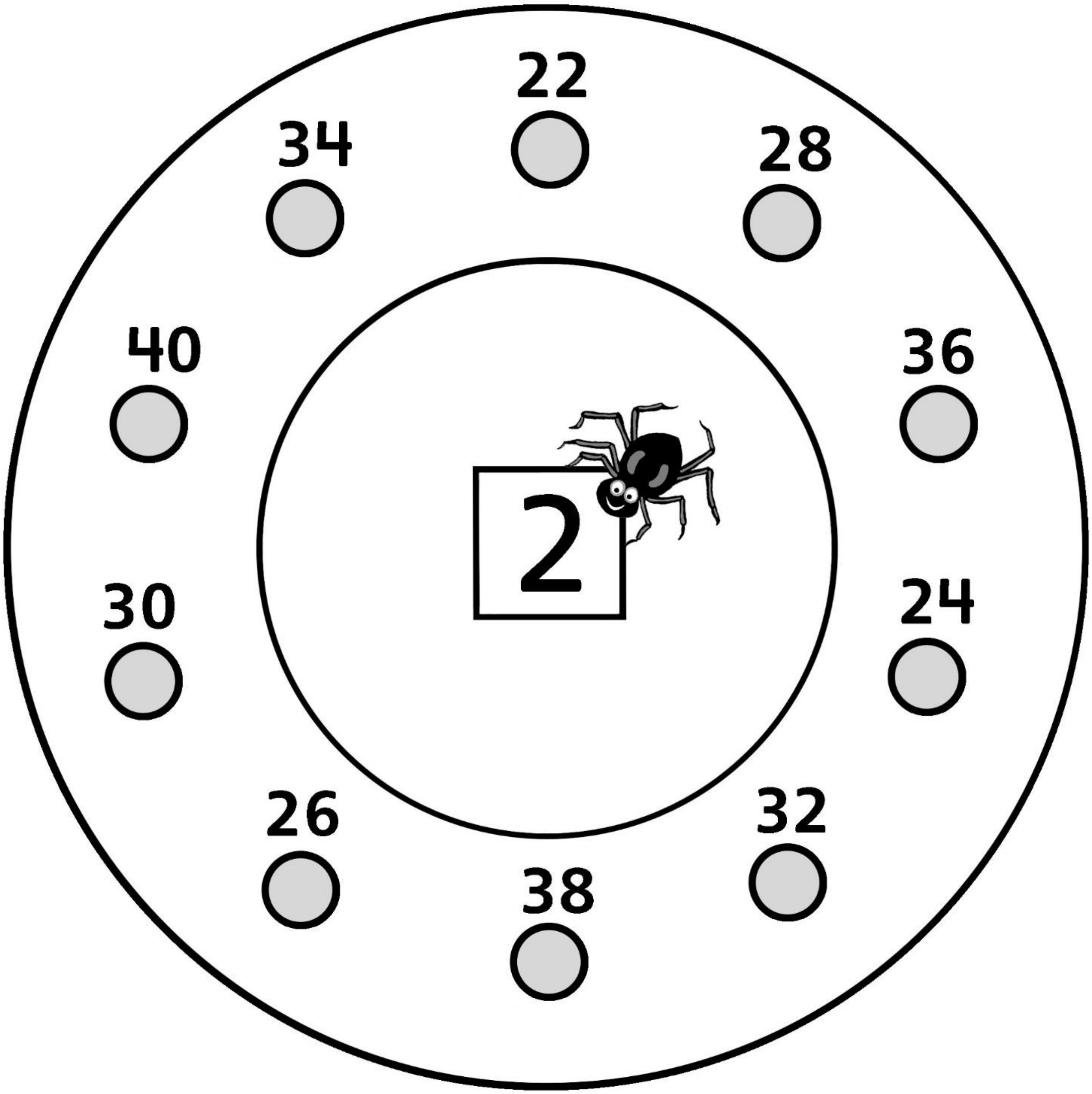


Name________________________________ Date ____________________

Master 4b

Skip-Counting by 2s Spider Webs

Start at 22. Skip-count by 2s.

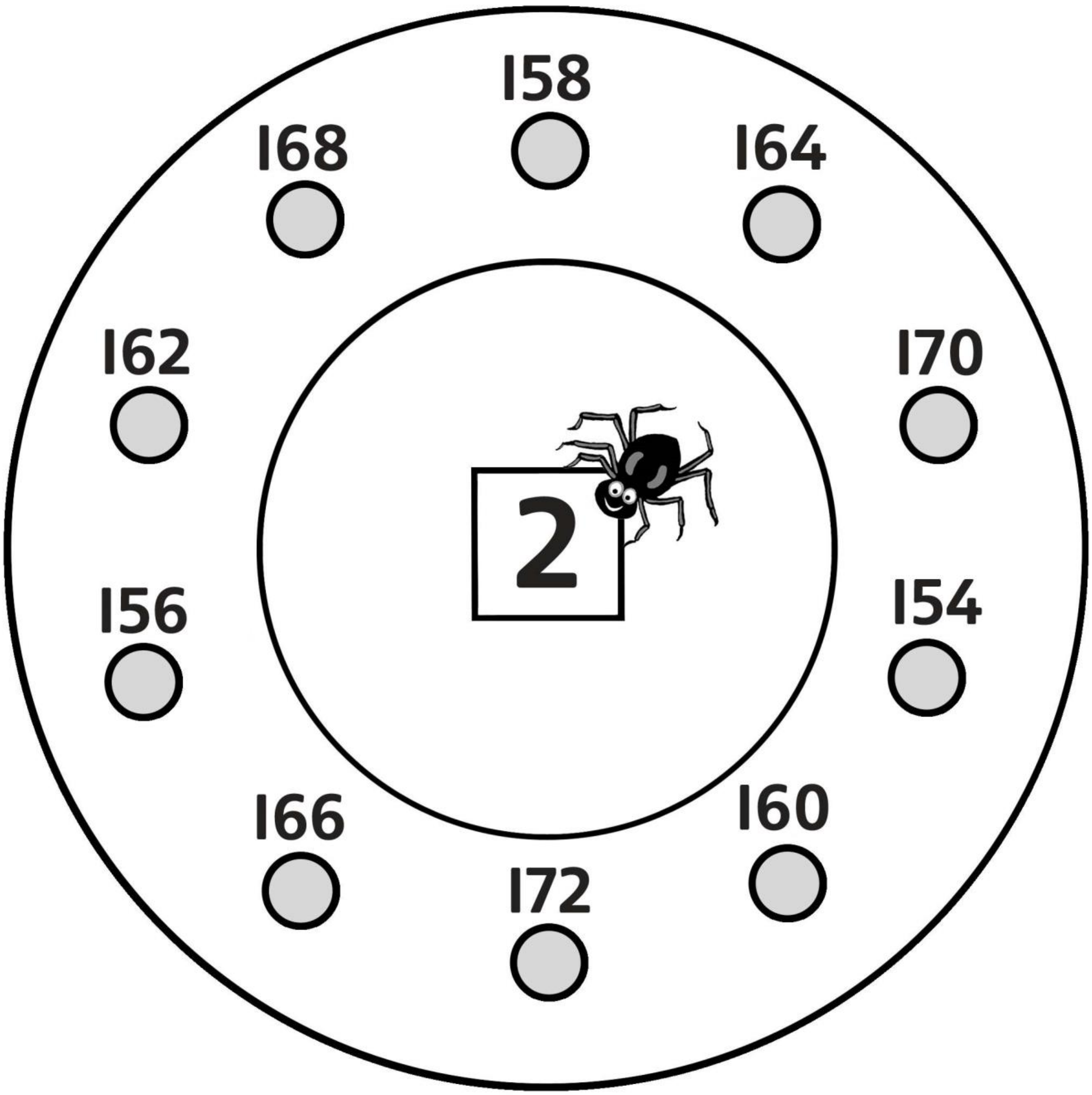


Name________________________________ Date _____________________

Master 4c

Skip-Counting by 2s Spider Webs

Start at 154. Skip-count by 2s.

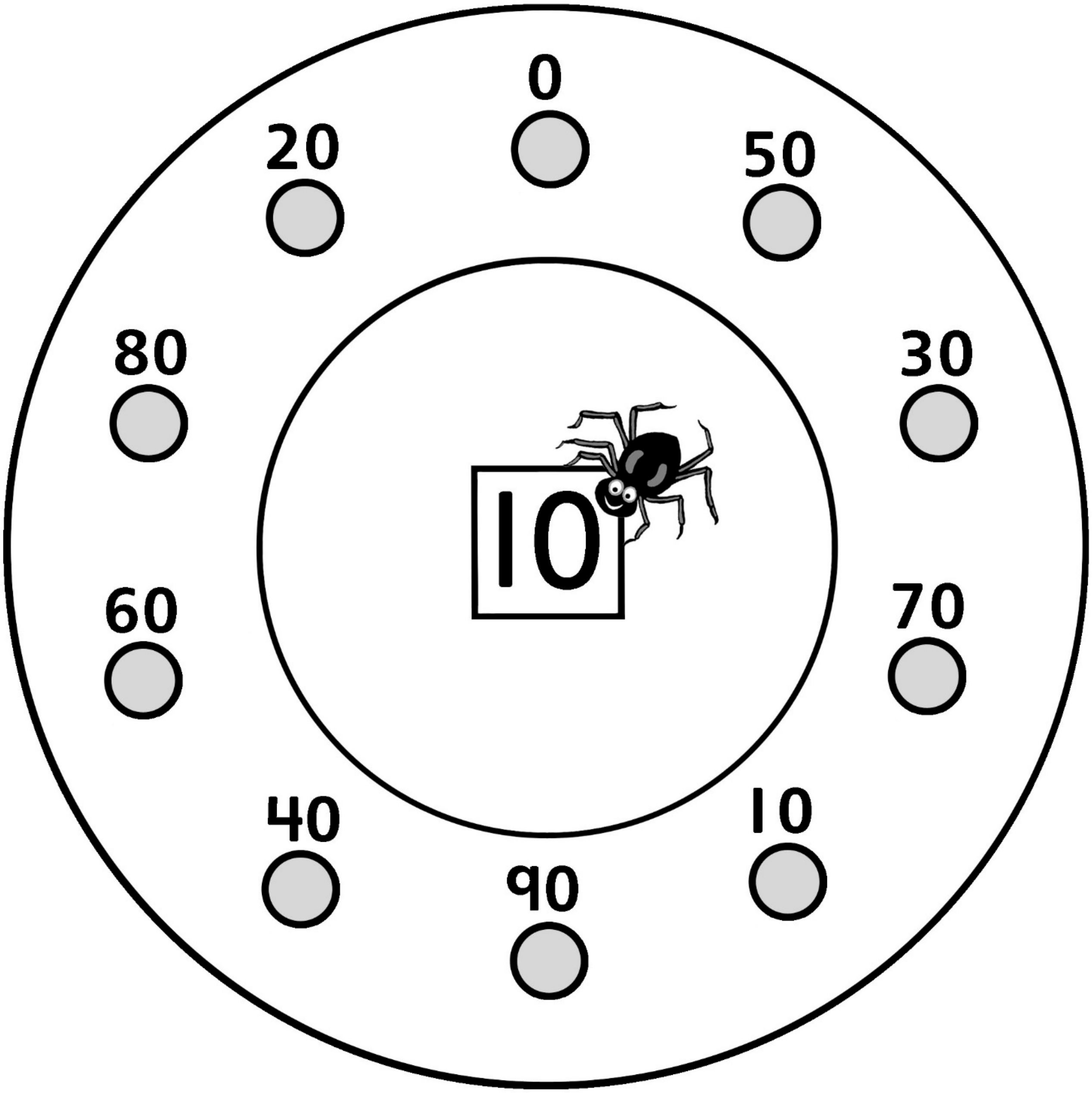


Name________________________________ Date _____________________

Master 5a

Skip-Counting by 10s Spider Webs

Start at 0. Skip-count by 10s.

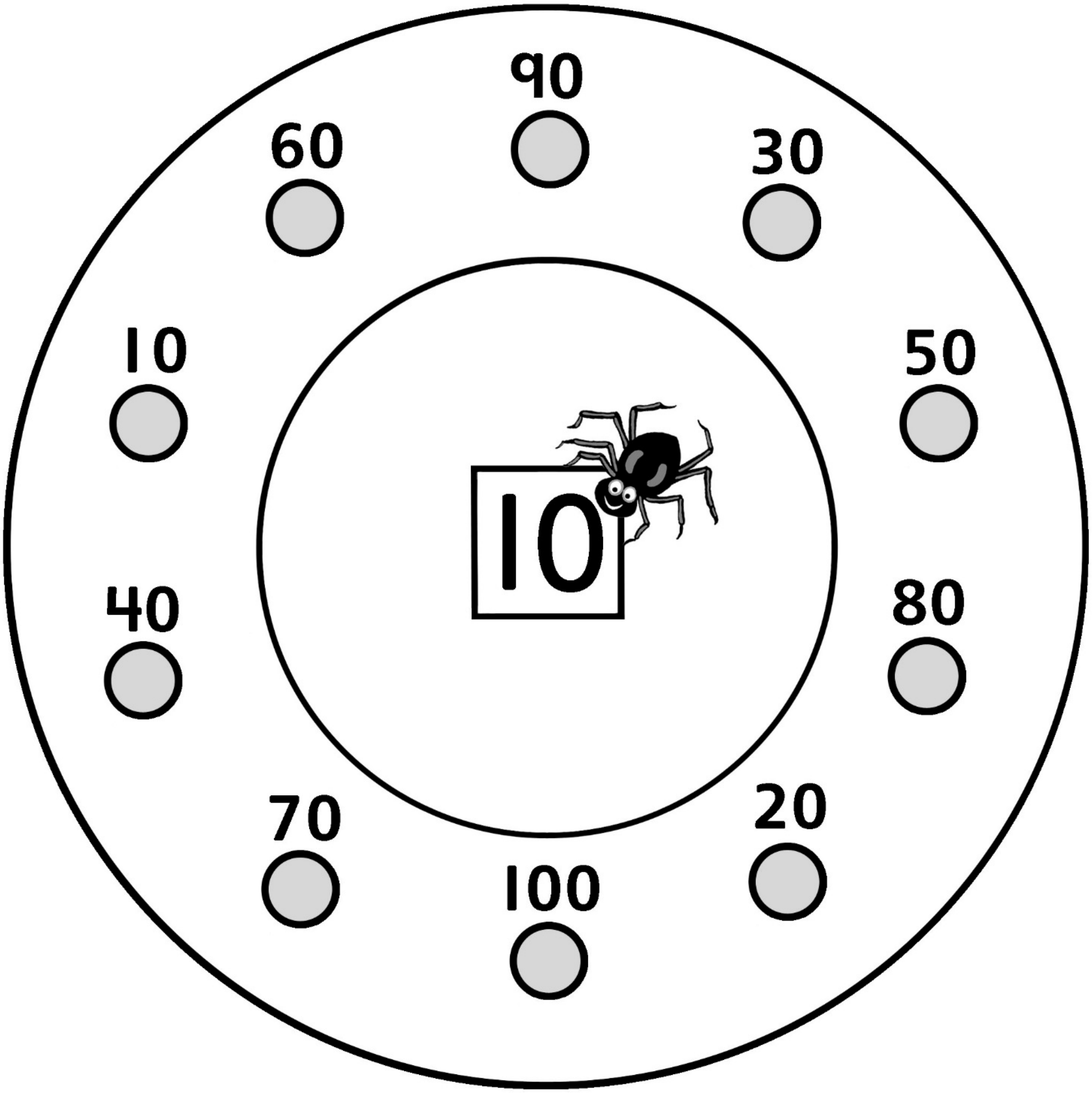


Name_______________________________ Date ____________________

Master 5b

Skip-Counting by 10s Spider Webs

Start at 10. Skip-count by 10s.

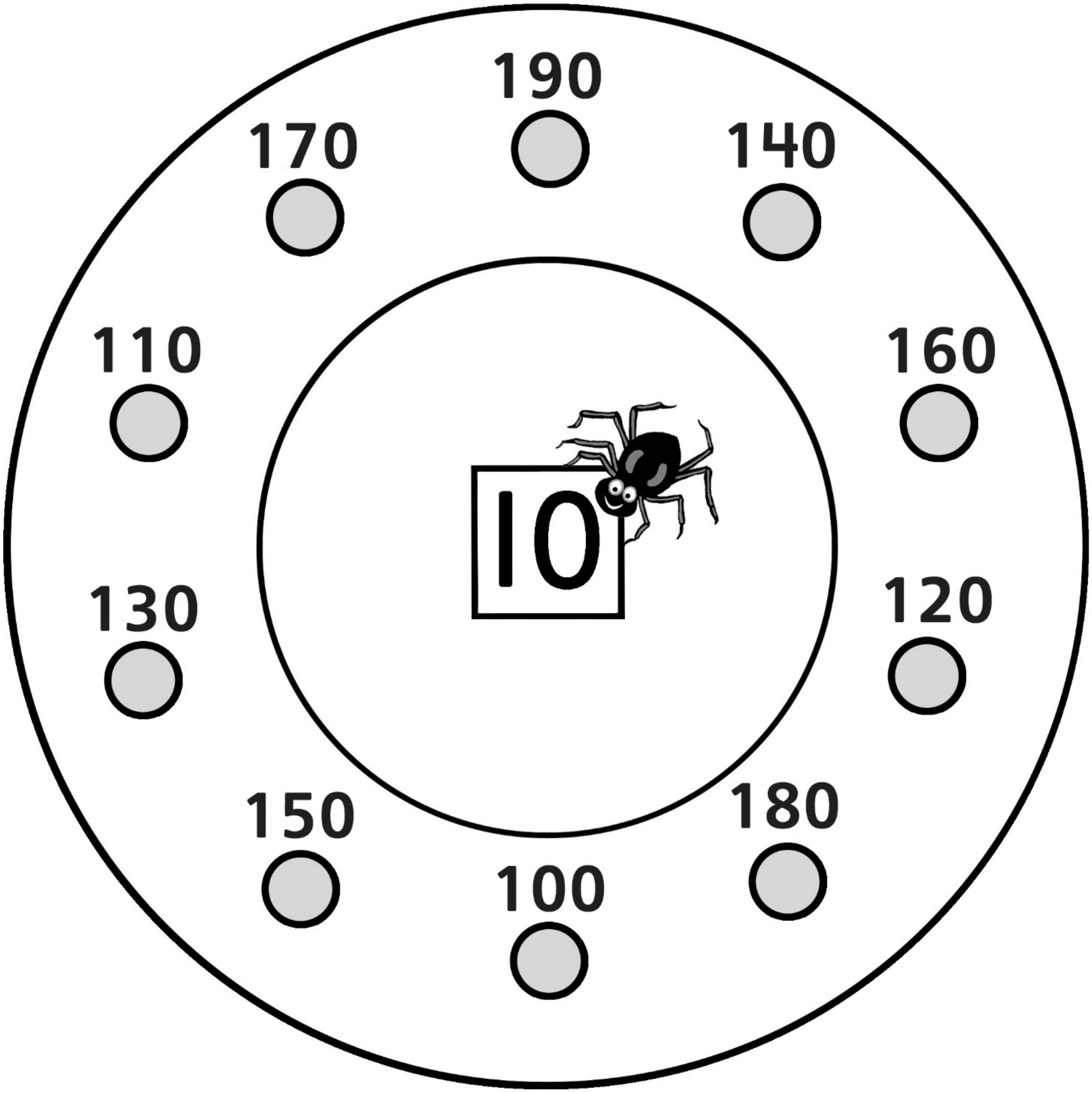


Name________________________________ Date _____________________

Master 5c

Skip-Counting by 10s Spider Webs

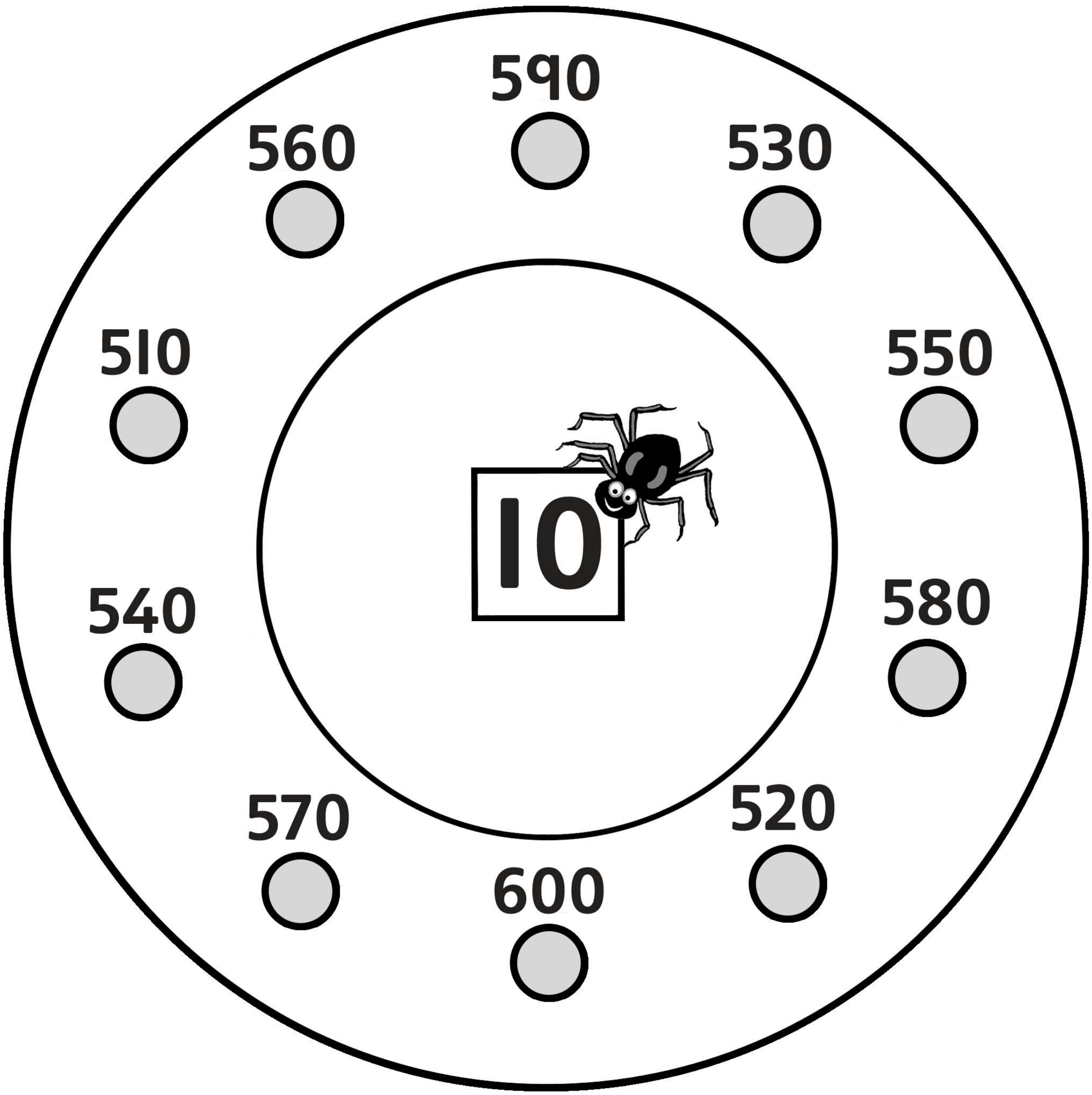
Start at 100. Skip-count by 10s.



Name_______________________________ Date ____________________

Master 5d **Skip-Counting by 10s Spider Webs**

Start at 510. Skip-count by 10s.

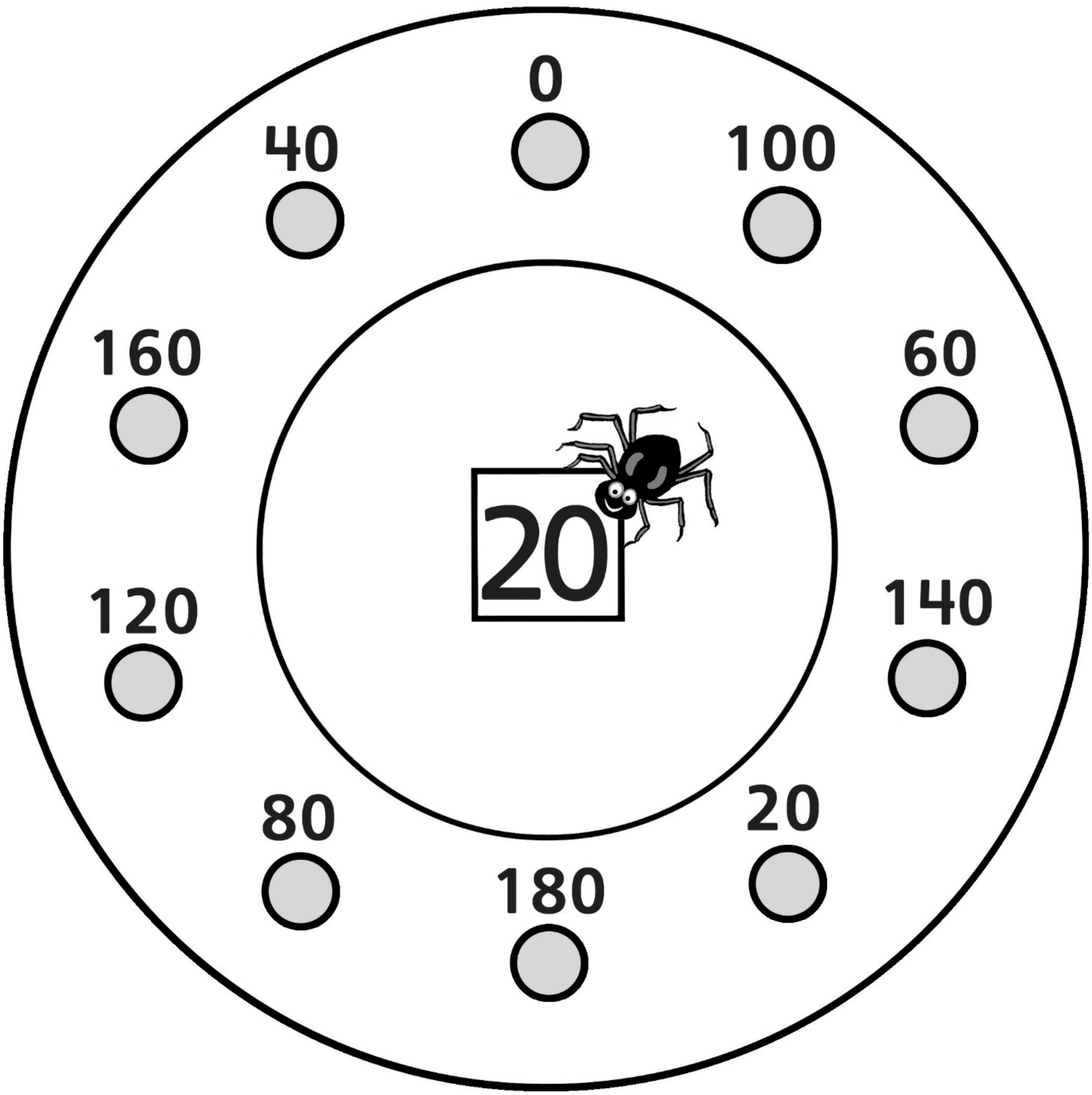


Name________________________________ Date ____________________

Master 6

Skip-Counting by 20s Spider Web

Start at 0. Skip-count by 20s.

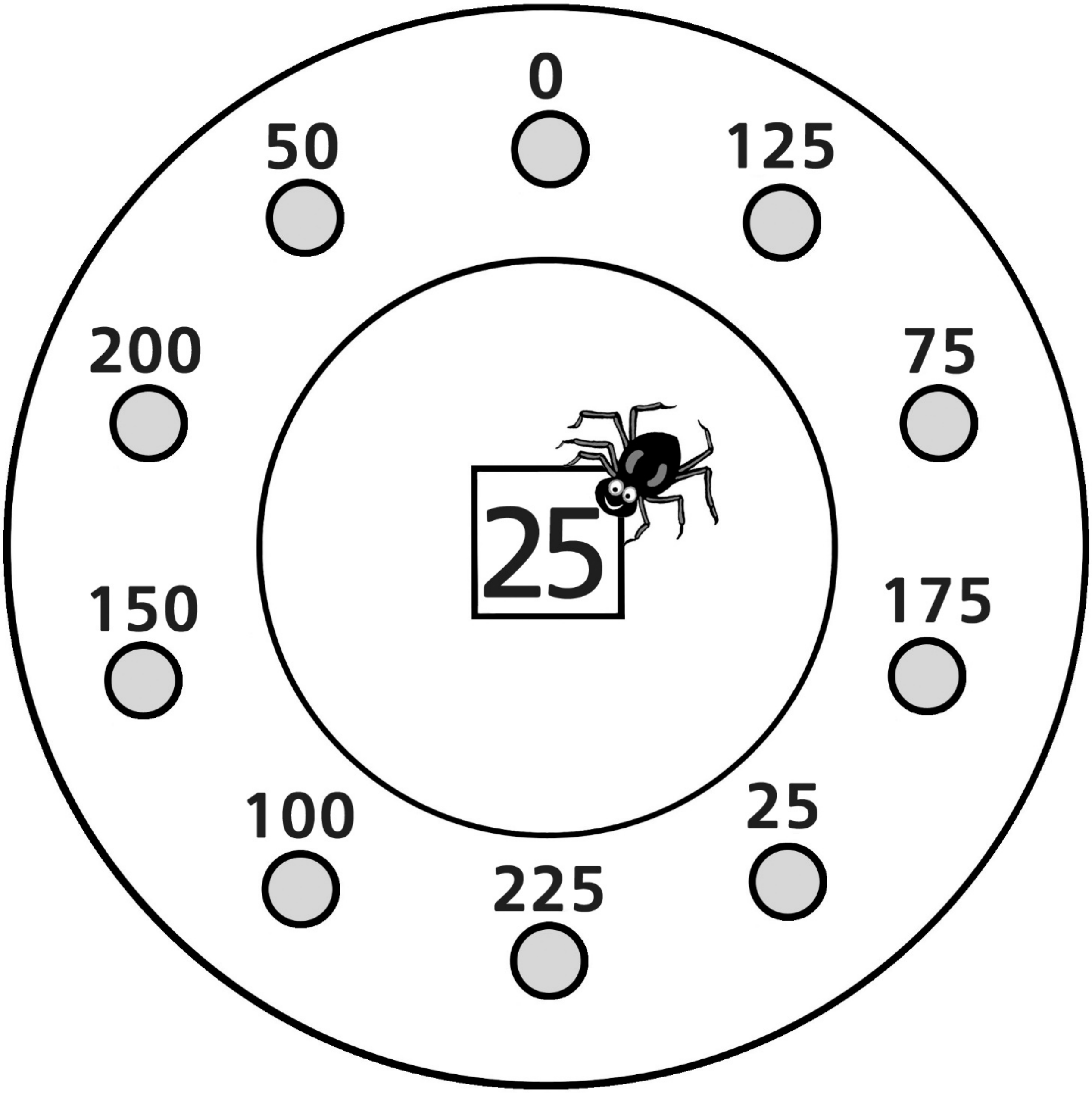


Name________________________________ Date _____________________

Master 7

Skip-Counting by 25s Spider Web

Start at 0. Skip-count by 25s.

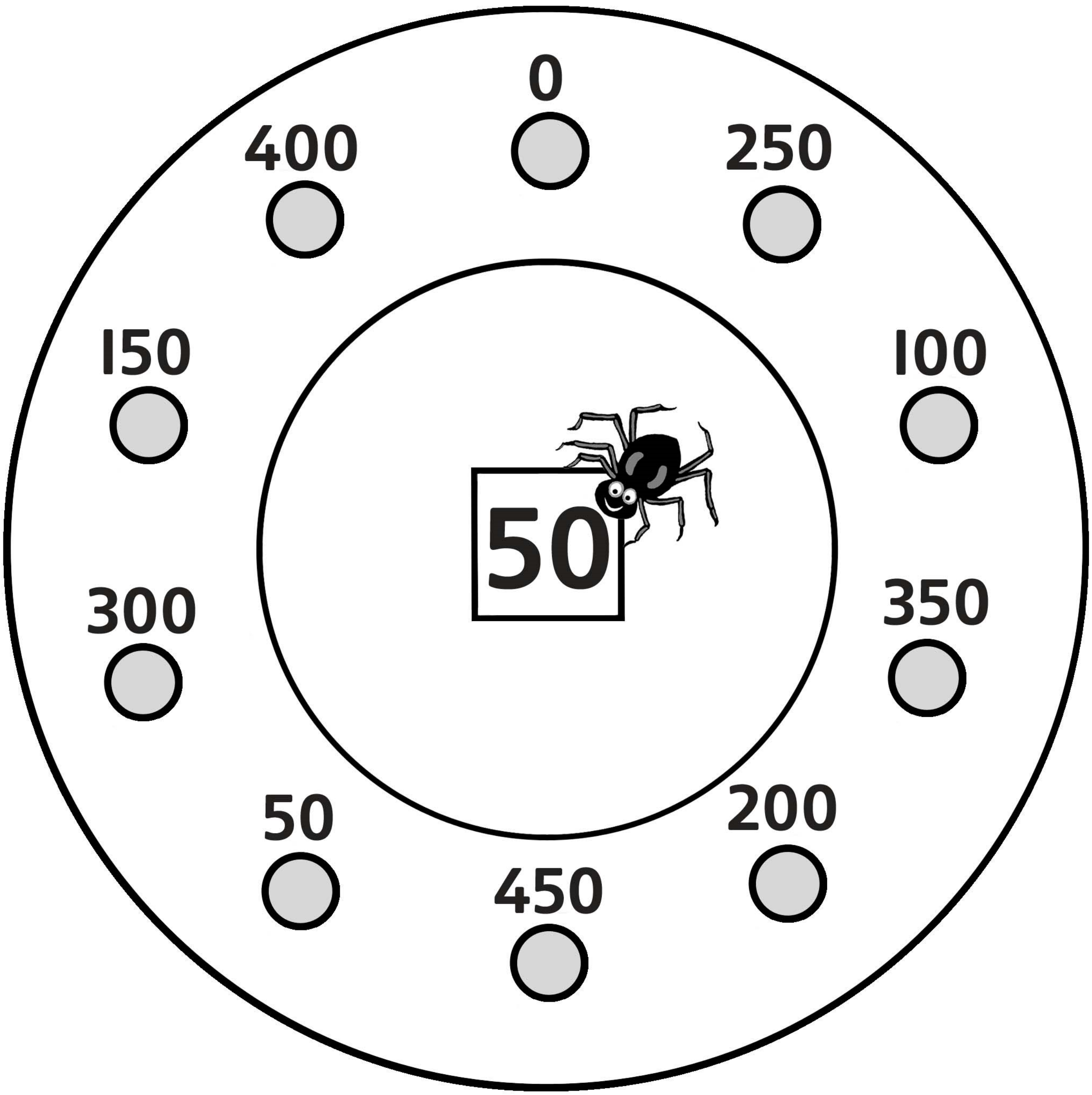


Name________________________________ Date ______________________

Master 8

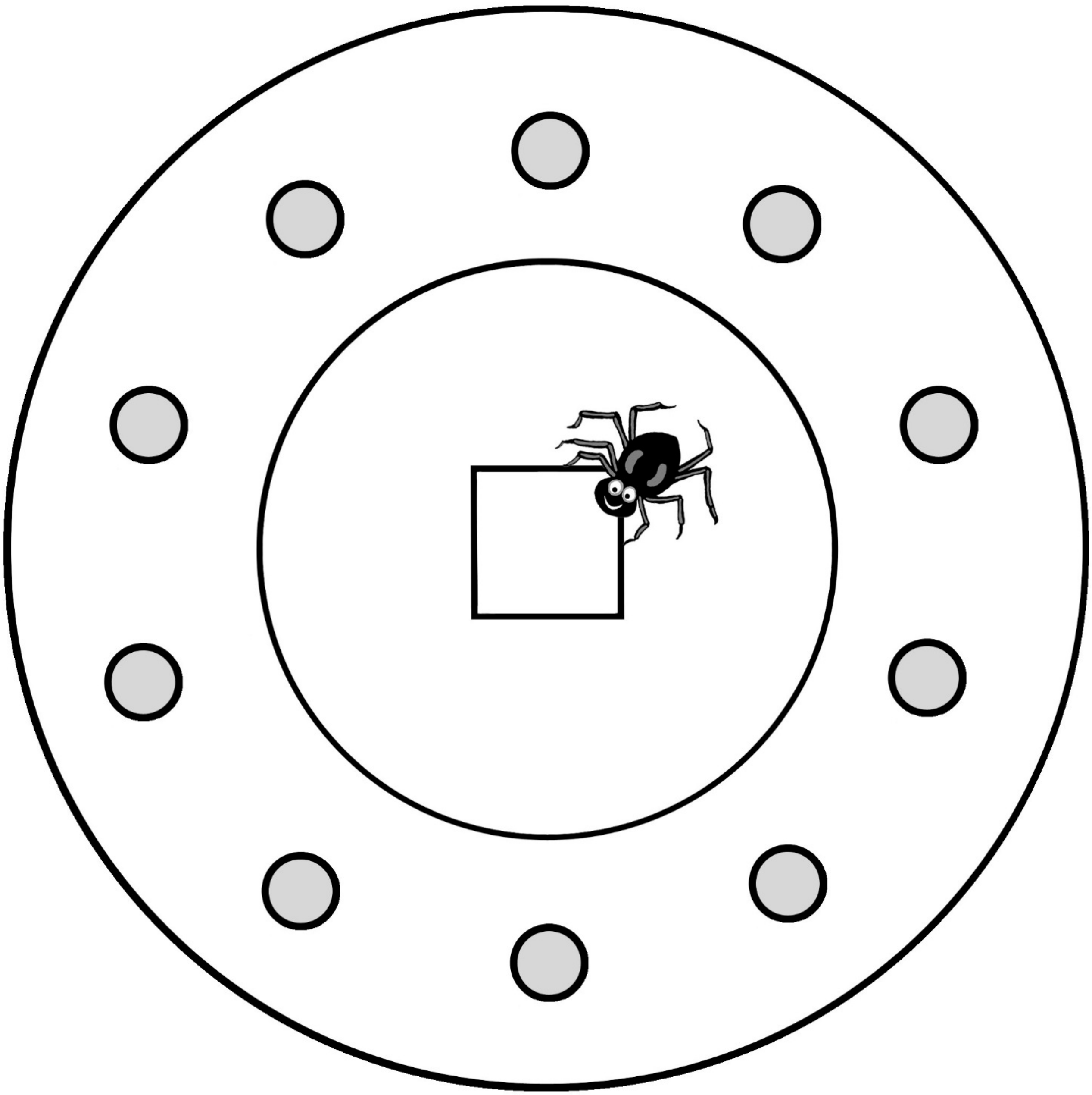
Skip-Counting by 50s Spider Web

Start at 0. Skip-count by 50s.



Name________________________________ Date _____________________

Master 9 **Skip-Counting Spider Web Template**



Number

Master 10: Activity 2 Assessment
Skip-Counting Forward

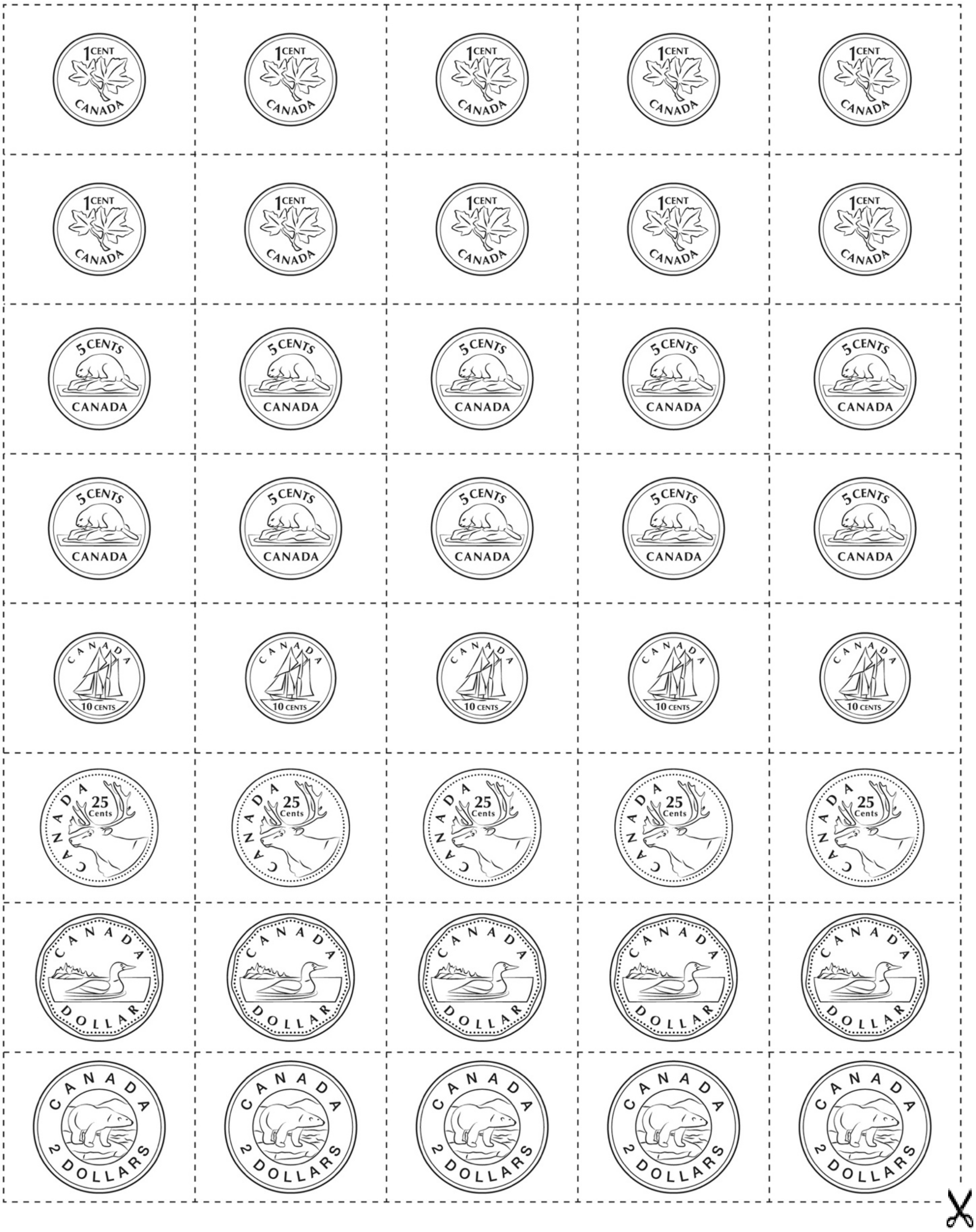
Skip-Counting Forward Behaviours/Strategies		
1. Student fluently counts forward by 1s from a given number, but struggles to skip-count.	2. Student draws lines to join the numbers, but mixes up the numbers in the skip-counting sequence. 	3. Student fluently skip-counts by 2s and 10s, but has difficulty skip-counting by 25s. "I find it hard to count by 25s."
Observations/Documentation		

4. Student skip-counts by 2s and 10s, but struggles when the start number is a multiple of 2 or 10.	5. Student fluently skip-counts by 20s, 25s, and 50s, but struggles to notice and explain patterns in the skip-counting numbers. "I don't see patterns in the numbers."	6. Student fluently skip-counts by 20s. 25s. and 50s, and notices and explains patterns in the skip-counting numbers.
Observations/Documentation		

Name_______________________________ Date ____________________

Master 11a

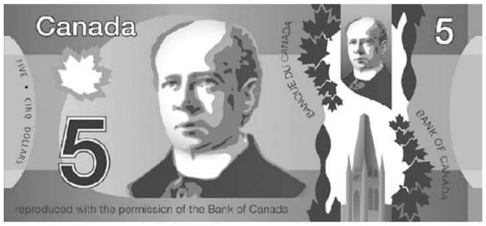
Money Cutouts

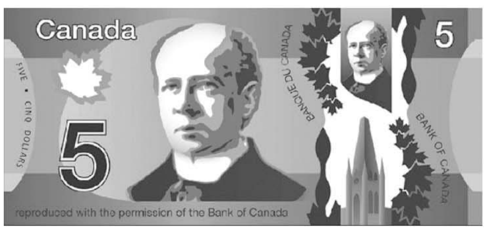


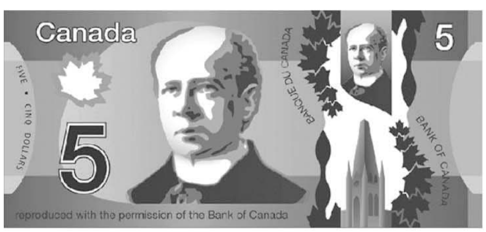
Name________________________________ Date _____________________

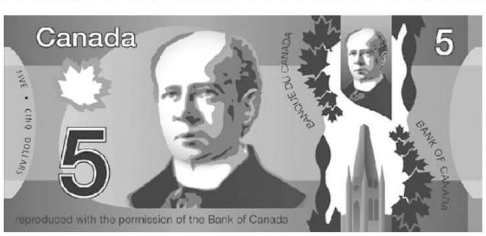
Master 11b

Money Cutouts





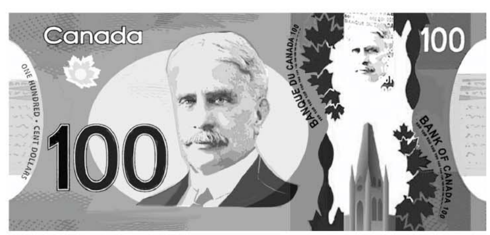


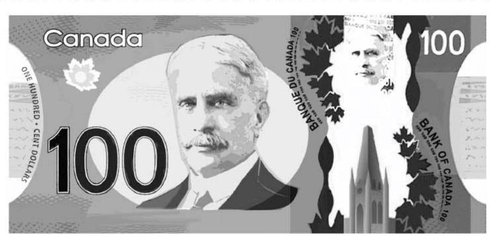


Name________________________________ Date _____________________

Master 11c

Money Cutouts





Name________________________________ Date ____________________

Master 12

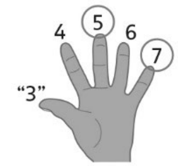
Number Cards (4 to 9)

4	5
6	7
8	9

Number

Master 13: Activity 3 Assessment

Skip-Counting Flexibly

Skip-Counting from Any Number Behaviours/Strategies		
1. Student uses correct start number, but reverts to the skip-counting from 0 sequence when skip-counting by factors of 10 (i.e., 2, 10) from any given number. "3, 10, 20, 30, …"	2. Student uses correct start number, but mixes up the numbers or omits numbers in the skip-counting sequence when skip-counting by factors of 10 from any given number. "3, 13, 33, 43, …"	3. Student skip-counts by factors of 10 from any given number and uses fingers or the hundred chart to help. 
Observations/Documentation		
4. Student skip-counts by factors of 10 from any given number, but loses track of number of times counted. "3, 5, 7, 9. Can I stop yet?"	5. Student skip-counts by factors of 10 from any given number, but struggles to identify errors or missing numbers in partner's skip-counting sequences. "5, 7, 9, 10, 12, …" "I'm not sure if she is correct."	6. Student fluently skip-counts by factors of 10 (i.e., 2, 10) from any given number. "3, 5, 7, 9, 11, …" "4, 14, 24, 34, 44, 54, …"
Observations/Documentation		

Name________________________________ Date _____________________

Master 14a

Hundred Charts (101–200)

101	102	103	104	105	106	107	108	109	110
111	112	113	114	115	116	117	118	119	120
121	122	123	124	125	126	127	128	129	130
131	132	133	134	135	136	137	138	139	140
141	142	143	144	145	146	147	148	149	150
151	152	153	154	155	156	157	158	159	160
161	162	163	164	165	166	167	168	169	170
171	172	173	74	175	176	177	178	179	180
181	182	183	184	185	186	187	188	189	190
191	192	193	194	195	196	197	198	199	200

Name_______________________________ Date ____________________

Master 14b

Hundred Charts (201–300)

201	202	203	204	205	206	207	208	209	210
211	212	213	214	215	216	217	218	219	220
221	222	223	224	225	226	227	228	229	230
231	232	233	234	235	236	237	238	239	240
241	242	243	244	245	246	247	248	249	250
251	252	253	254	255	256	257	258	259	260
261	262	263	264	265	266	267	268	269	270
271	272	273	274	275	276	277	278	279	280
281	282	283	284	285	286	287	288	289	290
291	292	293	294	295	296	297	298	299	300

Name________________________________ Date ____________________

Master 14c

Hundred Charts (301–400)

301	302	303	304	305	306	307	308	309	310
311	312	313	314	315	316	317	318	319	320
321	322	323	324	325	326	327	328	329	330
331	332	333	334	335	336	337	338	339	340
341	342	343	344	345	346	347	348	349	350
351	352	353	354	355	356	357	358	359	360
361	362	363	364	365	366	367	368	369	370
371	372	373	374	375	376	377	378	379	380
381	382	383	384	385	386	387	388	389	390
391	392	393	394	395	396	397	398	399	400

Name________________________________ Date _____________________

Master 14d

Hundred Charts (401–500)

401	402	403	404	405	406	407	408	409	410
411	412	413	414	415	416	417	418	419	420
421	422	423	424	425	426	427	428	429	430
431	432	433	434	435	436	437	438	439	440
441	442	443	444	445	446	447	448	449	450
451	452	453	454	455	456	457	458	459	460
461	462	463	464	465	466	467	468	469	470
471	472	473	474	475	476	477	478	479	480
481	482	483	484	485	486	487	488	489	490
491	492	493	494	495	496	497	498	499	500

Name_______________________________ Date ____________________

Master 14e

Hundred Charts (501–600)

501	502	503	504	505	506	507	508	509	510
511	512	513	514	515	516	517	518	519	520
521	522	523	524	525	526	527	528	529	530
531	532	533	534	535	536	537	538	539	540
541	542	543	544	545	546	547	548	549	550
551	552	553	554	555	556	557	558	559	560
561	562	563	564	565	566	567	568	569	570
571	572	573	574	575	576	577	578	579	580
581	582	583	584	585	586	587	588	589	590
591	592	593	594	595	596	597	598	599	600

Name________________________________ Date ____________________

Master 14f

Hundred Charts (601–700)

601	602	603	604	605	606	607	608	609	610
611	612	613	614	615	616	617	618	619	620
621	622	623	624	625	626	627	628	629	630
631	632	633	634	635	636	637	638	639	640
641	642	643	644	645	646	647	648	649	650
651	652	653	654	655	656	657	658	659	660
661	662	663	664	665	666	667	668	669	670
671	672	673	674	675	676	677	678	679	680
681	682	683	684	685	686	687	688	689	690
691	692	693	694	695	696	697	698	699	700

Name________________________________ Date ______________________

Master 14g

Hundred Charts (701–800)

701	702	703	704	705	706	707	708	709	710
711	712	713	714	715	716	717	718	719	720
721	722	723	724	725	726	727	728	729	730
731	732	733	734	735	736	737	738	739	740
741	742	743	744	745	746	747	748	749	750
751	752	753	754	755	756	757	758	759	760
761	762	763	764	765	766	767	768	769	770
771	772	773	774	775	776	777	778	779	780
781	782	783	784	785	786	787	788	789	790
791	792	793	794	795	796	797	798	799	800

Name______________________________ Date ____________________

Master 14h

Hundred Charts (801–900)

801	802	803	804	805	806	807	808	809	810
811	812	813	814	815	816	817	818	819	820
821	822	823	824	825	826	827	828	829	830
831	832	833	834	835	836	837	838	839	840
841	842	843	844	845	846	847	848	849	850
851	852	853	854	855	856	857	858	859	860
861	862	863	864	865	866	867	868	869	870
871	872	873	874	875	876	877	878	879	880
881	882	883	884	885	886	887	888	889	890
891	892	893	894	895	896	897	898	899	900

Name________________________________ Date ____________________

Master 14i

Hundred Charts (901–1000)

901	902	903	904	905	906	907	908	909	910
911	912	913	914	915	916	917	918	919	920
921	922	923	924	925	926	927	928	929	930
931	932	933	934	935	936	937	938	939	940
941	942	943	944	945	946	947	948	949	950
951	952	953	954	955	956	957	958	959	960
961	962	963	964	965	966	967	968	969	970
971	972	973	974	975	976	977	978	979	980
981	982	983	984	985	986	987	988	989	990
991	992	993	994	995	996	997	998	999	1000

Name________________________________ Date ____________________

Master 15a

Counting On and Back Game Cards

Count on by 1s, 2 times	Count on by 1s, 3 times
Count on by 1s, 4 times	Count on by 1s, 5 times
Count on by 1s, 6 times	Count on by 1s, 7 times
Count on by 1s, 8 times	Count on by 1s, 9 times
Count on by 1s, 10 times	

Name_______________________________ Date ____________________

Master 15b

Counting On and Back Game Cards

Count back by 1s, 2 times	Count back by 1s, 3 times
Count back by 1s, 4 times	Count back by 1s, 5 times
Count back by 1s, 6 times	Count back by 1s, 7 times
Count back by 1s, 8 times	Count back by 1s, 9 times
Count back by 1s, 10 times	

Name________________________________ Date ____________________

Master 15c

Counting On and Back Game Cards (Blank Cards)

Name______________________________ Date ____________________

Master 16a

Skip-Counting by 2s Game Cards

Skip-count forward by 2s, 2 times	Skip-count forward by 2s, 3 times
Skip-count forward by 2s, 4 times	Skip-count forward by 2s, 5 times
Skip-count forward by 2s, 6 times	Skip-count forward by 2s, 7 times
Skip-count forward by 2s, 8 times	Skip-count forward by 2s, 9 times
Skip-count forward by 2s, 10 times	

Name________________________________ Date _____________________

Master 16b

Skip-Counting by 10s Game Cards

Skip-count forward by 10s, 1 time	Skip-count forward by 10s, 2 times
Skip-count forward by 10s, 3 times	Skip-count forward by 10s, 4 times
Skip-count forward by 10s, 5 times	Skip-count forward by 10s, 6 times
Skip-count forward by 10s, 7 times	Skip-count forward by 10s, 8 times
Skip-count forward by 10s, 9 times	Skip-count forward by 10s, 10 times

Name________________________________ Date ______________________

Master 16c

Skip-Counting by 20s Game Cards

Skip-count forward by 20s, 1 time	Skip-count forward by 20s, 2 times
Skip-count forward by 20s, 3 times	Skip-count forward by 20s, 4 times
Skip-count forward by 20s, 5 times	Skip-count forward by 20s, 6 times
Skip-count forward by 20s, 7 times	Skip-count forward by 20s, 8 times
Skip-count forward by 20s, 9 times	Skip-count forward by 20s, 10 times

Name________________________________ Date ____________________

Master 16d

Skip-Counting by 25s Game Cards

Skip-count forward by 25s, 1 time	Skip-count forward by 25s, 2 times
Skip-count forward by 25s, 3 times	Skip-count forward by 25s, 4 times
Skip-count forward by 25s, 5 times	Skip-count forward by 25s, 6 times
Skip-count forward by 25s, 7 times	Skip-count forward by 25s, 8 times
Skip-count forward by 25s, 9 times	Skip-count forward by 25s, 10 times

Name________________________________ Date ____________________

Master 16e

Skip-Counting by 50s Game Cards

Skip-count forward by 50s, 1 time	Skip-count forward by 50s, 2 times
Skip-count forward by 50s, 3 times	Skip-count forward by 50s, 4 times
Skip-count forward by 50s, 5 times	Skip-count forward by 50s, 6 times
Skip-count forward by 50s, 7 times	Skip-count forward by 50s, 8 times
Skip-count forward by 50s, 9 times	Skip-count forward by 50s, 10 times

Name________________________________ Date _____________________

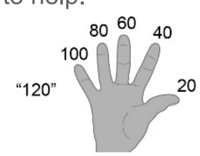
Master 16f

Skip-Counting Game Cards (Blank Cards)

Master 17: Activity 4 Assessment

Counting: Consolidation

Counting On and Back Behaviours/Strategies			
1. Student uses correct start number, but omits numbers or mixes up the order when saying the number name sequences forward and backward. "11, 12, 14, 16, 17"	2. Student says the number name sequences forward and backward from a given number, but relies on the hundred chart. 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 "24, 25, 26, 27, 28, 29"	3. Student says number name sequences forward and backward from a given number, but struggles to bridge tens or hundreds. "Ninety-nine, one-ten, one-eleven"	4. Student says the number name sequences forward and backward from a given number and uses number patterns to bridge tens and hundreds.
Observations/Documentation			

Skip-Counting Forward Behaviours/Strategies			
1. Student uses correct start number, but mixes up the numbers or omits numbers when skip-counting forward by 2s or 10s. "5, 15, 20, 30, 40"	2. Student skip-counts forward from 0, but struggles to skip-count forward from any number. "It is much easier to skip-count forward starting at 0."	3. Student skip-counts forward by 20s, 25s, and 50s starting at 0, but uses fingers or the hundred chart to help. 	4. Student fluently skip-counts forward within 1000 by 2s and 10s from any number and by 20s, 25s, and 50s from 0. "325, 335, 345, 355, 365, 375" "0, 50, 100, 150, 200, 250, 300" "0, 25, 50, 75, 100, 125, 150"
Observations/Documentation			

Master 18a

Mathology Grade 2 Correlation – Alberta
Number Cluster 2: Number Relationships 1

Organizing Idea:
Number: Quantity is measured with numbers that enable counting, labelling, comparing, and operating.

Guiding Question: How can quantity contribute to a sense of number?
Learning Outcome: Students analyze quantity to 1000.

Knowledge	Understanding	Skills & Procedures	Grade 2 Mathology	Mathology Little Books
Any number of objects in a set can be represented by a natural number. The values of the places in a four-digit natural number are thousands, hundreds, tens, and ones. Places that have no value within a given number use zero as a placeholder. The number line is a spatial representation of quantity.	There are infinitely many natural numbers. Every digit in a natural number has a value based on its place. Each natural number is associated with exactly one point on the number line.	Represent quantities using words and natural numbers.	**Number Cluster 2: Number Relationships 1** 7: Odd and Even Numbers **Number Math Every Day** 2: Guess My Number	Ways to Count
		Identify the digits representing thousands, hundreds, tens, and ones based on place in a natural number.	**Number Cluster 2: Number Relationships 1** 7: Odd and Even Numbers	Ways to Count
		Relate a number, including zero, to its position on the number line.	**Number Math Every Day** 2: Building an Open Number Line	

Master 18b

An even quantity will have no remainder when partitioned into two equal groups or groups of two. An odd quantity will have a remainder of one when partitioned into two equal groups or groups of two.	All natural numbers are either even or odd.	Model even and odd quantities by sharing and grouping.	**Number Cluster 2: Number Relationships 1** 7: Odd and Even Numbers	
		Describe a quantity as even or odd.	**Number Cluster 2: Number Relationships 1** 7: Odd and Even Numbers	
A benchmark is a known quantity to which another quantity can be compared.	A quantity can be estimated when an exact count is not needed.	Estimate quantities using benchmarks.	**Number Cluster 2: Number Relationships 1** 5: Estimating Quantities 6: Comparing and Ordering Quantities	Family Fun Day Ways to Count What Would you Rather?
Words that can describe a comparison between two unequal quantities include • not equal • greater than • less than The less than sign, <, and the greater than sign, >, are used to indicate inequality between two quantities. Equality and inequality can be modelled using a balance.	Inequality is an imbalance between two quantities.	Compare and order natural numbers.	**Number Cluster 2: Number Relationships 1** 5: Estimating Quantities 6: Comparing and Ordering Quantities **Number Intervention** 2: Comparing Quantities	Back to Batoche The Great Dogsled Race Ways to Count
		Describe a quantity as less than, greater than, or equal to another quantity.	**Number Cluster 2: Number Relationships 1** 5: Estimating Quantities 6: Comparing and Ordering Quantities	Kokum's Bannock Back to Batoche

Name________________________________ Date ______________________

Master 19

Estimation Mat

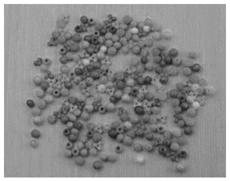
My Estimate

Master 20: Activity 5 Assessment

Estimating Quantities

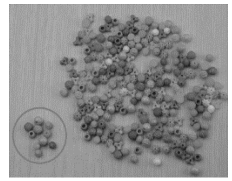
Estimating Quantities Behaviours/Strategies

1. Student guesses or counts.



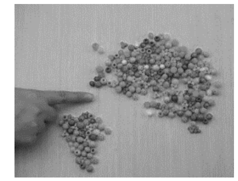
"About 500!"

2. Student creates a benchmark for 10.



"There are lots of groups of 10."

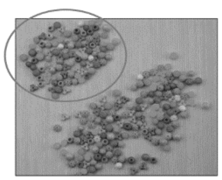
3. Student creates a benchmark for 100.



"I counted out 100."

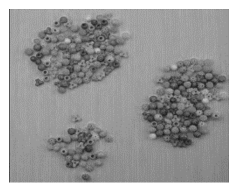
Observations/Documentation

4. Student compares to a referent (more or less).



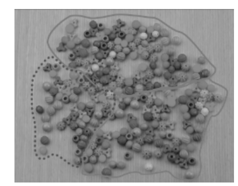
"More than 200."

5. Student gives estimate as a range by physically grouping objects.



"Between 200 and 300."

6. Student estimates using visual strategies.



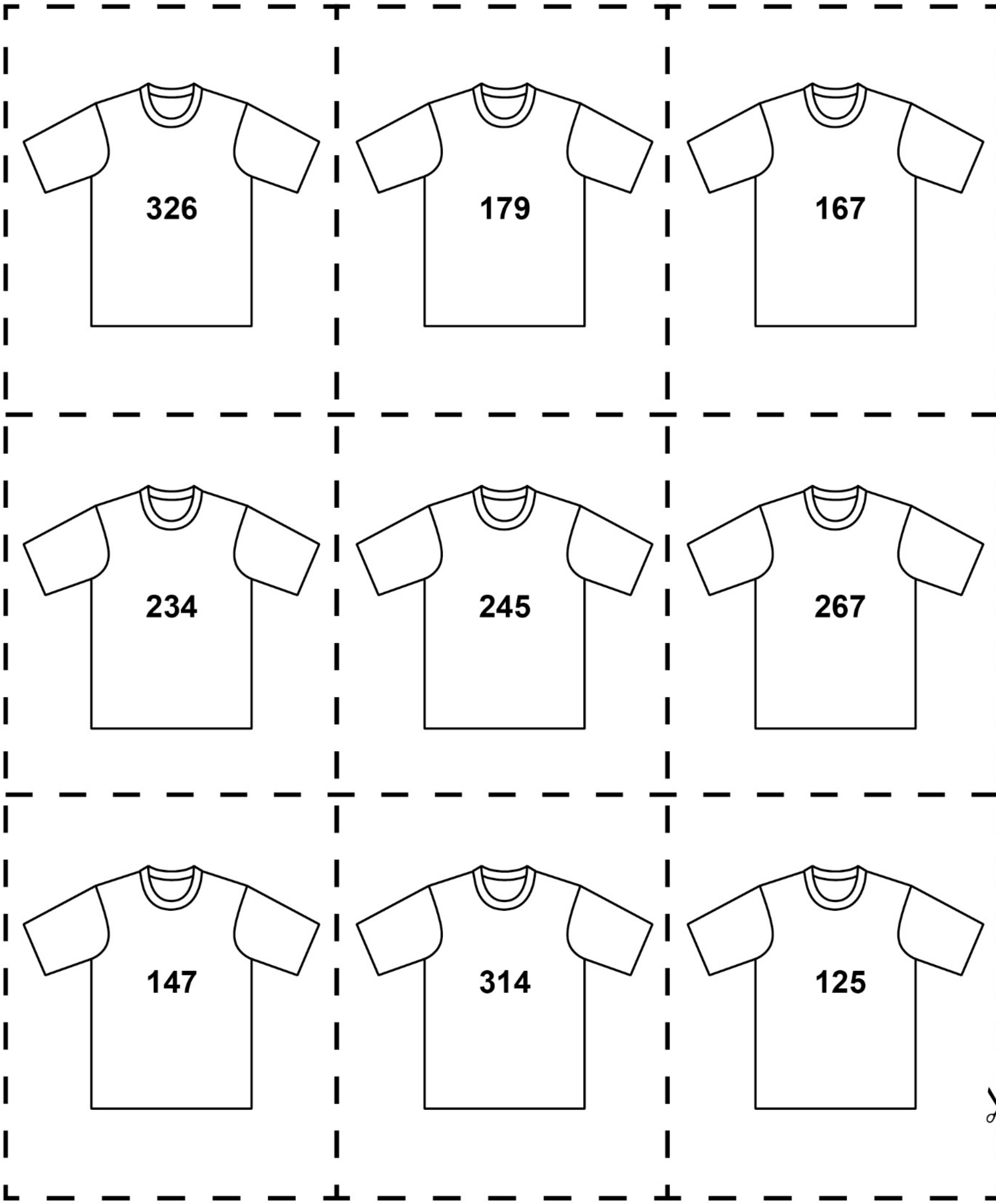
"About 250: 2 groups of 100 and half of another 100."

Observations/Documentation

Name________________________________ Date ______________________

Master 21a

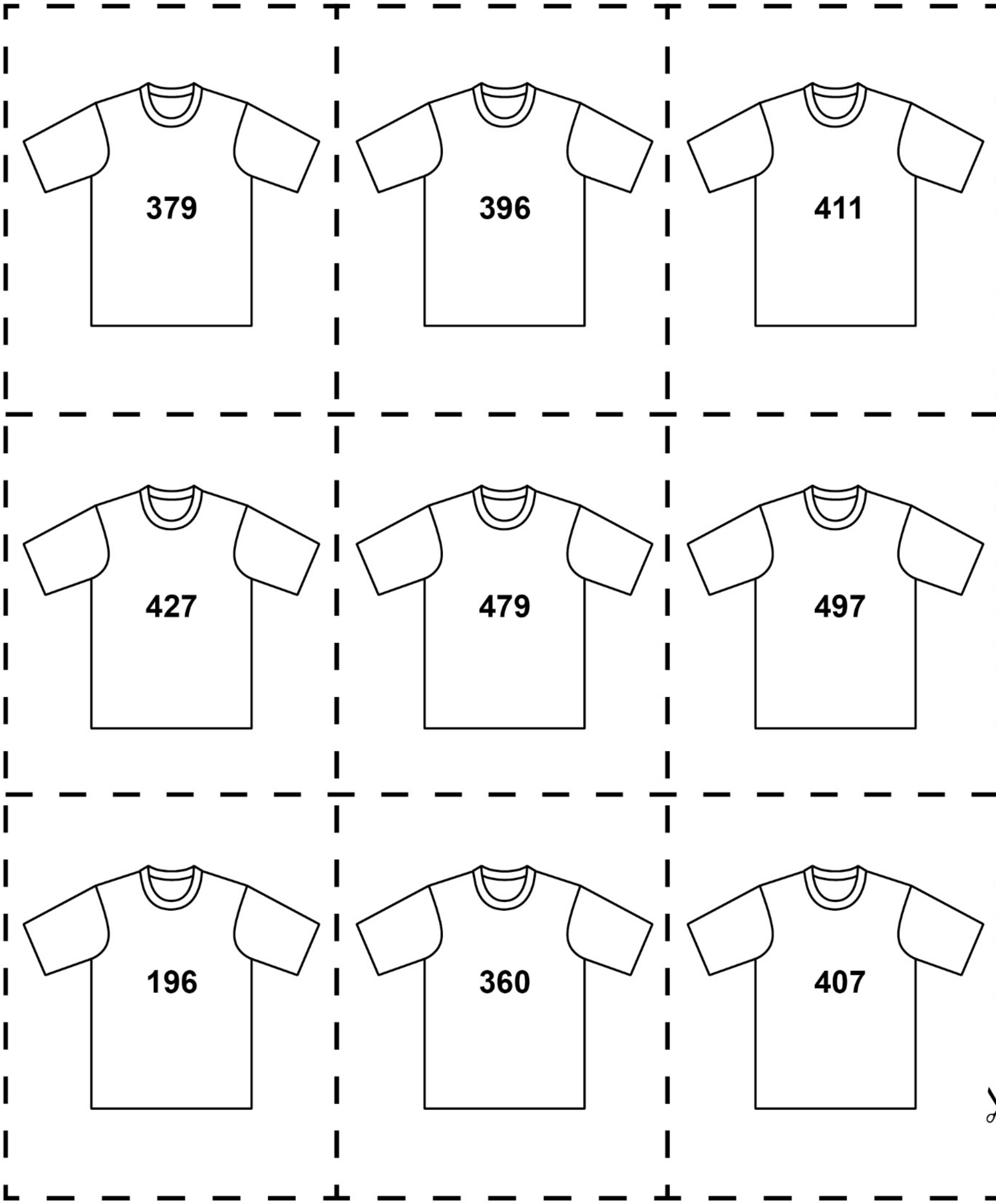
T-Shirt Cards



Name________________________________ Date ______________________

Master 21b

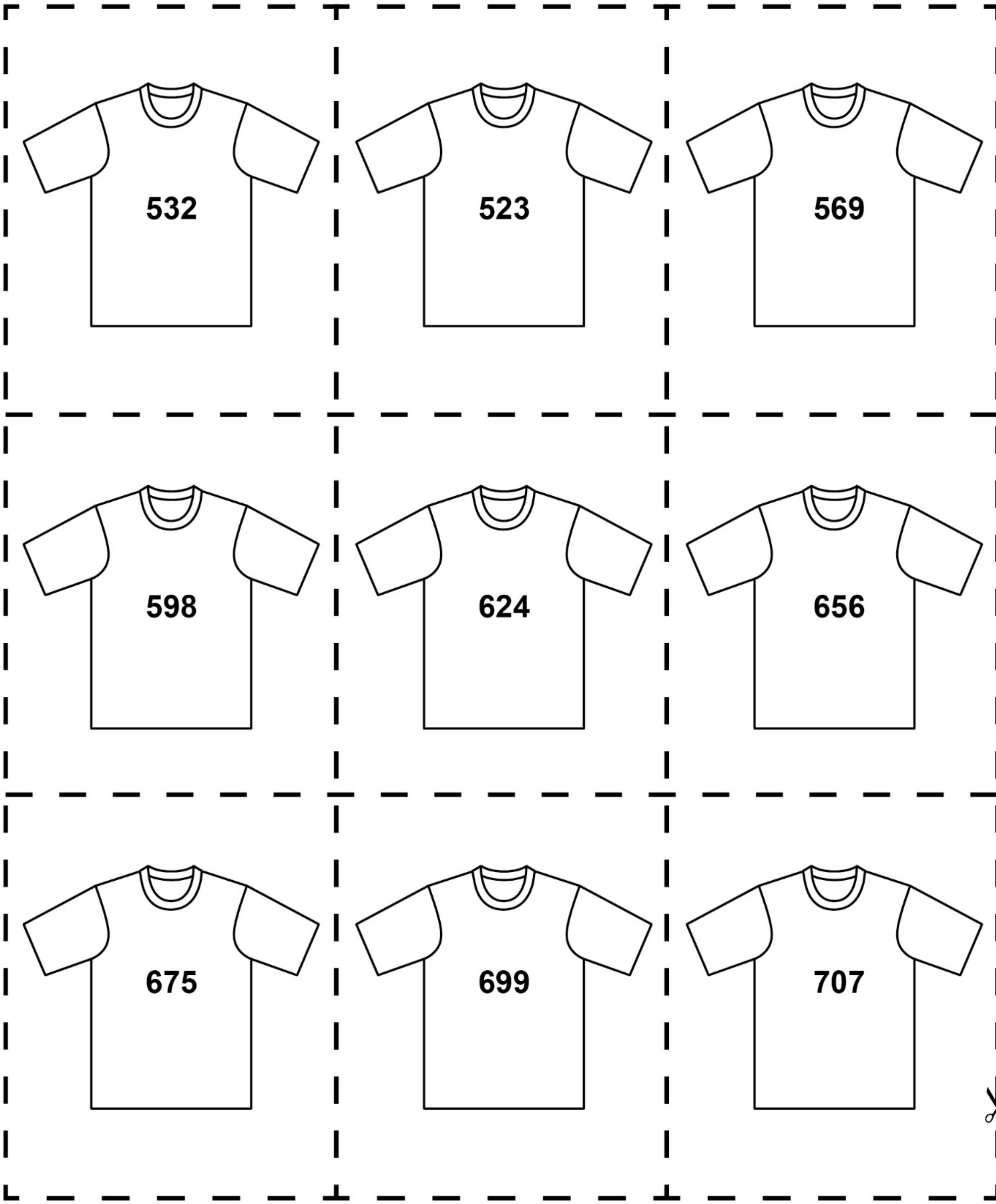
T-Shirt Cards



Name________________________________ Date ______________________

Master 21c

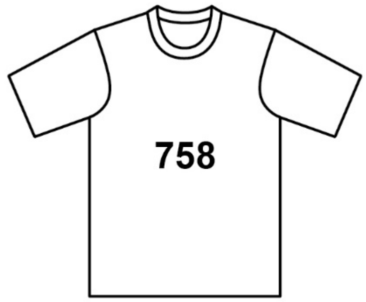
T-Shirt Cards

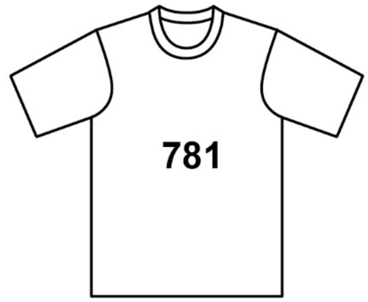


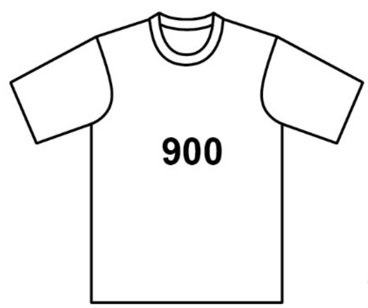
Name________________________________ Date _____________________

Master 21d

T-Shirt Cards



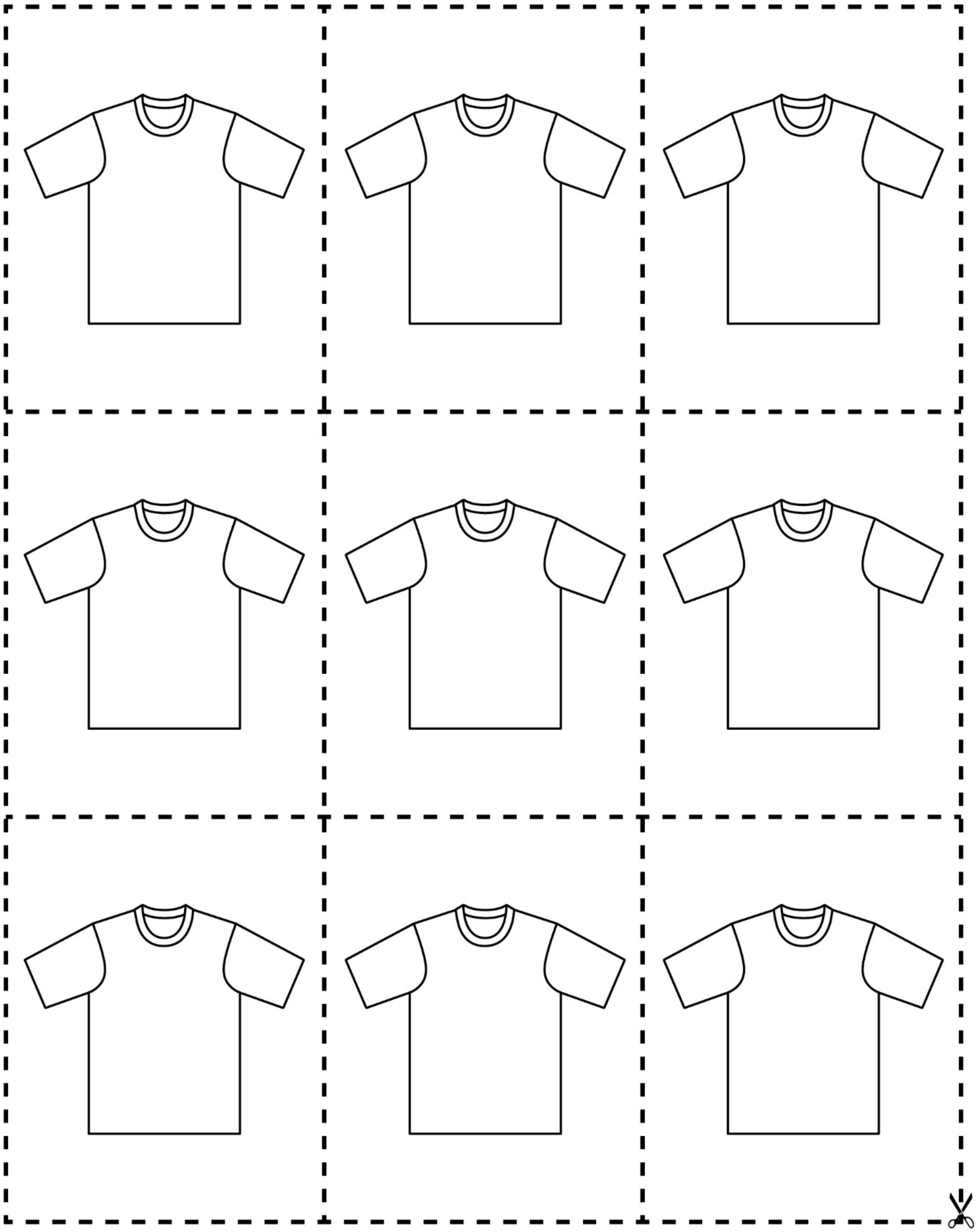




Name________________________________ Date _____________________

Master 21e

T-Shirt Cards



Number

Master 22: Activity 6 Assessment

Comparing and Ordering Numbers

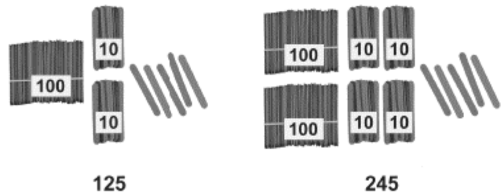
Comparing and Ordering Numbers Behaviours/Strategies

1. Student orders numbers randomly.

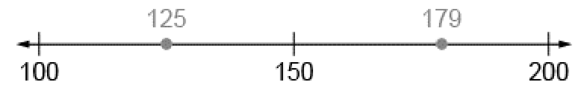
125 245 179

"I just put down any card."

2. Student models with manipulatives.



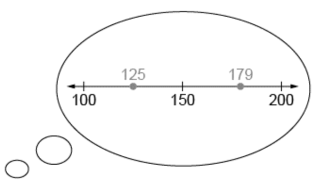
3. Student uses benchmark on hundred chart or number line.



"I compared the numbers to 150."

Observations/Documentation

4. Student visualizes hundred chart or number line.



"I picture 179 farther to the right than 125."

5. Student compares numbers, digit by digit (with the same place value).

"Both start with 1, 2 is less than 7, and 5 is less than 9. So, 125 is less than 179."

6. Student orders three or more quantities (e.g., using early place-value, mental strategies).

179 245 326

"326 is greatest because 3 hundreds is more than both 2 hundreds and 1 hundred."

Observations/Documentation

Name________________________________ Date ____________________

Master 23a

Number Cards (1–20)

1	2
3	4
5	6
7	8
9	10

Name________________________________ Date ____________________

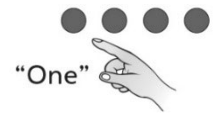
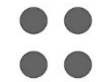
Master 23b

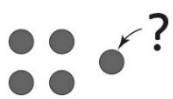
Number Cards (1–20)

11	12
13	14
15	16
17	18
19	20

Master 24: Activity 7 Assessment
Odd and Even Numbers

Number

Identifying Even and Odd Numbers Behaviours/Strategies		
1. Student turns over a card and reads the number, but struggles to say the number sequence starting with 1 and counting forward. "…, 5, 7, 6, 8, 9"	2. Student says the number sequence forward, but struggles to coordinate number words with counting actions (e.g., says the number word between each "touch," or does not say one number word for each counter counted). 	3. Student partitions counters into groups of 2, but struggles to identify even numbers. 
Observations/Documentation		

4. Student partitions counters into groups of 2, but struggles to identify odd numbers (ignores the leftover counter or does not know what to do with it). 	5. Student partitions counters into groups of 2 and successfully identifies even and odd numbers, but struggles to explain why a number is even or odd. "I know it is odd because it isn't even."	6. Student partitions counters into groups of 2, successfully identifies even and odd numbers, and explains why the numbers are even or odd.
Observations/Documentation		

Name______________________________ Date ____________________

Master 25a

Task Cards: Odd or Even Numbers

Name 3 even numbers greater than 15.	Name 3 odd numbers less than 24.
Name 3 even numbers greater than 33.	Name 3 odd numbers less than 43.
Name 3 even numbers greater than 120.	Name 3 odd numbers less than 225.

Name________________________________ Date ______________________

Master 25b

Task Cards: Odd or Even Numbers (for Accommodations)

Name 2 even numbers greater than 4.	Name 2 odd numbers less than 10.

Name________________________________ Date ______________________

Master 25c

Task Cards: Odd or Even Numbers (Blank Cards)

Name_______________________________ Date ____________________

Master 25d

Task Cards: Comparing and Ordering

Order these numbers from least to greatest: **245, 259, 250**	Order these numbers from greatest to least: **637, 641, 632**
Name 2 numbers greater than 122 and less than 130.	Name 2 numbers less than 440 and greater than 428.
Which is the greater number? **223, 232**	Which is the lesser number? **117, 121**

Name______________________________ Date ____________________

Master 25e

Task Cards: Comparing and Ordering (for Accommodations)

Order these numbers from least to greatest: **7, 12, 5**	Order these numbers from greatest to least: **10, 6, 9**
Name a number greater than 7 and less than 10.	Name a number less than 12 and greater than 8.
Which is the greater number? **10, 7**	Which is the lesser number? **6, 11**

Name________________________________ Date ____________________

Master 25f

Task Cards: Comparing and Ordering (Blank Cards)

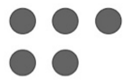
Number

Master 26: Activity 8 Assessment

Number Relationships 1: Consolidation

Number Relationships Behaviours/Strategies

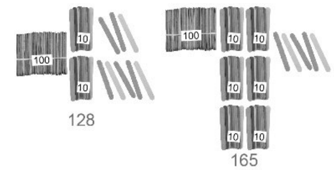
1. Student partitions quantities into groups of 2, but struggles to identify even and odd numbers.



"I know I have to make pairs, but then what?"

2. Student models numbers with manipulatives to help order on number line.

3. Student compares and orders written numbers using benchmarks.



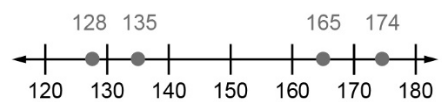
"I know 245 is less than 250 and 259 is greater than 250. So, 259 is greater than 245."

Observations/Documentation

4. Student compares numbers, digit by digit.

"Both have 1 hundred. 128 has 2 tens and 165 has 6 tens. So, 165 is greater than 128."

5. Student successfully uses benchmarks to compare and order.



The numbers from least to greatest are: 128, 135, 165, 174.

6. Student performs number relationship tasks with ease and communicates thinking using math language.

Observations/Documentation

Master 27a

Mathology Grade 2 Correlation – Alberta
Number Cluster 3: Place Value

Organizing Idea:
Number: Quantity is measured with numbers that enable counting, labelling, comparing, and operating.

<table>
<tr><td colspan="5">Guiding Question: How can quantity contribute to a sense of number?
Learning Outcome: Students analyze quantity to 1000.</td></tr>
<tr><th>Knowledge</th><th>Understanding</th><th>Skills & Procedures</th><th>Grade 2 Mathology</th><th>Mathology Little Books</th></tr>
<tr><td rowspan="3">Any number of objects in a set can be represented by a natural number.

The values of the places in a four-digit natural number are thousands, hundreds, tens, and ones.

Places that have no value within a given number use zero as a placeholder.

The number line is a spatial representation of quantity.</td><td rowspan="3">There are infinitely many natural numbers.

Every digit in a natural number has a value based on its place.

Each natural number is associated with exactly one point on the number line.</td><td>Represent quantities using words and natural numbers.</td><td>Number Cluster 3: Place Value
9: Building Numbers
10: Representing Numbers in Different Ways
11: What’s the Number?</td><td>Ways to Count</td></tr>
<tr><td>Identify the digits representing thousands, hundreds, tens, and ones based on place in a natural number.</td><td>Number Cluster 3: Place Value
9: Building Numbers
10: Representing Numbers in Different Ways
11: What’s the Number?

Number Math Every Day
3A: Adding Ten
3A: Taking Away Ten
3B: Thinking Tens
3B: Describe Me</td><td>Ways to Count</td></tr>
<tr><td>Relate a number, including zero, to its position on the number line.</td><td>Number Cluster 3: Place Value
12: Making a Number Line</td><td></td></tr>
</table>

A quantity can be skip counted in various ways according to context. Quantities of money can be skip counted in amounts that are represented by coins and bills (denominations).	A quantity can be interpreted as a composition of groups.	Decompose quantities into groups of 100s, 10s, and 1s.	**Number Cluster 3: Place Value** 9: Building Numbers 10: Representing Numbers in Different Ways 11: What's the Number 13: Consolidation	Family Fun Day (numbers to 100) Back to Batoche (numbers to 100) The Money Jar (numbers to 100) <u>Grade 3</u> Fantastic Journeys (numbers to 1000) Finding Buster (numbers to 1000) How Numbers Work (3-digit numbers)

Guiding Question: How can addition and subtraction be interpreted?
Learning Outcome: Students investigate addition and subtraction within 100.

Knowledge	Understanding	Skills & Procedures	Grade 2 Mathology	Mathology Little Books
Familiar addition and subtraction number facts facilitate addition and subtraction strategies. Addition and subtraction strategies for two-digit numbers include making multiples of ten and using doubles.	Addition and subtraction can represent the sum or difference of countable quantities or measurable lengths.	Add and subtract numbers within 100. Verify a sum or difference using inverse operations. Determine a missing quantity in a sum or difference, within 100, in a variety of ways.	**Number Intervention** 3: Adding Tens 4: Taking Away Tens	A Class-full of Projects Array's Bakery Marbles, Alleys, Mibs, and Guli!

Master 27c

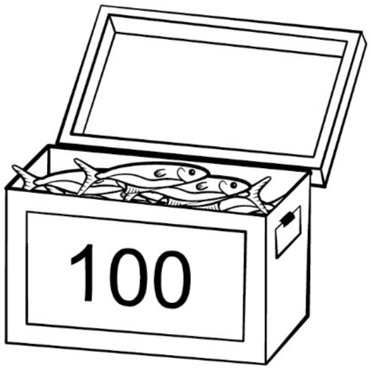
Organizing Idea:
Patterns: Awareness of patterns supports problem solving in various situations.

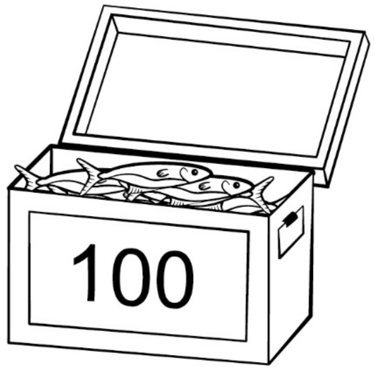
Guiding Question: How can patterns characterize change? **Learning Outcome:** Students explain and analyze patterns in a variety of contexts.				
Knowledge	**Understanding**	**Skills & Procedures**	**Grade 2 Mathology**	**Mathology Little Books**
Change can be an increase or a decrease in the number and size of elements. A hundreds chart is an arrangement of natural numbers that illustrates multiple patterns. Patterns can be found and created in cultural designs.	A pattern can show increasing or decreasing change. A pattern is more evident when the elements are represented, organized, aligned, or oriented in familiar ways.	Investigate patterns in a hundreds chart.	*Link to other strands:* ***Number Cluster 3: Place Value*** *12: Making a Number Line*	

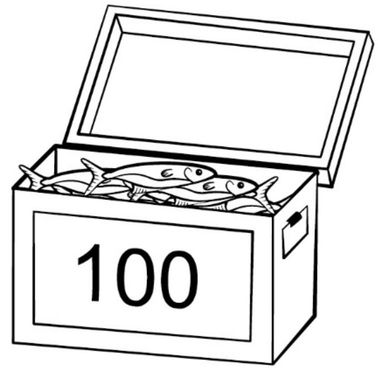
Name________________________________ Date_____________________

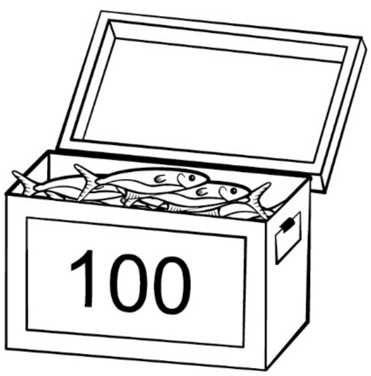
Master 28a

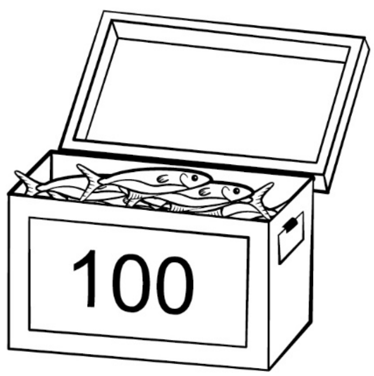
Base Ten Fish Cards

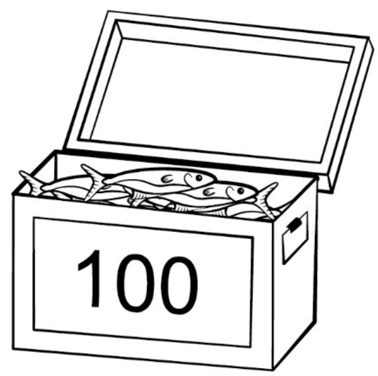


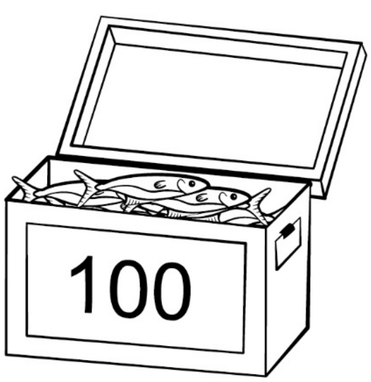


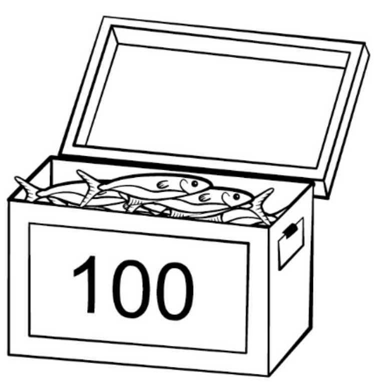


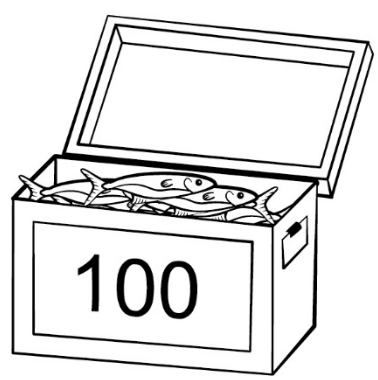








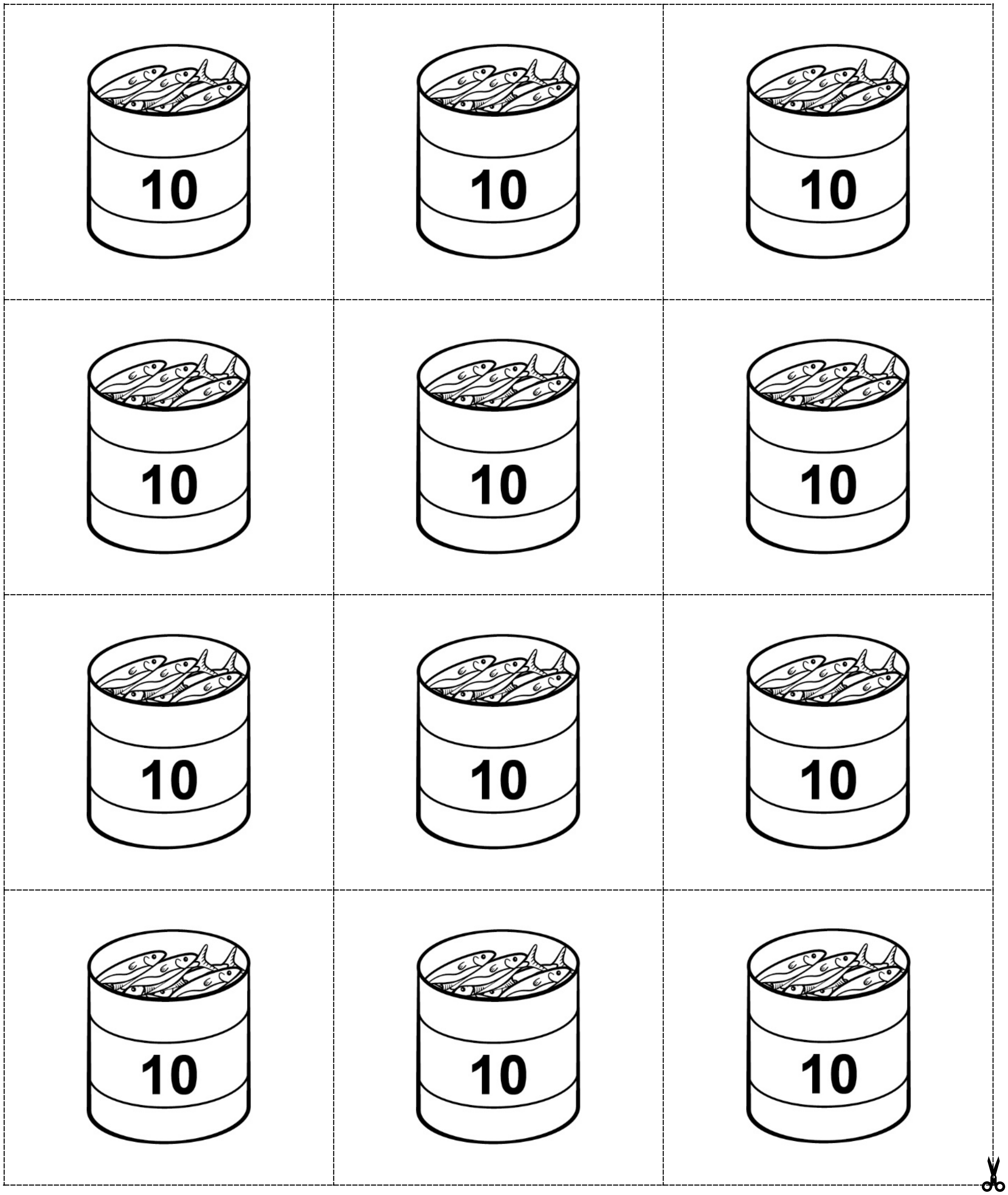




Name________________________________ Date_____________________

Master 28b

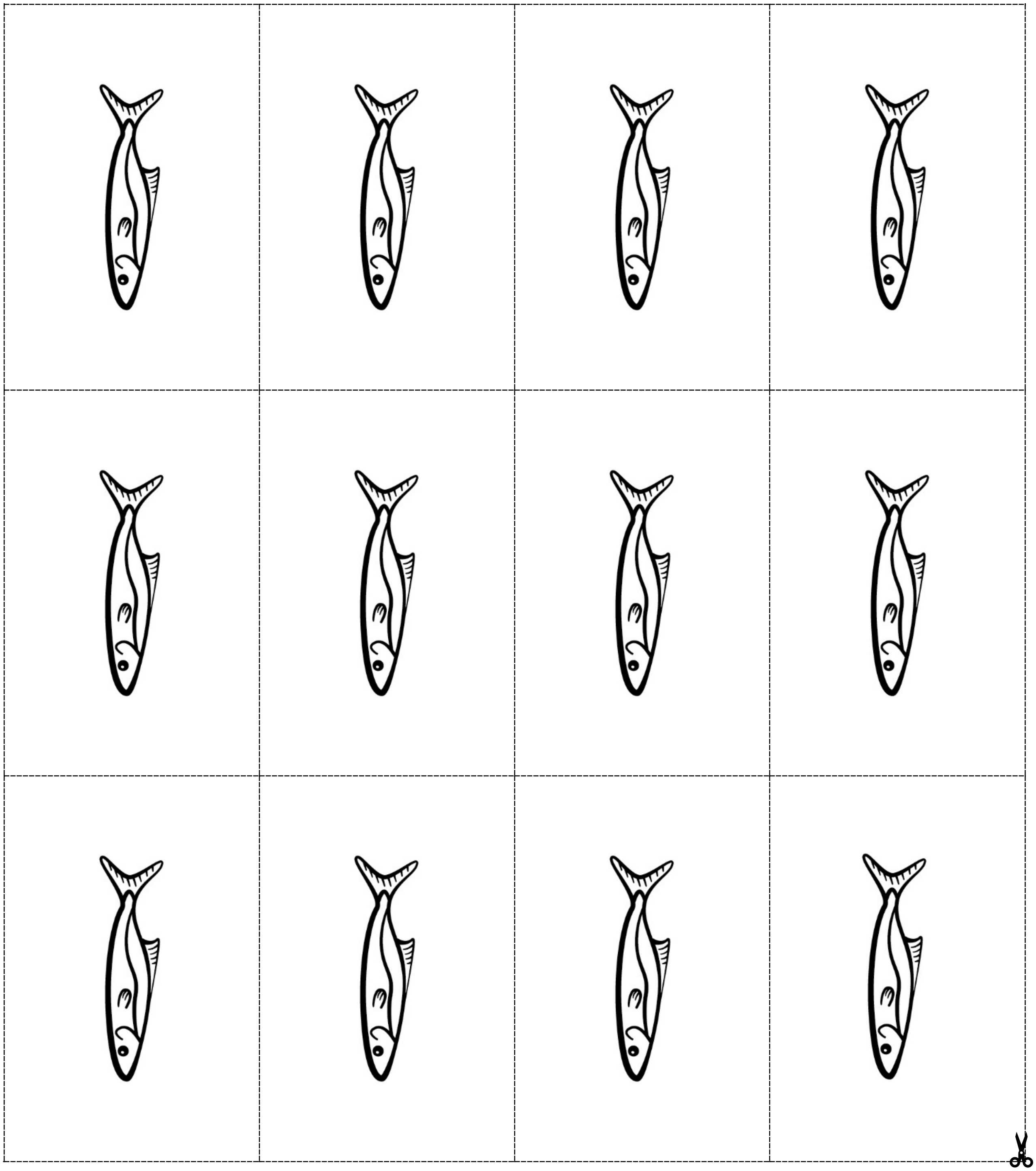
Base Ten Fish Cards



Name________________________________ Date_____________________

Master 28c

Base Ten Fish Cards



Number

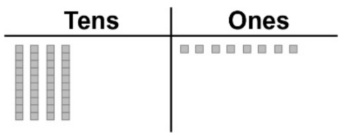
Master 29: Activity 9 Assessment

Building Numbers

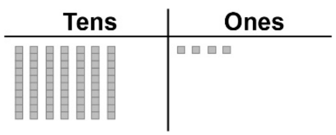
Building Numbers Behaviours/Strategies

1. Student composes and decomposes using tens and ones.

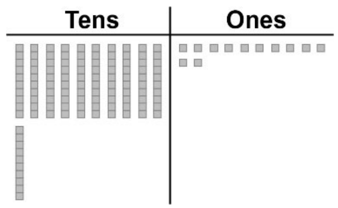
“48 is 4 tens and 8 ones.”



“74 is 7 tens and 4 ones.”

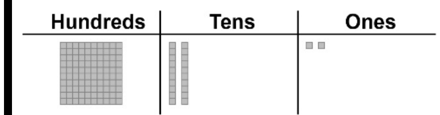


2. Student composes and decomposes using hundreds, tens, and ones (one way).



“I modelled 122 by combining all the tens and all the ones.”

3. Student composes and decomposes using hundreds, tens, and ones (more than one way).



“I traded 10 ones for 1 ten and 10 tens for one hundred. I modelled 122.”

4. Student uses place value to write a number in different ways.

“One hundred twenty-two

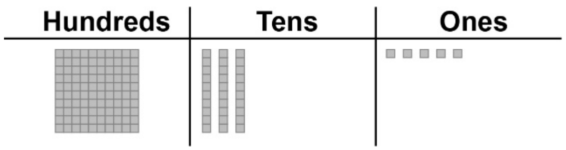
1 hundred, 2 tens, 2 ones;
1 hundred, 1 ten, 11 ones
☐ ||••”

Observations/Documentation

Master 30: Activity 10 Assessment
Representing Numbers in Different Ways

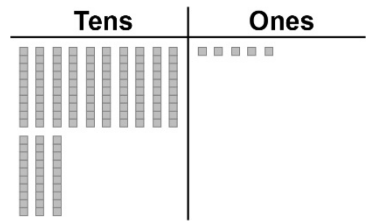
Composing and Decomposing 3-Digit Numbers Behaviours/Strategies

1. Student composes and decomposes using hundreds, tens, and ones (one way)



“I modelled 135.”

2. Student composes and decomposes using hundreds, tens, and ones (more than one way).



"I traded the hundred for 10 tens."

3. Student uses place value to write a number in different ways

“One hundred thirty-five is
1 hundred, 3 tens, 5 ones;
13 tens, 5 ones or |||||||||||||•••••"

Observations/Documentation

Number

Master 30: Activity 10 Assessment
Representing Numbers in Different Ways

Composing and Decomposing 3-Digit Numbers Behaviours/Strategies (cont'd)		
4. Student understands relationships among digits "The digit 4 in 475 represents 4 hundreds, 40 tens, or 400 ones."	5. Student compares two 3-digit numbers where all digits are different. Compare 475 and 739. "The digit 4 in 475 represents 4 hundreds, and the digit 7 in 739 represents 7 hundreds. 7 hundreds is greater than 4 hundreds. So, 739 is greater than 475."	6. Student uses place value to compare and order numbers. Bison: 739 kg; Grizzly bear: 268 kg; Brown bear: 278 kg "The bison has the greatest number of hundreds. Both bears have 2 hundreds so I will compare the tens. 6 tens is less than 7 tens. So, 268 is less than 278. From greatest to least: 739 kg, 278 kg, 268 kg."
Observations/Documentation		

Name_______________________________ Date____________________

Master 31

Place-Value Riddles

I have 3 hundreds, 25 tens, and 15 ones. What number am I?	I have 1 hundred, 84 tens, and 23 ones. What number am I?
I have 5 hundreds, 0 tens, and 38 ones. What number am I?	I have 6 hundreds, 18 tens, and 41 ones. What number am I?
I have 2 hundreds, 7 tens, and 32 ones. What number am I?	I have 4 hundreds, 30 tens, and 10 ones. What number am I?

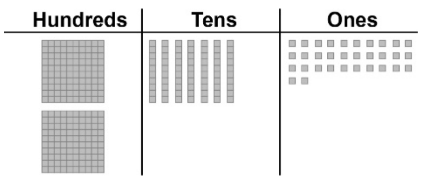
Master 32: Activity 11 Assessment

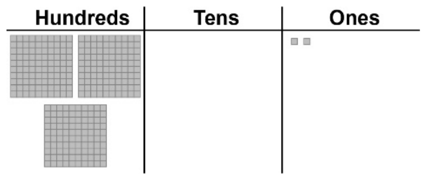
What's the Number?

Number

<table>
<tr><th colspan="4">Representing 3-Digit Numbers Behaviours/Strategies</th></tr>
<tr>
<td>1. Student models number using Base Ten Blocks.

I have 2 hundreds,
7 tens, and 32 ones.
What number am I?


"I modelled 302."</td>
<td>2. Student models number using fewest hundreds, tens, and ones.


"I traded 30 ones for 3 tens."</td>
<td>3. Student identifies the number modelled and writes it in different ways.

Three hundred and two or 302

"2 hundreds, 10 tens, 2 ones
2 hundreds, 9 tens, 12 ones
1 hundred, 20 tens, 2 ones
□ □ | | | | | | | | | | ▪ ▪"</td>
<td>4. Student models 3-digit number in different ways.

"The fewest hundreds:
3 tens and 2 ones.
The greatest number of ones:
302 ones."</td>
</tr>
<tr><th colspan="4">Observations/Documentation</th></tr>
<tr><td></td><td></td><td></td><td></td></tr>
</table>

Name________________________________ Date ____________________

Master 33

Number Chart (1–100)

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

Name________________________________ Date ______________________

Master 34a

Number Chart (101–200)

101	102	103	104	105	106	107	108	109	110
111	112	113	114	115	116	117	118	119	120
121	122	123	124	125	126	127	128	129	130
131	132	133	134	135	136	137	138	139	140
141	142	143	144	145	146	147	148	149	150
151	152	153	154	155	156	157	158	159	160
161	162	163	164	165	166	167	168	169	170
171	172	173	174	175	176	177	178	179	180
181	182	183	184	185	186	187	188	189	190
191	192	193	194	195	196	197	198	199	200

Name______________________________ Date ____________________

Master 34b

Number Chart (201–300)

201	202	203	204	205	206	207	208	209	210
211	212	213	214	215	216	217	218	219	220
221	222	223	224	225	226	227	228	229	230
231	232	233	234	235	236	237	238	239	240
241	242	243	244	245	246	247	248	249	250
251	252	253	254	255	256	257	258	259	260
261	262	263	264	265	266	267	268	269	270
271	272	273	274	275	276	277	278	279	280
281	282	283	284	285	286	287	288	289	290
291	292	293	294	295	296	297	298	299	300

Name________________________________ Date ____________________

Master 34c

Number Chart (301–400)

301	302	303	304	305	306	307	308	309	310
311	312	313	314	315	316	317	318	319	320
321	322	323	324	325	326	327	328	329	330
331	332	333	334	335	336	337	338	339	340
341	342	343	344	345	346	347	348	349	350
351	352	353	354	355	356	357	358	359	360
361	362	363	364	365	366	367	368	369	370
371	372	373	374	375	376	377	378	379	380
381	382	383	384	385	386	387	388	389	390
391	392	393	394	395	396	397	398	399	400

Name________________________________ Date ____________________

Master 34d

Number Chart (401–500)

401	402	403	404	405	406	407	408	409	410
411	412	413	414	415	416	417	418	419	420
421	422	423	424	425	426	427	428	429	430
431	432	433	434	435	436	437	438	439	440
441	442	443	444	445	446	447	448	449	450
451	452	453	454	455	456	457	458	459	460
461	462	463	464	465	466	467	468	469	470
471	472	473	474	475	476	477	478	479	480
481	482	483	484	485	486	487	488	489	490
491	492	493	494	495	496	497	498	499	500

Name________________________________ Date ____________________

Master 34e

Number Chart (501–600)

501	502	503	504	505	506	507	508	509	510
511	512	513	514	515	516	517	518	519	520
521	522	523	524	525	526	527	528	529	530
531	532	533	534	535	536	537	538	539	540
541	542	543	544	545	546	547	548	549	550
551	552	553	554	555	556	557	558	559	560
561	562	563	564	565	566	567	568	569	570
571	572	573	574	575	576	577	578	579	580
581	582	583	584	585	586	587	588	589	590
591	592	593	594	595	596	597	598	599	600

Name________________________________ Date ______________________

Master 34f

Number Chart (601–700)

601	602	603	604	605	606	607	608	609	610
611	612	613	614	615	616	617	618	619	620
621	622	623	624	625	626	627	628	629	630
631	632	633	634	635	636	637	638	639	640
641	642	643	644	645	646	647	648	649	650
651	652	653	654	655	656	657	658	659	660
661	662	663	664	665	666	667	668	669	670
671	672	673	674	675	676	677	678	679	680
681	682	683	684	685	686	687	688	689	690
691	692	693	694	695	696	697	698	699	700

Name________________________________ Date ______________________

Master 34g

Number Chart (701–800)

701	702	703	704	705	706	707	708	709	710
711	712	713	714	715	716	717	718	719	720
721	722	723	724	725	726	727	728	729	730
731	732	733	734	735	736	737	738	739	740
741	742	743	744	745	746	747	748	749	750
751	752	753	754	755	756	757	758	759	760
761	762	763	764	765	766	767	768	769	770
771	772	773	774	775	776	777	778	779	780
781	782	783	784	785	786	787	788	789	790
791	792	793	794	795	796	797	798	799	800

Name______________________________ Date ____________________

Master 34h

Number Chart (801–900)

801	802	803	804	805	806	807	808	809	810
811	812	813	814	815	816	817	818	819	820
821	822	823	824	825	826	827	828	829	830
831	832	833	834	835	836	837	838	839	840
841	842	843	844	845	846	847	848	849	850
851	852	853	854	855	856	857	858	859	860
861	862	863	864	865	866	867	868	869	870
871	872	873	874	875	876	877	878	879	880
881	882	883	884	885	886	887	888	889	890
891	892	893	894	895	896	897	898	899	900

Name________________________________ Date ______________________

Master 34i

Number Chart (901–1000)

901	902	903	904	905	906	907	908	909	910
911	912	913	914	915	916	917	918	919	920
921	922	923	924	925	926	927	928	929	930
931	932	933	934	935	936	937	938	939	940
941	942	943	944	945	946	947	948	949	950
951	952	953	954	955	956	957	958	959	960
961	962	963	964	965	966	967	968	969	970
971	972	973	974	975	976	977	978	979	980
981	982	983	984	985	986	987	988	989	990
991	992	993	994	995	996	997	998	999	1000

Number

Master 35: Activity 12 Assessment

Making a Number Line

Determining 10 More/Less Behaviours/Strategies		
1. Student tapes rows together, but struggles to say the number name sequence forward (rows are not in numerical order). 7 | 8 | 9 | 10 | 31 | 32 | 33 | 34	2. Student correctly says the number name sequence forward (tapes rows together in numerical order), but has difficulty seeing the similarities and differences between a number chart and number line. "They don't look the same to me at all."	3. Student successfully builds the number line, but does not recognize that numbers of the same colour increase or decrease by 10. 8 | 18 | 28 | 38 | 48 | 58 | 68 "The colours keep repeating."
Observations/Documentation		

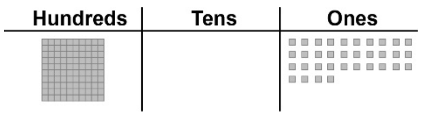
4. Student recognizes that numbers of the same colour increase or decrease by 10, but struggles to see patterns and relationships between numbers of the same colour. 8 | 18 | 28 | 38 | 48 | 58 | 68 "I don't know how all the red numbers are alike."	5. Student determines 10 more/less than a number that is a multiple of ten, but struggles when the start number is not a multiple of ten. "I don't know ten more than 17."	6. Student successfully builds the number line, recognizes all patterns, and fluently determines 10 more/less than a number without counting.
Observations/Documentation		

Master 36: Activity 13 Assessment

Place Value: Consolidation

Composing and Decomposing 3-Digit Numbers Behaviours/Strategies

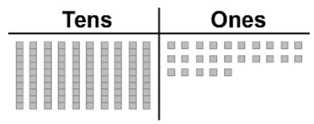
1. Student composes and a three-digit number using 35 Base Ten Blocks.



"I modelled 134."

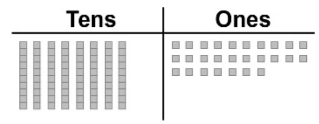
2. Student trades 1 ten for 10 ones to compose a lesser three-digit number using 35 Base Ten Blocks.

"I traded 1 hundred for 10 tens. I need 25 more ones to have 35 Base Ten Blocks."



"I modelled 125."

3. Student continues to trade 1 ten for 10 ones until they can no longer model a three-digit number.



"If I continue trading, I will not get a three-digit number. 107 is the least number I can make."

4. Student uses place value to represent a number in different ways.

"One hundred seven

1 hundred, 0 tens, 7 ones;
8 tens, 27 ones
107 ones
||||||||•••••••••••••••••••••••••••"

Observations/Documentation

Master 37a

Mathology Grade 2 Correlation – Alberta
Number Cluster 4: Early Fractional Thinking

Organizing Idea:
Number: Quantity is measured with numbers that enable counting, labelling, comparing, and operating.

Guiding Question: How can quantity contribute to a sense of number?
Learning Outcome: Students analyze quantity to 1000.

Knowledge	Understanding	Skills & Procedures	Grade 2 Mathology	Mathology Little Books
An even quantity will have no remainder when partitioned into two equal groups or groups of two. An odd quantity will have a remainder of one when partitioned into two equal groups or groups of two.	All natural numbers are either even or odd.	Partition a set of objects by sharing or grouping, with or without remainders.	**Number Cluster 4: Early Fractional Thinking** 19: Partitioning Sets	

Master 37b

Guiding Question: In what ways can parts compose a whole? **Learning Outcome:** Students interpret part-whole relationships using unit fractions.				
Knowledge	**Understanding**	**Skills & Procedures**	**Grade 2 Mathology**	**Mathology Little Books**
A whole can be a whole set of objects, or a whole object, that can be partitioned into a number of equal parts. The whole can be any size and is designated by context. A unit fraction describes any one of the equal parts that compose a whole.	Fractions can represent part-to-whole relationships. One whole can be interpreted as a number of unit fractions.	Model a unit fraction by partitioning a whole object or whole set into equal parts, limited to 10 or fewer equal parts.	**Number Unit 4: Early Fractional Thinking** 14: Equal Parts 19: Partitioning Sets 20: Consolidation **Number Math Every Day** 4: Modelling Fraction Amounts 4: Naming Equal Parts **Number Intervention** 5: Naming Fractional Amounts	The Best Birthday <u>Grade 3</u> Hockey Homework
		Compare different unit fractions of the same whole, limited to denominators of 10 or less.	**Number Unit 4: Early Fractional Thinking** 15: Comparing Fractions 1 16: Comparing Fractions 2	The Best Birthday <u>Grade 3</u> Hockey Homework
		Compare the same unit fractions of different wholes, limited to denominators of 10 or less.	**Number Unit 4: Early Fractional Thinking** 17: Comparing Unit Fractions of Different Wholes	<u>Grade 3</u> Hockey Homework
		Model one whole, using a given unit fraction, limited to denominators of 10 or less.	**Number Unit 4: Early Fractional Thinking** 18: Modelling One Whole with Unit Fractions	

Name________________________________ Date _____________________

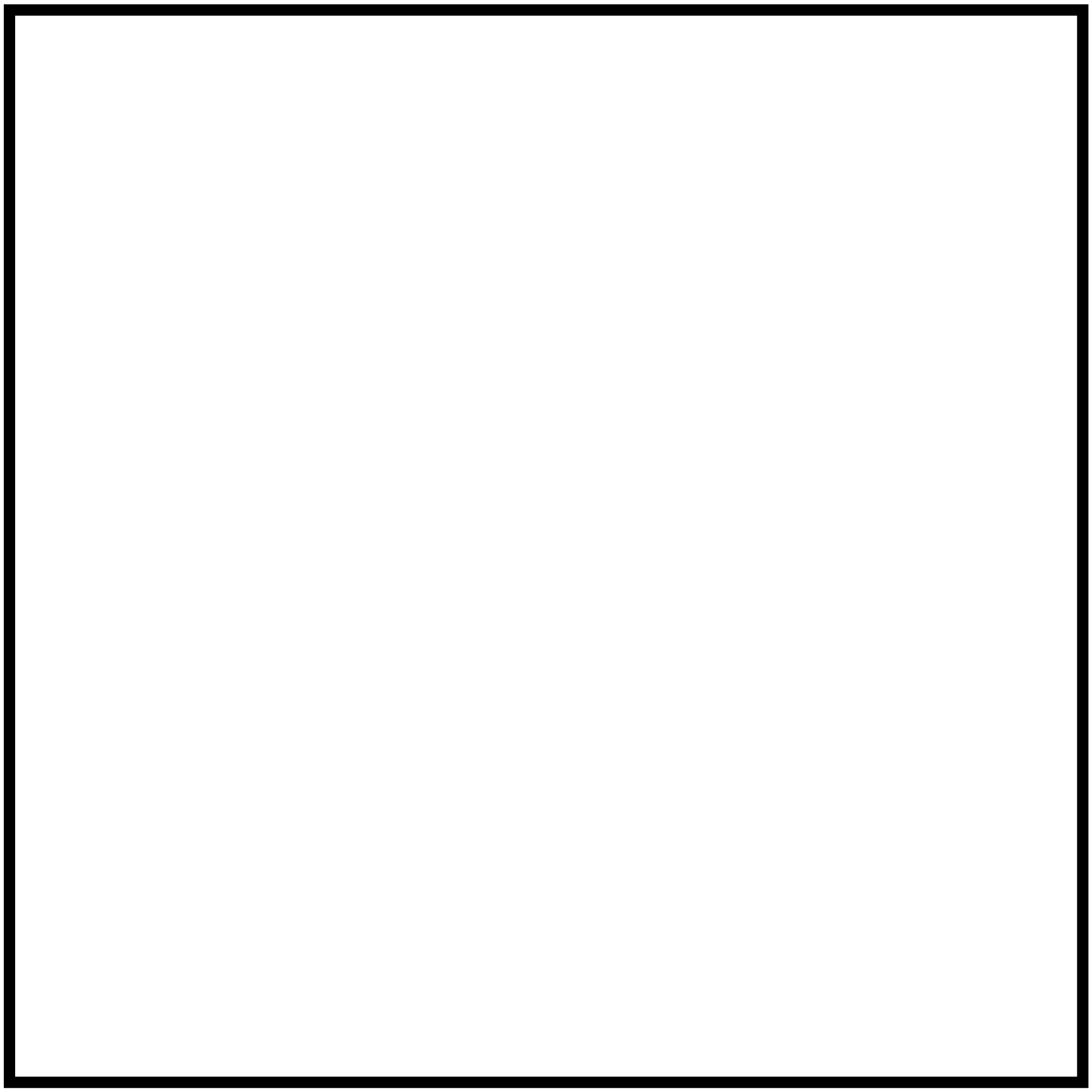
Master 38

Rectangles

Name________________________________ Date _____________________

Master 39

Paper Square



Name________________________________ Date _____________________

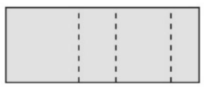
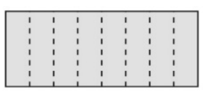
Master 40

Paper Strip

Number

Master 41: Activity 14 Assessment

Equal Parts

Partitioning Wholes into Equal Parts Behaviours/Strategies		
1. Student takes an item, but struggles to partition it into equal parts, and parts are not equal. 	2. Student partitions wholes into 2 and 4 equal parts, but struggles to cut or fold wholes into other numbers of equal parts (e.g., 3, 5, 6, 8, 10).	3. Student partitions wholes into equal parts, but struggles to prove that they are equal.  "How do I show they are equal?"
Observations/Documentation		
4. Student partitions wholes into equal parts, but struggles to name the unit (does not know fraction words).  "I don't know what each part is."	5. Student partitions wholes into equal parts and names the unit, but cannot relate the size of parts to the number of equal parts in a whole.	6. Student successfully partitions wholes into equal parts, names the unit, and relates the size of parts to the number of equal parts in a whole.
Observations/Documentation		

Name______________________________ Date ____________________

Master 42

Bannock Story: My Aunty's Bannock

By Amanda Norton and Jillian Laursen

Bannock is a special type of bread. It is usually flat and can be baked or fried. The best bannock of all is cooked over an open fire. It tastes really good with jam on it.

Traditional Bannock

- 3 cups all-purpose flour
- 2 tablespoons baking powder
- 1 tablespoon sugar
- ½ teaspoon salt
- ½ cup oil
- ¾ to 1 cup water

1. Preheat the oven to 400 degrees F (200 degrees C).
2. In a large bowl, combine the flour, baking powder, salt, and oil. Gradually mix in enough water to make soft but not sticky.
3. Knead on a lightly floured surface for about 10 minutes.
4. Bake for 15 to 20 minutes on a greased baking sheet until the bottom is golden when you lift up the bread to take a peek.

I could hardly contain my excitement. My aunty took two large bannock from the oven. She placed one of them on the kitchen table where my brother, sister, and cousin were sitting.

My aunty placed the other bannock on a table in the living room, where my Noohkoom (grandmother) was sipping her tea. My aunty then brought out her homemade wild berry jam. I love my aunty's bannock.

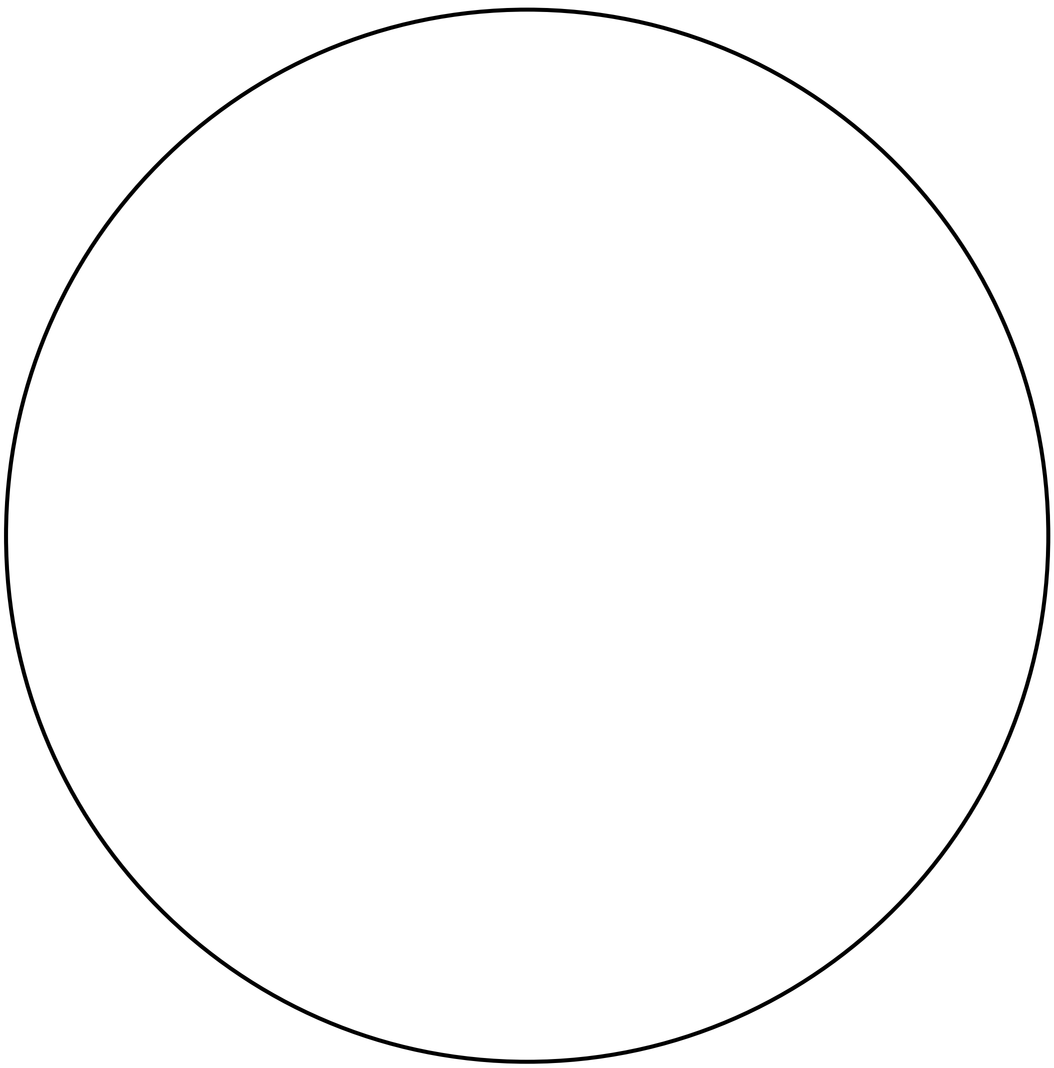
I knew each bannock would be shared equally, so I had to decide which table to sit at. I wanted to get the biggest piece of bannock.

Which table would you sit at?

Name________________________________ Date ____________________

Master 43

Circular Bannock



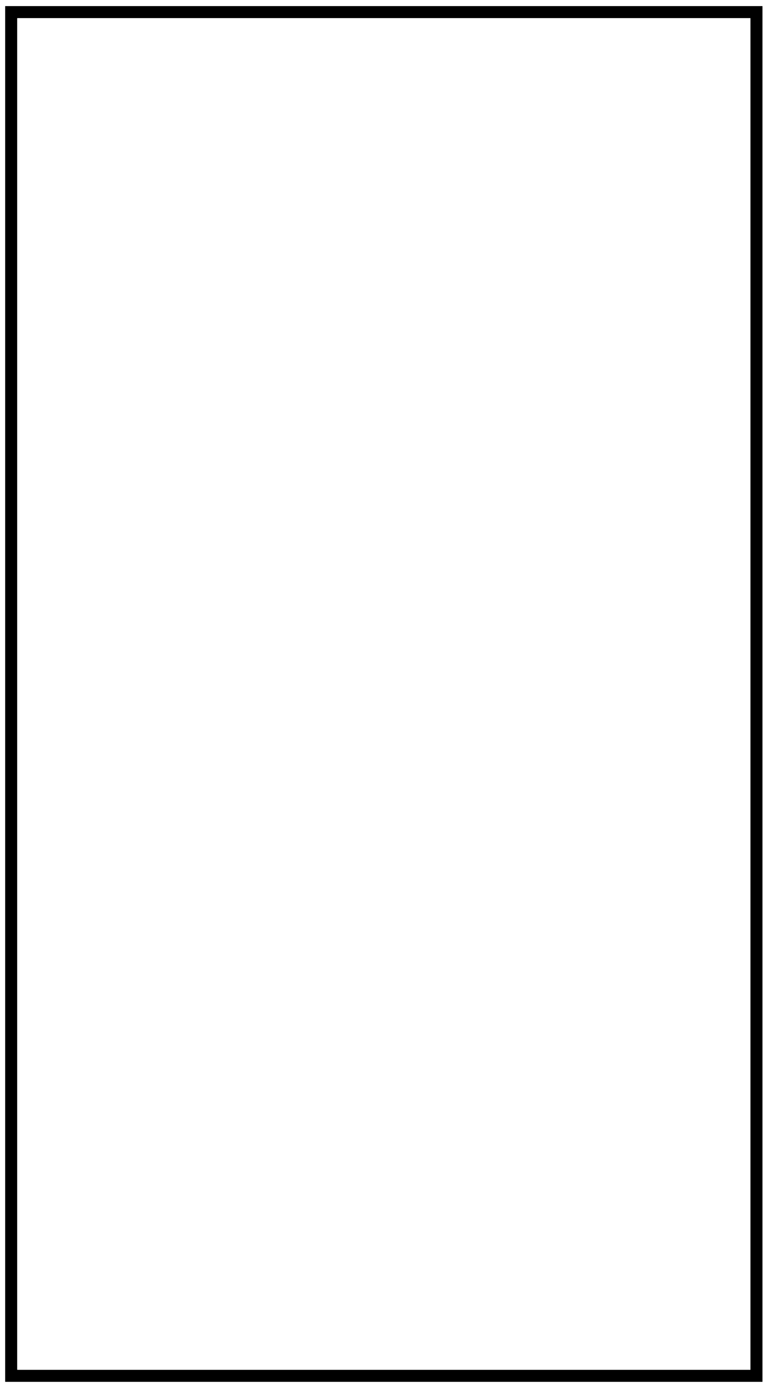
Name________________________________ Date _____________________

Master 44a

Paper Shapes

Note: Give each pair three copies of the same shape. Each shape should be printed on a different colour of paper.

Rectangle



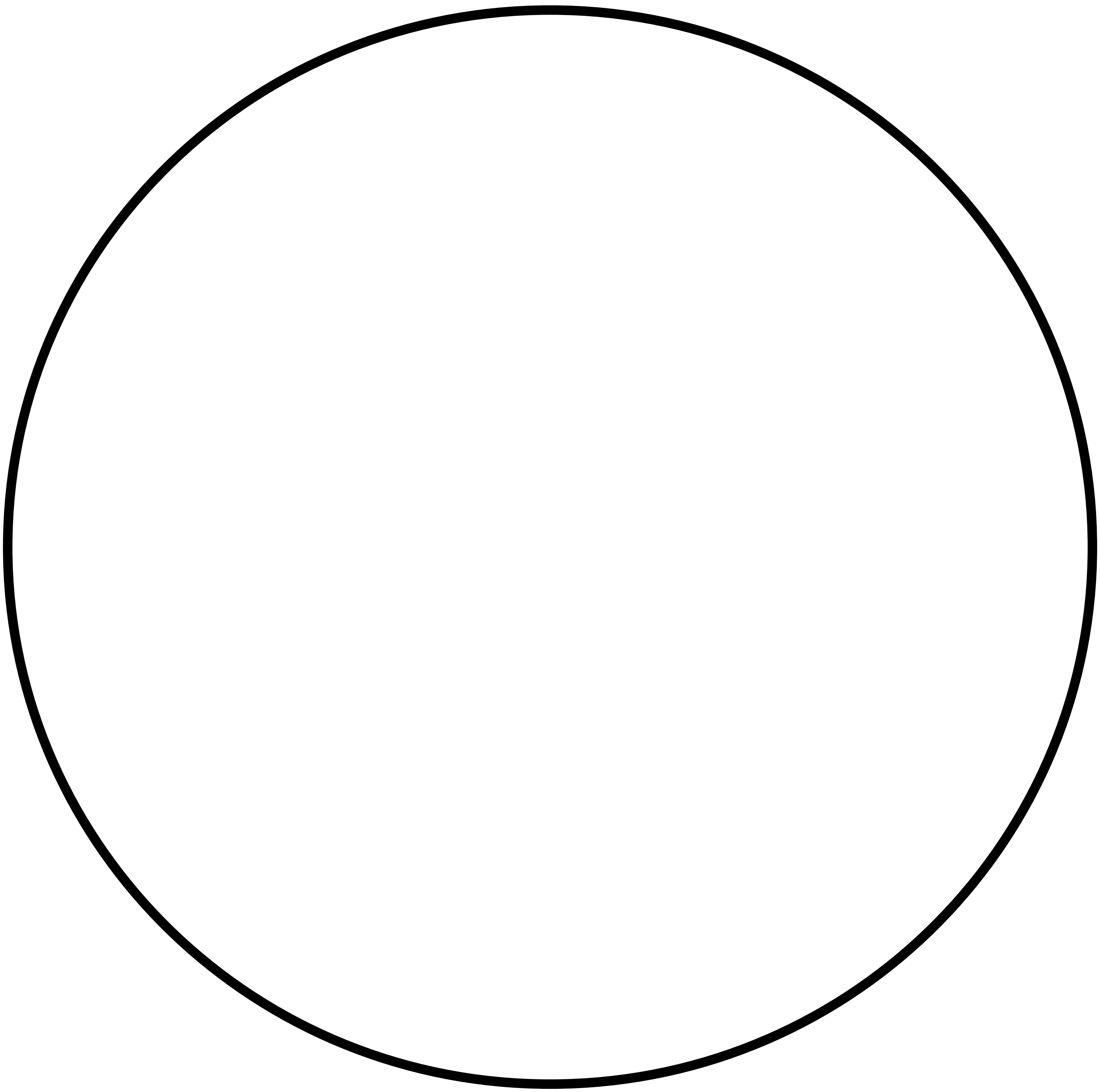
Name________________________________ Date _____________________

Master 44b

Paper Shapes

Note: Give each pair three copies of the same shape. Each shape should be printed on a different colour of paper.

Circle



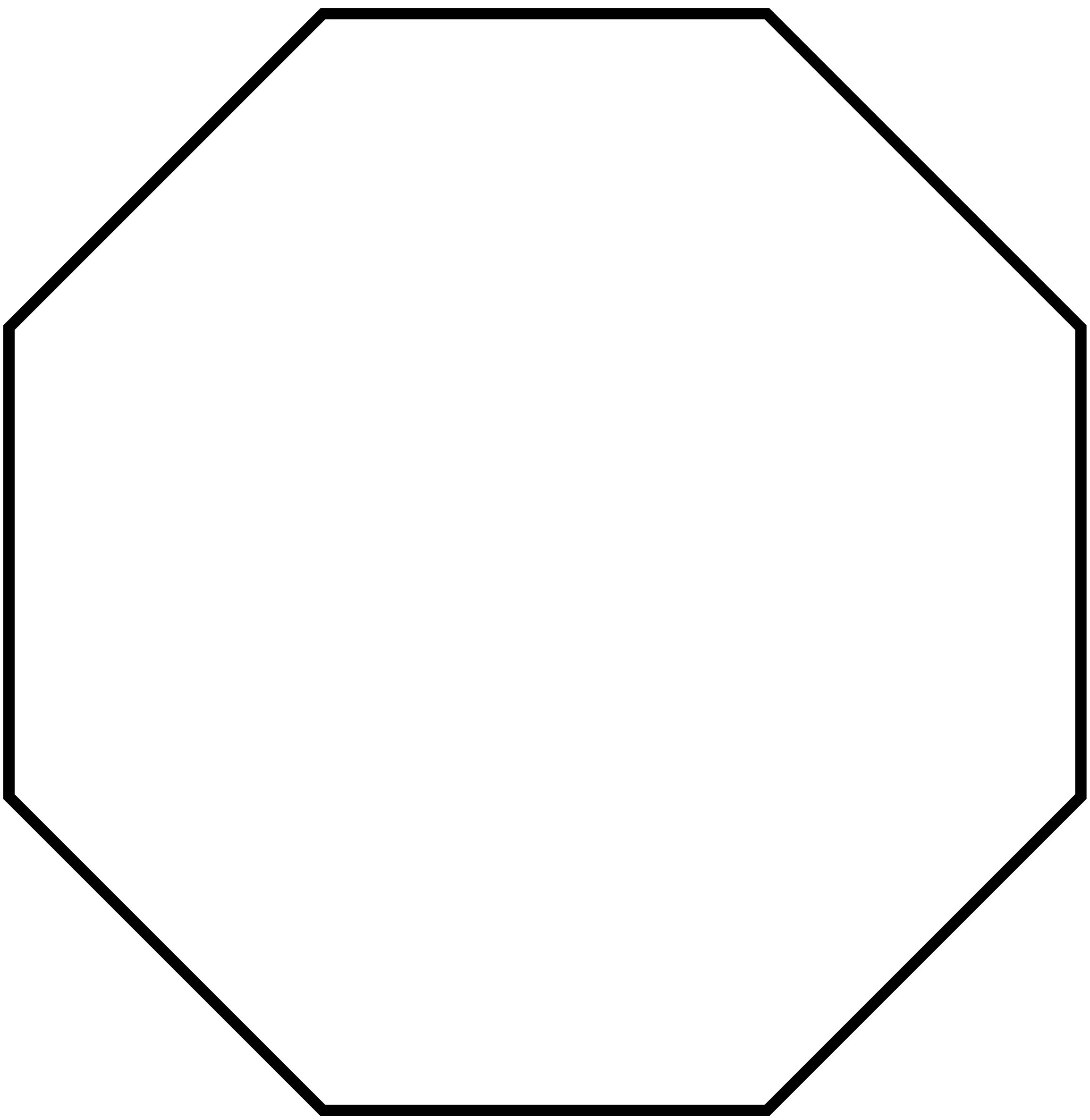
Name________________________________ Date _____________________

Master 44c

Paper Shapes

Note: Give each pair three copies of the same shape. Each shape should be printed on a different colour of paper.

Octagon



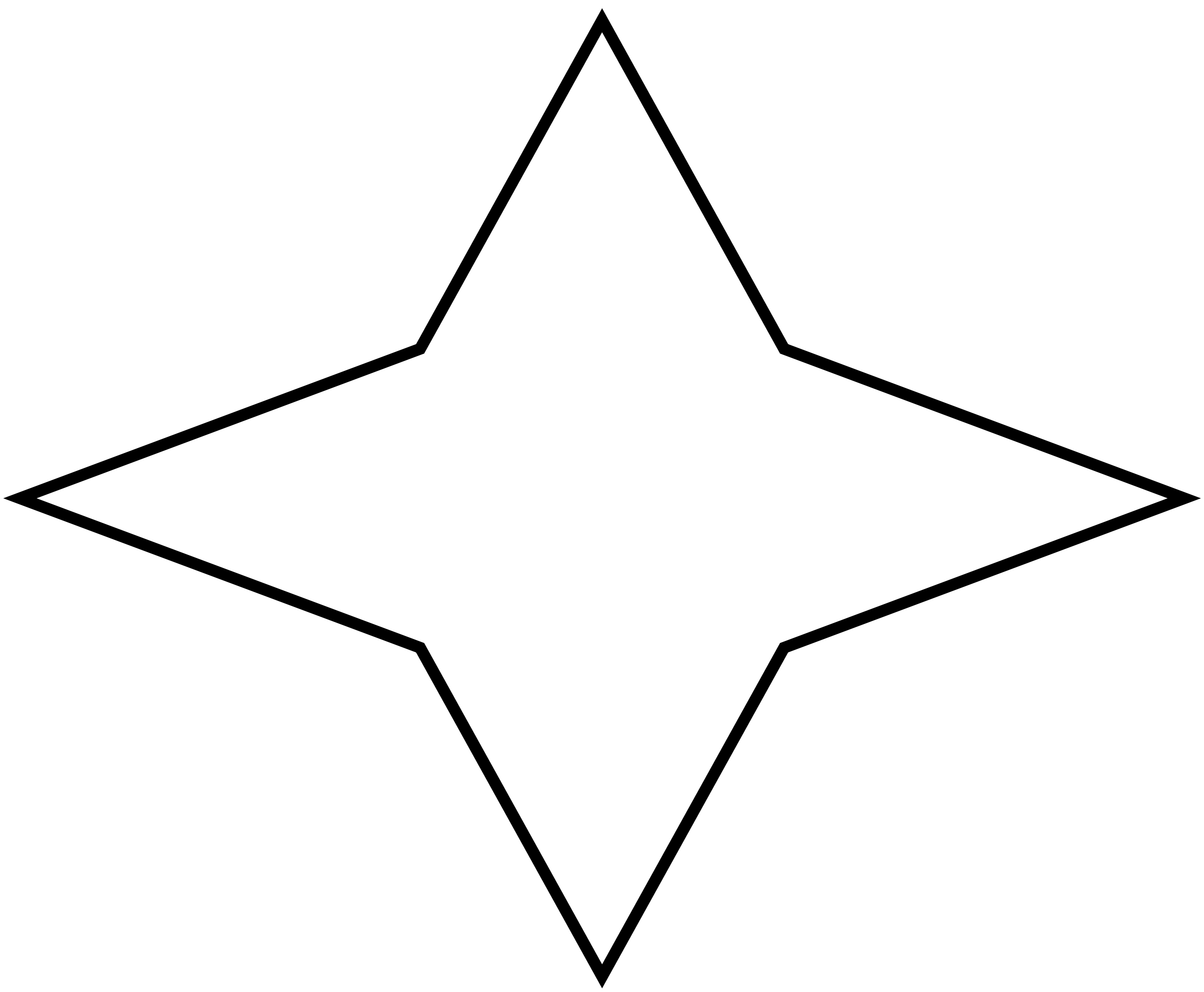
Name________________________________ Date ______________________

Master 44d

Paper Shapes

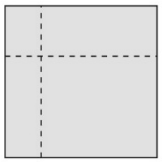
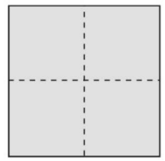
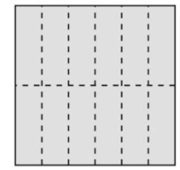
Note: Give each pair three copies of the same shape. Each shape should be printed on a different colour of paper.

8-Sided Shape



Master 45: Activity 15 Assessment

Comparing Fractions 1

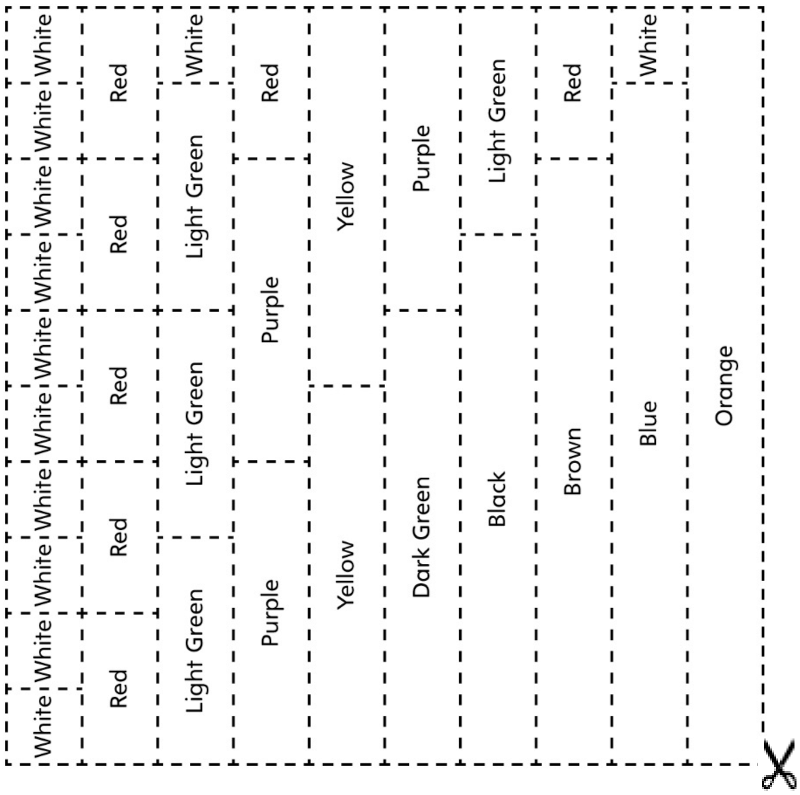
Comparing Fractions of a Whole Behaviours/Strategies			
1. Student takes a square, but struggles to partition it into equal parts, and parts are not equal. 	2. Student partitions wholes into 2 and 4 equal parts, but struggles to partition whole into 8 equal parts.  "How do I make 8 equal parts?"	3. Student partitions wholes into equal parts, but struggles to prove that they are equal.  "How do I show they are equal?"	4. Student partitions wholes into equal parts, but struggles to name the unit (does not know fraction words).  "I don't know what each part is."
Observations/Documentation			

5. Student partitions wholes into equal parts and names the unit, but does not realize that dividing a whole into more equal parts produces smaller parts.	6. Student partitions wholes into equal parts and names the unit, but does not realize that dividing a whole into smaller parts produces more parts.	7. Student partitions wholes into equal parts and names the unit, but struggles to use math language to compare parts.	8. Student successfully partitions wholes into equal parts, names the unit, and relates the size of the parts to the number of equal parts in a whole.
Observations/Documentation			

Name________________________________ Date _____________________

Master 46

Coloured Rods



Name________________________________ Date ______________________

Master 47

Brown Rod Questions

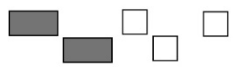
Which is bigger: two-fourths or three-eighths?	Which is bigger: one-half or three-fourths?
Which is bigger: one-half or five-eighths?	Which is bigger: one-half or two-fourths?
Which is bigger: one-half or three-eighths?	Which is bigger: three-fourths or five-eighths?
Which is bigger: one-fourth or two-eighths?	Which is bigger: three-fourths or one-whole?

Number

Master 48: Activity 16 Assessment

Comparing Fractions 2

Comparing Fractions of a Whole Behaviours/Strategies		
1. Student takes a rod, but struggles to partition it into equal parts, and parts are not equal. 	2. Student takes a rod, but struggles to partition it into equal parts, and parts do not cover whole exactly. 	3. Student partitions wholes into equal parts, but struggles to name the unit (does not know fraction words).  "I don't know what each part is."
Observations/Documentation		

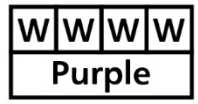
4. Student partitions wholes into equal parts and names the unit, but does not realize that partitioning a whole into more equal parts produces smaller parts.  "I don't notice anything."	5. Student partitions wholes into equal parts and names the unit, but struggles to compare with unit fractions.  "I don't know which is bigger: 2 one-fourths or 3 one-eighths."	6. Student successfully partitions wholes into equal parts, names the unit, relates the size of parts to the number of equal parts in a whole, and compares with unit fractions.
Observations/Documentation		

Name________________________________ Date _____________________

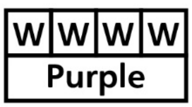
Master 113

Unit Fractions of a Whole

Each red is
one-______ of brown.



Each white (W) is
one-______ of purple.



Is one-______ always the
same size?

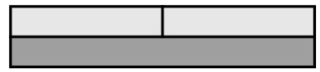
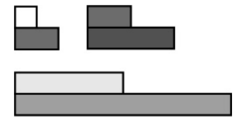
Each red is
one-______ of orange.

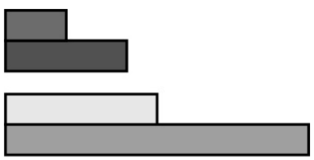
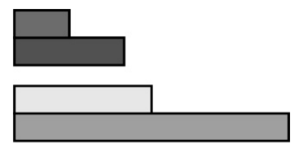
Each white (W) is
one-______ of yellow.

Is one-______ always the
same size?

Number

Master 114: Activity 17 Assessment
Comparing Unit Fractions of Different Wholes

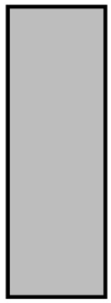
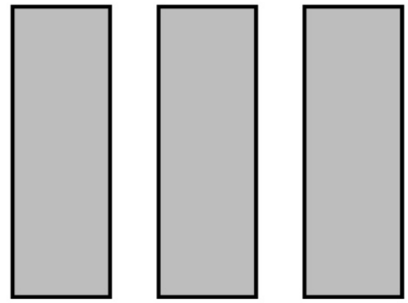
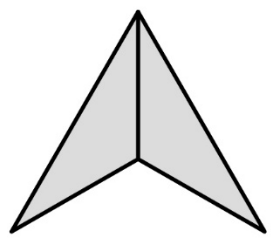
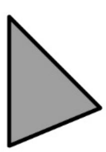
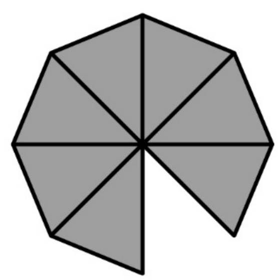
Comparing Fractions of Different Wholes Behaviours/Strategies		
1. Student struggles to divide a whole into equal unit fractions. 	2. Student is able to divide a whole into equal unit fractions.  "I know they have to be equal, but I don't know what to call it."	3. Student is unable to see various ways to show the same unit fraction with different wholes in order to compare 
Observations/Documentation		

4. Student is able to partition unit fractions of different wholes but struggles to compare them.  "I don't know which is bigger: one-half of the purple rod or one-half of the orange rod."	5. Student is able to partition and compare unit fractions of different wholes but does not realize that bigger wholes will produce bigger unit fractions.  "One-fourth of the brown rod is bigger than one-fourth of the purple rod."	6. Student is able to successfully partition, name and compare unit fractions of different wholes, realizing that bigger wholes will produce bigger unit fractions.  "One-half of the orange rod is bigger than one-half of the purple rod."
Observations/Documentation		

Name________________________________ Date _____________________

Master 115a

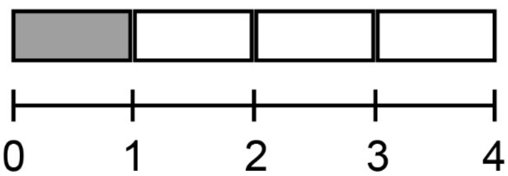
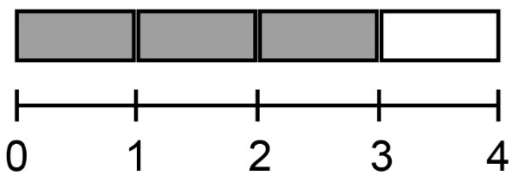
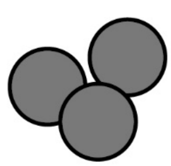
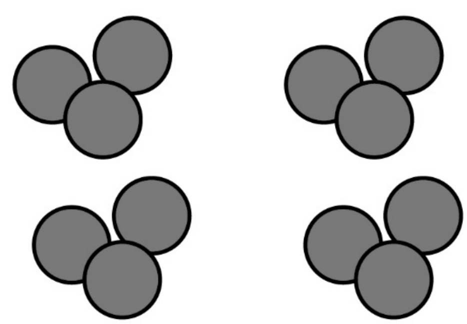
I Have… You Need…

I Have...	You Need...
 One-fourth	 3 one-fourth unit fraction pieces
 One-third	 2 one-third unit fraction pieces
 One-eighth	 7 one-eighth unit fraction pieces

Name________________________________ Date ____________________

Master 115b

I Have… You Need…

I Have...	You Need...
 One-fourth	 3 one-fourth sections
 One-half of the set	 One-half of the set
 One-fifth of the set	 4 one-fifths of the set

Name________________________________ Date _____________________

Master 116

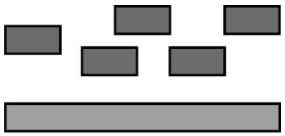
Make it Whole

one-half	**one-third**
one-fourth	**one-fifth**
one-sixth	**one-seventh**
one-eighth	**one-ninth**
one-tenth	**Choose Your Own**

Number

Master 117: Activity 18 Assessment

Modelling One Whole with Unit Fractions

Making a Whole with Unit Fractions Behaviours/Strategies		
1. Student does not understand that a unit fraction represents the parts of whole and cannot make the whole object or set.  "I don't know what to do."	2. Student recognizes that a unit fraction is part of a whole but is unable to make a whole and struggles with the concept of size of part and size of whole.  "How many do I need to make the whole?"	3. Student recognizes a unit fraction and can read it but is unable to put together more than one unit fraction to make a whole object or set.  $\frac{1}{5}$ "The red rod is one-fifth. How many do I need to make the whole?"
Observations/Documentation		

4. Student can make a whole object or set using smaller unit fractions but struggles with larger unit fractions (e.g., makes a whole with one-half but struggles with one-eighth).  "The yellow rod is one-half of the orange rod."	5. Student can make a whole from any given unit fraction but does not yet explain how the unit fraction relates to the making of the whole. "The yellow rod is one-half of the orange. I need two yellows to cover a whole orange rod. The red rod is one-fourth of the brown. I need four reds to cover a whole brown rod."	6. Student can make a whole from any given unit fraction and can explain the relationship between the unit fraction and the number of pieces needed to make a whole. "One-fifth tells me I need 5 parts to make a whole."
Observations/Documentation		

Number

Master 49: Activity 19 Assessment
Partitioning Sets

Partitioning Behaviours/Strategies			
1. Student partitions whole (area or length) into parts that are not equal.  "I folded the strip into 4 parts."	2. Student partitions whole (area or length) into equal parts.  "I folded the line into 4 equal parts."	3. Student names the unit fraction.  "Each part represents one-sixth."	4. Student counts parts using unit fractions.  "1 one-fourth, 2 one-fourths, 3 one-fourths, 4 one-fourths"
Observations/Documentation			

5. Student compares unit fractions.  "One-half is bigger than one-third of the same whole."	6. Student understands relationship between number of parts and size of parts. "When I divide the whole into more parts, the parts get smaller."	7. Student uses fraction symbol to represent fractional quantities of whole.  "4 one-sixths of the apples are green."	8. Student compares fractions with the same denominator.  "3 one-quarters is bigger than 2 one-quarters because one more one-quarter is shaded."
Observations/Documentation			

Name_______________________________ Date ____________________

Master 50a

Consolidation Cards

Use the same whole. Which is bigger: one-half or one-fourth?	Use the same whole. Which is bigger: one-half or 2 one-eighths?
Use the same whole. Which is bigger: one-fourth or one-eighth?	Use the same whole. Which is smaller: one-half or one-eighth?
Use the same whole. Which is bigger: one-half or 2 one-sixths?	Use the same whole. Which is smaller: 3 one-sixths or one-third?
Use the same whole. Which is bigger: 2 one-thirds or one-half?	Use the same whole. Which is smaller: 3 one-fourths or one-half?

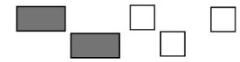
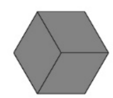
Name________________________________ Date ______________________

Master 50b

Consolidation Cards

Use 6 halves. How many wholes can you make?	Use 4 fourths. How many wholes can you make?
Use 9 thirds. How many wholes can you make?	Use 12 sixths. How many wholes can you make?
Use 10 halves. How many wholes can you make?	Use 8 fourths. How many wholes can you make?

Master 51: Activity 20 Assessment
Early Fractional Thinking: Consolidation

Comparing and Regrouping Fractional Parts Behaviours/Strategies			
1. Student turns over a card, but struggles to partition wholes into equal parts and does not know how many parts are in the whole. “How many parts do I need to show sixths?”	2. Student turns over a card, but struggles to partition wholes into equal parts and chooses an inappropriate whole (e.g., uses Pattern Blocks to show fourths).	3. Student chooses a whole, but struggles to partition it into equal parts, and parts are not all equal or they do not cover the whole exactly. 	4. Student partitions wholes into equal parts, but struggles to compare with unit fractions.  “I don’t know which is bigger: 2 one-fourths or 3 one-eighths.”
Observations/Documentation			
5. Student partitions wholes into equal parts, but compares parts of different wholes. 	6. Student partitions wholes into equal parts, but struggles to combine equal parts to make wholes.  “I don’t know how many parts to use.”	7. Student combines equal parts to make one whole, but struggles to name the unit fraction used.  “I made one whole with three one-third blocks.”	8. Student successfully partitions wholes into equal parts, compares with unit fractions, and combines equal parts to make wholes.
Observations/Documentation			

Master 52a

Mathology Grade 2 Correlation – Alberta
Number Cluster 5: Number Relationships 2

Organizing Idea:
Number: Quantity is measured with numbers that enable counting, labelling, comparing, and operating.

Guiding Question: How can quantity contribute to a sense of number? **Learning Outcome:** Students analyze quantity to 1000.				
Knowledge	**Understanding**	**Skills & Procedures**	**Grade 2 Mathology**	**Mathology Little Books**
Any number of objects in a set can be represented by a natural number. The values of the places in a four-digit natural number are thousands, hundreds, tens, and ones. Places that have no value within a given number use zero as a placeholder. The number line is a spatial representation of quantity.	There are infinitely many natural numbers. Every digit in a natural number has a value based on its place. Each natural number is associated with exactly one point on the number line.	Relate a number, including zero, to its position on the number line.	**Number Math Every Day** 5A: Which Ten is Nearer?	

Master 52b

A benchmark is a known quantity to which another quantity can be compared.	A quantity can be estimated when an exact count is not needed.	Estimate quantities using benchmarks.	**Number Cluster 5: Number Relationships 2** 21: Benchmarks on a Number Line **Number Math Every Day** 5A: Which Ten is Nearer?	Family Fun Day Ways to Count What Would you Rather?

Guiding Question: How can addition and subtraction be interpreted?
Learning Outcome: Students investigate addition and subtraction within 100.

Knowledge	Understanding	Skills & Procedures	Grade 2 Mathology	Mathology Little Books
The order in which more than two numbers are added does not affect the sum (associative property).	A sum can be composed in multiple ways.	Compose a sum in multiple ways, including with more than two addends.	**Number Cluster 5: Number Relationships 2** 22: Decomposing 100 23: Jumping on the Number Line 24: Consolidation **Number Math Every Day** 5A: Building Numbers 5B: How Many Ways? **Number Intervention** 6: Making 20	Paddling the River Family Fun Day A Class Full of Projects Kokum's Bannock The Money Jar
Familiar addition and subtraction number facts facilitate addition and subtraction strategies. Addition and subtraction strategies for two-digit numbers include making multiples of ten and using doubles.	Addition and subtraction can represent the sum or difference of countable quantities or measurable lengths.	Add and subtract numbers within 100. Verify a sum or difference using inverse operations. Determine a missing quantity in a sum or difference, within 100, in a variety of ways.	**Number Math Every Day** 5B: What's the Unknown Part?	

Name________________________________ Date ______________________

Master 53a

Closer To Cards

127 Closer to 120 or 130?	**188** Closer to 180 or 190?	**144** Closer to 140 or 150?
85 Closer to 80 or 90?	**105** Closer to 100 or 110?	**149** Closer to 140 or 150?
152 Closer to 150 or 160?	**165** Closer to 160 or 170?	**177** Closer to 170 or 180?
199 Closer to 190 or 200?	**145** Closer to 140 or 150?	**113** Closer to 100 or 120?

Name________________________________ Date ______________________

Master 53b

Closer To Cards (for Accommodations)

59 Closer to 50 or 60?	78 Closer to 70 or 80?	44 Closer to 40 or 50?
92 Closer to 90 or 100?	39 Closer to 30 or 40?	83 Closer to 80 or 90?
7 Closer to 0 or 10?	56 Closer to 50 or 60?	11 Closer to 10 or 20?
95 Closer to 90 or 100?	64 Closer to 60 or 70?	25 Closer to 20 or 30?

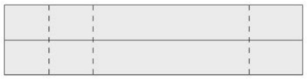
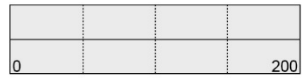
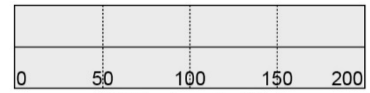
Name________________________________ Date ____________________

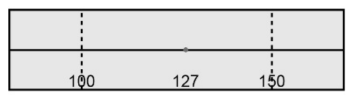
Master 53c

Closer To Cards (for Extension)

126 Closer to 120 or 130?	**288** Closer to 280 or 290?	**234** Closer to 230 or 240?
197 Closer to 190 or 200?	**305** Closer to 300 or 310?	**349** Closer to 340 or 350?
752 Closer to 750 or 760?	**978** Closer to 970 or 980?	**497** Closer to490 or 500?
599 Closer to 590 or 600?	**445** Closer to 440 or 450?	**813** Closer to 810 or 820?

Master 54: Activity 21 Assessment
Benchmarks on a Number Line

Comparing Numbers Using Benchmarks on a Number Line Behaviours/Strategies		
1. Student takes a paper strip, but is unable to make benchmark folds (e.g., folds the paper randomly or struggles to fold the strip in half). 	2. Student makes benchmark folds, but struggles to label folds with benchmark numbers.  	3. Student correctly shows benchmark numbers on the number line, but cannot compare numbers to identify the closer ten.  "144 is closer to 150."
Observations/Documentation		

4. Student successfully compares most numbers using benchmarks, but struggles when the ones digit of the number is 5. "I don't know what number 85 is closer to."	5. Student successfully compares numbers using benchmarks, but struggles to write the number in its approximate location on the number line.  "127 is closer to 150."	6. Student successfully compares numbers using benchmarks and writes numbers in their approximate locations on the number line.
Observations/Documentation		

Name________________________________ Date ____________________

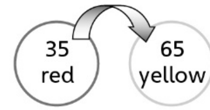
Master 55

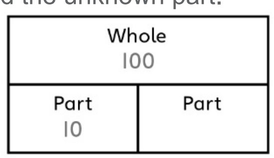
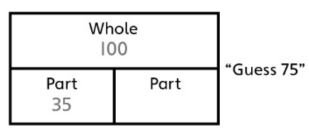
Part-Part-Part-Whole Mat

Whole	Part
	Part
	Part

Master 56: Activity 22 Assessment

Decomposing 100

Decomposing 100 Behaviours/Strategies			
1. Student decomposes 100 into two parts, but does not know that rearranging the counters does not change the quantity (i.e., conservation of number).	2. Student decomposes 100 into two parts, but arranges counters randomly or starts again to find different ways. "I'll put the counters back in the bin and start again."	3. Student uses patterns to find different ways to decompose 100 into two parts (flips counters and moves them to the other part).  	4. Student uses patterns to systematically find different ways to decompose 100 into two parts (flips one counter at a time and moves it to the other part).
Observations/Documentation			

Finding the Unknown Part Behaviours/Strategies			
1. Student writes numbers on the mat, but mixes up the whole and the part, or adds the whole and the known part to find the unknown part.  "The other part is 110."	2. To find a part given the whole and another part, student guesses and then uses counters to check.  "35 counters and 75 counters 110 counters: too many."	3. To find a part given the whole and another part, student counts on from the part or back from the whole.	4. Student uses efficient counting strategies, number relationships, or mental strategies to find a part given the whole and another part.
Observations/Documentation			

Name________________________________ Date _____________________

Master 57a

Target Number Cards

37	29	32
40	26	45
17	23	41
25	44	60

Name________________________________ Date ____________________

Master 57b

Target Number Cards (for Accommodations)

6	9	11
3	10	5
18	15	12
14	7	1

Name________________________________ Date ______________________

Master 57c

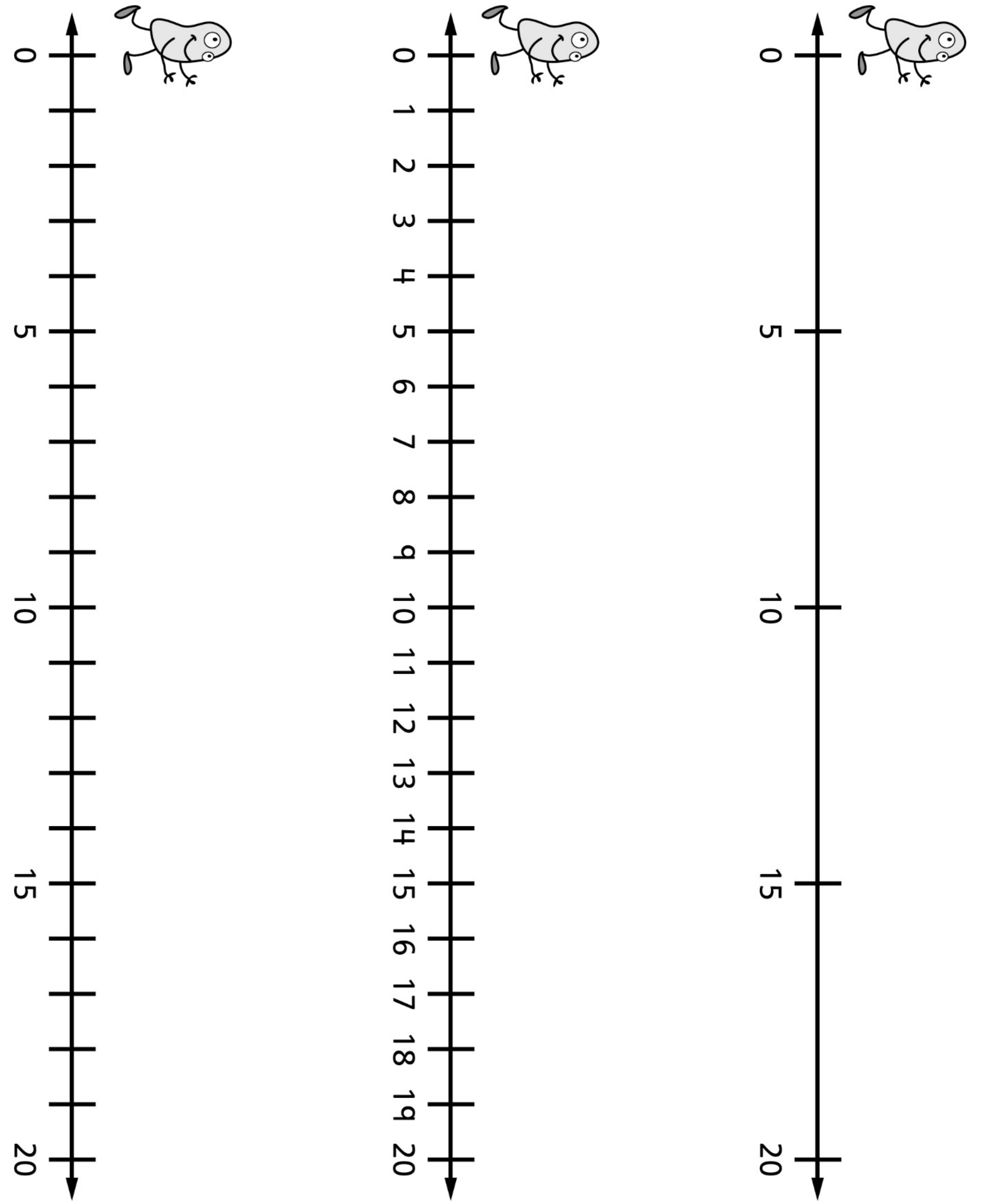
Target Number Cards (for Extension)

86	99	71
92	100	75
68	97	82
70	64	88

Name________________________________ Date _____________________

Master 58

Jumping Bean Number Lines

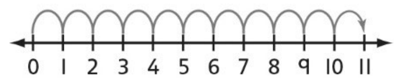
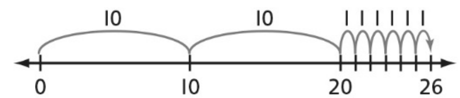


Number

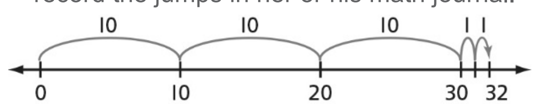
Master 59: Activity 23 Assessment

Jumping on the Number Line

<table>
<tr><th colspan="3">Decomposing Numbers on a Number Line Behaviours/Strategies</th></tr>
<tr>
<td>1. Student chooses a card, but struggles to decompose numbers into parts using a number line.

“I don’t know what to do.”</td>
<td>2. Student decomposes numbers into parts using a number line, but always takes jumps of 1.

</td>
<td>3. Student decomposes numbers into parts using a number line, but only takes jumps of 1 and 10.

</td>
</tr>
<tr><th colspan="3">Observations/Documentation</th></tr>
<tr><td></td><td></td><td></td></tr>
</table>

<table>
<tr>
<td>4. Student flexibly decomposes numbers into parts using a number line, but struggles to identify the way that takes the fewest jumps.

“I found lots of ways to jump to the number.”</td>
<td>5. Student flexibly decomposes numbers into parts using a number line, but struggles to record the jumps in her or his math journal.


“I don’t know how to write this.”</td>
<td>6. Student flexibly decomposes numbers into parts using a number line, identifies the most efficient way, and records work.</td>
</tr>
<tr><th colspan="3">Observations/Documentation</th></tr>
<tr><td></td><td></td><td></td></tr>
</table>

Name________________________________ Date _____________________

Master 60a

Who Am I? Cards

I am two parts of 40.	**I am** between 30 and 40, but closer to 30.	**I am** the other part of 60 when one part is 42.
Start at 20. Take • 3 jumps of 10 • 4 jumps of 1 **What number am I?**	**I am** two parts of 80.	**I am** between 60 and 70, but much closer to 70.
I am the other part of 90 when one part is 63.	Start at 25. Take • 2 jumps of 10 • 1 jump of 5 • 2 jumps of 1 **What number am I?**	**I am** two parts of 100.
I am the other part of 100 when one part is 81.	**I am** between 80 and 90, and the same distance from 80 as from 90.	Start at 5. Take • 1 jump of 10 • 1 jump of 2 • 3 jumps of 1 **What number am I?**

Name________________________________ Date ____________________

Master 60b

Who Am I? Cards (for Accommodations)

I am two parts of 10.	**I am** between 0 and 10, but closer to 10.	**I am** the other part of 10 when one part is 4.
Start at 0. Take • 2 jumps of 5 • 4 jumps of 1 **What number am I?**	**I am** two parts of 20.	**I am** between 10 and 20, but much closer to 10.
I am the other part of 20 when one part is 12.	Start at 0. Take • 1 jump of 10 • 2 jumps of 1 **What number am I?**	**I am** two parts of 15.
I am the other part of 20 when one part is 6.	**I am** between 10 and 20, and the same distance from 10 as from 20.	Start at 0. Take • 1 jump of 10 • 1 jump of 2 • 3 jumps of 1 **What number am I?**

Master 61: Activity 24 Assessment

Number Relationships 2: Consolidation

Number Relationships Behaviours/Strategies			
1. To decompose two-digit numbers into parts, student counts out counters and then arranges them in two groups. 35 red 5 yellow	2. To decompose two-digit numbers into parts, student chooses a part and then counts on or back with counters to find the other part. 35 red "36, 37, 38, 39, 40"	3. Student decomposes two-digit numbers into parts, but struggles to compose two-digit numbers from parts (unable to take jumps of different sizes on a number line).	4. To find a part given the whole and another part, student guesses and then uses counters to check. Whole 60 Part 42 Part "Guess 20" "42 counters and 20 counters is 62 counters: too many."
Observations/Documentation			
5. To find a part given the whole and another part, student counts on or back with counters or fingers. "43, 44, 45, ..., 58, 59, 60"	6. Student shows benchmark numbers on the number line, but struggles to name a number closer to the given ten. "36 is between 30 and 40, but I don't know which number it is closer to."	7. Student shows benchmark numbers on the number line, but struggles to name the number that is the same distance from both benchmarks. "I don't know what number is the same distance from 80 as from 90."	8. Student successfully demonstrates an understanding of number relationships by using efficient strategies (skip-counting, mental math) to answer cards of all types.
Observations/Documentation			

Master 62a

Mathology Grade 2 Correlation – Alberta
Number Cluster 6: Conceptualizing Addition and Subtraction

Organizing Idea:
Number: Quantity is measured with numbers that enable counting, labelling, comparing, and operating.

Guiding Question: How can quantity contribute to a sense of number? **Learning Outcome:** Students analyze quantity to 1000.				
Knowledge	**Understanding**	**Skills & Procedures**	**Grade 2 Mathology**	**Mathology Little Books**
A quantity can be skip counted in various ways according to context. Quantities of money can be skip counted in amounts that are represented by coins and bills (denominations).	A quantity can be interpreted as a composition of groups.	Decompose quantities into groups of 100s, 10s, and 1s.	**Number Cluster 6: Conceptualizing Addition and Subtraction** 25: Visualizing 100 with Groups of 10	Family Fun Day The Great Dogsled Race Ways to Count

Master 62b

Guiding Question: How can addition and subtraction be interpreted?
Learning Outcome: Students investigate addition and subtraction within 100.

Knowledge	Understanding	Skills & Procedures	Grade 2 Mathology	Mathology Little Books
The order in which more than two numbers are added does not affect the sum (associative property).	A sum can be composed in multiple ways.	Visualize 100 as a composition of multiples of 10 in various ways.	**Number Cluster 6: Conceptualizing Addition and Subtraction** 25: Visualizing 100 with Groups of 10	Family Fun Day The Great Dogsled Race Ways to Count
		Compose a sum in multiple ways, including with more than two addends.	**Number Cluster 6: Conceptualizing Addition and Subtraction** 26: Exploring Properties 27: Exploring the Associative Property	Paddling the River Family Fun Day A Class Full of Projects Kokum's Bannock The Money Jar
Familiar addition and subtraction number facts facilitate addition and subtraction strategies. Addition and subtraction strategies for two-digit numbers include making multiples of ten and using doubles.	Addition and subtraction can represent the sum or difference of countable quantities or measurable lengths.	Solve problems using addition and subtraction of countable quantities or measurable lengths.	**Number Cluster 6: Conceptualizing Addition and Subtraction** 27: Exploring the Associative Property 28: Solving Problems 1 29: Solving Problems 2 30: Solving Problems 3 31: Solving Problems 4 32: Consolidation **Number Math Every Day** 6: What Math Do You See? 6: What Could the Story Be? **Number Intervention** 7: Adding and Subtracting to 20 8: Solving Story Problems	Array's Bakery The Great Dogsled Race The Money Jar Family Fun Day

Name________________________________ Date _____________________

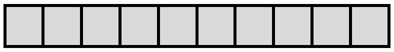
Master 118

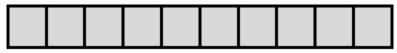
Blank Hundred Chart

Name________________________________ Date _____________________

Master 119

Composing and Decomposing 100

 = _____________ squares.

We need _____________  to cover the grid.

Partner 1 has the colour __________________.

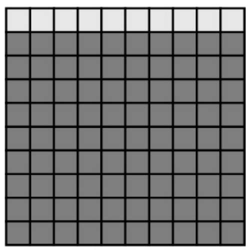
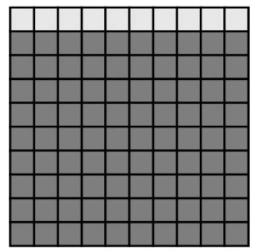
Partner 2 has the colour __________________.

Record how many strips you used to cover your hundred chart.

Partner 1	**Partner 2**	**Total**

Master 120: Activity 25 Assessment

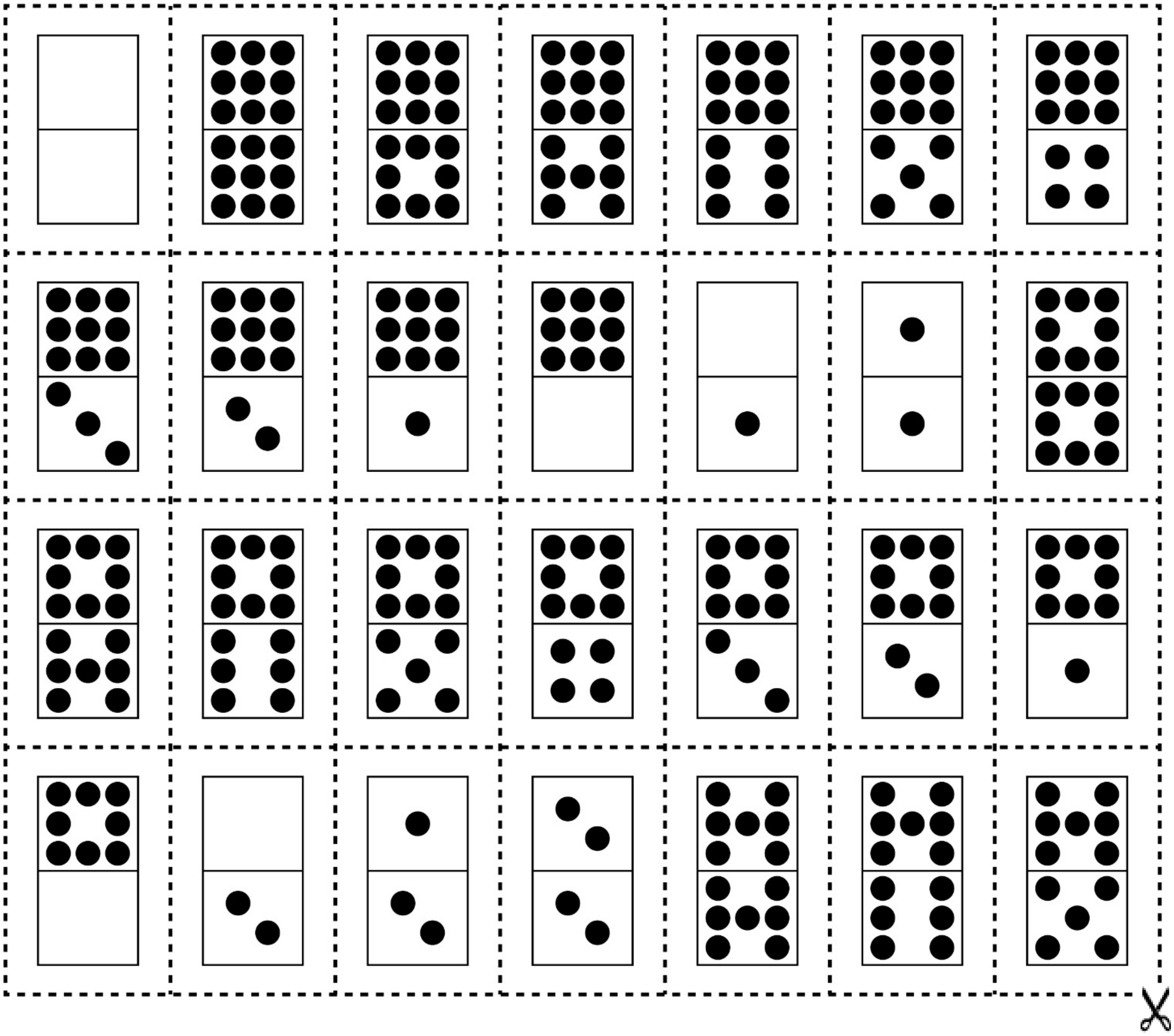
Visualizing 100 with Groups of 10

Visualizing 100 with Groups of 10 Behaviours/Strategies			
1. Student decomposes 100 into groups but does not connect to groups of 10.  "I broke 100 into 1 strip and 9 strips. So 1 + 9 = 100."	2. Student decomposes 100 into groups of 10 (one way).  "I broke 100 into 1 strip of 10 and 9 strips of 10. So 10 + 90 = 100."	3. Student decomposes 100 into multiple groups of 10 (many ways) and records each sum. "I can make 100 several ways." 1 strip of 10 and 9 strips of 10 or 10 + 90 = 100 2 strips of 10 and 8 strips of 10 or 20 + 80 = 100 3 strips of 10 and 7 strips of 10 or 30 + 70 = 100 4 strips of 10 and 6 strips of 10 or 40 + 60 = 100 5 strips of 10 and 5 strips of 10 or 50 + 50 = 100	4. Student identifies the pattern of one addend increasing by 10 for every decrease in 10 of the other addend to make 100. 10 + 90 = 100 20 + 80 = 100 30 + 70 = 100 40 + 60 = 100 50 + 50 = 100 60 + 40 = 100 70 + 30 = 100 80 + 20 = 100 90 + 10 = 100
Observations/Documentation			

Name________________________________ Date _____________________

Master 63a

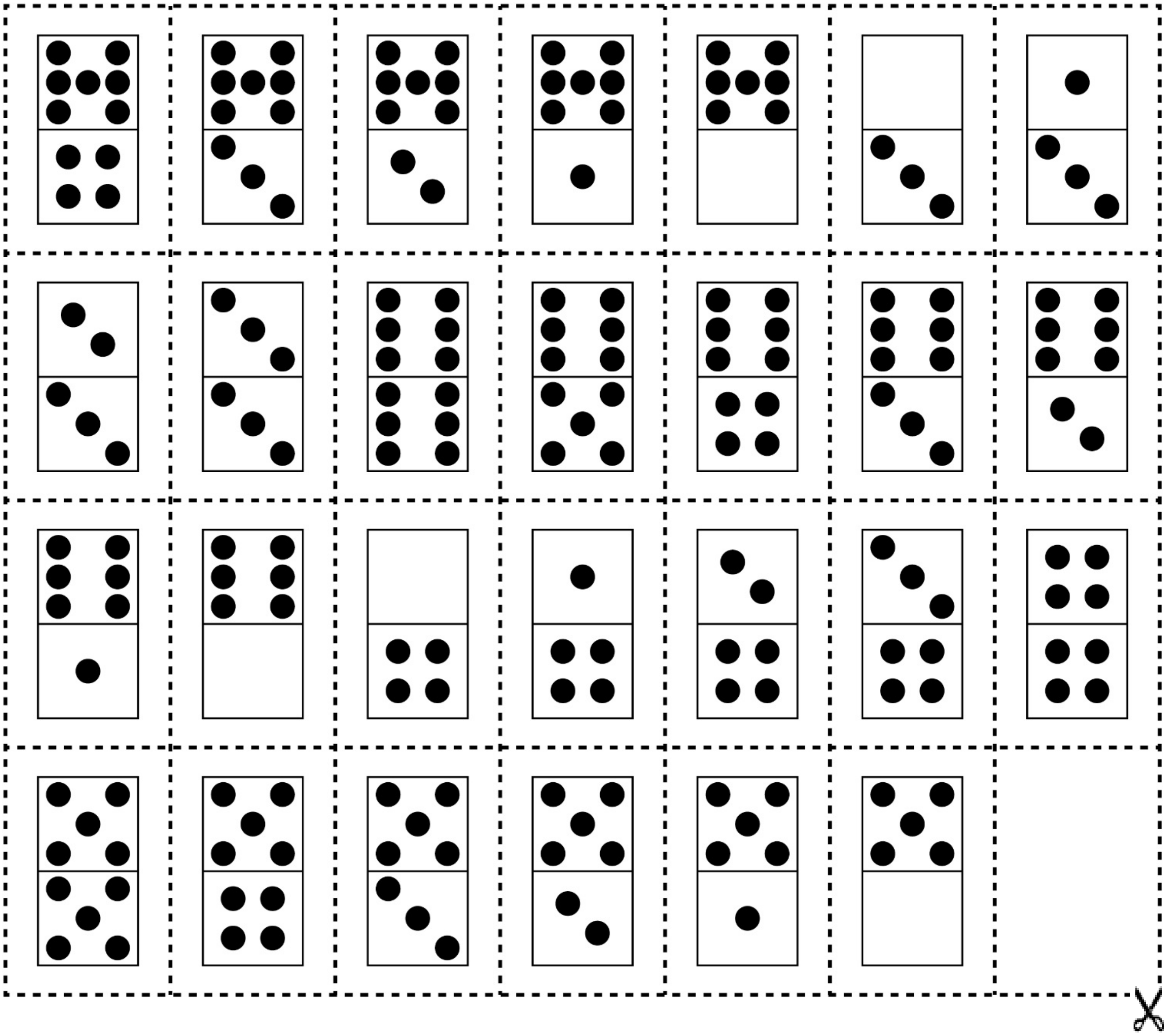
Domino Cards



Name________________________________ Date _____________________

Master 63b

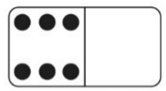
Domino Cards

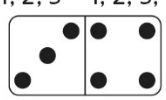
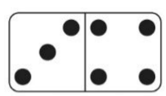
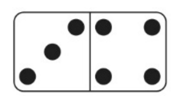
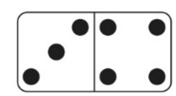


Number

Master 64: Activity 26 Assessment

Exploring Properties

Operational Sense Behaviours/Strategies			
1. Student turns over a domino, but is unable to use symbols and equations to represent an addition situation. "I don't know how to write an addition sentence for a domino."	2. Student uses symbols and equations to represent some addition situations, but struggles when one of the addends is zero.  "I don't know what to write."	3. Student uses symbols and equations to represent an addition situation in one way, but does not use the commutative property to represent it another way. "3 + 4 = 7. I don't know another sentence."	4. Student successfully uses symbols and equations to represent addition and subtraction situations and shows understanding of the zero and commutative properties. 7 + 0 = 7 0 + 7 = 7 7 – 0 = 7
Observations/Documentation			

Mental Math and Computational Behaviours/Strategies			
1. Student counts three times to add quantities (find the total number of dots). "1, 2, 3" "1, 2, 3, 4"  "1, 2, 3, 4, 5, 6, 7"	2. Student counts on from the smaller number to add quantities.  "3" "4, 5, 6, 7"	3. Student uses a known fact, doubles, or skip-counting to add quantities.  "I know 3 + 3 = 6, so 3 + 4 = 7."	4. Student fluently adds and subtracts with quantities to 10.  "I know 3 + 4 = 7."
Observations/Documentation			

Name______________________________ Date____________________

Master 65

Adding Lengths

Part 1

Length from tip of middle finger to wrist	______ cm
Length from wrist to shoulder	______ cm

Write an equation to find the total length of your arm.

	+		=	

Show two ways you could break down a number to make addition easier.

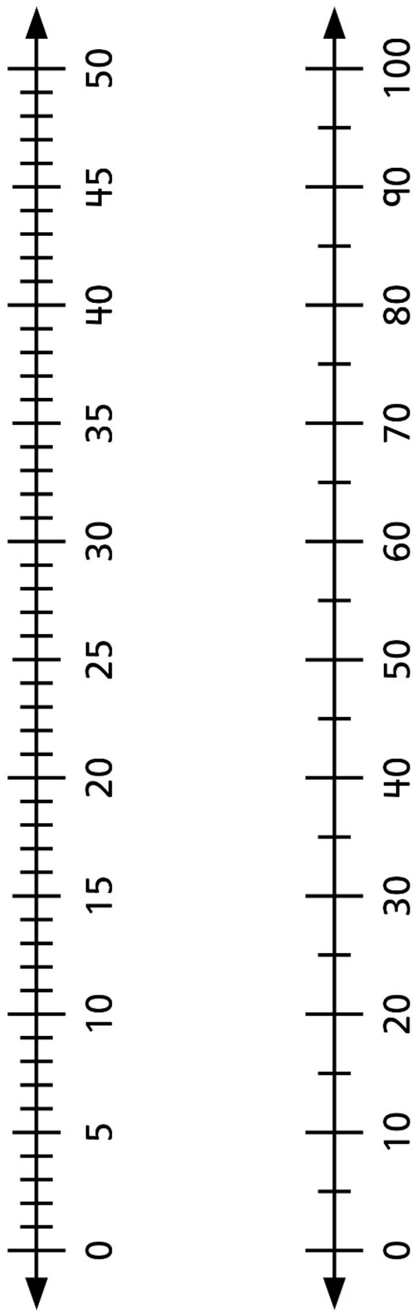
______ + ______ + ______ = ______

______ + ______ + ______ = ______

Name________________________________ Date ____________________

Master 66

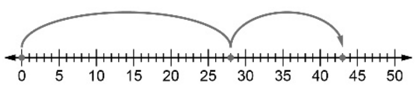
Number Lines



Number

Master 67: Activity 27 Assessment

Exploring the Associative Property

<table>
<tr><th colspan="4">Operational Sense Behaviours/Strategies</th></tr>
<tr>
<td>1. Student uses counting on a number line to show addition.

28 = ? − 15
“I counted to 28 on the number line. Then, I counted another 15 to show: 28 + 15 = 43”</td>
<td>2. Student decomposes and recomposes numbers (uses associative property one way).
28 + 15 = 28 + 2 + 13
28 + 2 + 13 = 30 + 13
30 + 13 = 43</td>
<td>3. Student recognizes that there are multiple ways to decompose and recompose numbers and that the result will be the same.
“I know another way to make the addition easier.”
28 + 15 = 23 + 5 + 15
= 23 + 20
= 43</td>
<td>4. Student uses strategies efficiently and flexibly to solve equations of different types
“I can break a number down in different ways in different situations.”</td>
</tr>
<tr><th colspan="4">Observations/Documentation</th></tr>
<tr><td></td><td></td><td></td><td></td></tr>
</table>

Name________________________________ Date ______________________

Master 68

Story Problems to 100

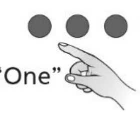
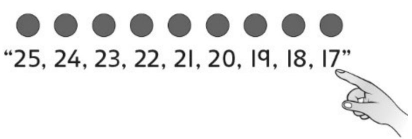
Story Problems	Number Sentence
The local library got 63 new  today. At lunchtime, only 16  were left in the library. How many  got signed out?	
 had a  sale and made 87  . The  gave some  to a  shelter. Now  have 12  . How many  did  give to the  shelter?	
100  were on a bush. Along came a  . Now there are 11  . How many  did the  eat?	

Number

Master 69: Activity 28 Assessment

Solving Problems 1

Conceptual Understanding of Story Problems Behaviours/Strategies			
1. Student reads story problem, but is unable to model add-to and take-from situations with concrete materials.	2. Student models and solves problems, but cannot use symbols and equations to represent the problems.	3. Student uses symbols to write a subtraction equation, but struggles to see the relation among the numbers. 26 – ? = 9 	4. Student models and solves addition and subtraction problem types and uses symbols and equations to represent the problems. 50 – 21 = ? 17 + ? = 41
Observations/Documentation			

Addition and Subtraction Computational Behaviours/Strategies			
1. Student counts three times to add or subtract quantities, but struggles to coordinate number words with counting actions.  "One"	2. Student counts three times to add or subtract quantities. "1, 2, 3, ..., 6, 7, 8, 9"  "1, 2, 3, 4" "1, 2, 3, 4, 5"	3. Student counts on or back to add or subtract quantities.  "25, 24, 23, 22, 21, 20, 19, 18, 17"	4. Student uses mental strategies to add or subtract quantities. "9 and 1 more is 10. 10 and 16 is 26. 16 and 1 is 17. So, 17 books were signed out."
Observations/Documentation			

Name________________________________ Date ____________________

Master 70

Think Board A

Story Problem

Su has 7 red balloons and 4 green balloons.
How many balloons does she have altogether?

My Picture

My Number Sentence

Name________________________________ Date ______________________

Master 71a

Story Problems 2 (Whole Unknown)

Note: Story Problem Card 3 is for use as an accommodation.

Last year, I ordered
25 ribbons for field day.
This year, I want to
order 11 more.
How many ribbons
should I order?

Ravi read 37 pages in
his book before lunch.
After lunch, he read
17 more pages.
How many pages did
Ravi read altogether?

There are 6 students
on the bus.
At the next stop,
3 students get on.
How many students
are now on the bus?

Ava has 43 marbles.
Her sister, Ada, has
52 marbles.
How many marbles do
they have altogether?

Name_______________________________ Date ____________________

Master 71b

Story Problems 2 (Whole Unknown)

Yesterday, 88 geese landed at the pond. Today, 15 more geese joined them. How many geese are at the pond now?

Anna has 37 seashells. The next day, she finds 33 more. How many seashells does Anna have now?

There are 44 people on the train. The train stops and 19 people get on. At the next stop, 35 people get on. How many people are on the train now?

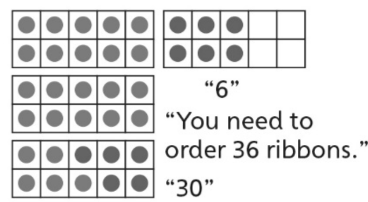
Jason has 47 stickers. His brother, Rory, has 52 stickers. How many stickers do they have altogether?

Number

Master 72: Activity 29 Assessment

Solving Problems 2

Conceptual Understanding of Story Problems Behaviours/Strategies			
1. Student reads story problem, but is unable to model add-to situations with concrete materials. "I don't know what to do."	2. Student models and solves addition problems, but cannot use symbols and equations to represent the problems.	3. Student models and solves addition problems and writes addition sentences, but struggles to represent thinking. "25 + 11 = ?" or "25 + 11 = 36" "What do I draw?"	4. Student successfully models and solves addition problem types, uses symbols and equations to represent the problems, and represents thinking on the Think Board.
Observations/Documentation			

Addition Computational Behaviours/Strategies			
1. Student counts three times to add quantities. The answer may not be accurate. "1, 2, 3, ..., 23, 24, 25" "1, 2, 3, ..., 9, 10, 11" "1, 2, 3, ..., 34, 35, 36"	2. Student counts on to add quantities. "26, 27, 28, …, 34, 35, 36"	3. Student counts efficiently to add quantities (e.g., makes 10, subitizes). 	4. Student uses mental strategies flexibly and accurately to add quantities. "85 + 10 = 95 and 95 + 1 = 96"
Observations/Documentation			

Name_______________________________ Date ____________________

Master 73a

Story Problems 3 (Part Unknown: Joining)

Note: Story Problem Card 3 is for use as an accommodation.

1 Samson has 29 marbles. His friend gives him some more. Now he has 42 marbles. How many marbles did his friend give him?	2 Julie picked 17 apples on Saturday morning. She picked some more apples in the afternoon. She picked 38 apples altogether. How many apples did Julie pick in the afternoon?
3 There are 4 ladybugs on a leaf. Some more ladybugs fly in and join them. Now there are 10 ladybugs on the leaf. How many ladybugs flew in and joined them?	4 There are 19 cars in the parking lot. When the store opens, more cars arrive. Now there are 57 cars in the parking lot. How many cars arrived when the store opened?

Name________________________________ Date ____________________

Master 73b

Story Problems 3 (Part Unknown: Joining)

5

Tyler bakes 48 dog treats in the morning. In the afternoon, he bakes some more dog treats. Now he has 96 dog treats altogether. How many dog treats did he bake in the afternoon?

6

The ants were on the move. In the morning, 27 ants left the anthill. At lunchtime, some more ants left the anthill. In the afternoon, 31 more ants left the anthill. Altogether, 72 ants left the anthill. How many ants left at lunchtime?

7

There are 17 butterflies in a field. An hour later, 19 more butterflies arrive. In the evening, some more butterflies arrive. Now there are 54 butterflies in the field. How many butterflies arrived in the evening?

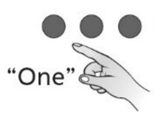
8

Lila and her brother Matt held a weekend car wash. On Saturday, they washed 31 cars. On Sunday, they washed some more cars. They washed 83 cars altogether. How many cars did they wash on Sunday?

Master 74: Activity 30 Assessment

Solving Problems 3

Conceptual Understanding of Story Problems Behaviours/Strategies			
1. Student reads story problem, but is unable to model add-to and take-from situations with concrete materials.	2. Student models and solves the problem, but cannot use symbols and equations to represent it. “The answer is 13. I don’t know the number sentence.”	3. Student successfully models and solves the problem and writes an addition sentence, but struggles to relate the addition problem to a subtraction problem. “29 + 13 = 42” “It’s not a subtraction problem.”	4. Student successfully models and solves the problem and uses symbols and equations to represent it. “29 + 13 = 42” “42 – 29 = 13” “His friend gave him 13 marbles.”
Observations/Documentation			

Addition Computational Behaviours/Strategies			
1. Student models problem with counters, but struggles to coordinate number words with counting actions. 	2. Student counts three times to add or subtract quantities. “1, 2, 3, …, 41, 42” counts all “1, 2, 3, …, 28, 29” counts to remove “1, 2, 3, …, 12, 13” counts leftover	3. Student counts on or back with counters to add or subtract quantities. “30, 31, 32, …, 40, 41, 42”	4. Student uses mental strategies flexibly and accurately to add or subtract quantities. “29 and 1 more is 30. 30 and 10 more is 40. 40 and 2 more is 42. 1 + 10 + 2 = 13.”
Observations/Documentation			

Name________________________________ Date _____________________

Master 75

Story Problem Starters

There are _____ ________________ in the bin.
NUMBER OBJECT 1

There are _____ ________________ in the bin.
NUMBER OBJECT 2

How many ________________ and ________________
OBJECT 1 OBJECT 2

are in the bin altogether?

There are _____ ________________ in the bin.
NUMBER OBJECT 1

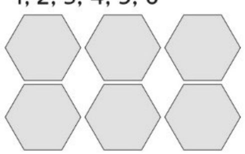
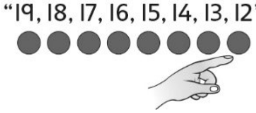
I take _____ ________________ out of the bin.
NUMBER OBJECT 2

How many ________________ are left in the bin?
OBJECT 1

Number

Master 76: Activity 31 Assessment
Solving Problems 4

Conceptual Understanding of Addition and Subtraction Behaviours/Strategies			
1. Student takes objects from bin, but has difficulty using them to create an addition and subtraction problem.	2. Student creates an addition problem, but has difficulty creating a subtraction problem.	3. Student creates addition and subtraction problems, but cannot use symbols and equations to represent them. "I don't know how to write a number sentence."	4. Student creates addition and subtraction problems and uses symbols and equations to represent them. 31 + 9 = ? "Answer is 40." 71 – ? = 13 "Answer is 58."
Observations/Documentation			

Addition and Subtraction Computational Behaviours/Strategies			
1. Student counts three times to add or subtract quantities. "1, 2, 3, 4, 5"  "1, 2, 3, 4, 5, 6"  "1, 2, 3, …, 9, 10, 11"	2. Student guesses and then counts on or back to add or subtract quantities to check. Guess 7: 13, 14, 15, 16, 17, 18, 19 "Not enough."	3. Student counts on or back to add or subtract quantities. "19, 18, 17, 16, 15, 14, 13, 12" 	4. Student uses mental strategies flexibly and accurately to add or subtract quantities. "I know 25 + 25 is 50. So, 25 + 26 is 1 more, or 51."
Observations/Documentation			

Name________________________________ Date ____________________

Master 77

Think Board B

Story Problem
Jose has 15 tickets to sell for the school play. He has sold 6 tickets. How many more tickets does he have left to sell?
My Picture
My Number Sentence

Name______________________________ Date ____________________

Master 78a

Problem Cards

Take Away Problem (Part Unknown)

Rahmi and Kea collect 36 coloured stones. Rahmi takes out the 8 green stones. How many stones are left?	33 birds are sitting in a tree. Some birds fly away. Now there are 21 birds in the tree. How many birds flew away?

Take Away Problem (Whole Unknown)	Join Problem (Part Unknown)
Some children are on a bus. No children get off at the first stop. Now 28 children are left on the bus. How many children were on the bus to begin with?	Ali made a tower with linking cubes. He added 19 more cubes to the tower. The tower now has 31 cubes. How many cubes did the tower have to begin with?

Join Problem (Part Unknown)

There are 16 cows in the barn. More cows come to join them. Now there are 35 cows in the barn. How many came to join them?	24 grapes are in a bowl. 19 are red and the rest are green. How many green grapes are in the bowl?

Join Problem (Whole Unknown)

Sienna has 18 stickers. Dakota gives her 13 more stickers. How many stickers does Sienna have now?	There are 16 red apples and 18 green apples in a basket. How many apples are there altogether?

Comparison Problem	Make Equal Problem
Serena collected 16 shells on the beach. Roger collected 27 shells. How many more shells did Roger collect than Serena? (How many fewer shells did Serena collect than Roger?)	There are 27 students in the class. Everyone needs a marker. Krishan has 16 markers to give out. How many more markers does he need for everyone to get a marker?

Name________________________________ Date _____________________

Master 78b

Problem Cards

Take Away Problem (Part Unknown)

Rahmi and Kea collect 76 coloured stones. Rahmi takes out the 25 green stones. How many stones are left?	43 birds are sitting in a tree. Some birds fly away. An hour later, 13 more birds fly away. Now there are 19 birds in the tree. How many birds first flew away?

Take Away Problem (Whole Unknown)	Join Problem (Part Unknown)
Some children are on a bus. No children get off at the first stop. Now 41 children are left on the bus. How many children were on the bus to begin with?	Ali made a tower with linking cubes. He added 19 more cubes to the tower. Then he added 6 more cubes. The tower now has 53 cubes. How many cubes did the tower have to begin with?

Join Problem (Part Unknown)

There are 36 cows in the field. More cows come to join them. Now there are 72 cows in the field. How many came to join them?	34 grapes are in a bowl. 19 are red, 6 are purple, and the rest are green. How many green grapes are in the bowl?

Join Problem (Whole Unknown)

Sienna has 57 stickers. Dakota gives her 22 more stickers. How many stickers does Sienna have now?	There are 14 red apples, 10 yellow apples, and 8 green apples in a basket. How many apples are there altogether?

Name________________________________ Date _____________________

Master 78c

Problem Cards

Comparison Problem	Make Equal Problem
Serena collected 36 shells on the beach. Roger collected 39 shells. How many more shells did Roger collect than Serena? (How many fewer shells did Serena collect than Roger?)	There are 27 students in the class. Everyone needs a marker. Krishan has 11 blue markers and 13 black markers to give out. How many more markers does he need for everyone to get a marker?

Name______________________________ Date ____________________

Master 78d

Problem Cards

Take Away Problem (Part Unknown)

Rahmi and Kea collect 12 coloured stones. Rahmi takes out the 10 green stones. How many stones are left?	13 birds are sitting in a tree. Some birds fly away. Now there are 10 birds in the tree. How many birds flew away?

Take Away Problem (Whole Unknown)

Some children are on a bus. No children get off at the first stop. Now 7 children are left on the bus. How many children were on the bus to begin with?

Join Problem (Part Unknown)

There are 8 cows in the barn. More cows come to join them. Now there are 13 cows in the barn. How many came to join them?	Ali made a tower with linking cubes. He added 19 more cubes to the tower. The tower now has 31 cubes. How many cubes did the tower have to begin with?

Join Problem (Whole Unknown)

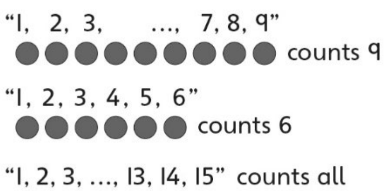
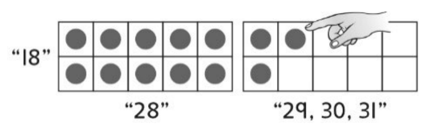
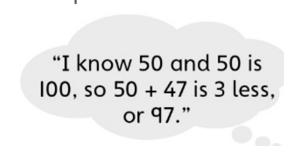
Sienna has 9 stickers. Dakota gives her 6 more stickers. How many stickers does Sienna have now?

Number

Master 79: Activity 32 Assessment

Conceptualizing Addition and Subtraction: Consolidation

Conceptual Understanding of Story Problems Behaviours/Strategies			
1. Student reads story problem, but is unable to model add-to and take-from situations with concrete materials.	2. Student models the problem, but uses the wrong operation to solve it.	3. Student models and solves the problem, but cannot use symbols and equations to represent it.	4. Student successfully models, solves, and symbolizes addition and subtraction problem types and represents thinking on the Think Board.
Observations/Documentation			

Addition and Subtraction Computational Behaviours/Strategies			
1. Student counts three times to add or subtract quantities.  	2. Student counts on or back to add or subtract quantities.  	3. Student counts efficiently to add or subtract quantities (e.g., makes 10 and then counts on or subitizes).  	4. Student uses mental strategies flexibly and accurately to add or subtract quantities. 
Observations/Documentation			

Mathology Grade 2 Correlation – Alberta
Number Cluster 7: Operational Fluency

Organizing Idea:
Number: Quantity is measured with numbers that enable counting, labelling, comparing, and operating.

Guiding Question: How can addition and subtraction be interpreted?
Learning Outcome: Students investigate addition and subtraction within 100.

Knowledge	Understanding	Skills & Procedures	Grade 2 Mathology	Mathology Little Books
Familiar addition and subtraction number facts facilitate addition and subtraction strategies. Addition and subtraction strategies for two-digit numbers include making multiples of ten and using doubles.	Addition and subtraction can represent the sum or difference of countable quantities or measurable lengths.	Recall and apply addition number facts, with addends to 10, and related subtraction number facts.	**Number Cluster 7: Operational Fluency** 33: Using Doubles 34: Mastering Addition and Subtraction Facts 36: Consolidation **Number Math Every Day** 7A: Doubles and Near-Doubles 7B: Make 10 Sequences **Number Intervention** 9: Making 10 10: Finding Doubles	A Class-full of Projects Array's Bakery Marbles, Alleys, Mibs, and Guli! The Great Dogsled Race The Money Jar Family Fun Day
		Investigate strategies for addition and subtraction of two-digit numbers.	**Number Cluster 7: Operational Fluency** 35: Multi-Digit Fluency	
		Add and subtract numbers within 100.	**Number Cluster 7: Operational Fluency** 35: Multi-Digit Fluency 36: Consolidation **Number Math Every Day** 7A: I Have… I Need… 7B: Hungry Bird	A Class-full of Projects Array's Bakery Marbles, Alleys, Mibs, and Guli!
		Verify a sum or difference using inverse operations.		
		Determine a missing quantity in a sum or difference, within 100, in a variety of ways.		

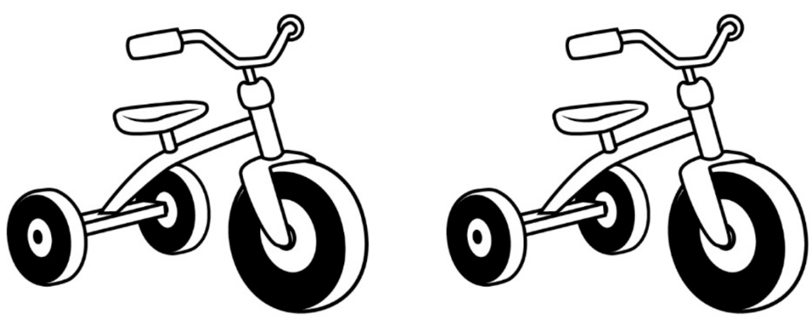
Name________________________________ Date ____________________

Master 81a

Common Doubles

1 + 1 = 2

2 + 2 = 4



3 + 3 = 6

Name________________________________ Date _____________________

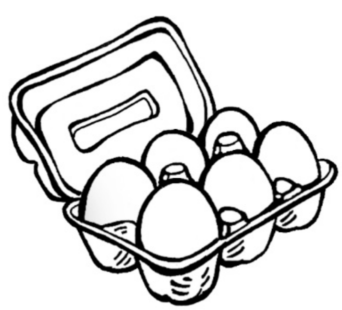
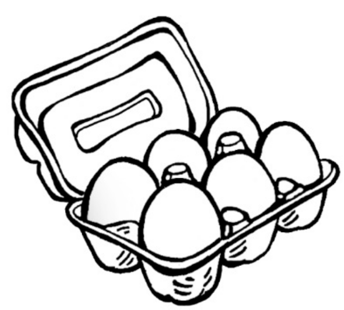
Master 81b

Common Doubles

4 + 4 = 8

5 + 5 = 10

6 + 6 = 12

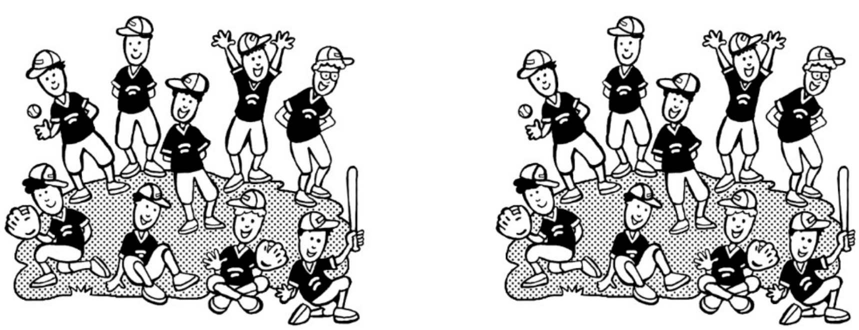
Name_______________________________ Date ____________________

Master 81c

Common Doubles

7 + 7 = 14

8 + 8 = 16

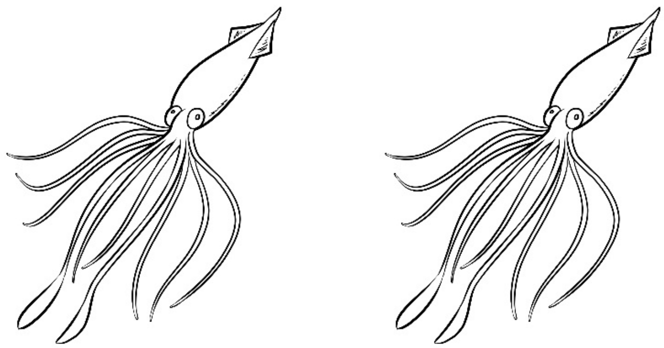


9 + 9 = 18

Name_________________________________ Date ______________________

Master 81d

Common Doubles



10 + 10 = 20

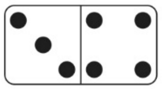
Number

Master 82: Activity 33 Assessment

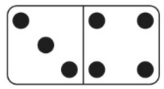
Using Doubles

Using Known Doubles Behaviours/Strategies

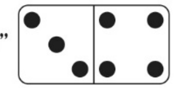
1. Student guesses and is unable to extend known sums to solve other equations.


"10"

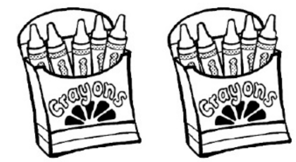
2. Student counts all the dots by 1s and is unable to extend known sums to solve other equations.


"1, 2, 3, 4, 5, 6, 7"

3. Student counts on to find the number of dots and is unable to extend known sums to solve other equations.

"3"  "4, 5, 6, 7"

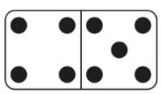
4. Student extends known sums to solve other equations, but refers to doubles pictures.



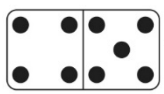
5 + 5 = 10

Observations/Documentation

5. Student has quick recall of known sums (doubles), but cannot extend them to solve other equations.


"I know 4 and 4 is 8."

6. Student extends known sums to solve other equations, but cannot explain strategy used.


"4 and 5 is 9."

7. Student fluently extends known sums to solve other equations, but struggles to write the number sentence.

8. Student fluently extends known sums to solve other equations and writes number sentences.

Observations/Documentation

Number

Master 83: Activity 34 Assessment

Mastering Addition and Subtraction Facts

Developing Fluency of Addition and Subtraction Behaviours/Strategies			
1. Student fluently adds and subtracts within 5. "I know 4 + 1 = 5 and 5 – 1 = 4."	2. Student fluently adds and subtracts to 10. "I know 8 + 2 = 10 and 10 – 2 = 8." (complements to 10)	3. Student fluently adds and subtracts to 20. "I can use doubles. I know 9 + 9 = 18 and 18 – 9 = 9."	4. Student uses known sums and differences to solve addition and subtraction equations. 9 + 6 = 15 ______ "I know 9 is 1 less than 10. I know 10 + 6 is 16, and 1 less makes 15." (associative property, known facts)
Observations/Documentation			

Name________________________________ Date ______________________

Master 84a

Question Cards

19 + 23	48 + 37
31 + 33	49 + 51
35 – 29	80 – 41
24 – 12	100 – 49

Name________________________________ Date ____________________

Master 84b **Question Cards (for Accommodations)**

19 + 12	38 + 30
12 + 13	23 + 21
25 – 19	30 – 16
29 – 12	22 – 11

Name________________________________ Date _____________________

Master 85 ***Multi-Digit Fluency*** **Recording Sheet**

Our question:
Our estimate:
What we did:

Number

Master 86: Activity 35 Assessment

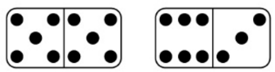
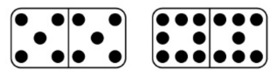
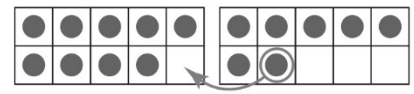
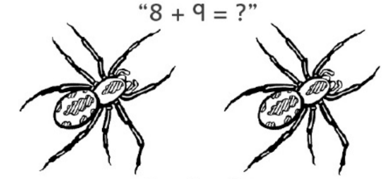
Multi-Digit Fluency

Estimating Sums and Differences Behaviours/Strategies			
1. Student guesses and is unable to estimate sums and differences. 49 + 51 “500!”	2. Student estimates sums and differences, but estimate is unreasonable. 49 + 51 “50”	3. Student estimates sums and differences, but changes estimate to match actual sum or difference.	4. Student successfully estimates sums and differences of multi-digit numbers.
Observations/Documentation			

Adding and Subtracting with Multi-Digit Numbers Behaviours/Strategies			
1. Student counts and does not use efficient mental strategies to solve equations.	2. Student uses the same mental strategy to solve all equations with multi-digit numbers.	3. Student uses efficient mental strategies to solve addition equations with multi-digit numbers, but struggles with subtraction.	4. Student successfully uses efficient mental strategies to solve equations with multi-digit numbers and uses inverse operations to check answers.
Observations/Documentation			

Number

Master 87: Activity 36 Assessment
Operational Fluency: Consolidation

Adding and Subtracting Numbers Behaviours/Strategies			
1. Student counts to add and subtract quantities.  "1, 2, 3, …, 8, 9, 10" "11, 12, 13, …, 18, 19"	2. Student counts on or back to add and subtract quantities.  "5" "11, 12, …, 24, 25"	3. Student uses ten-frames and counters or other materials to show a strategy when adding and subtracting quantities. 	4. Student refers to doubles pictures when extending known sums to add and subtract quantities. "8 + 9 = ?"  8 + 8 = 16
Observations/Documentation			
5. Student uses the same strategy in every situation to add and subtract quantities. "I like to use doubles!"	6. Student fluently adds using a variety of strategies, but counts back by 1s to subtract.	7. Student adds and subtracts fluently and extends known sums to solve other equations, but struggles to explain thinking.	8. Student fluently adds and subtracts, extends known sums to solve other equations, and explains thinking.
Observations/Documentation			

Master 88

Mathology Grade 2 Correlation – Alberta
Number Cluster 8: Early Multiplicative Thinking

Organizing Idea:
Number: Quantity is measured with numbers that enable counting, labelling, comparing, and operating.

Guiding Question: How can quantity contribute to a sense of number? **Learning Outcome:** Students analyze quantity to 1000.				
Knowledge	**Understanding**	**Skills & Procedures**	**Grade 2 Mathology**	**Mathology Little Books**
An even quantity will have no remainder when partitioned into two equal groups or groups of two. An odd quantity will have a remainder of one when partitioned into two equal groups or groups of two.	All natural numbers are either even or odd.	Partition a set of objects by sharing or grouping, with or without remainders.	**Number Cluster 8: Early Multiplicative Thinking** 37: Grouping in 2s, 5s, and 10s 38: Making Equal Shares 39: Making Equal Groups 40: Consolidation **Number Math Every Day** 8A: Counting Equal Groups to Find How Many 8A: How Many Blocks? **Number Intervention** 11: How Many Do You See? 12: Messy and Organize It	Array's Bakery Marbles, Alleys, Mibs, and Guli!

Name________________________________ Date _____________________

Master 89

Grouping Recording Sheet

Write numbers in the chart depending on how they can be grouped.

Can be grouped in 2s	Can be grouped in 5s	Can be grouped in 10s

Number

Master 90: Activity 37 Assessment
Grouping in 2s, 5s, and 10s

Grouping Items in 2s, 5s, and 10s Behaviours/Strategies		
1. Student counts all items by 1s rather than grouping items in 2s, 5s, and 10s.  "1, 2, 3, ..., 18, 19, 20."	2. Student groups items in 2s, 5s, and 10s, but groups are not all equal. 	3. Student groups items in 2s, 5s, and 10s, but does not recognize that the quantity will be the same when the items are grouped in different ways. "When I grouped in 2s, there were 20. I'm not sure how many there would be if I grouped in 5s."
Observations/Documentation		

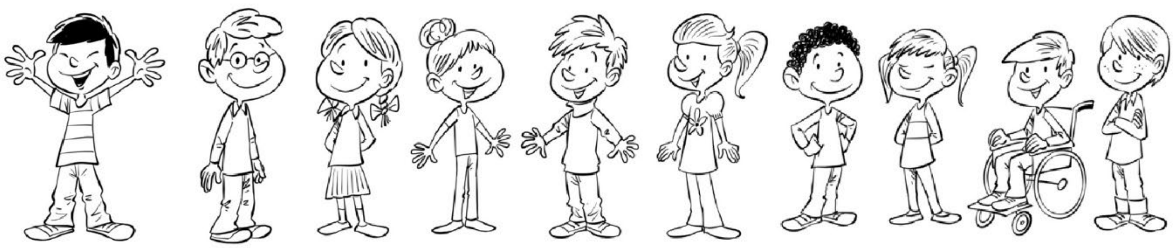
4. Student groups items in 2s, 5s, and 10s, but ignores the leftover(s).  "I can use 25 items to make groups of 2."	5. Student groups items in 2s, 5s, and 10s, but does not notice any patterns in the chart.	6. Student groups items in 2s, 5s, and 10s and notices patterns in the chart.
Observations/Documentation		

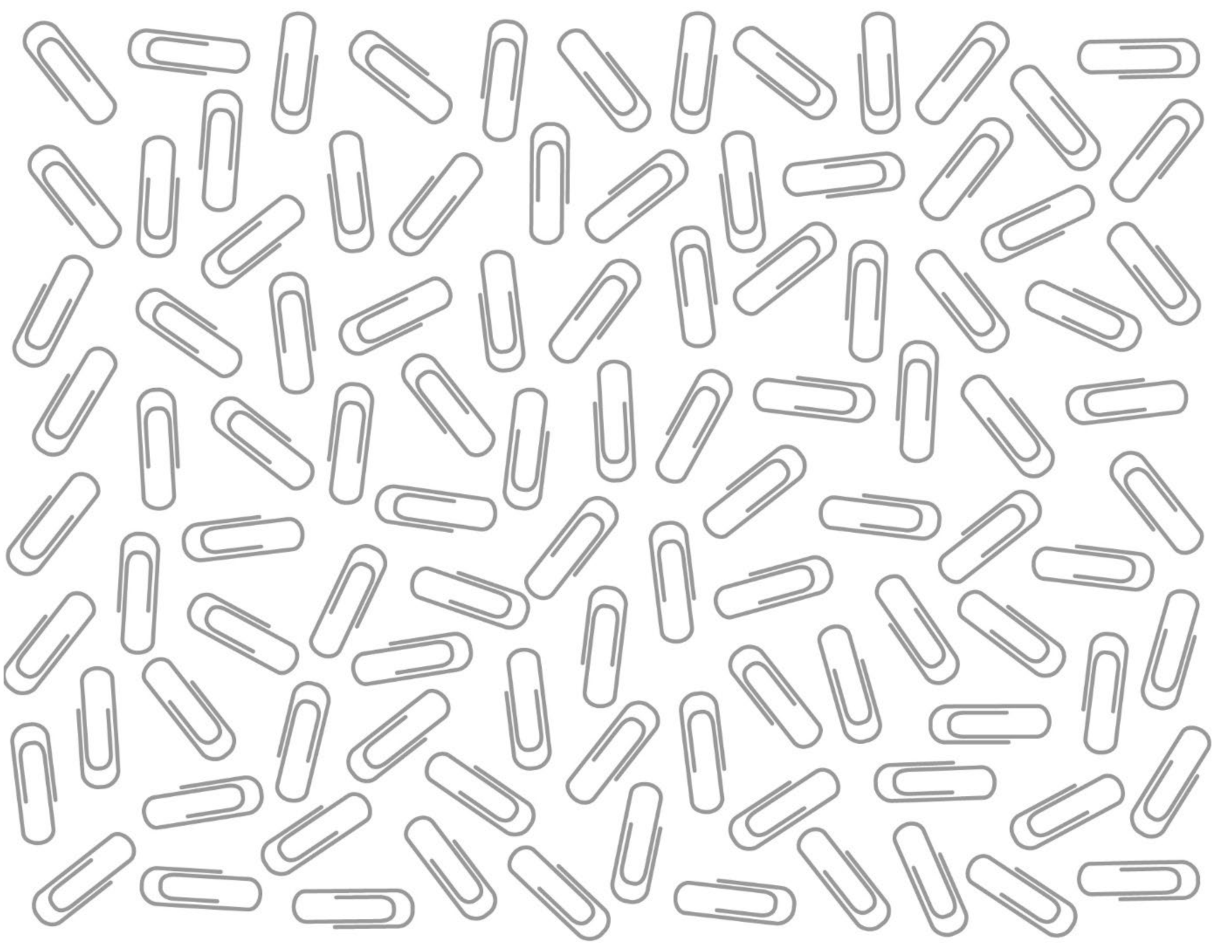
Name_________________________________ Date _____________________

Master 91

Sharing with Friends

Share the paper clips equally.
How many paper clips will each child get?





Name________________________________ Date _____________________

Master 92

Our Equal-Sharing Problem

_________________ has ____ ________________________.

_________________ wants to share them equally among

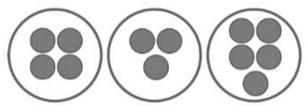
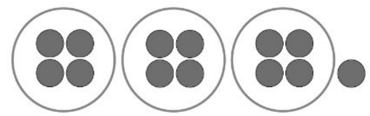
______ friends. How many will each friend get?

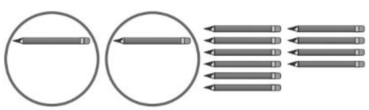
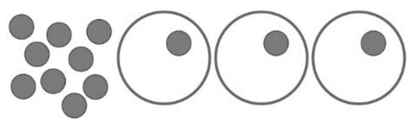
Our Solution

Master 93: Activity 38 Assessment

Making Equal Shares

Number

Solving Equal-Sharing Problems Behaviours/Strategies			
1. Student solves equal-sharing problem, but miscounts and does not start with the correct number of items.	2. Student solves equal-sharing problem, but does not share the items equally. 	3. Student solves equal-sharing problem, but does not share all of the items. 	4. Student solves equal-sharing problem, but does not share the items among the correct number of children.
Observations/Documentation			

5. Student successfully solves equal-sharing problem by sharing items one at a time, but is only comfortable sharing between 2 children. 	6. Student successfully solves equal-sharing problem by sharing items one at a time among any number of children. 	7. Student successfully solves equal-sharing problem by sharing more than one item at a time but, in his or her own problem, uses a number that cannot be shared equally.	8. Student successfully solves equal-sharing problem and, in her or his own problem, uses a number that can be shared equally. “Betty has 36 coins. She wants to share them equally among 6 children.”
Observations/Documentation			

Name________________________________ Date ____________________

Master 94 ***Making Equal Groups*** **Recording Sheet**

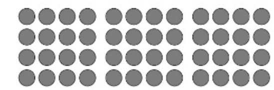
Number of Students: 48

Number of Groups	Group Size

Number

Master 95: Activity 39 Assessment
Making Equal Groups

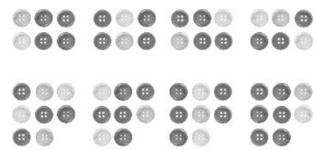
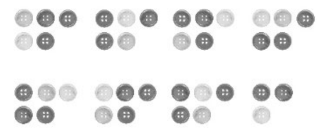
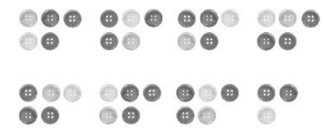
Solving Equal-Grouping Problems Behaviours/Strategies

1. Student solves equal-grouping problem, but miscounts and does not start with 48 items.	2. Student solves equal-grouping problem, but not all groups are of the same size.  "I made 5 groups of 10."	3. Student solves equal-grouping problem, but ignores the fact that there are leftover items.  "I made 4 groups of 11."	4. Student solves equal-grouping problem in one way, but struggles to find other ways.  "I made 3 groups of 16."
Observations/Documentation			

5. Student solves equal grouping problem, but struggles to represent different ways on paper.	6. Student solves equal-grouping problem, but does not realize that as the number of items in a group increases, the number of equal groups decreases.	7. Student solves equal-grouping problem, but does not recognize the relationship between opposite groupings.	8. Student successfully solves equal-grouping problem and recognizes all patterns.
Observations/Documentation			

Number

Master 121: Activity 40 Assessment
Consolidation: Early Multiplicative Thinking

Grouping with and without Remainders Behaviours/Strategies			
1. Student creates equal groups, but miscounts when trying to identify equal groups created by others.	2. Student creates and identifies equal-groups, but not all groups are the same size. 	3. Student creates and identifies equal groups, but does not identify remainders.  "I made 7 groups with 5 buttons."	4. Student creates and identifies equal groups with and without remainders.  "I made 7 groups with 5 buttons with 3 buttons left over."
Observations/Documentation			

Master 96a

Mathology Grade 2 Correlation – Alberta
Number Cluster 9: Financial Literacy

Organizing Idea:
Number: Quantity is measured with numbers that enable counting, labelling, comparing, and operating.

Guiding Question: How can quantity contribute to a sense of number?
Learning Outcome: Students analyze quantity to 1000.

Knowledge	Understanding	Skills & Procedures	Grade 2 Mathology	Mathology Little Books
A quantity can be skip counted in various ways according to context. Quantities of money can be skip counted in amounts that are represented by coins and bills (denominations).	A quantity can be interpreted as a composition of groups.	Determine the value of a collection of coins or bills of the same denomination by skip counting.	**Number Cluster 9: Financial Literacy** 41: Estimating Money **Number Math Every Day** 8B: Collections of Coins 8B: Showing Money in Different Ways **Number Intervention** 13: Counting Coins	

Guiding Question: How can addition and subtraction be interpreted?
Learning Outcome: Students investigate addition and subtraction within 100.

Knowledge	Understanding	Skills & Procedures	Grade 2 Mathology	Mathology Little Books
Familiar addition and subtraction number facts facilitate addition and subtraction strategies. Addition and subtraction strategies for two-digit numbers include making multiples of ten and using doubles.	Addition and subtraction can represent the sum or difference of countable quantities or measurable lengths.	Solve problems using addition and subtraction of countable quantities or measurable lengths.	**Number Cluster 9: Financial Literacy** 41: Estimating Money 42: Earning Money 43: Spending Money 44: Saving Regularly 45: Money to $100	Array's Bakery The Great Dogsled Race The Money Jar Family Fun Day

Master 96b

Organizing Idea:
Financial Literacy: Informed financial decision making contributes to the well-being of individuals, groups, and communities.

Guiding Question: How does decision making influence money management?
Learning Outcome: Students relate money and decision making.

Knowledge	Understanding	Skills & Procedures	Grade 2 Mathology	Mathology Little Books
Decisions about money include how much to • spend • save • share Individuals can have a limited amount of money to spend. Money spent on one item means less money for other items or activities. Individuals can save money for an item, an event, or the future. Individuals can donate money through charities, organizations, and agencies to help others or support a cause. Money can be earned in exchange for work that is done or goods and services that are provided. Responsible decision making involves spending money on needs before wants.	Managing money involves making decisions. Decisions related to money are based on needs and wants.	Distinguish between a paying job and volunteer work.	**Number Cluster 9: Financial Literacy** 42: Earning Money	
		Describe how money can be divided for different purposes.	**Number Cluster 9: Financial Literacy** 43: Spending Money 44: Saving Regularly **Number Intervention** 14: Wants and Needs	The Money Jar
		Practice making money-related decisions in a variety of contexts.	**Number Cluster 9: Financial Literacy** 42: Earning Money 43: Spending Money 44: Saving Regularly 46: Consolidation	

Name_________________________________ Date ______________________

Master 97 *Estimating Money* Recording Sheet

Savings Jar	Estimate	Actual Value
1		
2		
3		

Name________________________________ Date _____________________

Master 98

Referent Jars

50¢

50¢

50¢

Number

Master 99: Activity 41 Assessment

Estimating Money

Estimating Money Amounts Behaviours/Strategies			
1. Student guesses instead of using relevant benchmarks to estimate quantities.  "10 cents"	2. Student counts instead of using relevant benchmarks to estimate quantities.  "10, 20, 30, …, 90, 100, 120 cents"	3. Student uses relevant benchmarks to estimate quantities, but estimates are unreasonable.  "There are more than 5 dimes, so 60 cents."	4. Student successfully uses relevant benchmarks to estimate quantities and makes reasonable estimates.  "About 100 cents."
Observations/Documentation			

Counting and Comparing Money Amounts Behaviours/Strategies			
1. Student places matching coins, but is unable to skip-count to find the value of the coins (unable to compose money amounts from parts).	2. Student successfully composes money amounts from parts, but struggles to compare and order quantities.	3. Student successfully composes money amounts from parts and compares and orders quantities, but does not realize that the number of coins does not affect the value.	4. Student successfully composes money amounts from parts and compares and orders quantities.
Observations/Documentation			

Name________________________________ Date _____________________

Master 100a

Hire Me

______________________________’s Services

Name________________________________ Date _____________________

Master 100b

Hire Me
(for Accommodations)

_______________________________’s Services

Sort Socks 20¢

Shovel Snow 50¢

Take Out Garbage 35¢

Vacuum 80¢

Number

Master 101: Activity 42 Assessment

Earning Money

Decomposing Money Amounts Behaviours/Strategies			
1. Student chooses jobs, but is unable to decompose money amounts into parts as he or she does not know the value of coins.	2. Student chooses jobs, but is unable to decompose money amounts into parts and chooses coins randomly.  "70 cents. I will use these coins."	3. Student decomposes money amounts into parts, but always uses one denomination of coin.  "25 cents"	4. Student successfully decomposes money amounts into parts.
Observations/Documentation			

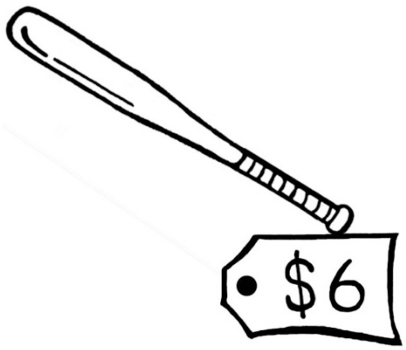
Counting Money Amounts Behaviours/Strategies			
1. Student takes money from partner, but is unable to skip-count to find the value of the coins (unable to compose money amounts from parts).	2. Student composes money amounts from parts, but struggles when coins are of mixed denominations.  "5, 10, 15, 20. I count 20 cents."	3. Student composes money amounts from parts and skip-counts to count coins of different denominations.  "25, 35, 45, 50. I count 50 cents."	4. Student successfully and flexibly composes money amounts from parts.  "25, 50. I count 50 cents."
Observations/Documentation			

Name________________________________ Date ____________________

Master 102

Used Sports Equipment Store

Baseball Bat $6



Lacrosse Stick $14

Soccer Ball $3

Skates $16

Hockey Stick $7

Bike $19

Name________________________________ Date _____________________

Master 103

Clothing Store

Pants $7

Dress $8

Hoodie $11

Jacket $15

T-shirt $4

Socks $2

Number

Master 104: Activity 43 Assessment

Spending Money

Decomposing Quantities Behaviours/Strategies			
1. Student uses play money, but struggles to model $20 (unable to decompose quantities to 20). “I don’t know what I need to make $20.”	2. Student models savings, but chooses money randomly to pay for an item (unable to decompose quantities to 20).  “$7. I will use these bills.”	3. Student decompose quantities to 20, but cannot find the exact amount in savings needed to pay for an item. “I can’t make exactly $4.”	4. Student successfully and flexibly decomposes quantities to 20.
Observations/Documentation			

Subtracting Money Amounts Behaviours/Strategies			
1. Student uses money to pay for an item, but cannot subtract with quantities to 20 to determine how much is left in savings.	2. Student counts to determine how much is left in savings as he or she cannot subtract with quantities to 20.	3. Student subtracts with quantities to 20, but is unable to use symbols and equations to represent subtraction situations. “I can’t write a number sentence.”	4. Student subtracts with quantities to 20 and uses symbols and equations to represent subtraction situations. “20 − 7 = 13”
Observations/Documentation			

Name_______________________________ Date ____________________

Master 105

Calendar

Month ___________________ **My savings goal:** ____________¢

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday

How much was saved? __________¢

Was the goal met? Circle the answer. YES NO

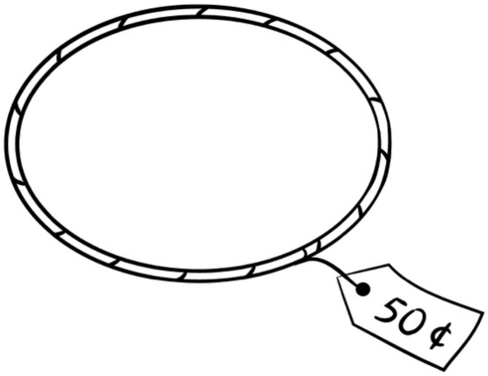
If the answer is NO, how much more money needs to be earned? __________¢

Name________________________________ Date _____________________

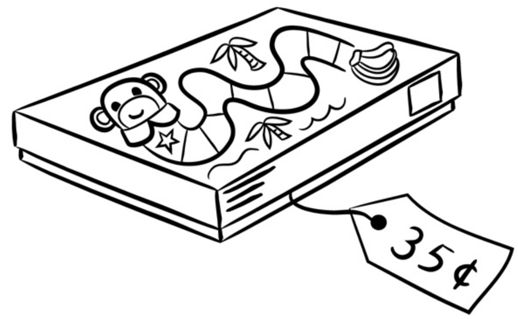
Master 106

Items to Save For

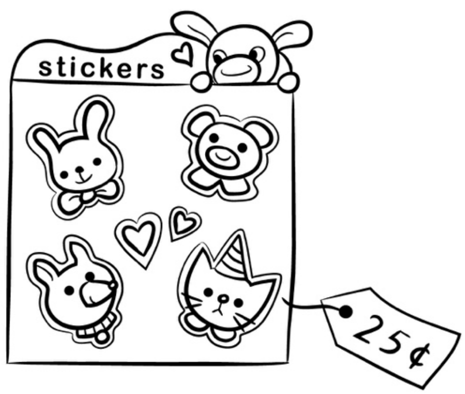
Hoola Hoop 50¢



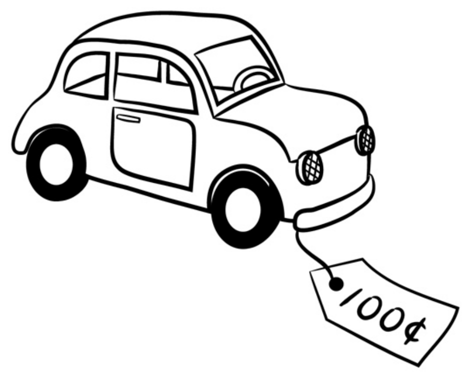
Board Game 35¢



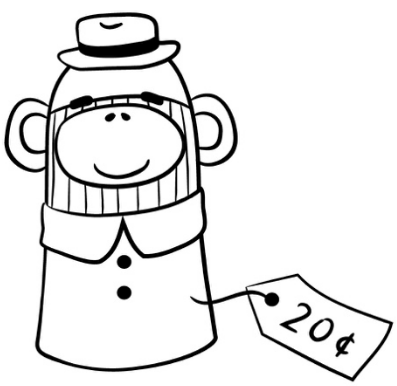
Package of Stickers 25¢



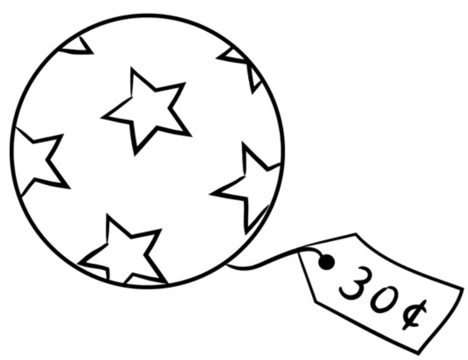
Toy Car 100¢



Small Puppet 20¢



Bouncy Balls 30¢



Name________________________________ Date _____________________

Master 107a

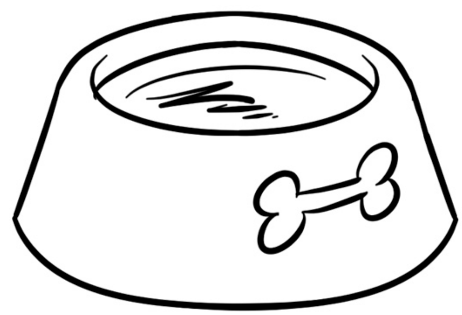
Jobs to Save Money

Water Plants 10¢

Take Out Garbage 10¢

Make Bed 5¢

Fill Water Bowl 5¢



Set Table 25¢

Get Mail 25¢

Name________________________________ Date ______________________

Master 107b

More Jobs to Save Money
(Extension and Combined Grades Extension)

Sort Socks 30¢

Put Away Groceries 40¢

Dry Dishes 45¢

Clean Your Room 55¢

Wash Car 70¢

Rake Leaves 80¢

Master 108: Activity 44 Assessment

Saving Regularly

<table>
<tr><th colspan="4">Making a Savings Plan Behaviours/Strategies</th></tr>
<tr>
<td>1. Student chooses an item to save for, but cannot make a savings plan as he or she does not associate the cost of an item to a savings goal.

“I want the small puppet that is 20¢. What is my goal?”</td>
<td>2. Student chooses a job, but struggles to make a savings plan, as job will not allow savings goal to be met.

Item: Toy Car, 100¢
Job: Fill Water Bowl, 5¢</td>
<td>3. Student makes a savings plan, but circles random dates, places wrong coin on calendar, or does not place same amount on each date.

<table>
<tr><th>S</th><th>M</th><th>T</th><th>W</th><th>T</th><th>F</th><th>S</th></tr>
<tr><td></td><td></td><td></td><td></td><td>10¢</td><td></td><td></td></tr>
<tr><td></td><td></td><td></td><td></td><td>5¢</td><td></td><td></td></tr>
<tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
</table>
</td>
<td>4. Student successfully makes a savings plan that will allow a savings goal to be reached.

Item: Toy Car, 100¢
Job: Get Mail, 25¢</td>
</tr>
<tr><th colspan="4">Observations/Documentation</th></tr>
<tr><td></td><td></td><td></td><td></td></tr>
</table>

<table>
<tr><th colspan="4">Adding, Subtracting, and Comparing Money Amounts Behaviours/Strategies</th></tr>
<tr>
<td>1. Student gathers coins, but cannot add quantities to 100 to determine total savings.

“How do I find how much was saved?”</td>
<td>2. Student adds quantities to 100, but struggles to compare and order quantities to decide if goal was met.

“How do I know if the goal was met?”</td>
<td>3. Student compares and orders quantities, but struggles to subtract quantities, to find how much more needs to be saved.

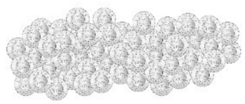
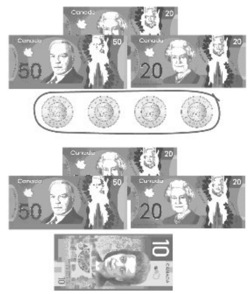
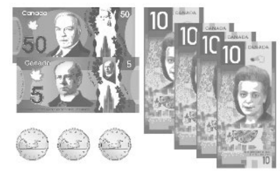
“I need more but I don’t know how much more.”</td>
<td>4. Student successfully adds, subtracts, and compares and orders quantities to 100.

Item: 25¢
Savings: 20¢
Need to earn 5¢ more.</td>
</tr>
<tr><th colspan="4">Observations/Documentation</th></tr>
<tr><td></td><td></td><td></td><td></td></tr>
</table>

Number

Master 109: Activity 45 Assessment

Money to $100

Modelling Dollar Amounts to $100 Behaviours/Strategies			
1. Student models amount in one way (using smaller denominations).  “I used toonies to make $98 because I know how to skip-count by 2s: 2, 4, 6, …, 94, 96, 98.”	2. Student models amount in more than one way, but trade was not accurate.  “I traded 4 toonies for a $10 bill.”	3. Student models amount in more than one way and skip-counts to check.  "50, 60, 70, 80, 90, 95, 96, 97, 98. The collection has a value of $98."	4. Student successfully models amounts in different ways and finds fewest number of coins/bills needed.  “To find the fewest number, I traded smaller coins/bills for larger coins/bills until I could make no more.”
Observations/Documentation			

Name________________________________ Date _____________________

Master 110a

Sample Jobs

Job	Pay
Walking Dog	$1
Shovelling Snow	$5
Pet Sitting	$10
Mowing Lawn	$2
Raking Leaves	$5
Delivering Newspapers	$10
Folding Laundry	$2
Washing Car	$5
Watering Plants	$1
Planting Seeds	$2

Name________________________________ Date ______________________

Master 110b

Sample Jobs (for Accommodations)

Job	Pay
Walk Dog	$1
Fold Laundry	$2
Set Table	$2
Water Plants	$2
Clean Up Toys	$1
Carry In Groceries	$1

Name______________________________ Date ____________________

Master 111

Our Savings Plan

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday

Money Student A saved: _____________

Money Student B saved: _____________

Total amount saved: _____________ Money spent: ______________

Amount left in savings: _________

Number

Master 112: Activity 46 Assessment

Financial Literacy: Consolidation

<table>
<tr><th colspan="4">Making a Savings Plan Behaviours/Strategies</th></tr>
<tr>
<td>1. Student chooses a job, but when making a savings plan, circles random dates, places wrong coin/bill on calendar, or does not place same amount on each date.
<table>
<tr><th>S</th><th>M</th><th>T</th><th>W</th><th>T</th><th>F</th><th>S</th></tr>
<tr><td></td><td></td><td></td><td></td><td>$1</td><td></td><td></td></tr>
<tr><td></td><td></td><td></td><td></td><td>$2</td><td></td><td></td></tr>
<tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
</table>
</td>
<td>2. Student makes a savings plan, but does not consider wants and needs.

“I will buy all of the items!”</td>
<td>3. Student makes a savings plan, but requires support to revise the plan.

“I don’t have enough money. What do I do?”</td>
<td>4. Student successfully makes a savings plan and has enough money to buy all the items chosen.</td>
</tr>
<tr><th colspan="4">Observations/Documentation</th></tr>
<tr><td></td><td></td><td></td><td></td></tr>
</table>

<table>
<tr><th colspan="4">Adding and Subtracting Money Amounts Behaviours/Strategies</th></tr>
<tr>
<td>1. Student circles dates, but cannot add quantities to determine total savings.

“How do I find how much I saved?”</td>
<td>2. Student chooses items for party, but cannot add quantities to determine total cost of items.

“$5, $3, $2”
“How can I find the total?”</td>
<td>3. Student adds quantities, but struggles to subtract quantities to find how much is left in savings.

“How do I find how much is left?”</td>
<td>4. Student successfully and flexibly adds and subtracts quantities.</td>
</tr>
<tr><th colspan="4">Observations/Documentation</th></tr>
<tr><td></td><td></td><td></td><td></td></tr>
</table>

Master 1a

Mathology Grade 2 Correlation – Alberta
Patterning Cluster 1: Repeating Patterns

Organizing Idea:
Patterns: Awareness of patterns supports problem solving in various situations.

<table>
<tr><td colspan="5">Guiding Question: How can patterns characterize change?
Learning Outcome: Students explain and analyze patterns in a variety of contexts.</td></tr>
<tr><th>Knowledge</th><th>Understanding</th><th>Skills & Procedures</th><th>Grade 2 Mathology</th><th>Mathology Little Books</th></tr>
<tr><td rowspan="3">Change can be an increase or a decrease in the number and size of elements.

A hundreds chart is an arrangement of natural numbers that illustrates multiple patterns.

Patterns can be found and created in cultural designs.</td><td rowspan="3">A pattern can show increasing or decreasing change.

A pattern is more evident when the elements are represented, organized, aligned, or oriented in familiar ways.</td><td>Describe non-repeating patterns encountered in surroundings, including in art, architecture, cultural designs, and nature.</td><td>Patterning Math Every Day
1: Patterns Around Us</td><td>Pattern Quest
The Best Surprise</td></tr>
<tr><td>Investigate patterns in a hundreds chart.</td><td>Patterning Cluster 1: Repeating Patterns
2: Finding Patterns</td><td></td></tr>
<tr><td>Create and express growing patterns using sounds, objects, pictures, or actions.</td><td>Patterning Math Every Day
1A: Show Another Way
1A: Patterns Around Us
1B: How Many Can We Make?
1B: Error Hunt</td><td>The Best Surprise</td></tr>
</table>

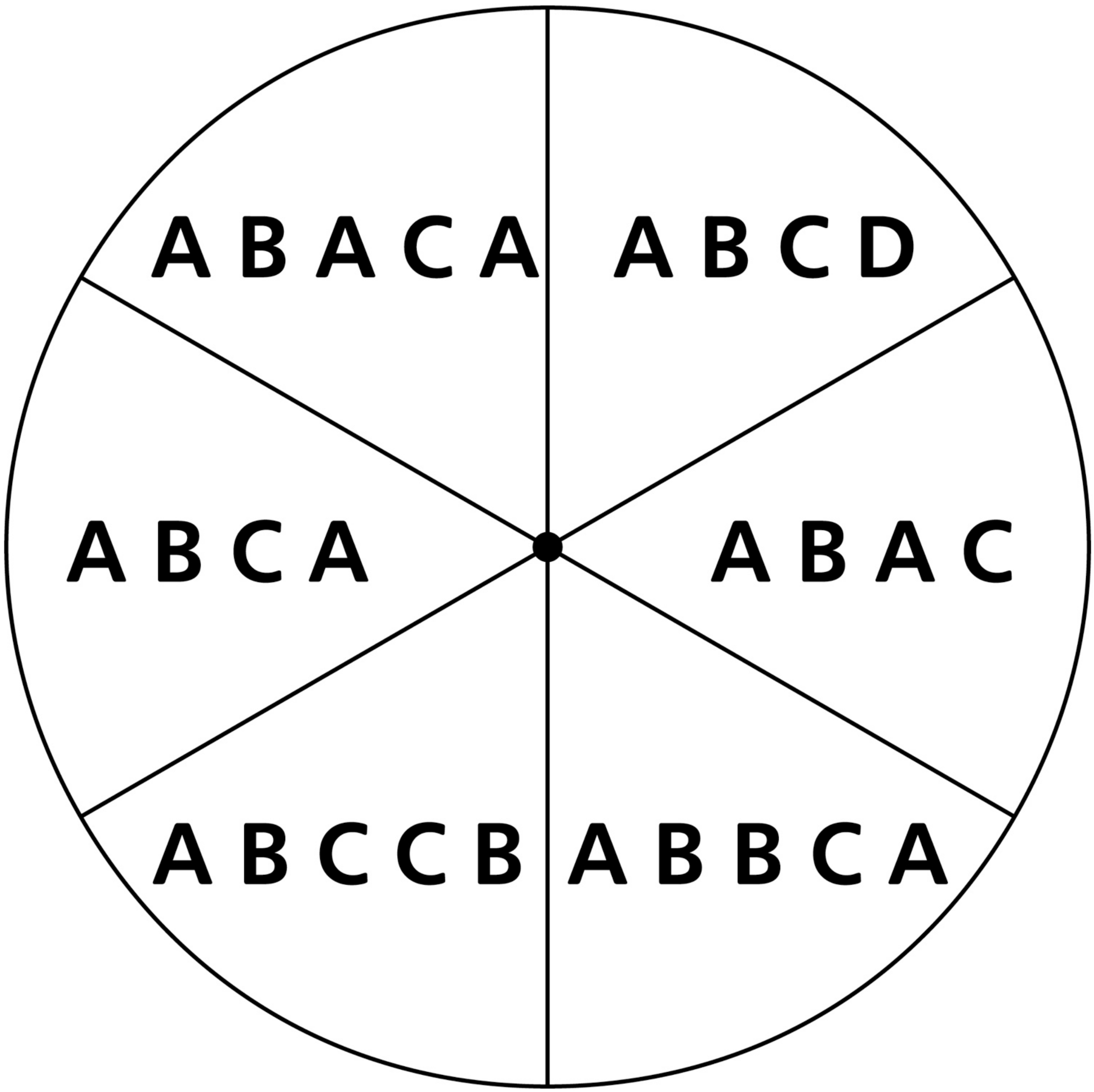
Master 1b

Attributes of elements, such as size and colour, can contribute to a pattern.	A pattern core can vary in complexity.	Create and express a repeating pattern with a pattern core of up to four elements that change by more than one attribute.	**Patterning Cluster 1: Repeating Patterns** 1: Exploring Patterns 3: Extending and Predicting 4: Error and Missing Elements 5: Combining Attributes 6: Consolidation **Patterning Math Every Day** 1A: Show Another Way 1A: Patterns Around Us **Patterning Intervention** 1: Finding the Core 2: Representing Patterns	Pattern Quest

Name________________________________ Date _____________________

Master 2

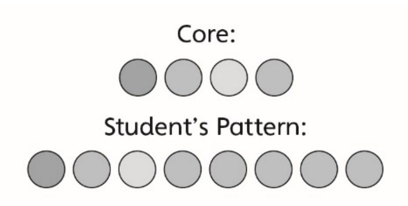
Our Cores (for Extension)



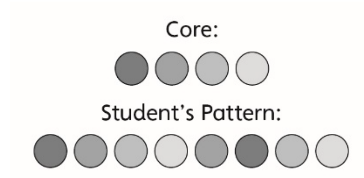
Master 3: Activity 1 Assessment
Exploring Patterns

Using a Core to Create a Repeating Pattern Behaviours/Strategies

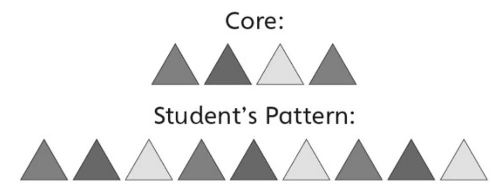
1. Student models the core and repeats only the last element as the repeating core.



2. Student models the core, but places the elements in the wrong order when using copies of the core to create a repeating pattern.



3. Student creates some repeating patterns based on copies of the core, but struggles when the last element in the core is the same as the first.



Observations/Documentation

4. Student creates repeating patterns based on copies of the repeating unit (core), but struggles to represent the core with letters.

   "I don't know how to show it with letters."

5. Student creates repeating patterns based on copies of the repeating unit (core) and represents the core with letters, but struggles to use math language when describing patterns.

6. Student successfully creates repeating patterns based on copies of the repeating unit (core), represents the core with letters, and uses math language to describe patterns.

Observations/Documentation

Patterning and Algebra

Master 4: Activity 2 Assessment

Finding Patterns

Finding Patterns Behaviours/Strategies		
1. Student has difficulty finding patterns on the chart.	2. Student finds some patterns but has difficulty seeing the repeating pattern in the rows/columns because the core has more elements than he or she has been working with.	3. Student finds patterns but has difficulty deciding whether or not a pattern is a repeating pattern.
Observations/Documentation		

4. Student sees the pattern when skip-counting by 2s as “not circled, circled, not circled, circled, ...” and has difficulty identifying the pattern within the numbers.	5. Student finds repeating, non-repeating, and skip-counting patterns on the hundred chart but has difficulty using math language to describe them.	6. Student finds repeating, non-repeating, and skip-counting patterns on the hundred chart and uses math language to describe them.
Observations/Documentation		

Name________________________________ Date ______________________

Master 5a

Bracelet Cores

ABCB	ABCC
AABC	ABCD

Name________________________________ Date _____________________

Master 5b

Bracelet Cores (for Accommodations)

ABC	ABB
AAB	ABA

Name________________________________ Date ____________________

Master 5c

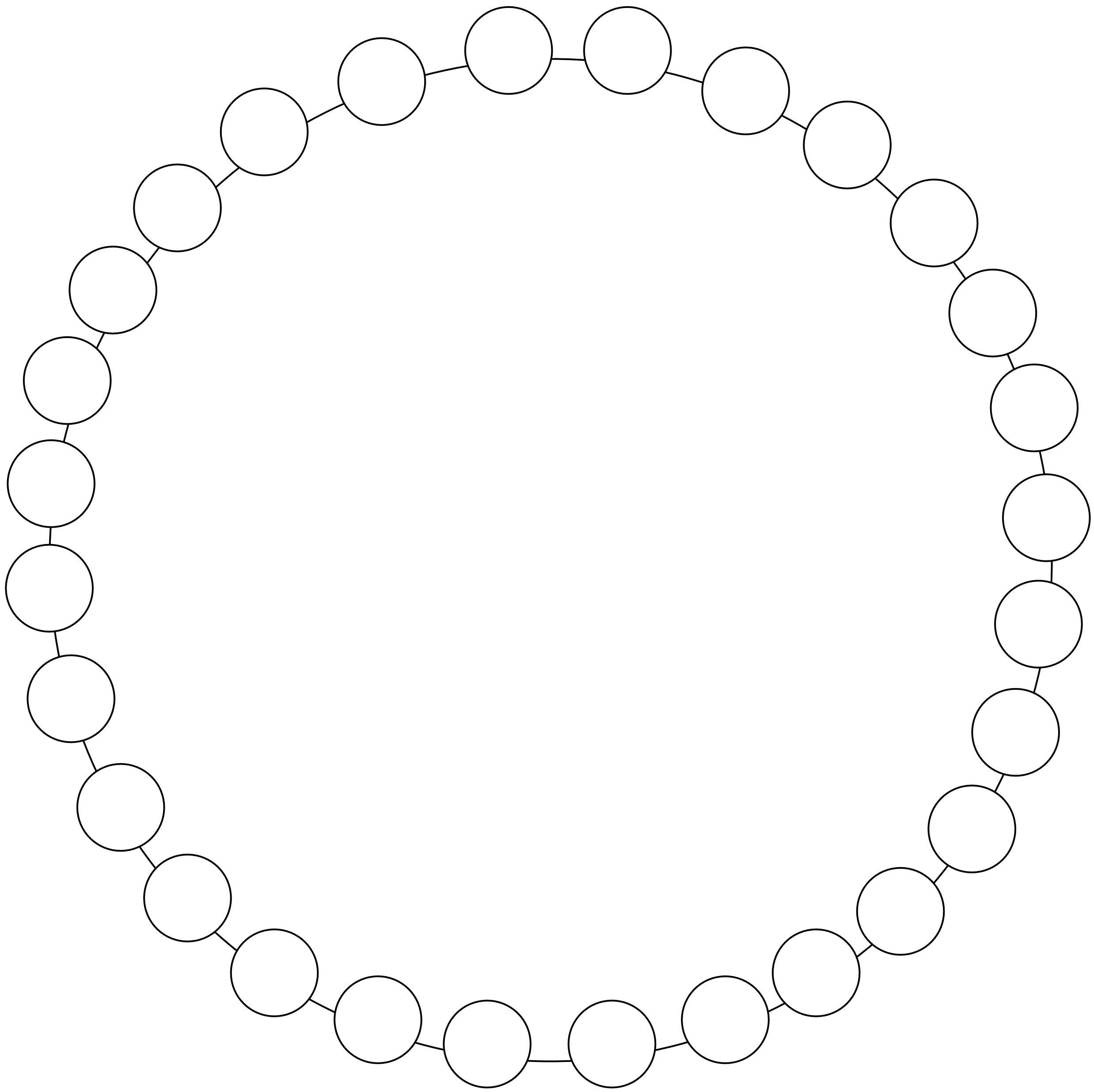
Bracelet Cores (for Extension)

ABBCD	AABCCD
ABCBC	ABCDCD

Name________________________________ Date _____________________

Master 6a

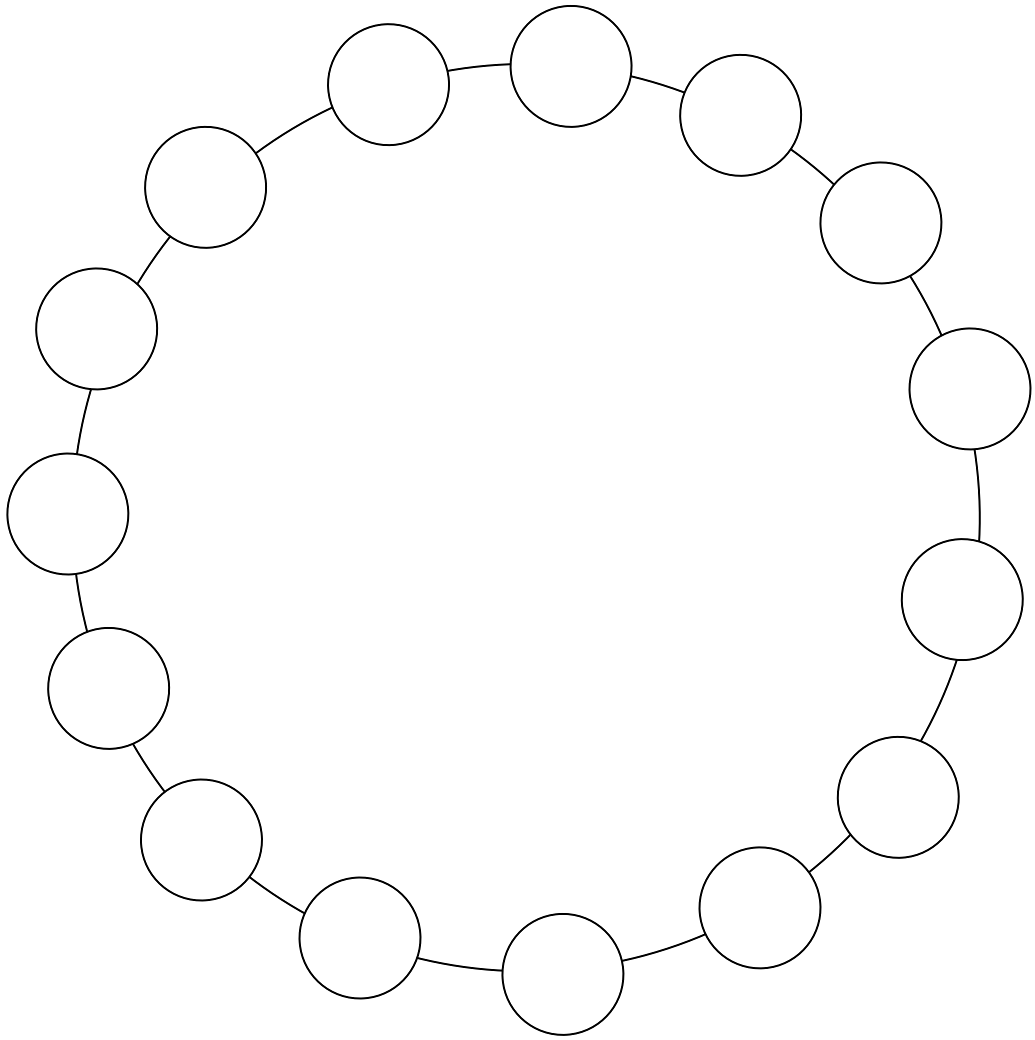
My Bracelet Plan



Name________________________________ Date _____________________

Master 6b

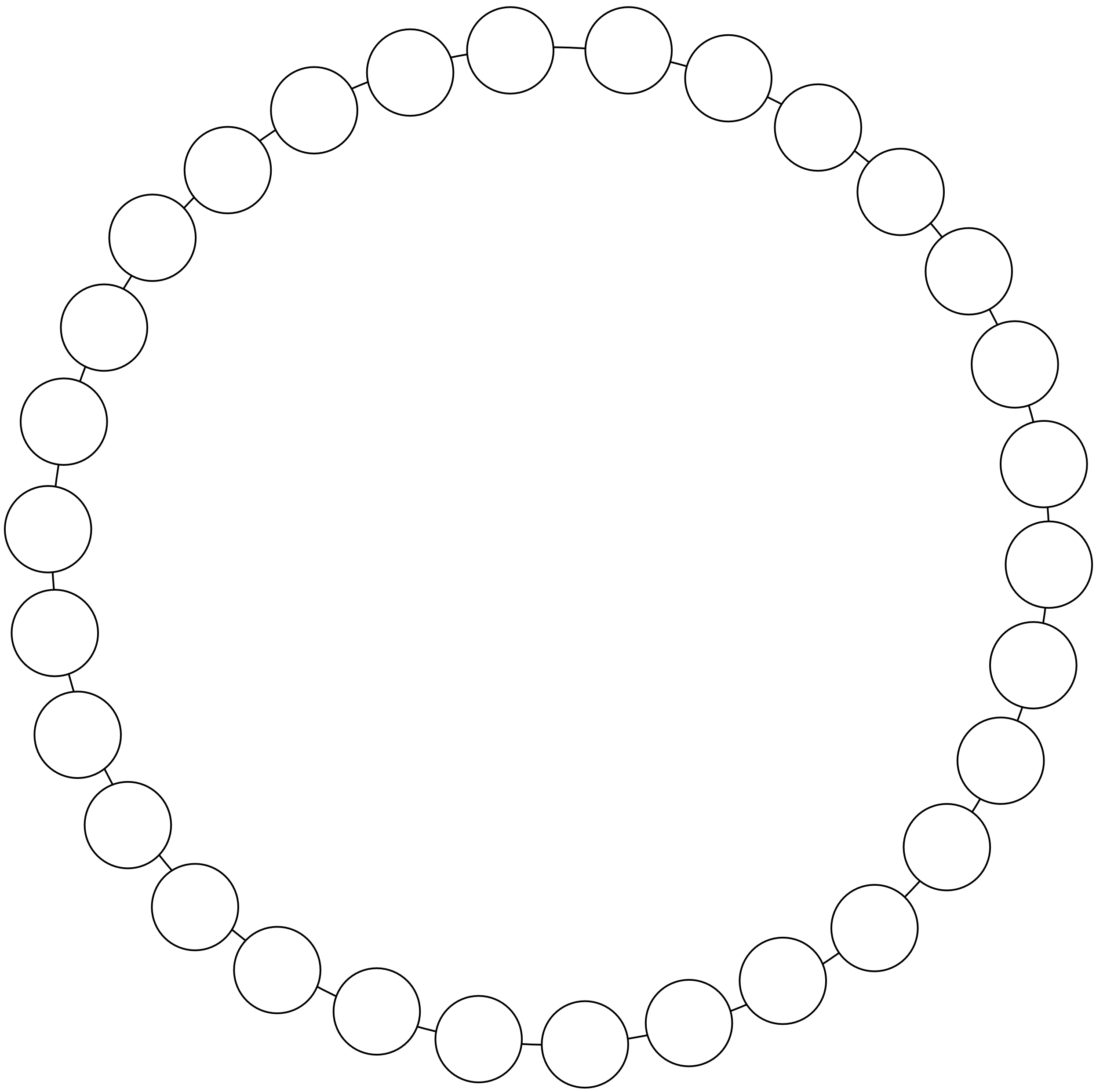
My Bracelet Plan (for Accommodations)



Name________________________________ Date _____________________

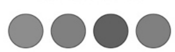
Master 6c

My Bracelet Plan (for Extension)



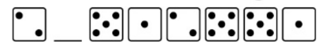
Master 7: Activity 3 Assessment

Extending and Predicting

Extending and Predicting Elements in Patterns Behaviours/Strategies		
1. Student looks at the letter core, but has difficulty choosing beads to represent the core.	2. Student represents the core with beads, but struggles to use copies of the core to extend the pattern. Core: ABCB  “Now what do I do?”	3. Student represents the core with beads, but struggles to predict an element in the pattern. Core: ABCB  “I am not sure what bead 15 will be.”
Observations/Documentation		
4. Student correctly predicts an element in the core, but struggles to justify prediction. Core: ABCB  “The 15th bead will be purple. I’m not sure why.”	5. Student predicts an element in the core and justifies prediction, but does not realize that, because the pattern is circular, the pattern core can be viewed differently, depending on the starting point.	6. Student successfully represents the core with beads, predicts element, justifies thinking, and is comfortable with circular patterns.
Observations/Documentation		

Master 8: Activity 4 Assessment

Errors and Missing Elements

Predicting Missing Elements and Correcting Errors Behaviours/Strategies		
1. Student chooses a pattern, but struggles to identify the repeating unit (core) of the pattern. "I don't know what the core is."	2. Student identifies the repeating unit (core) of some patterns, but struggles when there is a missing element or error near the beginning of the pattern. "I can't find the core. One cube is missing." 	3. Student identifies the repeating unit (core) of a pattern, but struggles to find and correct the error. "I know the core, but I can't find the error."
Observations/Documentation		

4. Student identifies the repeating unit (core) of a pattern, but struggles to predict the missing element. "I know the core, but I don't know what's missing."	5. Student successfully identifies missing element(s) and corrects errors in repeating patterns, but struggles to explain how an error or missing element was found.	6. Student successfully identifies the repeating unit (core) of a pattern, predicts missing element(s),and corrects errors in repeating patterns.
Observations/Documentation		

Name________________________________ Date ____________________

Master 9

Our Core Cards

Core AB Attributes changing: size and shape	Core AB Attributes changing: colour and shape
Core ABA Attributes changing: size and shape	Core AAB Attributes changing: size and colour
Core ABC Attributes changing: colour and orientation	Core AAB Attributes changing: orientation and thickness
Core: ABBA Attributes changing: colour and thickness	Core: ABBC Attributes changing: number and orientation

Name______________________________ Date ____________________

Master 10a

Two Attributes Changing (Part 1)

What attributes change in each pattern? Circle the core.
What is the pattern in each attribute?

Attributes changing: ____

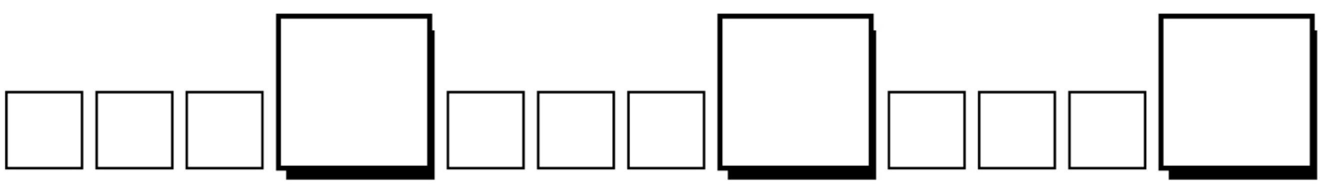
____

Pattern in first attribute: ____

____

Pattern in second attribute: ______________________________________

____



Attributes changing: ____

____

Pattern in first attribute: ____

____

Pattern in second attribute: ______________________________________

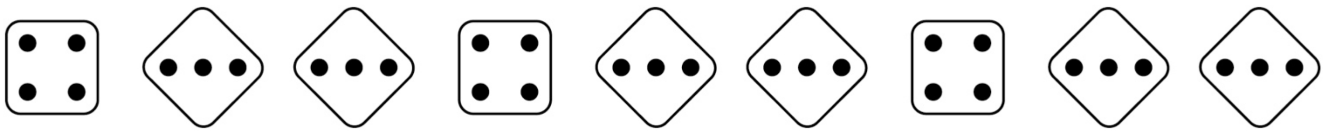
____

Name________________________________ Date _____________________

Master 10a

Two Attributes Changing (Part 1)

What attributes change in each pattern? Circle the core.
What is the pattern in each attribute?



Attributes changing: ____

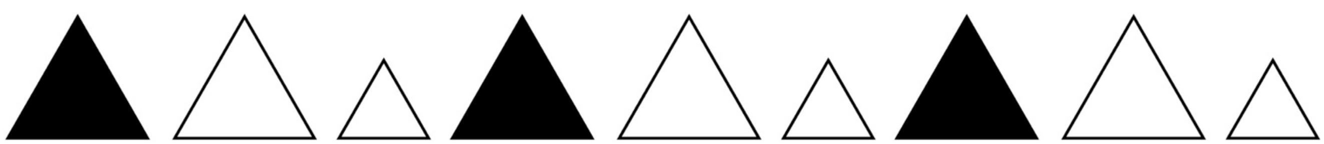
____

Pattern in first attribute: ____

____

Pattern in second attribute: ____

____



Attributes changing: ____

____

Pattern in first attribute: ____

____

Pattern in second attribute: ____

____

Name______________________________ Date ____________________

Master 10b

Two Attributes Changing
(for Accommodations)

Circle the core.

Size pattern:

__________ __________ __________ __________ __________ __________

Colour pattern:

__________ __________ __________ __________ __________ __________

Colour pattern:

__________ __________ __________ __________ __________ __________

Shape pattern:

__________ __________ __________ __________ __________ __________

Try this one on your own.

____________________:

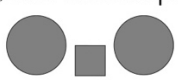
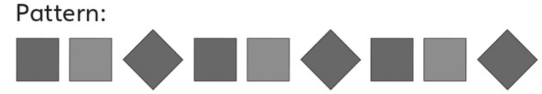
__________ __________ __________ __________ __________ __________

____________________:

__________ __________ __________ __________ __________ __________

Patterning and Algebra

Master 11: Activity 5 Assessment
Combining Attributes

Working with Patterns Involving Two Attributes Behaviours/Strategies		
1. Student chooses a pattern, but struggles to recognize repeating pattern and is unable to identify the two attributes that are changing.  "All the shapes are squares."	2. Student recognizes two attributes that are changing in a repeating pattern, but struggles to identify the core.  "Core is small blue square and big blue square."	3. Student recognizes repeating patterns, but struggles to create a core based on two attributes. Card: ABA; size and shape changing Core: 
Observations/Documentation		
4. Student recognizes repeating patterns and creates a core based on two attributes, but struggles to extend the pattern. Card: ABA, size and shape changing Core: 	5. Student recognizes, extends, and creates repeating patterns based on two attributes, but struggles to use math language when describing patterns.	6. Student successfully recognizes, extends, and creates repeating patterns based on two attributes and uses math language when describing patterns. Card: ABC; colour and orientation changing Pattern: 
Observations/Documentation		

Name______________________________ Date ____________________

Master 12

Action Cards

2 attributes: colour and shape Core: 3 elements	2 attributes: size and orientation Core: 4 elements
Make 2 different patterns.	Predict 14th element. Extend to check.
Build the core. Use it to make a pattern.	Make an error in your pattern. Have your partner find the error.
Remove a part from your pattern. Have your partner find what's missing.	Make a circular pattern.

Name________________________________ Date ______________________

Master 13

Core Cards

ABA	ABB
AABC	ABCB
ABCA	ABCC
ABCCB	ABCDB

Name________________________________ Date ____________________

Master 14

Patterns Around Us

Wall Art

Name________________________________ Date ______________________

Crosswalk

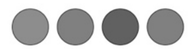
Paving Stones

Name_________________________________ Date ______________________

Garden Path

Master 15: Activity 6 Assessment

Repeating Patterns: Consolidation

Repeating Patterns Behaviours/Strategies		
1. Student chooses a core card, but struggles to represent it with materials. Core: AABC 	2. Student represents the core with materials, but struggles to use copies of the core to extend/create the pattern. Core: ABCB 	3. Student represents the core with materials, but struggles to predict an element in the pattern.  "How do I know what element 14 will be?
Observations/Documentation		

4. Student identifies the repeating unit (core) of a pattern, but struggles to find errors or missing elements.	5. Student creates repeating patterns based on one attribute, but struggles to create a core based on two attributes. Card: 3 elements; colour and shape changing Core: 	6. Student creates and extends repeating patterns based on one or two attributes, and predicts missing element(s) and corrects errors.
Observations/Documentation		

Master 16a

Mathology Grade 2 Correlation – Alberta
Patterning Cluster 2: Increasing/Decreasing Patterns

Organizing Idea:
Number: Quantity is measured with numbers that enable counting, labelling, comparing, and operating.

Guiding Question: How can quantity contribute to a sense of number?
Learning Outcome: Students analyze quantity to 1000.

Knowledge	Understanding	Skills & Procedures	Grade 2 Mathology	Mathology Little Books
A quantity can be skip counted in various ways according to context. Quantities of money can be skip counted in amounts that are represented by coins and bills (denominations).	A quantity can be interpreted as a composition of groups.	Skip count by 20s, 25s, or 50s, starting at 0.	*Link to other strands:* ***Patterning Intervention*** *3: Skip-Counting* *4: Repeated Addition and Subtraction*	
		Skip count by 2s and 10s, starting at any number.	*Link to other strands:* ***Patterning Intervention*** *3: Skip-Counting* *4: Repeated Addition and Subtraction*	
Words that can describe a comparison between two unequal quantities include • not equal • greater than • less than The less than sign, <, and the greater than sign, >, are used to indicate inequality between two quantities. Equality and inequality can be modelled using a balance.	Inequality is an imbalance between two quantities.	Model equality and inequality between two quantities, including with a balance.	*Link to Other Strands:* ***Patterning Math Every Day*** *2A: Equal or Not Equal?*	Nutty and Wolfy

Master 16b

Guiding Question: How can addition and subtraction be interpreted? Learning Outcome: Students investigate addition and subtraction within 100.				
Knowledge	**Understanding**	**Skills & Procedures**	**Grade 2 Mathology**	**Mathology Little Books**
The order in which more than two numbers are added does not affect the sum (associative property).	A sum can be composed in multiple ways.	Compose a sum in multiple ways, including with more than two addends.	*Link to other strands:* ***Patterning Math Every Day*** *2A: How Many Ways?* *2B: Which One Doesn't Belong?*	
Familiar addition and subtraction number facts facilitate addition and subtraction strategies. Addition and subtraction strategies for two-digit numbers include making multiples of ten and using doubles.	Addition and subtraction can represent the sum or difference of countable quantities or measurable lengths.	Add and subtract numbers within 100. Verify a sum or difference using inverse operations. Determine a missing quantity in a sum or difference, within 100, in a variety of ways.	*Link to other strands:* ***Patterning Cluster 2: Increasing/Decreasing Patterns*** *7: Increasing Patterns 1*	

Master 16c

Organizing Idea:
Patterns: Awareness of patterns supports problem solving in various situations.

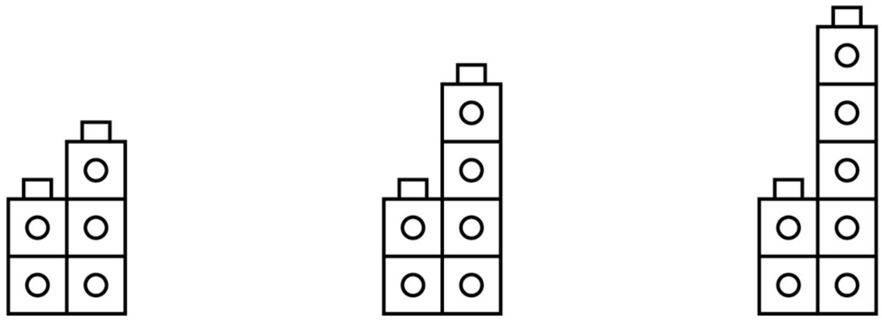
Guiding Question: How can patterns characterize change? **Learning Outcome:** Students explain and analyze patterns in a variety of contexts.				
Knowledge	**Understanding**	**Skills & Procedures**	**Grade 2 Mathology**	**Mathology Little Books**
Change can be an increase or a decrease in the number and size of elements. A hundreds chart is an arrangement of natural numbers that illustrates multiple patterns. Patterns can be found and created in cultural designs.	A pattern can show increasing or decreasing change. A pattern is more evident when the elements are represented, organized, aligned, or oriented in familiar ways.	Investigate patterns in a hundreds chart.	**Patterning Intervention** 3: Skip-Counting	
		Create and express growing patterns using sounds, objects, pictures, or actions.	**Patterning Cluster 2: Increasing/Decreasing Patterns** 7: Increasing Patterns 1 8: Increasing Patterns 2 9: Reproducing Patterns 10: Creating Patterns 11: Errors and Missing Terms 12: Solving Problems 13: Consolidation **Patterning Intervention** 3: Skip-Counting 4: Repeated Addition and Subtraction	The Best Surprise

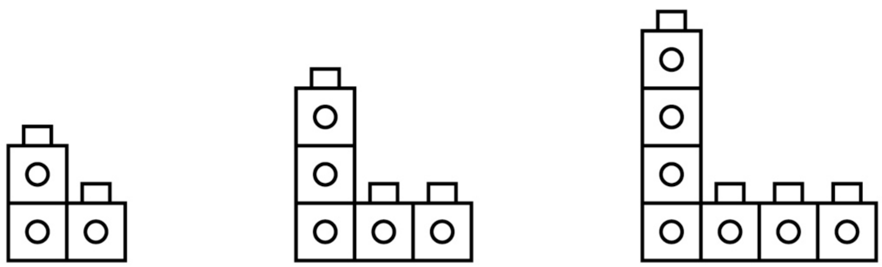
Name________________________________ Date _____________________

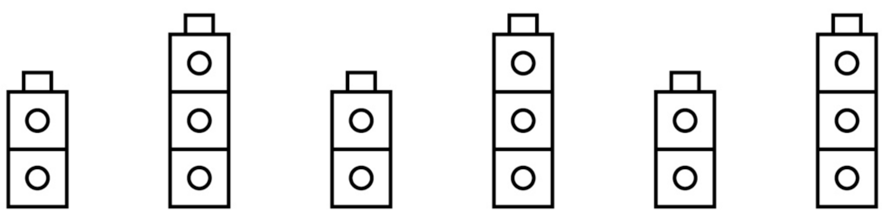
Master 17

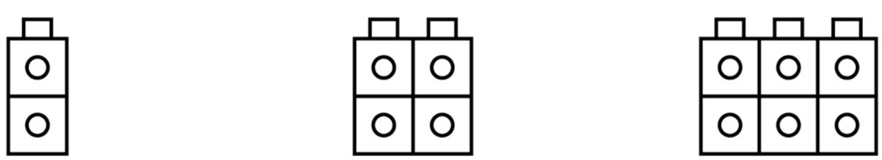
Increasing Patterns

Choose an increasing pattern below.
Careful! One pattern is not an increasing pattern. Can you find it?





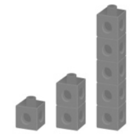




Patterning and Algebra

Master 18: Activity 7 Assessment

Increasing Patterns 1

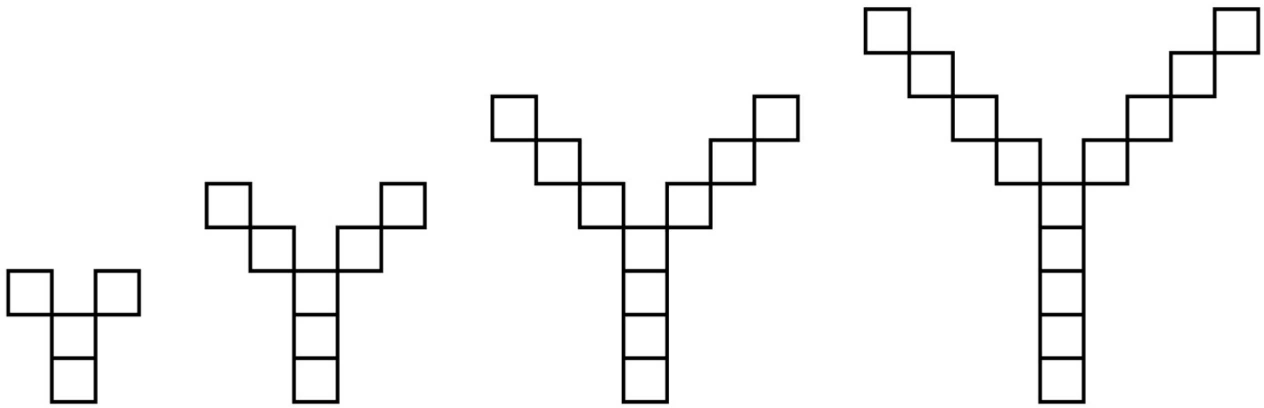
Identifying and Reproducing Increasing Patterns Behaviours/Strategies		
1. Student chooses a pattern, but cannot identify it as an increasing pattern.	2. Student identifies increasing patterns, but struggles to reproduce them concretely (is unable to build the pattern with cubes).	3. Student identifies increasing patterns and attempts to reproduce the patterns, but does not add the correct number of cubes each time or miscounts the cubes. 
Observations/Documentation		

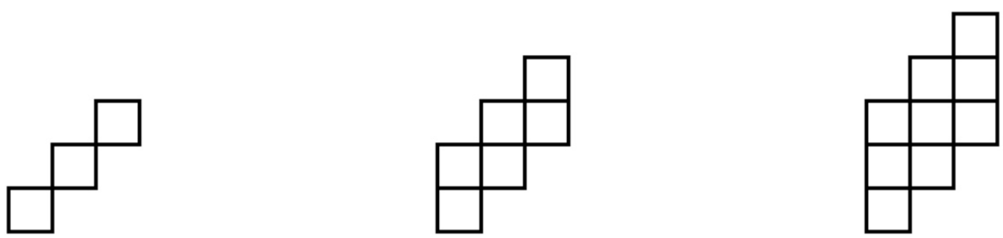
4. Student identifies and reproduces increasing patterns concretely, but struggles to describe the patterns (cannot write pattern rules). “The pattern rule is: Add 2 cubes.”	5. Student identifies and reproduces increasing patterns concretely and describes the patterns, but struggles to represent the patterns pictorially. “I can’t draw a cube.”	6. Student successfully identifies and reproduces increasing patterns concretely and pictorially and describes the patterns.
Observations/Documentation		

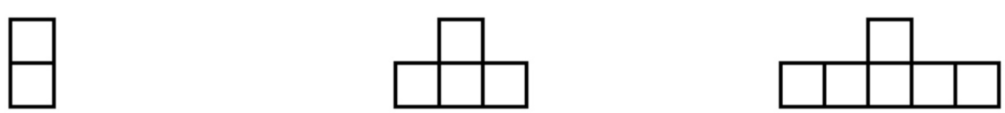
Name________________________________ Date _____________________

Master 19

More Increasing Patterns







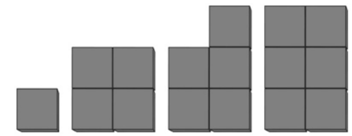
Master 20: Activity 8 Assessment

Increasing Patterns 2

Identifying and Reproducing Increasing Patterns Numerically Behaviours/Strategies		
1. Student identifies increasing patterns, but struggles to reproduce them concretely (is unable to build the patterns with tiles).	2. Student identifies and reproduces increasing patterns concretely, but miscounts when counting the number of tiles in each term.  “6 tiles”	3. Student identifies and reproduces increasing patterns concretely and numerically, but struggles to describe the patterns (cannot write pattern rules). Add 4 tiles”
Observations/Documentation		

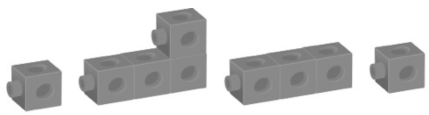
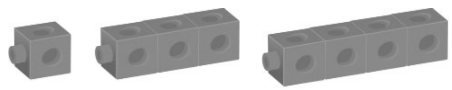
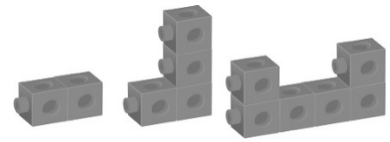
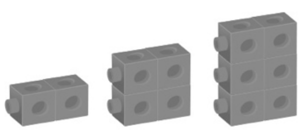
4. Student identifies and reproduces increasing patterns concretely and numerically and describes the patterns, but struggles to predict the number of tiles in the next term. “How do I know how many tiles are in the next term?”	5. Student identifies increasing patterns numerically and describes the patterns, but does not see the relation to skip-counting or repeated addition. “5, 9, 13 I don’t see how this is like adding or skip-counting.”	6. Student successfully identifies and reproduces increasing patterns pictorially and numerically and describes the patterns. “5, 9, 13 Start at 5. Add 4 each time.”
Observations/Documentation		

Master 21: Activity 9 Assessment
Reproducing Patterns

Reproducing Increasing Patterns in Different Ways Behaviours/Strategies		
1. Student chooses an increasing pattern, but struggles to reproduce it in different ways and randomly performs actions (gives no thought to number of actions). Pattern: 1, 3, 5, 7 "Clap-clap-clap-clap-clap-clap-clap"	2. Student reproduces the same increasing pattern in some ways, but is unable to represent the pattern with numbers or write the pattern rule.	3. Student reproduces the same increasing pattern in different ways, but does not have the correct number of items in some of the terms.  Pattern: 1, 3, 5, 7
Observations/Documentation		

4. Student reproduces the same increasing pattern in different ways, matching the number of items in each term to the number pattern. 1, 3, 5, 7 "All the numbers match."	5. Student successfully reproduces the same increasing pattern in different ways, but cannot prove that all ways are the same. "I just know they all show the same pattern."	6. Student successfully reproduces the same increasing pattern in different ways.
Observations/Documentation		

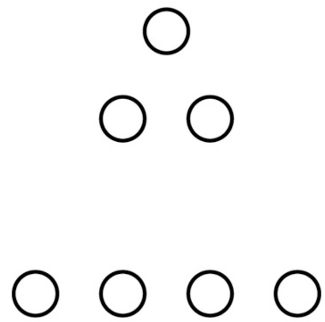
Master 22: Activity 10 Assessment
Creating Patterns

Creating Increasing Patterns Behaviours/Strategies		
1. Student chooses materials, but struggles to create an increasing pattern and randomly groups items or creates a repeating pattern. 	2. Student chooses materials and attempts to create an increasing pattern, but does not add the same number of items each time. 	3. Student creates an increasing pattern, but items are not added in the same way each time. 
Observations/Documentation		
4. Student creates an increasing pattern, but struggles to write the pattern rule. 	5. Student creates an increasing pattern, but is not sure if partner’s pattern rule is correct. “I’m not sure if it’s right.”	6. Student successfully identifies and creates an increasing pattern and explains the pattern rule.
Observations/Documentation		

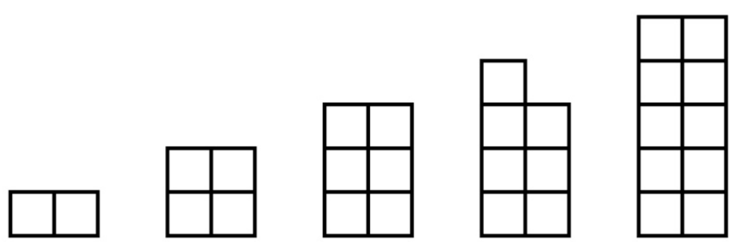
Name________________________________ Date _____________________

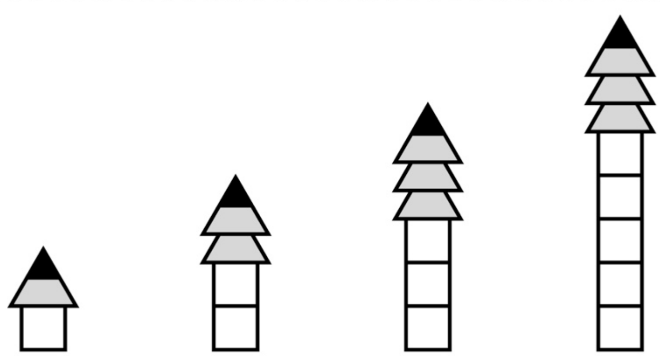
Master 23

What's Wrong or Missing?



2, 4, __, 8, 10

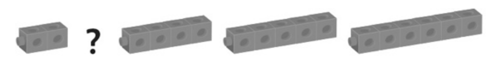


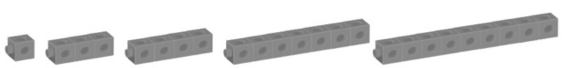


Patterning and Algebra

Master 24: Activity 11 Assessment
Errors and Missing Terms

Finding Errors and Missing Terms Behaviours/Strategies

1. Student takes linking cubes, but struggles to create an increasing pattern.	2. Student makes an increasing pattern with missing terms or errors, but cannot identify the pattern rule of partner's pattern to predict missing term(s) and correct errors. 	3. Student explains the rule, but has difficulty predicting missing term(s) in an increasing pattern.  "Start at 2. Add 1 each time."
Observations/Documentation		

4. Student explains the rule, but has difficulty correcting errors in an increasing pattern.  "Start at 1. Add 2 each time."	5. Student predicts missing term(s) and corrects errors in increasing patterns, but struggles to explain how an error or missing term was found.	6. Student successfully predicts missing term(s) and corrects errors in increasing patterns and justifies thinking.
Observations/Documentation		

Name________________________________ Date ______________________

Master 25

Beaded Belt

Name______________________________ Date ____________________

Master 26

Beading Story: Smooth Beads

By Amanda Norton and Jillian Laursen

I loved going to my Noohkoom's (grandmother's) house up north.
The smell of leather and the sight of cookie tins filled with beads would wake up my senses. Even as a young child, I remember running my fingertips over the tightly beaded leather pieces in my Noohkoom's home. How delicate and fine they were.

Her fingers would move so quickly as she created patterns of flowers in her mind. She would use two needles on the leather—stringing a needle with two and sometimes five beads at a time, and then using the second needle to tack them down.

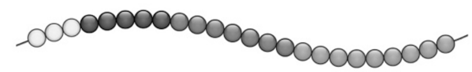
Her patterns grew with every movement, and her hand would begin to move faster. Her hand would only leave the leather to stop and sip her warm mug of tea. When she was finished, we would sit back and look at the beautiful pieces. Our family, our friends, and people from all over the community admired Noohkoom's beadwork.

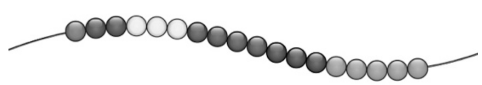
Photo taken by: Amanda Norton

Patterning and Algebra

Master 27: Activity 12 Assessment

Solving Problems

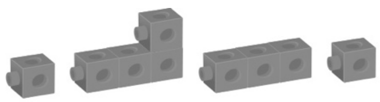
Solving Problems Involving Increasing Patterns Behaviours/Strategies		
1. Student reproduces an increasing pattern concretely, but is unable to identify and explain the pattern rule.	2. Student identifies and reproduces an increasing pattern, but guesses to solve the problem (gives no thought to pattern). "I guess 200!"	3. Student identifies and reproduces an increasing pattern, but struggles to use rule to make prediction.  "I know the rule, but I don't know what to do."
Observations/Documentation		

4. Student identifies and reproduces an increasing pattern and uses rule to make prediction, but struggles to extend the pattern to check. 	5. Student identifies, reproduces, and extends an increasing pattern to solve problem, but does not use math language to explain thinking.	6. Student successfully identifies, reproduces, and extends an increasing pattern to solve problem and uses math language to explain thinking.
Observations/Documentation		

Patterning and Algebra

Master 28: Activity 13 Assessment

Increasing/Decreasing Patterns: Consolidation

Increasing Patterns Behaviours/Strategies		
1. Student chooses materials, but struggles to create an increasing pattern and randomly groups items together. 	2. Student creates an increasing pattern, but struggles to explain rule for partner's pattern.	3. Student creates an increasing pattern, but struggles to examine partner's pattern for errors or missing terms.
Observations/Documentation		

4. Student identifies and creates an increasing pattern, but struggles to extend the pattern by two terms.	5. Student identifies, creates, and extends an increasing pattern, but struggles to reproduce the pattern another way.	6. Student successfully identifies, creates, reproduces, and extends an increasing pattern and explains the pattern rule.
Observations/Documentation		

Master 29a

Pearson mathology

Mathology Grade 2 Correlation – Alberta
Patterning Cluster 3: Equality and Inequality

Organizing Idea:
Number: Quantity is measured with numbers that enable counting, labelling, comparing, and operating.

Guiding Question: How can quantity contribute to a sense of number?
Learning Outcome: Students analyze quantity to 1000.

<table>
<tr><th>Knowledge</th><th>Understanding</th><th>Skills & Procedures</th><th>Grade 2 Mathology</th><th>Mathology Little Books</th></tr>
<tr><td rowspan="2">Words that can describe a comparison between two unequal quantities include
• not equal
• greater than
• less than

The less than sign, <, and the greater than sign, >, are used to indicate inequality between two quantities.

Equality and inequality can be modelled using a balance.</td><td rowspan="2">Inequality is an imbalance between two quantities.</td><td>Model equality and inequality between two quantities, including with a balance.</td><td>Link to Other Strands:
Patterning Cluster 3: Equality and Inequality
14: Equal and Unequal Sets
15: Equal or Not Equal?
16: Exploring Number Sentences
18: Consolidation

Patterning Intervention
5: Exploring 10
6: Balancing Sets</td><td>Nutty and Wolfy</td></tr>
<tr><td>Describe a quantity as less than, greater than, or equal to another quantity.</td><td>Link to other strands:
Patterning Cluster 3: Equality and Inequality
15: Equal or Not Equal?
16: Exploring Number Sentences</td><td>Kokum’s Bannock
Back to Batoche</td></tr>
</table>

Master 29b

Guiding Question: How can addition and subtraction be interpreted?
Learning Outcome: Students investigate addition and subtraction within 100.

Knowledge	Understanding	Skills & Procedures	Grade 2 Mathology	Mathology Little Books
Familiar addition and subtraction number facts facilitate addition and subtraction strategies. Addition and subtraction strategies for two-digit numbers include making multiples of ten and using doubles.	Addition and subtraction can represent the sum or difference of countable quantities or measurable lengths.	Recall and apply addition number facts, with addends to 10, and related subtraction number facts.	*Link to other strands:* ***Patterning Intervention*** *5: Exploring 10*	
		Add and subtract numbers within 100.	*Link to other strands:* ***Patterning Cluster 3: Equality and Inequality*** *17: Missing Numbers*	
		Verify a sum or difference using inverse operations.		
		Determine a missing quantity in a sum or difference, within 100, in a variety of ways.		

Name________________________________ Date _____________________

Master 30a

Equal and Unequal Sets Recording Sheet

Equal Sets

Player A's Set	Player B's Set

Player A's Set	Player B's Set

Name_________________________________ Date ______________________

Master 30b

Equal and Unequal Sets Recording Sheet

Unequal Sets

Player A's Set	Player B's Set

Player A's Set	Player B's Set

Master 31: Activity 14 Assessment

Equal and Unequal Sets

Creating Equal and Unequal Sets Behaviours/Strategies			
1. Student guesses to create a set that is more/less than or equal to a given set.	2. Student creates a set that is equal to a given set, but thinks the sets must be identical (e.g., uses the same number of each colour of cube and/or arranges the cubes in the same way).	3. Student creates a set that is more/less than or equal to a given set, but struggles to use the pan balance to check.	4. Student successfully creates sets that are more/less than or equal to a given set.
Observations/Documentation			

Name________________________________ Date ______________________

Master 32a

Greater Than, Less Than, or Equal? Cards

5 + 2 □ 3 + 4	1 + 6 □ 2 + 4
9 + 3 □ 8 + 5	15 + 6 □ 17 + 4
18 + 4 □ 15 + 7	6 + 22 □ 4 + 24
6 + 18 □ 7 + 19	19 + 7 □ 18 + 8

Name________________________________ Date ____________________

Master 32b

Greater Than, Less Than, or Equal?Cards (for Accommodations)

$5 + 2 \square 7$	$7 \square 2 + 4$
$13 + 3 \square 15$	$6 \square 2 + 3$
$8 \square 4 + 4$	$11 + 7 \square 19$
$3 + 15 \square 18$	$19 \square 14 + 5$

Name________________________________ Date _____________________

Master 32c

Greater Than, Less Than, or Equal? Cards (for Extension)

5 + 2 + 1 $\square$ 3 + 4	2 + 6 + 2 $\square$ 9 + 1
9 + 13 + $\square$ 8 + 17	15 + 9 $\square$ 7 + 4 + 13
8 + 4 +15 $\square$ 16 + 9	6 + 12 +13 $\square$ 24 + 8
6 + 18 $\square$ 15 + 7 + 3	9 + 17 $\square$ 8 + 6 + 12

Name________________________________ Date ____________________

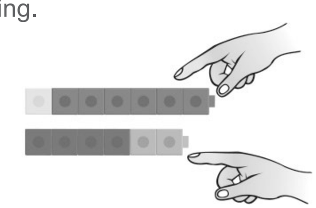
Master 32d

Greater Than, Less Than, or Equal?Cards (for Combined Grades Extension)

$19 + 15 \square 18 + 14$	$15 + 14 \square 15 + 13$
$12 + 19 \square 18 + 13$	$15 + 17 \square 13 + 18$
$18 + 24 \square 15 + 27$	$26 + 16 \square 24 + 17$
$14 + 28 \square 23 + 19$	$17 + 27 \square 29 + 14$

Master 33: Activity 15 Assessment

Equal or Not Equal?

Identifying Equal and Not Equal Number Sentences Behaviours/Strategies		
1. Student turns over a card, but struggles to model equality and inequality with cubes (miscounts) or only models one number on each side.	2. Student models each side of number sentence with cubes and compares expressions (cubes) using one-to-one matching. 	3. Student models each side of number sentence with cubes and compares expressions (cubes) using counting. “1, 2, 3, 4, 5, 6, 7” “1, 2, 3, 4, 5, 6”  “The sides are not equal.”
Observations/Documentation		

4. Student models equality and inequality with cubes, but struggles to interpret the pan balance.	5. Student models equality and inequality with cubes and compares expressions, but does not understand when to use the equal (=) and less than (<) or greater than (>) signs. “I’m not sure which sign to use.”	6. Student models and describes equality and inequality, and understands and uses the equal (=) and less than (<) or greater than (>) signs when comparing expressions.
Observations/Documentation		

Name________________________________ Date ______________________

Master 34

Tent Cards

Fold here			Fold here	
‖				Λ
‖				Λ
‖				V
‖				V

Name________________________________ Date ______________________

Master 35a

Equal or Not Equal? Number Sentences

Write = or < or > in each box.

9 + 3	☐	15
27	☐	18 + 9
17 + 9	☐	20 + 6
24 + 0	☐	24
21 – 2	☐	18 + 0
11 + 3	☐	16 – 2
13 – 5	☐	7 + 2

Name________________________________ Date ______________________

Master 35b

Equal or Not Equal? Number Sentences (for Accommodations)

Write = or < or > in each box.

$5 + 3$	$\square$	7
8	$\square$	$2 + 6$
$3 + 2$	$\square$	$1 + 4$
$2 + 0$	$\square$	2
$5 - 2$	$\square$	$1 + 3$
$3 + 3$	$\square$	$7 - 1$
$6 - 2$	$\square$	$4 + 1$

Name________________________________ Date ______________________

Master 35c

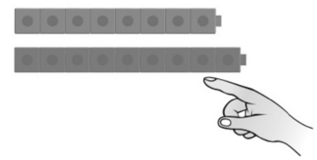
Equal or Not Equal? Number Sentences (for Combined Grades Extension)

Write = or < or > in each box.

12 + 13	☐	27
27	☐	21 + 6
5 + 21	☐	14 + 14
12 + 20	☐	11 + 31
33 – 12	☐	17 + 3
21 + 3	☐	26 – 2
38 – 7	☐	39 – 9

Master 36: Activity 16 Assessment

Exploring Number Sentences

Exploring Number Sentences Behaviours/Strategies		
1. Student chooses a number sentence, but struggles to compare expressions and compares one number on each side (e.g., compares 13 and 7 for 13 – 5 = 7 + 2).	2. Student takes cubes, but struggles to model add-to and take-from situations with cubes.	3. Student models add-to and take-from situations with cubes and compares expressions by comparing lengths or using one-to-one matching. 
Observations/Documentation		

4. Student models add-to and take-from situations with cubes and compares expressions by counting. “1, 2, 3, …, 6, 7, 8” “1, 2, 3, …, 7, 8, 9”  “The sides are not equal.”	5. Student models add-to and take-from situations with cubes and compares expressions, but does not understand when to use the greater than (>) or less than (<) signs. “I’m not sure which sign to use.”	6. Student models add-to and take-from situations with cubes, and understands and uses the equal (=) and greater than (>) or less than (<) signs when comparing expressions.
Observations/Documentation		

Name________________________________ Date ______________________

Master 37a

Find the Missing Number Cards

$20 = \square + 7$	$8 + \square = 25$
$5 + \square = 32$	$34 = 3 + \square$
$22 = 25 - \square$	$43 = \square - 6$
$18 - \square = 9$	$\square - 17 = 4$

Name________________________________ Date _____________________

Master 37b

Find the Missing Number Cards

$3 + 5 = \square + 2$	$\square + 11 = 13 + 7$
$15 + \square = 9 + 13$	$16 + 8 = 9 + \square$
$24 + 8 = 35 - \square$	$5 + 16 = \square - 5$
$32 - \square = 24 + 5$	$\square - 8 = 7 + 12$

Name________________________________ Date ____________________

Master 37c

Find the Missing Number Cards

$10 + \square = 18 + 5$	$\square + 21 = 15 + 9$
$19 + 9 = \square + 20$	$8 + 18 = 12 + \square$
$14 + 8 = 27 - \square$	$11 + 12 = \square - 5$
$21 - \square = 7 + 11$	$\square - 7 = 7 + 8$

Name________________________________ Date ______________________

Master 37d

Find the Missing Number Cards (for Accommodations)

$3 = \square + 1$	$2 + \square = 4$
$7 = 6 + \square$	$3 + \square = 5$
$4 = 6 - \square$	$2 = \square - 5$
$\square = 5 - 1$	$\square - 2 = 3$

Patterning and Algebra

Master 38: Activity 17 Assessment

Missing Numbers

Finding the Missing Number Behaviours/Strategies		
1. Student uses a pan balance to solve for an unknown value in an addition problem, adding cubes until the pans balance (gives no thought to numbers).	2. Student turns over a card, but focuses on one side of the equation, giving no thought to the other side, and is unable to solve for an unknown value in an addition problem. 3 + 5 = **8** + 2	3. Student solves for an unknown value in some addition problems, but struggles when the unknown number is in certain positions (e.g., at the start). □ + 11 = 13 + 7 “How do I find the missing number?”
Observations/Documentation		

4. Student successfully solves for an unknown value in addition problems, but struggles when the problems involve subtraction. 24 + 8 = 35 − □ “I can’t do subtraction.”	4 Student successfully solves for an unknown value in addition and subtraction problems regardless of its position, but struggles to explain thinking.	5 Student successfully solves for an unknown value in addition and subtraction problems regardless of its position, and explains thinking.
Observations/Documentation		

Name________________________________ Date _____________________

Master 39

Number Sentence Recording Sheet

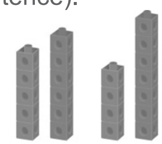
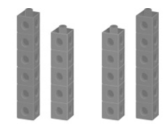
Our number: ______

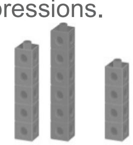
$\square + \square = \square + \square$

$\square + \square = \square + \square$

$\square + \square$ > or < $\square + \square$

Master 40: Activity 18 Assessment
Equality and Inequality: Consolidation

Expressing Equality and Inequality Behaviours/Strategies		
1. Student chooses a number, but struggles to decompose number into two parts and model it with cubes.	2. Student models equality with cubes, but struggles to record different expressions of the same quantity as equalities (cannot write number sentence).  "What do I write?"	3. Student models equality, but does not consider zero, or thinks the same cubes in the opposite order is not an equality.  "How can these be equal?"
Observations/Documentation		

4. Student models equality, but struggles to model inequality.	5. Student models inequality, but struggles to use the greater than or less than sign when comparing expressions.  5 + 6 = 4	6. Student models equality and inequality, records different expressions of the same quantity as equalities, and understands and uses the equal (=) and greater than (>) or less than (<) signs when comparing expressions. 15 + 6 = 14 + 7 15 + 6 ≠ 14 + 5
Observations/Documentation		