

## Connections: Who Am I?

I was born on July 28, 1958.

I ran 5373 km across Canada in 143 days.

There are 14 schools and 15 roads in Canada named after me.

Marathons are held every year in my name in 52 countries.

I lost one of my legs to bone cancer when I was 18 years old.

Every year, people in close to 25 countries participate in  
The National School Run Day.

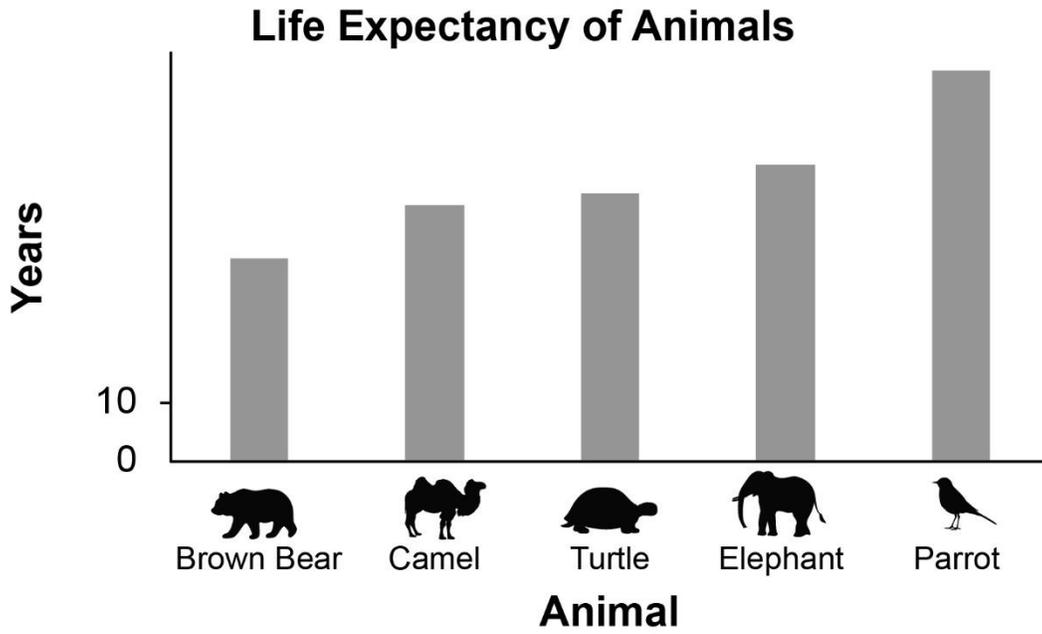
An 83-km section of the Trans-Canada Highway is named after  
me to recognize my courage.

A 2639-m mountain in British Columbia is named in my honour.

Create your own *Who Am I?* poster.  
Use as many numbers as you can.

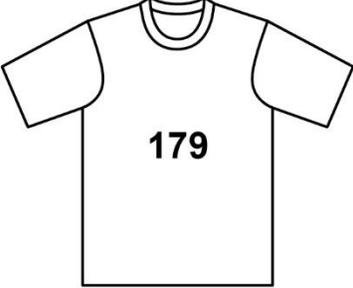
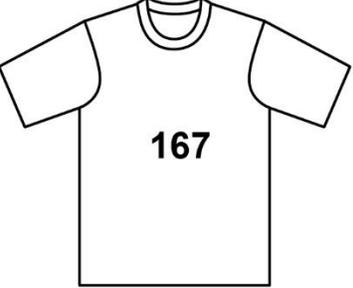
**Master 2**

# Life Expectancy of Animals



Master 3a

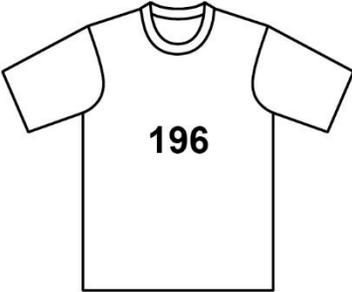
# T-Shirt Cards

 <p>326</p>	 <p>179</p>	 <p>167</p>
 <p>234</p>	 <p>245</p>	 <p>267</p>
 <p>147</p>	 <p>314</p>	 <p>125</p>



Master 3b

# T-Shirt Cards

 <p>379</p>	 <p>396</p>	 <p>411</p>
 <p>427</p>	 <p>479</p>	 <p>497</p>
 <p>196</p>	 <p>360</p>	 <p>407</p>



Master 3c

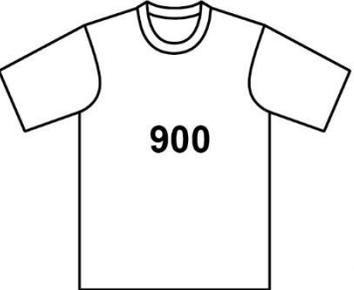
# T-Shirt Cards

 <p>532</p>	 <p>523</p>	 <p>569</p>
 <p>598</p>	 <p>624</p>	 <p>656</p>
 <p>675</p>	 <p>699</p>	 <p>707</p>



Master 3d

# T-Shirt Cards

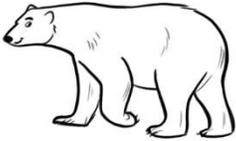
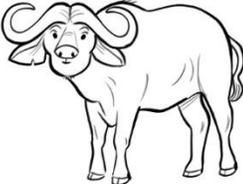
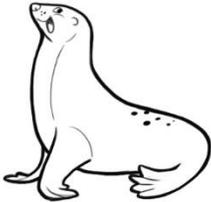
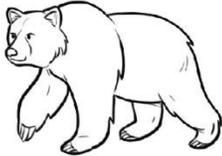
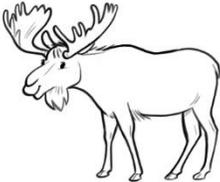
 <p>728</p>	 <p>758</p>	 <p>781</p>
 <p>811</p>	 <p>834</p>	 <p>849</p>
 <p>883</p>	 <p>501</p>	 <p>900</p>



**Master 4**

## Connections: Animal Fun Facts

Order the animals from least to greatest mass.

<p style="text-align: center;"><b>Polar bear</b></p> <div style="display: flex; justify-content: space-around; align-items: center;">  <div style="border: 1px solid black; border-radius: 10px; padding: 5px; font-weight: bold; font-size: 1.2em;">475 kg</div> </div> <p>Polar bears feed mostly on seals. They have a good sense of smell and can smell seals almost 2 km away.</p>	<p style="text-align: center;"><b>Water buffalo</b></p> <div style="display: flex; justify-content: space-around; align-items: center;">  <div style="border: 1px solid black; border-radius: 10px; padding: 5px; font-weight: bold; font-size: 1.2em;">725 kg</div> </div> <p>Water buffalo are sensitive to heat. They are known to roll in mud to help cool themselves down.</p>
<p style="text-align: center;"><b>Seal</b></p> <div style="display: flex; justify-content: space-around; align-items: center;">  <div style="border: 1px solid black; border-radius: 10px; padding: 5px; font-weight: bold; font-size: 1.2em;">425 kg</div> </div> <p>Seals have thick fur and blubber to protect them against freezing temperatures.</p>	<p style="text-align: center;"><b>Brown bear</b></p> <div style="display: flex; justify-content: space-around; align-items: center;">  <div style="border: 1px solid black; border-radius: 10px; padding: 5px; font-weight: bold; font-size: 1.2em;">278 kg</div> </div> <p>Brown bears dig caves with their long claws. They sleep in the caves for most of the winter.</p>
<p style="text-align: center;"><b>Moose</b></p> <div style="display: flex; justify-content: space-around; align-items: center;">  <div style="border: 1px solid black; border-radius: 10px; padding: 5px; font-weight: bold; font-size: 1.2em;">386 kg</div> </div> <p>Moose are excellent swimmers. They can swim 10 km per hour without a break for 2 hours.</p>	<p style="text-align: center;"><b>Yak</b></p> <div style="display: flex; justify-content: space-around; align-items: center;">  <div style="border: 1px solid black; border-radius: 10px; padding: 5px; font-weight: bold; font-size: 1.2em;">667 kg</div> </div> <p>Yaks have very strong horns. They are used to break through snow to get plants that are buried below.</p>

Master 5

# Place-Value Riddles

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



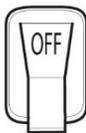
**Master 6**

# Connections: Crack the Code!

Computers talk using only two numbers: 0 and 1.  
This is called **Binary Code**.

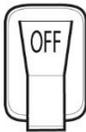
Think of a bunch of light switches being turned on and off.  
We use 1 to show “On.”  
We use 0 to show “Off.”

Number 6

	<b>16</b>	<b>8</b>	<b>4</b>	<b>2</b>	<b>1</b>
					
	0	0	1	1	0

The switches for 4 and 2 are “On.”  
So, 00110 represents the number 4 + 2, or 6.

Number 15

	<b>16</b>	<b>8</b>	<b>4</b>	<b>2</b>	<b>1</b>
					
	0	1	1	1	1

The switches for 8, 4, 2, and 1 are “On.”  
So, 01111 represents the number 8 + 4 + 2 + 1, or 15.

Crack the Code to find these numbers:

- a) 1 1 1 1 1      b) 1 0 0 0 1      c) 0 1 1 1 0

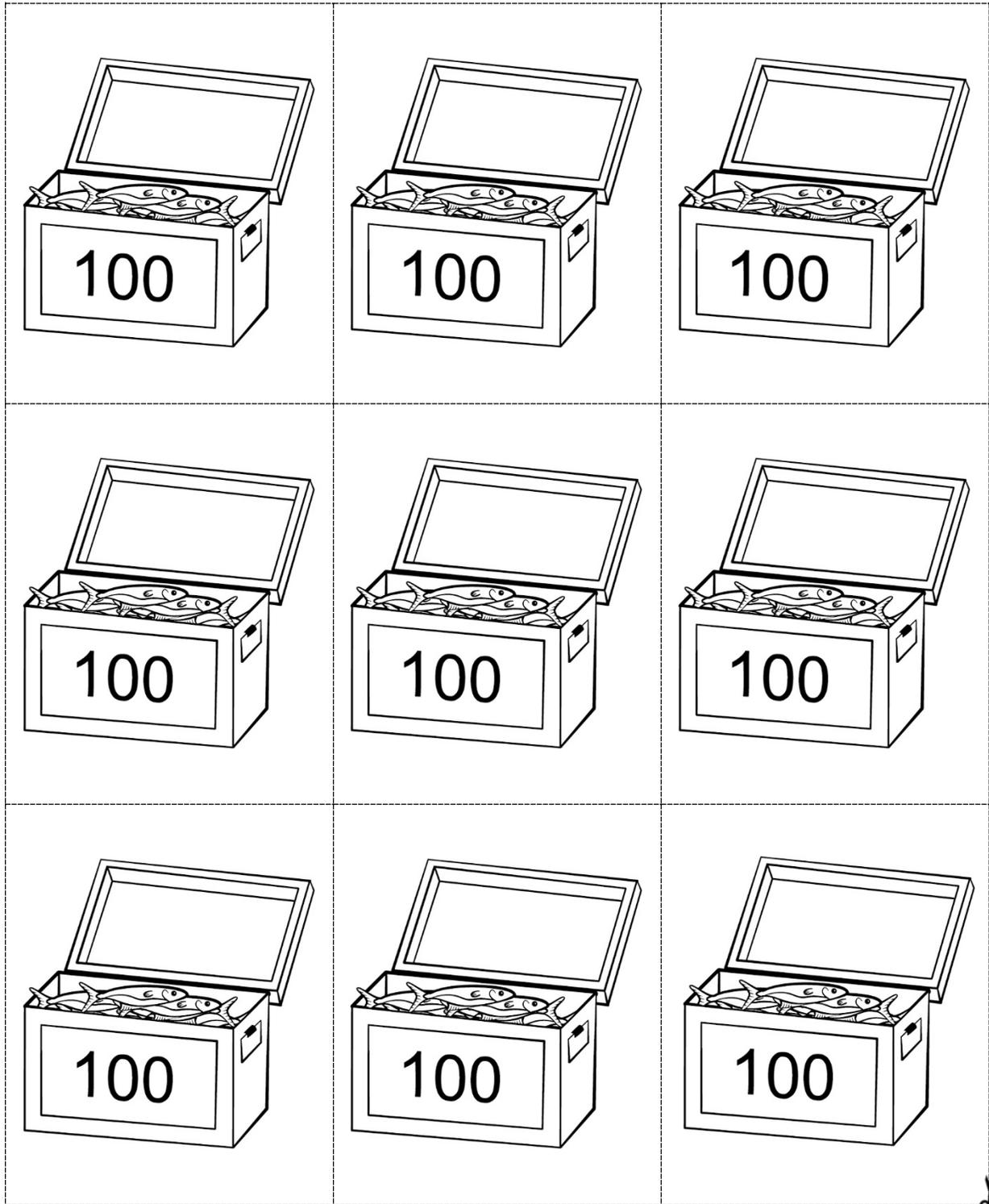
Use Binary Code to show 8, 9, and 10.

Name \_\_\_\_\_

Date \_\_\_\_\_

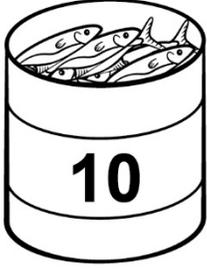
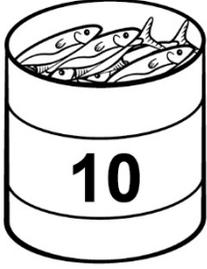
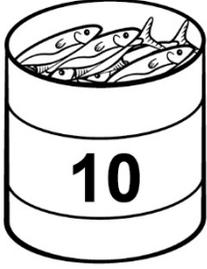
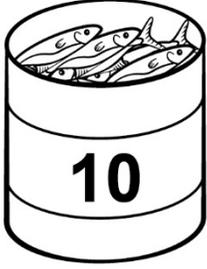
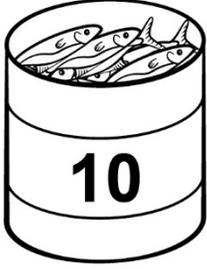
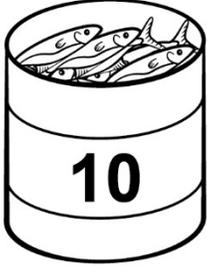
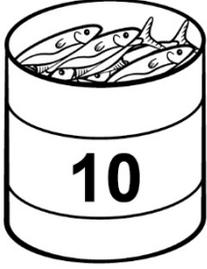
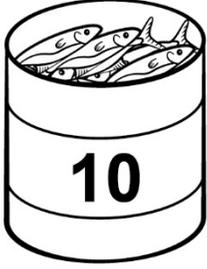
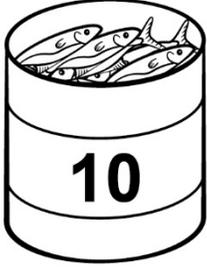
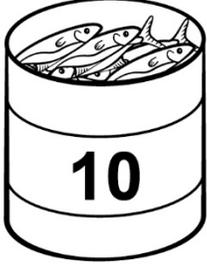
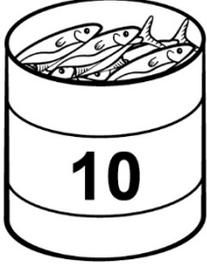
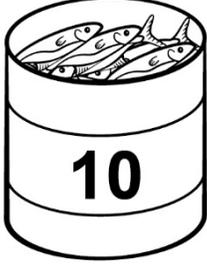
Master 5a

# Base Ten Fish Cards



Master 5b

# Base Ten Fish Cards

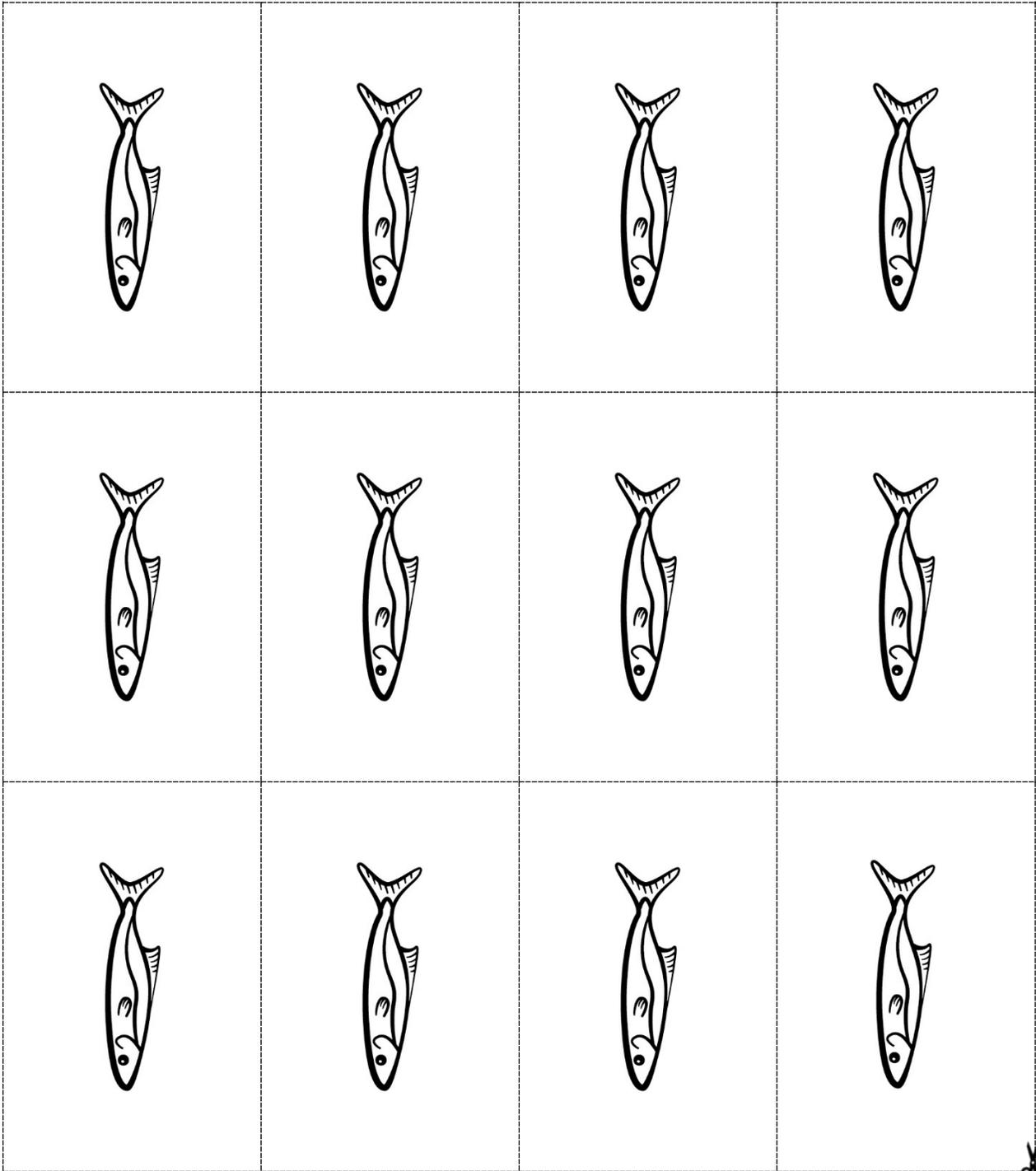
 <p>A cylindrical card with a fish illustration at the top and the number 10 in the center.</p>	 <p>A cylindrical card with a fish illustration at the top and the number 10 in the center.</p>	 <p>A cylindrical card with a fish illustration at the top and the number 10 in the center.</p>
 <p>A cylindrical card with a fish illustration at the top and the number 10 in the center.</p>	 <p>A cylindrical card with a fish illustration at the top and the number 10 in the center.</p>	 <p>A cylindrical card with a fish illustration at the top and the number 10 in the center.</p>
 <p>A cylindrical card with a fish illustration at the top and the number 10 in the center.</p>	 <p>A cylindrical card with a fish illustration at the top and the number 10 in the center.</p>	 <p>A cylindrical card with a fish illustration at the top and the number 10 in the center.</p>
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Name \_\_\_\_\_ Date \_\_\_\_\_

Master 5c

# Base Ten Fish Cards



Name \_\_\_\_\_ Date \_\_\_\_\_

Master 7a

# Paper Shapes

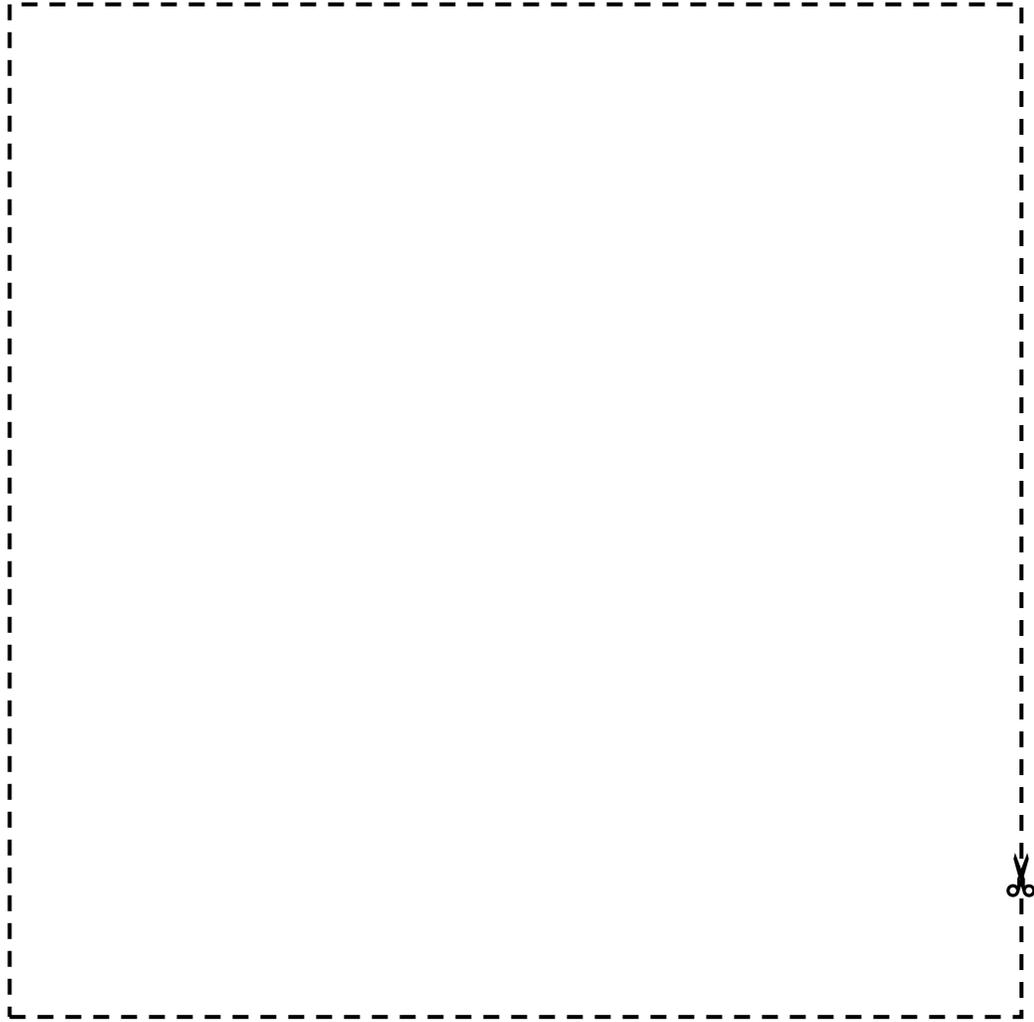
## Paper Rectangles



Master 7b

# Paper Shapes (cont'd)

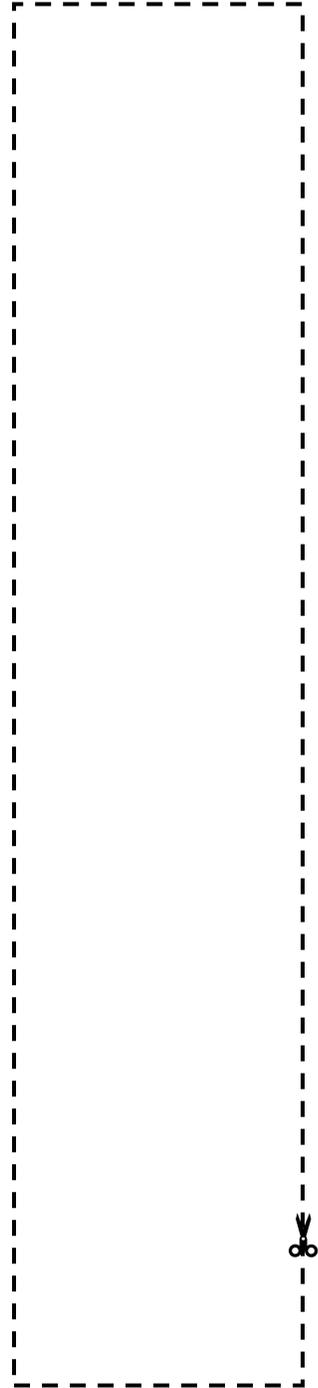
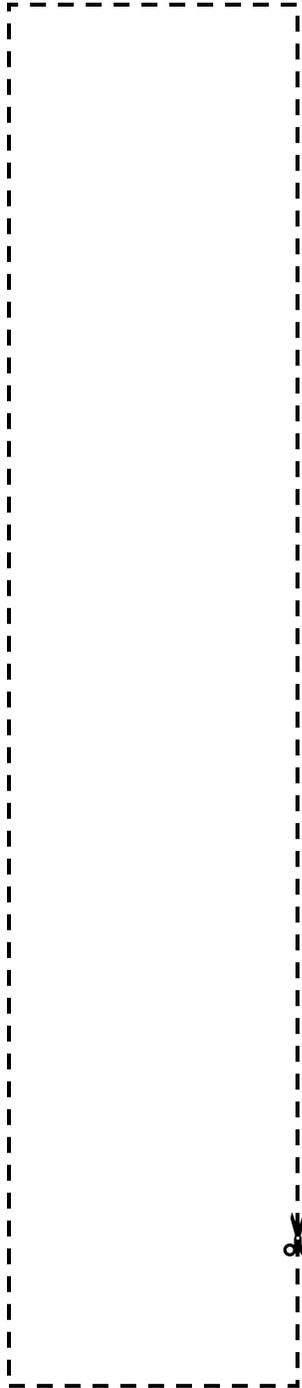
## Paper Square



Master 7c

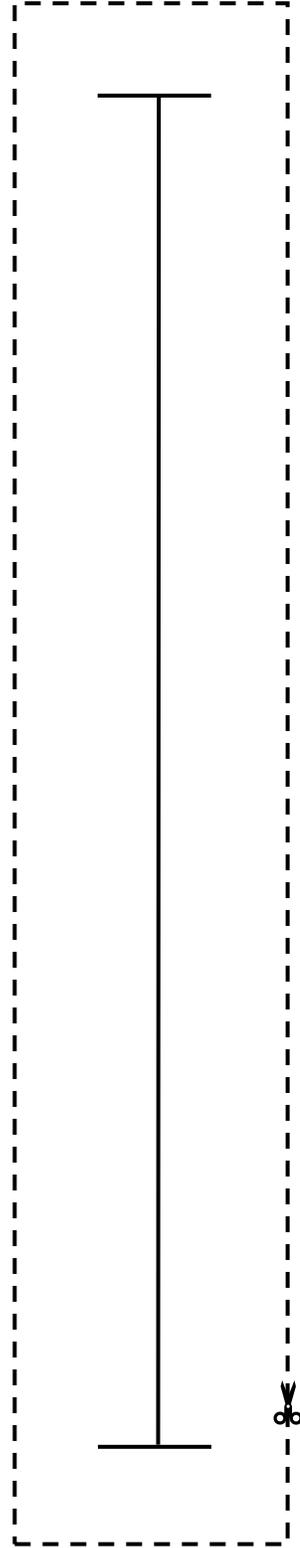
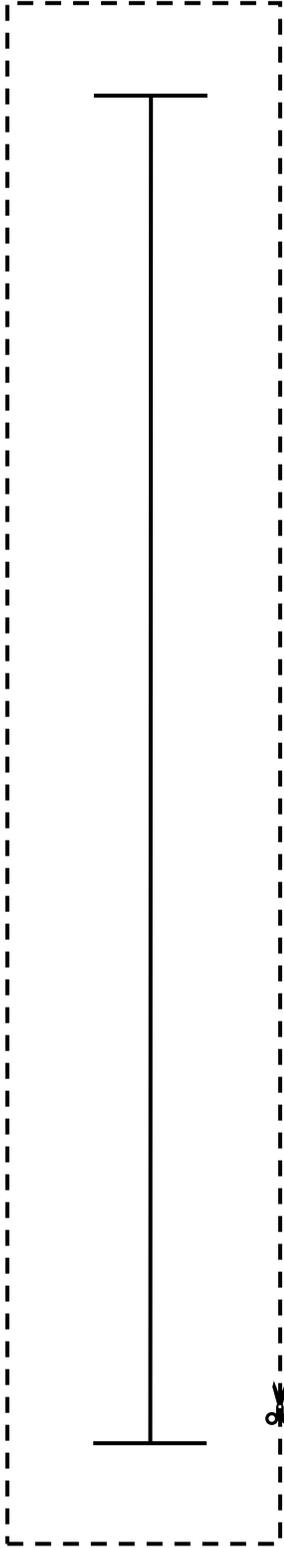
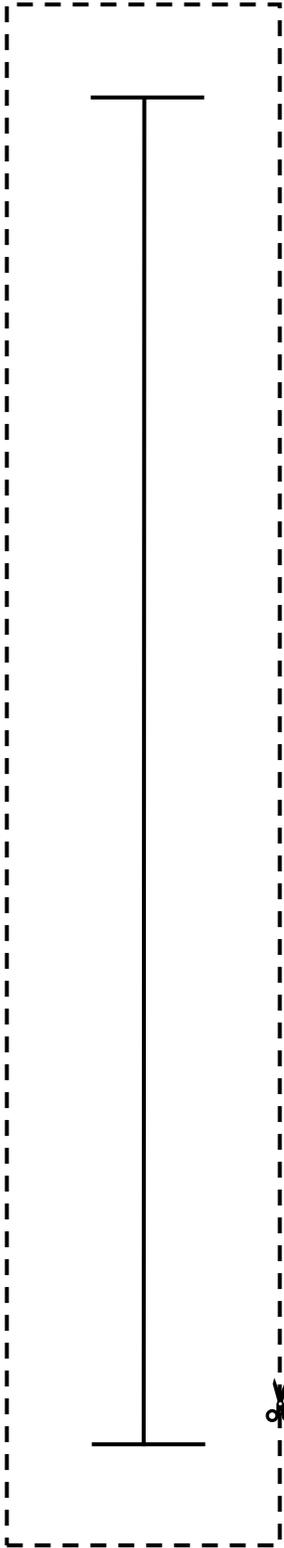
# Paper Shapes (cont'd)

## Paper Strips



Master 8

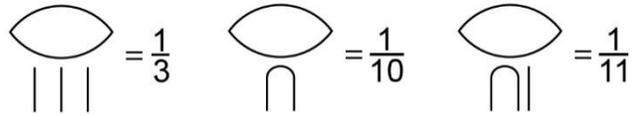
# Number Lines



**Master 9**

# Connections: Fraction Frenzy

Many, many years ago, Egyptian mathematicians wrote fractions like this:



How do you think Egyptians would have written  $\frac{1}{7}$ ?  $\frac{1}{14}$ ?

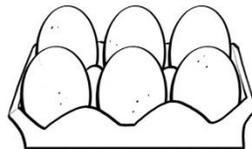
Have you ever wondered why we call 25¢ a quarter? The word *quarter* comes from a Latin word that means “four.” In French, the word for four is *quatre*! So, *quarter* means one-fourth of something. Since 25 cents is one-fourth of a dollar, we call this coin “a quarter.”



How many times do you hear fraction words in one day?



“It’s half past one!”



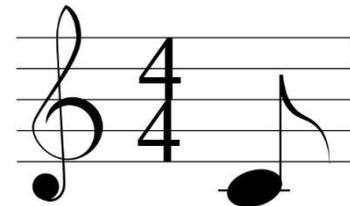
“I bought half a dozen eggs!”



“Please pass me the five-eighths wrench.”



“The store is having a half-price sale!”



“This is an eighth note C.”

Listen carefully for the rest of the day. What fraction words do you hear?

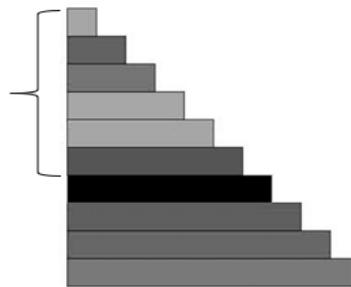
## Filling Fractions! Instructions

**Group size: 2**

### Materials:

- Student Card 10: Filling Fractions! (2 per pair)
- Paper bags of Relational Rods (1 of each of the first 6 rods per bag, 2 bags per pair)
- Dry-erase markers (2 per pair)

1 of each of the  
first 6 rods per bag



**Goal:** To be the first to colour all your fraction parts

### Instructions:

**Player A:** Without looking, take one rod from each bag.

Put the shorter rod on top of the longer rod, aligned at one end.

The longer rod is the whole.

What fraction have you modelled?

Colour parts of strips on your game board to show that fraction.

For example, for  $\frac{3}{5}$ , colour three parts of a strip showing fifths.

**Player B:** Take a turn.

Continue to take turns until one of you colours all your fraction parts.

## Story Problems

12 students are on the school bus.  
13 students get on at the next stop.  
How many students are now on the bus?



Join, result unknown:  $12 + 13 = ?$

A farmer is selling 78 cobs at her corn stand.  
By lunch time, she has 23 cobs left.  
How many cobs did she sell?



Separate, change unknown:  $78 - ? = 23$

Freddy the fox has some eggs for winter in his den.  
He collects 17 more eggs.  
Now he has 45 eggs.  
How many eggs did Freddy have to begin with?



Join, start unknown:  $? + 17 = 45$

Anna lives 78 m from the school.  
Brooklyn lives 14 m farther away than Anna.  
How far does Brooklyn live from the school?



Compare, larger section unknown:  $78 + 14 = ?$

Master 12a

## Game Cards: Mental Math

<p><b>M</b></p> <p style="text-align: center;"><math>48 + 51</math></p> <p><b>Points</b> Roll 1 number cube.</p>	<p><b>M</b></p> <p style="text-align: center;"><math>65 + 17</math></p> <p><b>Points</b> Roll 2 number cubes. Make a 2-digit number.</p>	<p><b>M</b></p> <p style="text-align: center;"><math>23 + 21</math></p> <p><b>Points</b> Roll 2 number cubes. Make the smaller 2-digit number.</p>
<p><b>M</b></p> <p style="text-align: center;"><math>55 + 45</math></p> <p><b>Points</b> Roll 3 number cubes. Make the smallest 3-digit number.</p>	<p><b>M</b></p> <p style="text-align: center;"><math>74 - 39</math></p> <p><b>Points</b> Roll 2 number cubes. Make the smaller 2-digit number.</p>	<p><b>M</b></p> <p style="text-align: center;"><math>19 + 21</math></p> <p><b>Points</b> Roll 2 number cubes. Make the bigger 2-digit number.</p>
<p><b>M</b></p> <p style="text-align: center;"><math>72 + 17</math></p> <p><b>Points</b> Roll 1 number cube.</p>	<p><b>M</b></p> <p style="text-align: center;"><math>69 - 24</math></p> <p><b>Points</b> Roll 2 number cubes. Make a 2-digit number.</p>	<p><b>M</b></p> <p style="text-align: center;"><math>91 - 45</math></p> <p><b>Points</b> Roll 2 number cubes. Make the smaller 2-digit number.</p>
<p><b>M</b></p> <p style="text-align: center;"><math>34 + 56</math></p> <p><b>Points</b> Roll 2 number cubes. Make the smaller 2-digit number.</p>	<p><b>M</b></p> <p style="text-align: center;"><math>78 - 69</math></p> <p><b>Points</b> Roll 2 number cubes. Make the bigger 2-digit number.</p>	<p><b>M</b></p> <p style="text-align: center;"><math>35 + 19</math></p> <p><b>Points</b> Roll 3 number cubes. Make the smallest 3-digit number.</p>

**Master 12b**

**Game Cards: Story Problems**

<p><b>P</b></p> <p>Blue Team scored 48 points in Round 1 of the bean bag toss. They scored 91 points in Round 2. How many points do they have now?</p> <p><b>Points</b> Roll 1 number cube.</p>	<p><b>P</b></p> <p>Red Team has 74 points. They are disqualified in Round 2 and have to take away 39 points. How many points do they have left?</p> <p><b>Points</b> Roll 2 number cubes. Make a 2-digit number.</p>	<p><b>P</b></p> <p>Billy burst 12 balloons at the Balloon Pop. Billy burst 5 fewer balloons than Betty. How many balloons did Betty burst?</p> <p><b>Points</b> Roll 2 number cubes. Make the smaller 2-digit number.</p>
<p><b>P</b></p> <p>Team Orange had 56 points after Round 1. They had 94 points after Round 2. How many points did they get in Round 2?</p> <p><b>Points</b> Roll 3 number cubes. Make the smallest 3-digit number.</p>	<p><b>P</b></p> <p>Team Blue has 121 more points than Team Red. Team Blue has 257 points. How many points does Team Red have?</p> <p><b>Points</b> Roll 2 number cubes. Make the smaller 2-digit number.</p>	<p><b>P</b></p> <p>There were 42 students in line for Tug-of-War. Some students left the line. Now there are 27 students in line. How many students left the line?</p> <p><b>Points</b> Roll 2 number cubes. Make the bigger 2-digit number.</p>



**Master 12c**

**Game Cards: Story Problems**

<p><b>P</b></p> <p>The Balloon Pop game used 571 balloons. There were 850 balloons to start. How many balloons are left?</p> <p><b>Points</b> Roll 1 number cube.</p>	<p><b>P</b></p> <p>Tilly scored 86 points at the three-legged race. That gave her a total of 197 points. How many points did she have before the three-legged race?</p> <p><b>Points</b> Roll 2 number cubes. Make a 2-digit number.</p>	<p><b>P</b></p> <p>276 students and 19 teachers participated in Fun Day. How many people participated altogether?</p> <p><b>Points</b> Roll 2 number cubes. Make the smaller 2-digit number.</p>
<p><b>P</b></p> <p>Becky took 33 jumps in the sack race before she fell. That is 9 more jumps than Oliver took. How many jumps did Oliver take?</p> <p><b>Points</b> Roll 2 number cubes. Make the smaller 2-digit number.</p>	<p><b>P</b></p> <p>This year, 295 people participated in Fun Day. Last year, 332 people participated. How many more people participated last year?</p> <p><b>Points</b> Roll 1 number cube.</p>	<p><b>P</b></p> <p>276 ribbons were given out. There were 118 ribbons left. How many ribbons were there to start with?</p> <p><b>Points</b> Roll 1 number cube.</p>



**Master 13**

# Connections: How Many Minutes? Seconds?



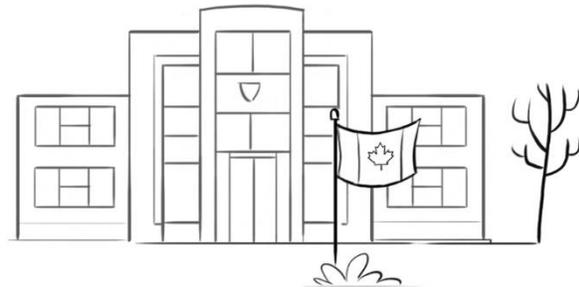
Grace brushes her teeth for 2 minutes every morning. That is 120 seconds.



She takes 3 minutes to get dressed. That is 180 seconds.



She takes 5 minutes to eat her breakfast. That is 300 seconds.



She takes 6 minutes to walk from her house to school. That is 360 seconds.

How many minutes does Grace spend getting ready for school altogether? How many seconds?

How many minutes and seconds do you take?

## Pawty Planning

It's time to plan a Birthday Pawty for **10** adorable dogs.



To play party games, divide dogs into equal teams.

### Games

Tug of War: Teams of 2

Go Fetch: Teams of 3

Obstacle Course: Teams of 5

Hide-and-Seek: Teams of 4

It's time to plan a Birthday Pawty for **4** playful cats.



To make loot bags, share treats among 4 bags.

### Treats

8 Toy Mice

20 Cat Treats

15 Toy Feathers

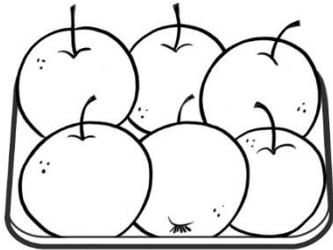
12 Dental Treats

5 Play Balls

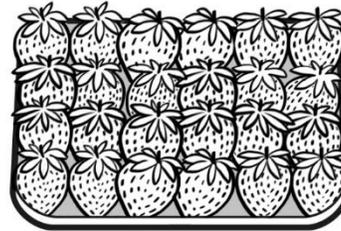
**Master 15**

**Connections: Arrays at the Store**

An array is a way of organizing items in equal rows and columns. If you look around the grocery store, you will find many arrays. Why do you think items are packaged in arrays?

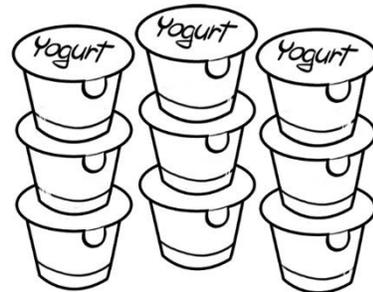
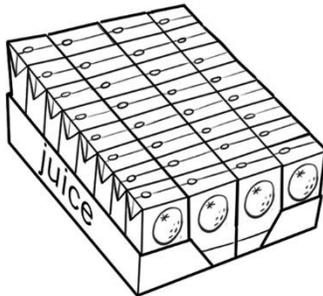


Apples

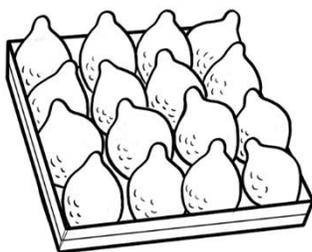


Strawberries

Arrays are a very efficient way to store and package goods. They save space and help us know how many without counting by ones.



Find how many are in each picture. How did you find out?



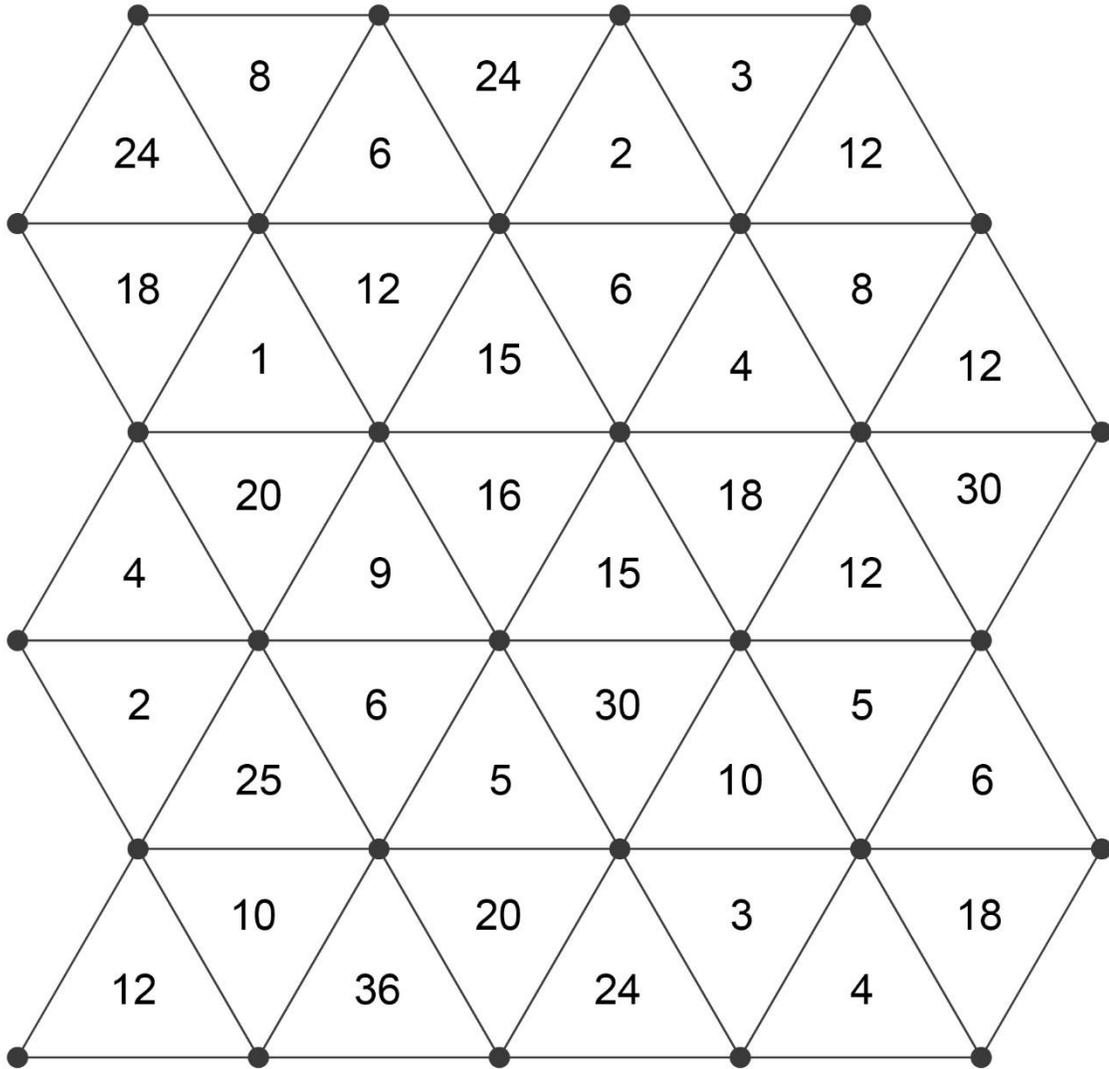
Lemons



The next time you are in a grocery store, take pictures of some arrays you see and share them with the class.

Master 16

# Multiplication Triangles Game Board



Master 17a

### Divide Me! Game Cards

2	3	4
5	6	8
9	10	12
15	16	18



Master 17b

### Divide Me! Game Cards

20	24	25
30	36	12
18	20	30
6	24	15



## ***Multiplication Squares*** Instructions

**Group size:** 2

**Materials:**

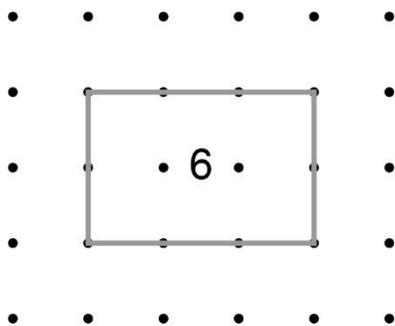
- Student Card 17A: Multiplication Squares
- 2 number cubes, labelled 1–6
- 2 dry-erase markers (different colours)

**Instructions:**

Take turns rolling the number cubes and drawing a matching array on the grid.

Write the product inside the array.

For example, if you roll a 2 and a 3, you can draw an array of 2 rows of 3 squares, or 3 rows of 2 squares.



Continue to take turns until one of you runs out of room and cannot draw an array.

The other player wins.

**Note:** Arrays cannot overlap.

## Multiplication Triangles Instructions

**Group size:** 2

**Materials:**

- Master 16: *Multiplication Triangles* Game Board
- 2 number cubes, labelled 1–6
- 2 markers (different colours)

**Goal:** To make more triangles

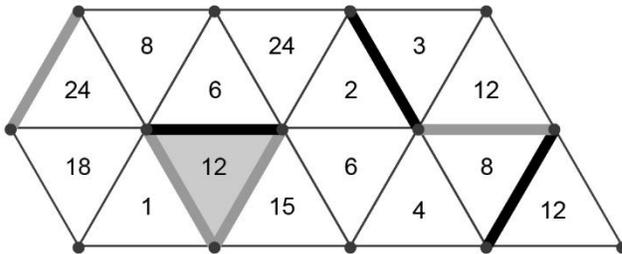
**Instructions:**

Take turns to roll the number cubes and multiply the numbers.

Look for the answer on the board.

Connect any two dots to form a side of the triangle.

When you draw a line that closes a triangle, colour the triangle with your marker. Take another turn.



When all dots have been connected, the player with more triangles coloured wins.

## ***Divide Me!* Instructions**

**Group size:** 2

**Materials:**

- Master 17: *Divide Me!* Game Cards
- Number cube, labelled 1–6

**Goal:** To be the first to have no cards left in your hand

**Instructions:**

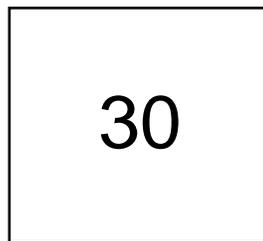
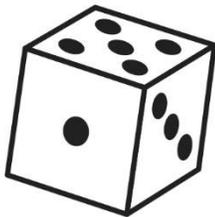
Deal 6 cards each.

Place the remaining cards, face down, in a pile.

**Player A:** Roll the number cube.

Find a number in your hand that can be divided into groups of that size (with no leftovers).

If you find a card, say the division sentence, then place the card on the table.



$$30 \div 5 = 6$$

If you can't find a card, take a card from the pile.

**Player B:** Take a turn.

Continue to take turns until one of you has no cards left in your hand.

Name \_\_\_\_\_ Date \_\_\_\_\_

Master 21

# My Savings Account

## Savings Goal

I want to help (describe the project)

---

because (describe your reason)

---

My goal is to raise \$ \_\_\_\_\_ for this project (financial goal).

Earn (Add)	Pay (Subtract)	Amount
		\$25

Name \_\_\_\_\_ Date \_\_\_\_\_

Master 22a

# My Financial Plan

I chose \$100 as my financial goal because

---

---

Show three jobs you could do to earn a total of about \$100.  
Write the amount earned for each job.

\$ _____	\$ _____	\$ _____

Show the amount earned for each job in two different ways.

--	--	--

Name \_\_\_\_\_ Date \_\_\_\_\_

Master 22b

## My Financial Plan

How could you deposit the money into your account?

Add the amounts earned in two different ways to prove that you reached your financial goal.

After reaching your goal, you make a \$27 purchase.

How much money is left in your account now?

Show two ways you could use coins and bills to pay for the purchase.

**Master 23**

## Connections: Canadian Coins—Did You Know?

<p style="text-align: center;"><b>Toonie (2 dollars)</b></p>  <ul style="list-style-type: none"> <li>- replaced paper \$2 bill in 1996</li> <li>- a two-colour coin</li> <li>- picture of polar bear</li> <li>- issued special toonie in 2008 to recognize the 400th anniversary of Quebec City</li> </ul>	<p style="text-align: center;"><b>Loonie (1 dollar)</b></p>  <ul style="list-style-type: none"> <li>- replaced paper \$1 bill in 1987</li> <li>- picture of a loon, the national bird of Canada</li> <li>- issued special loonie in 2005 to honour Terry Fox</li> </ul>	<p style="text-align: center;"><b>Quarter (25 cents)</b></p>  <ul style="list-style-type: none"> <li>- worth one quarter of a dollar</li> <li>- picture of a caribou, one of Canada's most recognizable animals</li> <li>- issued poppy quarter in 2004 in honour of Remembrance Day</li> </ul>
<p style="text-align: center;"><b>Dime (10 cents)</b></p>  <ul style="list-style-type: none"> <li>- smallest coin by size</li> <li>- has picture of a famous Canadian sailboat, the Bluenose</li> <li>- issued special dime in 2001 to honour the millions of Canadians who volunteer to help others</li> </ul>	<p style="text-align: center;"><b>Nickel (5 cents)</b></p>  <ul style="list-style-type: none"> <li>- was originally made from nickel</li> <li>- has picture of a beaver, an official symbol of Canada</li> <li>- issued Victory nickel in 2005 to remember 60 years since end of World War II</li> </ul>	<p style="text-align: center;"><b>Penny (1 cent)</b></p>  <ul style="list-style-type: none"> <li>- stopped being used in 2013</li> <li>- cost more than 1 cent to make</li> <li>- picture of maple leaves</li> <li>- until 1996, the penny had 12 sides so it was easier for people with vision problems to identify it</li> </ul>

Look for examples of some of these coins in your piggy bank.  
 Did you find any of the special coins?  
 Design a coin of your choice to honour or celebrate a special event.  
 Explain why you chose the design you did.

# What's My Pattern?

## Representation Cards

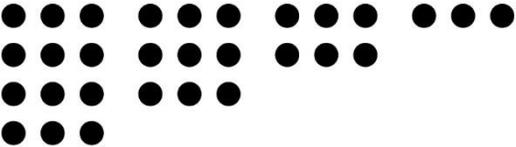
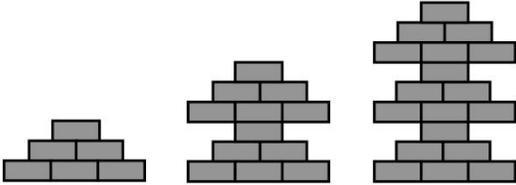
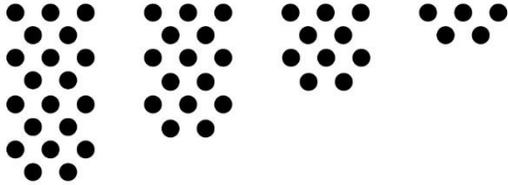
Use a number line.	Use a hundred chart.
Draw a picture.	Use linking cubes or Base Ten Blocks. 

## Number Pattern Cards

44, 40, 36, ...	100, 95, 90, ...
1, 4, 7, ....	20, 26, 32, ...
12, 10, 8, ...	17, 20, 24, 29, ... 

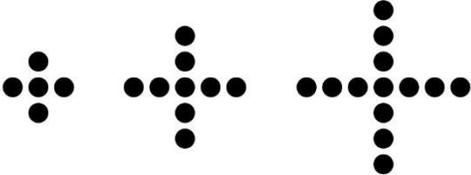
Master 25a

# Fun Day! Patterning Cards (M)

<p><b>M</b></p> <p>What is the pattern rule?</p> 	<p><b>M</b></p> <p>What is the pattern rule?</p> 
<p><b>M</b></p> <p>What is the pattern rule?</p> 	<p><b>M</b></p> <p>What is the pattern rule?</p> <p>100, 98, 96, 94, ...</p>
<p><b>M</b></p> <p>Use this rule to create a pattern.</p> <p>Start at 27 and add 5 each time.</p>	<p><b>M</b></p> <p>Use this rule to create a pattern.</p> <p>Start at 31 and take away 3 each time.</p> 

Master 25b

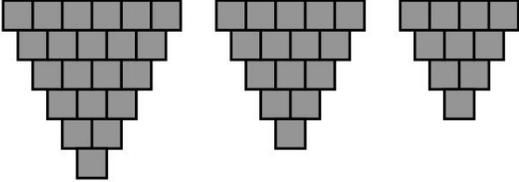
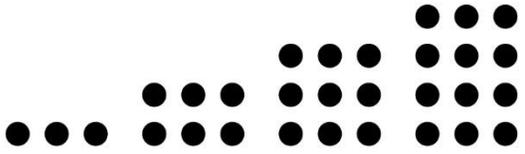
# Fun Day! Patterning Cards (M)

<p><b>M</b></p> <p>Use this rule to create a pattern.</p> <p>Start at 1 and add 6 each time.</p>	<p><b>M</b></p> <p>Use this rule to create a pattern.</p> <p>Start at 335 and take away 9 each time.</p>
<p><b>M</b></p> <p>Show this pattern another way.</p> 	<p><b>M</b></p> <p>Show this pattern another way.</p> 
<p><b>M</b></p> <p>Show this pattern another way.</p> <p>545, 547, 549, 551, ...</p>	<p><b>M</b></p> <p>Show this pattern another way.</p> <p>87, 83, 79, 75, ...</p>



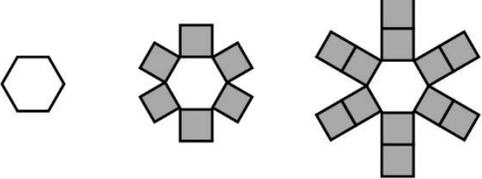
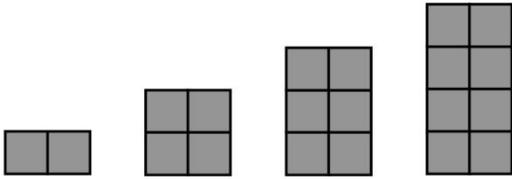
Master 25c

# Fun Day! Patterning Cards (P)

<p><b>P</b></p> <p>Extend the pattern by 2 more terms.</p> <p>200, 196, 192, 188, ...</p>	<p><b>P</b></p> <p>Extend the pattern by 2 more terms.</p> <p>113, 116, 119, 122, ...</p>
<p><b>P</b></p> <p>Extend the pattern by 2 more terms.</p> <p>35, 29, 23, 17, ...</p>	<p><b>P</b></p> <p>Extend the pattern by 2 more terms.</p> <p>5, 10, 15, 20, ...</p>
<p><b>P</b></p> <p>Extend the pattern by 2 more terms.</p> 	<p><b>P</b></p> <p>Extend the pattern by 2 more terms.</p> 

Master 25d

# Fun Day! Patterning Cards (P)

<p><b>P</b></p> <p>Extend the pattern by 2 more terms.</p> 	<p><b>P</b></p> <p>Extend the pattern by 2 more terms.</p> 
<p><b>P</b></p> <p>Find the missing term.</p> <p>6, 11, 16, 21, 31, 36, ...</p>	<p><b>P</b></p> <p>Find the missing term.</p> <p>303, 300, 297, 291, 288, ...</p>
<p><b>P</b></p> <p>Find and correct the error.</p> <p>120, 129, 138, 146, 156, ...</p>	<p><b>P</b></p> <p>Find and correct the error.</p> <p>48, 40, 32, 25, 16, 8, ...</p>



Master 25e

## Fun Day! Patterning Cards (P) (ON only)

<p><b>P</b></p> <p style="text-align: center;">Extend the pattern by 2 more terms.</p> <p style="text-align: center; margin-top: 20px;">6, 12, 18, 24, ...</p>	<p><b>P</b></p> <p style="text-align: center;">Extend the pattern by 2 more terms.</p> <p style="text-align: center; margin-top: 20px;">1, 2, 4, 8, ...</p>																						
<p><b>P</b></p> <p style="text-align: center;">Extend the pattern by 2 more terms</p> <div style="text-align: center; margin-top: 10px;"> </div>	<p><b>P</b></p> <p style="text-align: center;">Find the missing term.</p> <table border="1" style="margin: 10px auto; border-collapse: collapse;"> <tr> <td style="padding: 5px;"><b>Input</b></td> <td style="padding: 5px;">2</td> <td style="padding: 5px;">3</td> <td style="padding: 5px;">4</td> <td style="padding: 5px;">5</td> <td style="padding: 5px;">6</td> </tr> <tr> <td style="padding: 5px;"><b>Output</b></td> <td style="padding: 5px;">6</td> <td style="padding: 5px;">9</td> <td style="padding: 5px;">12</td> <td style="padding: 5px;"></td> <td style="padding: 5px;">18</td> </tr> </table>	<b>Input</b>	2	3	4	5	6	<b>Output</b>	6	9	12		18										
<b>Input</b>	2	3	4	5	6																		
<b>Output</b>	6	9	12		18																		
<p><b>P</b></p> <p style="text-align: center;">Find the missing term.</p> <table border="1" style="margin: 10px auto; border-collapse: collapse;"> <tr> <td style="padding: 5px;"><b>Input</b></td> <td style="padding: 5px;">1</td> <td style="padding: 5px;">2</td> <td style="padding: 5px;">3</td> <td style="padding: 5px;">4</td> <td style="padding: 5px;">5</td> </tr> <tr> <td style="padding: 5px;"><b>Output</b></td> <td style="padding: 5px;">5</td> <td style="padding: 5px;"></td> <td style="padding: 5px;">15</td> <td style="padding: 5px;">20</td> <td style="padding: 5px;">25</td> </tr> </table>	<b>Input</b>	1	2	3	4	5	<b>Output</b>	5		15	20	25	<p><b>P</b></p> <p style="text-align: center;">What is the pattern rule?</p> <table border="1" style="margin: 10px auto; border-collapse: collapse;"> <tr> <td style="padding: 5px;"><b>Input</b></td> <td style="padding: 5px;">2</td> <td style="padding: 5px;">3</td> <td style="padding: 5px;">4</td> <td style="padding: 5px;">5</td> </tr> <tr> <td style="padding: 5px;"><b>Output</b></td> <td style="padding: 5px;">2</td> <td style="padding: 5px;">3</td> <td style="padding: 5px;">4</td> <td style="padding: 5px;">5</td> </tr> </table>	<b>Input</b>	2	3	4	5	<b>Output</b>	2	3	4	5
<b>Input</b>	1	2	3	4	5																		
<b>Output</b>	5		15	20	25																		
<b>Input</b>	2	3	4	5																			
<b>Output</b>	2	3	4	5																			
<p><b>P</b></p> <p style="text-align: center;">What is the pattern rule?</p> <p style="text-align: center; margin-top: 20px;">1, 3, 9, 27, ...</p>	<p><b>P</b></p> <p style="text-align: center;">What is the pattern rule?</p> <table border="1" style="margin: 10px auto; border-collapse: collapse;"> <tr> <td style="padding: 5px;"><b>Input</b></td> <td style="padding: 5px;">1</td> <td style="padding: 5px;">2</td> <td style="padding: 5px;">3</td> <td style="padding: 5px;">4</td> </tr> <tr> <td style="padding: 5px;"><b>Output</b></td> <td style="padding: 5px;">4</td> <td style="padding: 5px;">8</td> <td style="padding: 5px;">12</td> <td style="padding: 5px;">16</td> </tr> </table> <div style="text-align: right; margin-top: 10px;">✂</div>	<b>Input</b>	1	2	3	4	<b>Output</b>	4	8	12	16												
<b>Input</b>	1	2	3	4																			
<b>Output</b>	4	8	12	16																			

Master 26

## Connections: Vyshyvanka

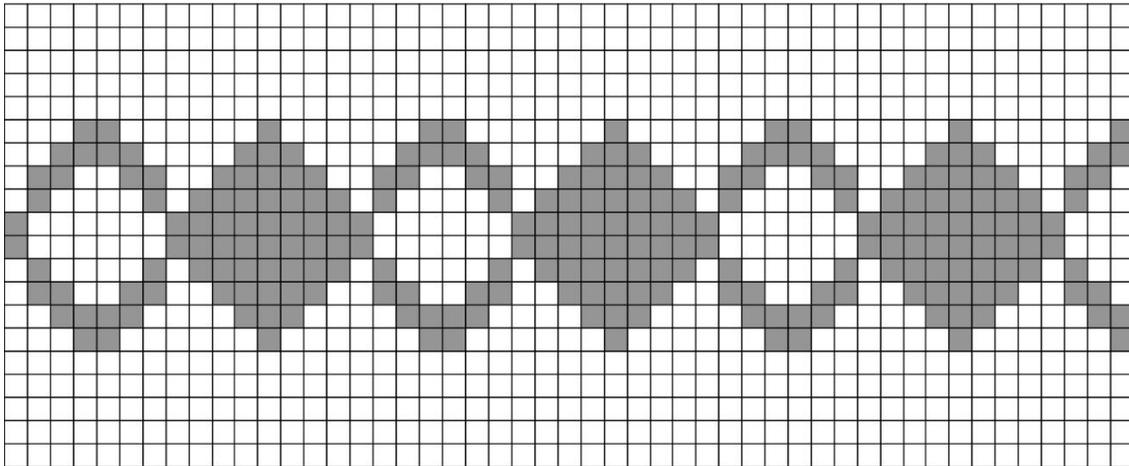
*Vyshyvanka* is the Ukrainian name for embroidered shirt.



Ukrainian embroidery often contains hidden meanings.

When people embroider shirts or blouses for others, they include symbols that are meant to protect them or bring good luck.

What increasing or decreasing pattern do you see in the stitches?



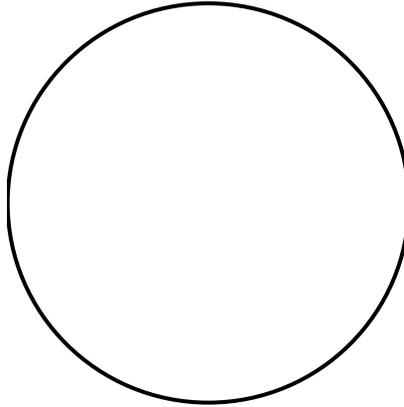
Copy the pattern on a grid.  
What is the pattern rule?

Do some research to learn about the meaning of different symbols in this type of embroidery.

Master 27a

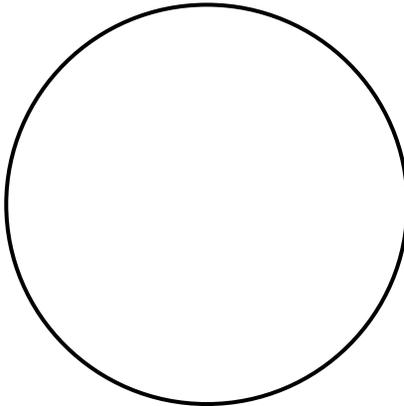
# Sneaky Swap

Result

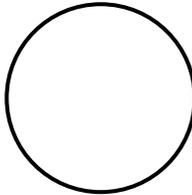


||

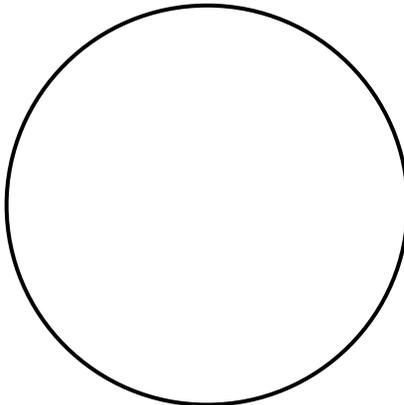
Change



+ or -



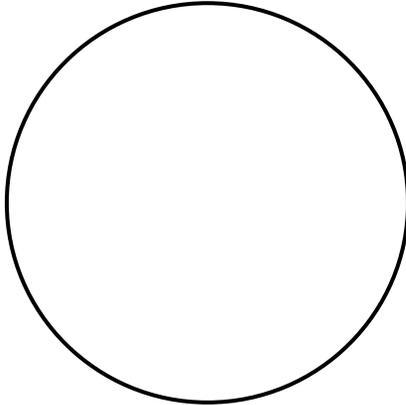
Start



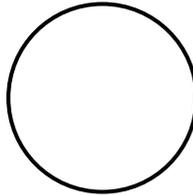
Master 27b

# Sneaky Swap

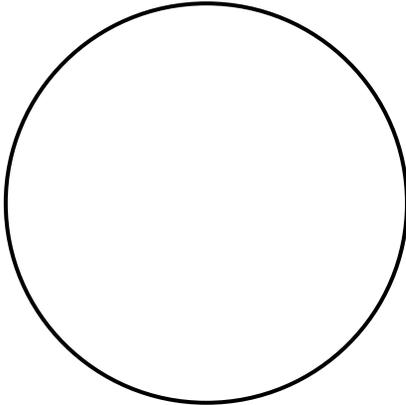
Change



+ or -

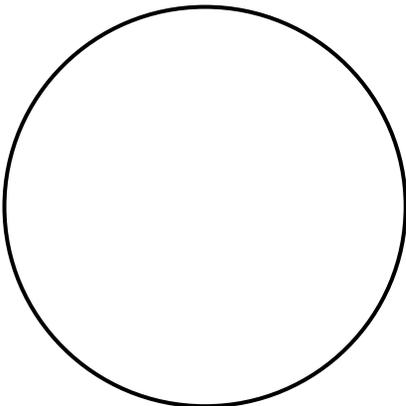


Start



=

Result



Master 28a

# 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.

$$\underline{\hspace{2cm}} + \underline{\hspace{2cm}} + \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$$

$$\underline{\hspace{2cm}} + \underline{\hspace{2cm}} + \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$$

Master 28b

# Adding Lengths

## Part 2

<b>Object:</b> _____	
Measure 1	_____ cm
Measure 2	_____ cm

Write an equation to find the total length of the object.

	+		=	
--	---	--	---	--

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

$$\underline{\hspace{2cm}} + \underline{\hspace{2cm}} + \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$$

$$\underline{\hspace{2cm}} + \underline{\hspace{2cm}} + \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$$

Master 29a

## Equation Cards

$20 + \square = 32$	$25 - 4 = 15 + \star$	$35 + \star = 47$	$56 - 21 = \star$
$\blacktriangle + 33 = 41$	$\blacktriangle - 18 = 28$	$17 + 33 = \heartsuit$	$52 - 21 = \heartsuit$
$37 - \triangle = 15$	$\triangle = 37 - 29$	$\square = 49 - 27$	$37 + \square = 43$
$27 + \blacksquare = 46$	$22 - 2 = \blacksquare - 5$	$19 = \star - 22$	$\star + 21 = 29$



Master 29b

## Equation Cards

$32 - 11 = \heartsuit$

$\heartsuit - 29 = 17$

$\blacktriangle - 16 = 13$

$24 + 5 = \blacktriangle - 5$

$\square - 23 = 17$

$\star + 21 = 36$

$\heartsuit - 5 = 18 - 2$

$24 - \blacksquare = 8$

$14 + 15 = \triangle$



Master 29c

**Equation Cards (Accommodations)**

$8 + \blacksquare = 9$	$15 - \square = 6$	$5 + 3 = \heartsuit$	$12 - 9 = \blacktriangle$
$\triangle + 6 = 13$	$\star - 8 = 2$	$\blacksquare = 14 - 8$	$\square = 2 + 4$
$15 - \heartsuit = 10$	$\blacktriangle = 13 - 9$	$14 - \triangle = 11$	$16 = \star + 9$
$9 = \blacktriangle - 1$	$10 - \square = 7$	$7 = 12 - \heartsuit$	$8 + \blacksquare = 8$



Name \_\_\_\_\_ Date \_\_\_\_\_

Master 30a

## Four in a Row Game Board

Write one of these numbers in each space of the game board.  
The numbers can be in any order.

6, 6, 8, 8, 8, 12, 12, 15, 16, 19, 21, 21, 22, 22,  
25, 29, 29, 31, 34, 35, 40, 41, 46, 46, 50


Name \_\_\_\_\_ Date \_\_\_\_\_

Master 30b

## Three in a Row Game Board

Write one of these numbers in each space of the game board.  
The numbers can be in any order.

0, 1, 3, 3, 3, 4, 5, 5, 6, 6, 7, 7, 8, 9, 10, 10


**Master 31a**

**Connections: Balance Puzzles**

Do you like to do puzzles?

Have you ever tried a balance puzzle?

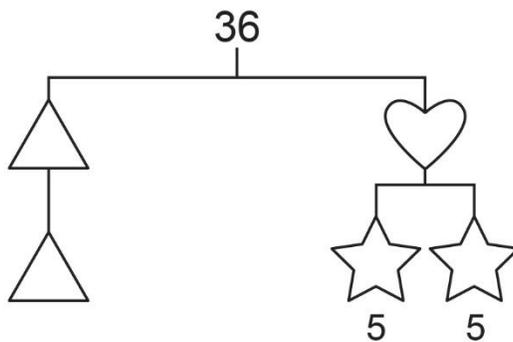
When things are balanced, the quantities on both sides are equal.

What do you know about the shapes on this pan balance?



A triangle has a mass equal to one-half the mass of a square.

What do you know about the shapes on this balance mobile?



The whole mobile represents 36.

What does each side represent?

Find what each shape represents, given that a star is 5.

## Master 31b

**Connections: Balance Puzzles**

Solve this puzzle.

$$\text{Soccer Ball} + \text{Soccer Ball} + \text{Soccer Ball} = 15$$

$$\text{Soccer Ball} + \text{Basketball} + \text{Basketball} = 21$$

$$\text{Basketball} + \text{Football} = 20$$

$$\text{Soccer Ball} + \text{Basketball} + \text{Football} = ?$$

Try making a balance puzzle of your own.  
Then trade puzzles with a classmate and solve each other's puzzles.

**Master 32**

# Connections: Patterns in Nature

We often think of a pattern as something that repeats again and again in the same way.



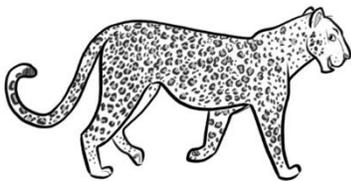
In nature, patterns can be found everywhere, including on animals, plants, and in the sky.

A zebra's stripes form a pattern, although no two stripes are exactly the same.

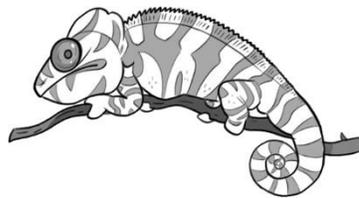


**Zebra**

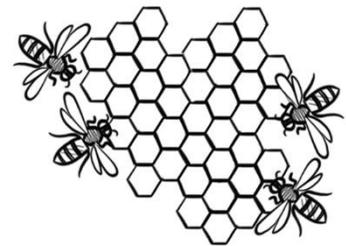
What patterns do you see?



**Leopard**



**Chameleon**



**Honeycomb**

Look around you. What patterns do you see?

Name \_\_\_\_\_ Date \_\_\_\_\_

Master 33

# ***Our Pattern Recording Sheet***

Circle two attributes to change.

Shape Size Colour Thickness Orientation

Pattern for first attribute: \_\_\_\_\_

\_\_\_\_\_

Pattern for second attribute: \_\_\_\_\_

\_\_\_\_\_

Pattern core: \_\_\_\_\_

\_\_\_\_\_

Core with letters: \_\_\_\_\_

Our pattern:

Master 34

## Estimating Length

Measure	Personal Referent
1 cm	
10 cm	
1 m	

Use your personal referents.  
Estimate each measure.

Object	Referent Used	Estimate
Height of a water bottle		
Height of a desk		
Width of an eraser		
Width of the whiteboard		
Length of a paper clip		
Height of classroom door		
Length of a square Pattern Block		
Width of a sheet of paper		
Width of classroom		
Your choice _____		

Master 35

## How Long Is It?

### Part A: How Long Is the String?

Rod or Cube Used	Length of Rod or Cube (cm)	Length of String (cm)

Is the string 1 m long? \_\_\_\_\_

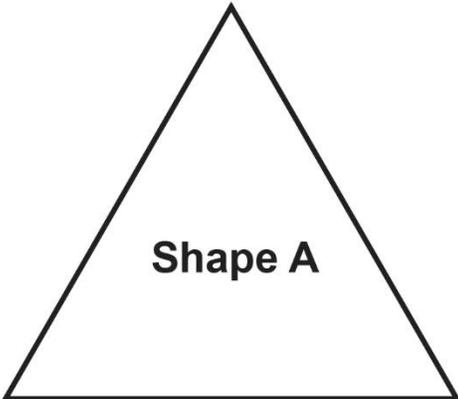
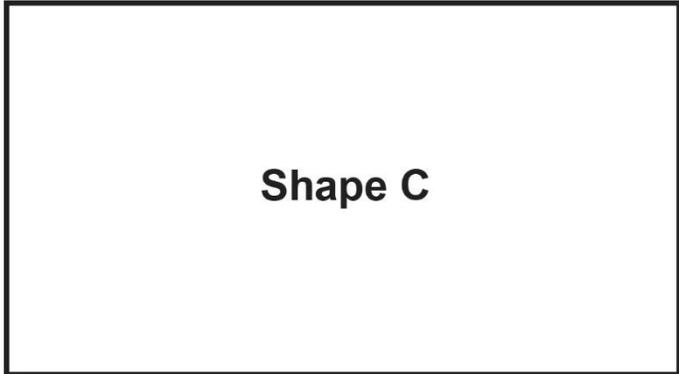
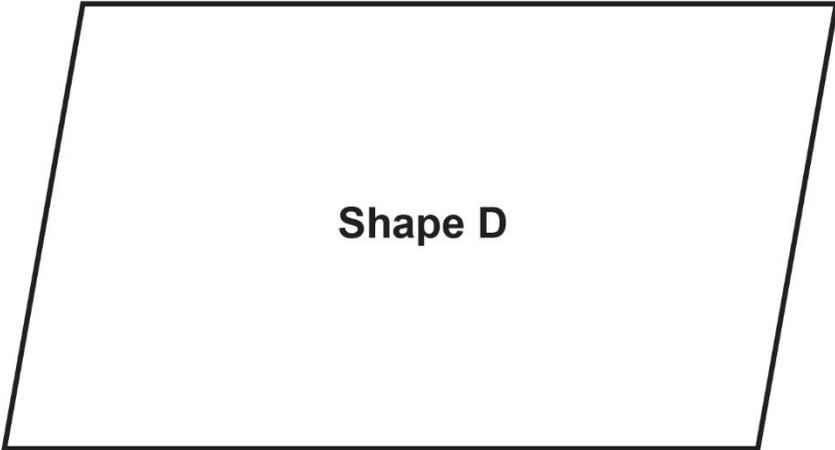
How do you know? \_\_\_\_\_

### Part B: How Long Is It?

Object	Estimate	Measure
Width of the door		
Height of the window		
Width of the classroom		
Length of the table		
Length of the whiteboard		
Length of the carpet		
Your choice _____		

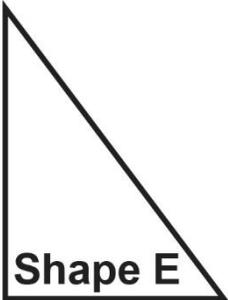
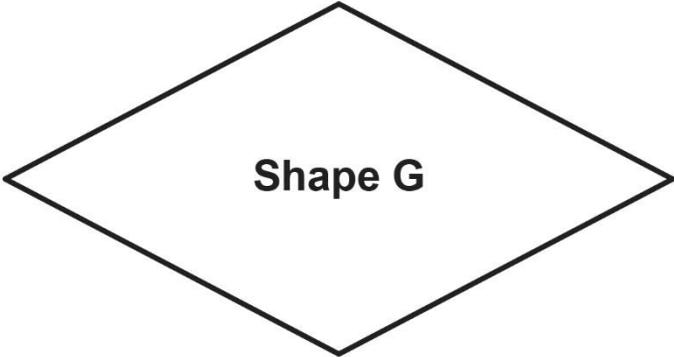
**Master 36a**

# 2-D Shapes

Master 36b

## 2-D Shapes

 <p>Shape E</p>	 <p>Shape F</p>
 <p>Shape G</p>	
 <p>Shape H</p>	

Name \_\_\_\_\_ Date \_\_\_\_\_

Master 37

### 3-D Objects Recording Sheet

<b>Height</b>			
<b>Width</b>			
<b>Length</b>			
<b>Object</b>			

Name \_\_\_\_\_ Date \_\_\_\_\_

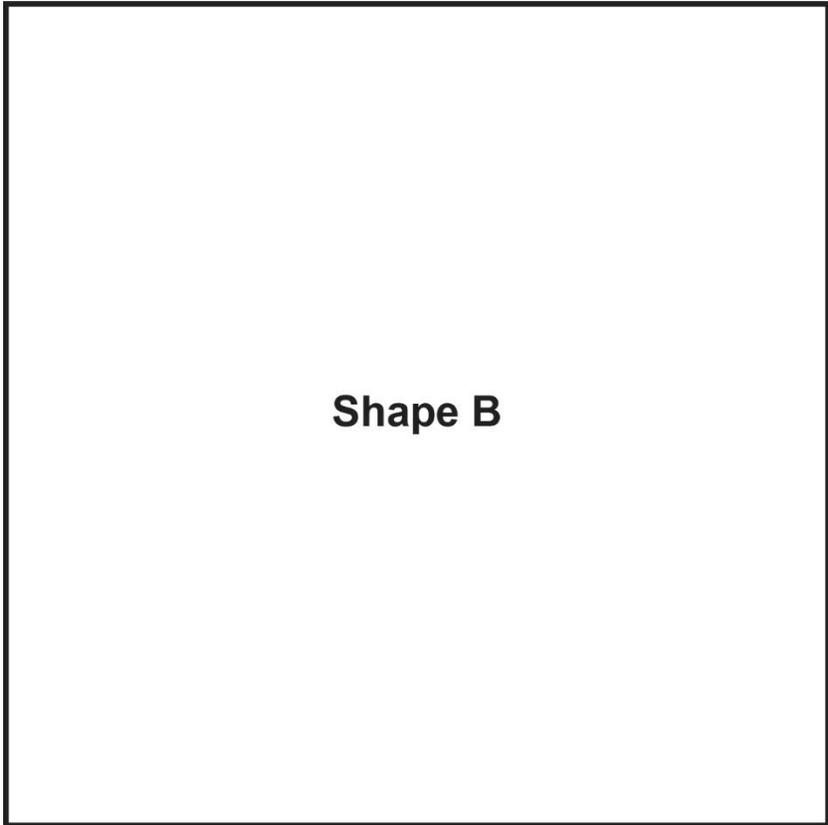
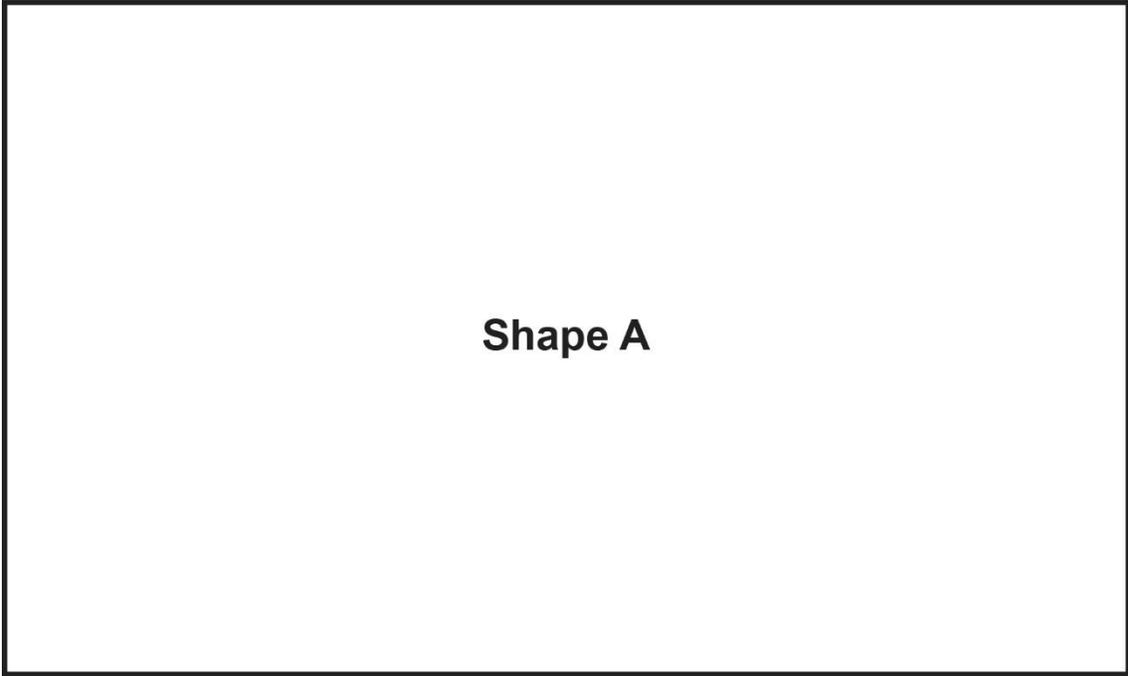
Master 38

# Distance Around

<b>Measure</b>				
<b>Estimate</b>				
<b>Measuring Unit</b>				
<b>Item</b>				

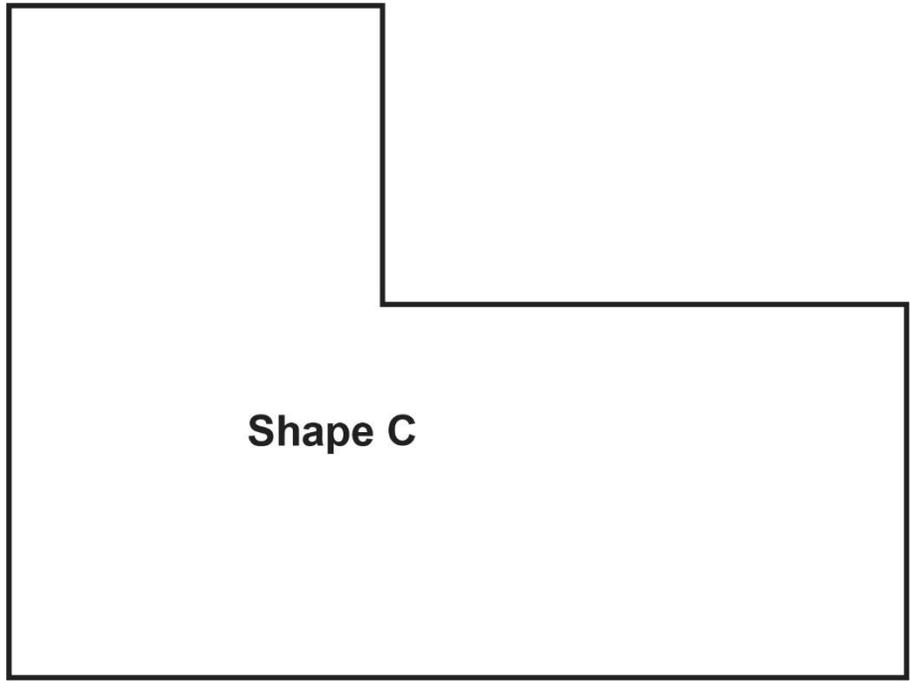
Master 39a

# Perimeter Shapes



Master 39b

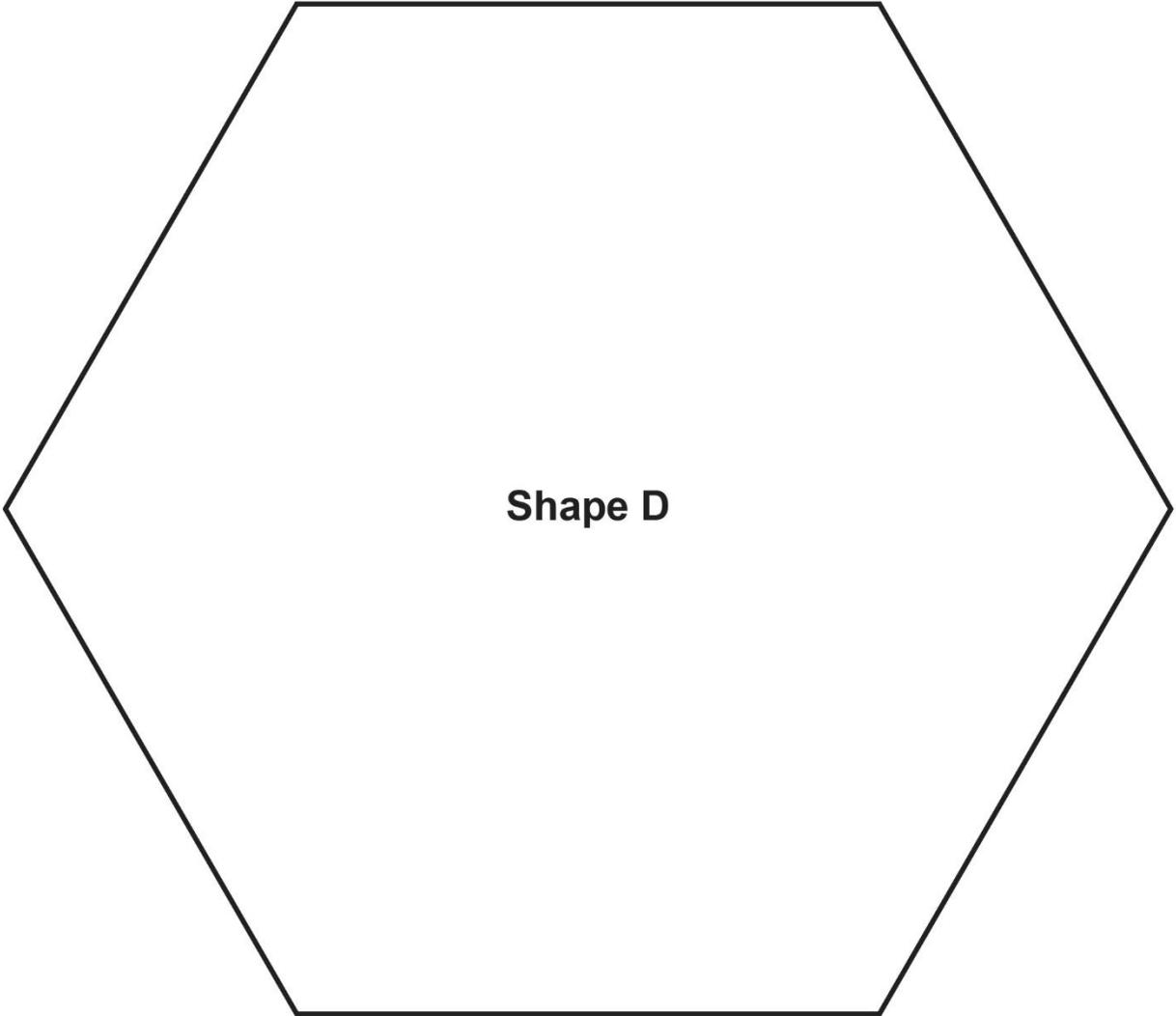
# Perimeter Shapes



Name \_\_\_\_\_ Date \_\_\_\_\_

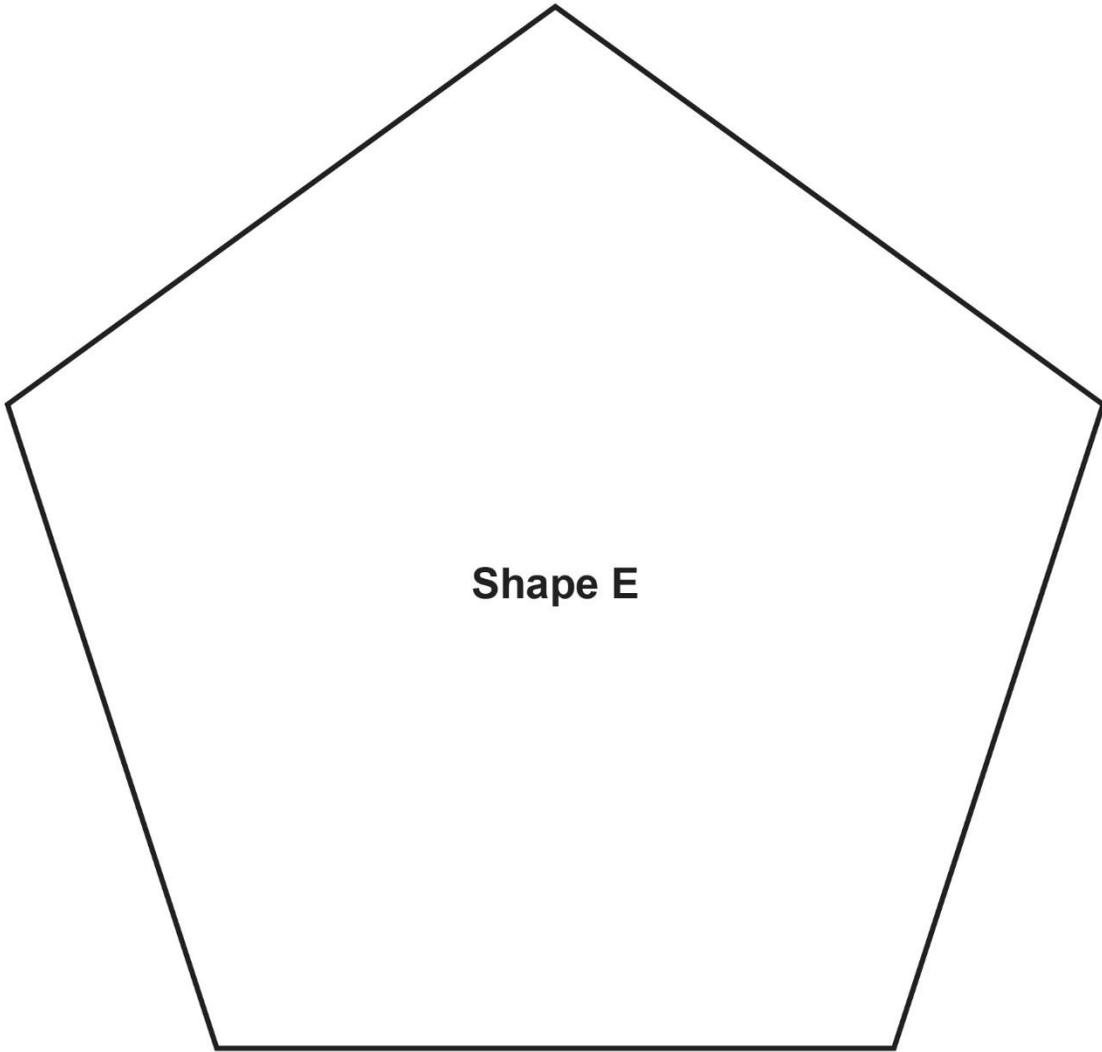
Master 39c

# Perimeter Shapes



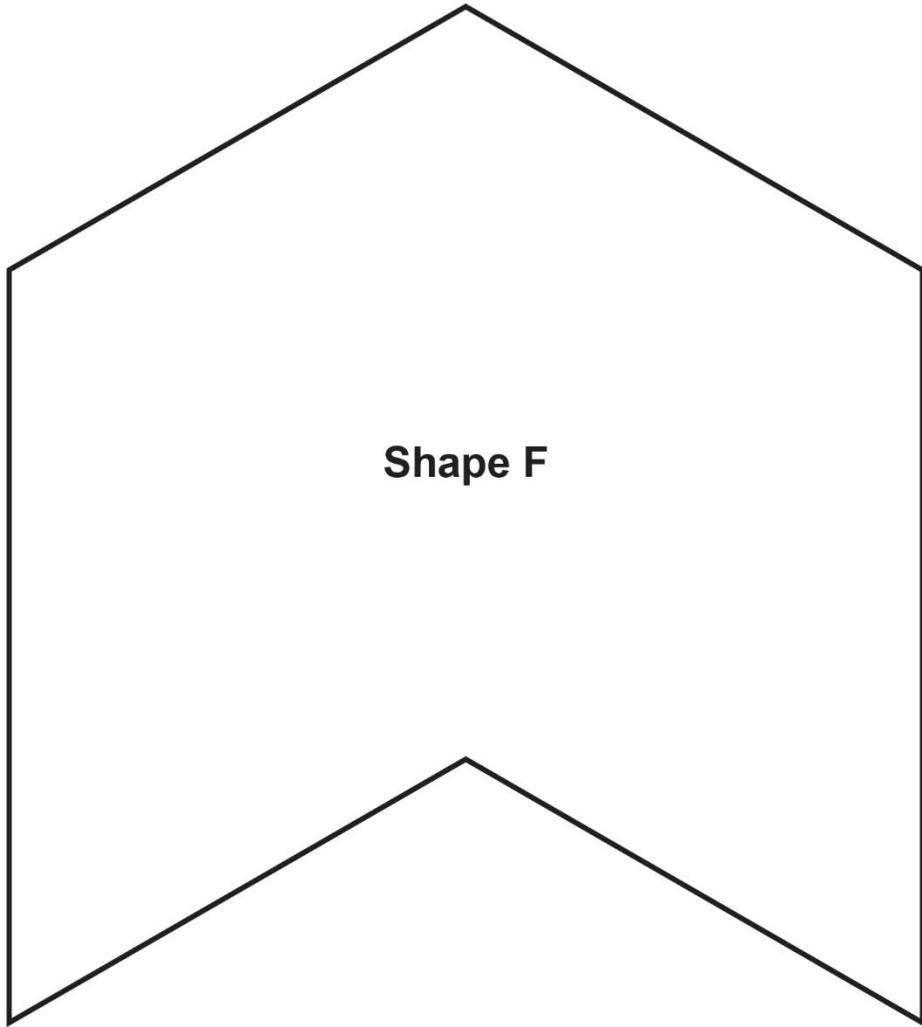
Master 39d

# Perimeter Shapes



Master 39e

# Perimeter Shapes



## Instructions for Centres

### Length Centre

#### Task A: Estimating and Measuring Length

- Find an object whose length you would measure in centimetres.  
Find another object whose length you would measure in metres.
- Estimate the length of each, then measure to check.
- How close were your estimates?  
Is either object more than 100 cm long? Explain.

#### Task B: Drawing Line Segments

- Roll the number cubes, then add the numbers rolled.
- Without using a ruler, each of you draw a line segment that you think is that many centimetres long.
- Measure each other's line segment to check.  
How close were your estimates?
- Use a ruler to draw a line segment of that length.

## Instructions for Centres

### Perimeter Centre

#### Task A: Estimating and Measuring Perimeter

- Roll the number cubes.  
Use the numbers rolled to make a two-digit number.  
Record the number.
- Find something in the classroom that has a perimeter of about that many centimetres.
- Measure to check.
- How close was your estimate to the actual measure?

#### Task B: Drawing Shapes with the Same Perimeter

- Roll the number cubes.  
Use one number for length and the other for width.
- Draw a rectangle on 1-cm grid paper with that length and width.  
Find its perimeter.
- Draw three more shapes with the same perimeter.

Master 41

## Connections: Neighbourhood Walk

When you walk around the outside of a park, a building, or a neighbourhood, you are walking around its perimeter.

Tristan and his mom walk around their neighbourhood every night after dinner.

Sometimes, they walk to the end of the street and turn left.

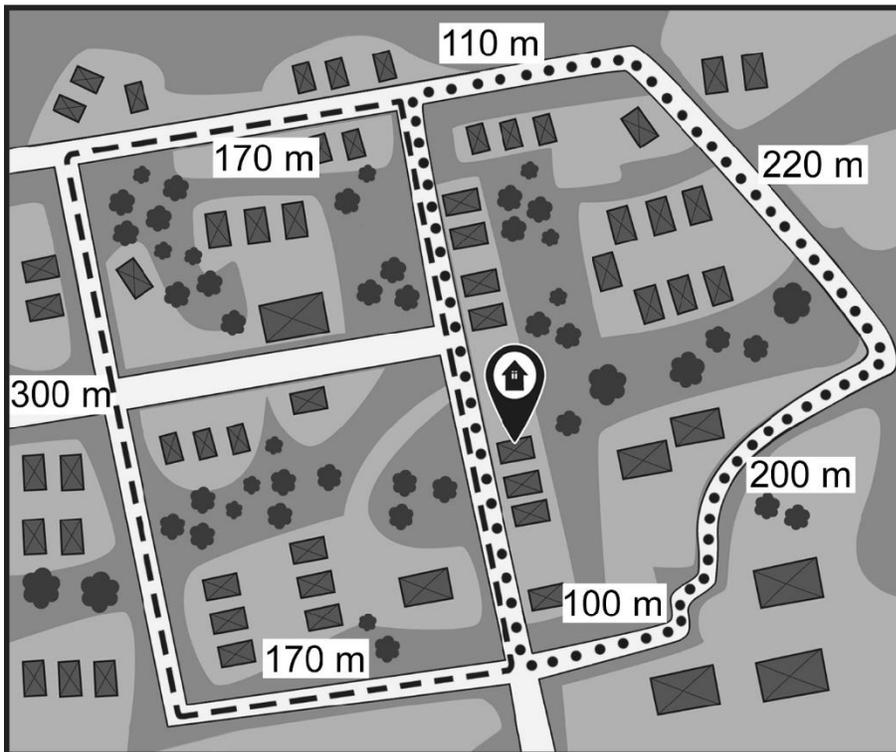
Sometimes, they turn right.

The two paths are shown on this map.

How far do they walk along each path?

Which path is longer?

How much longer is it?



Master 42a

# Go Fish! Cards

<b>1 day</b>	<b>24 hours</b>
<b>1 minute</b>	<b>60 seconds</b>
<b>1 year</b>	<b>12 months</b>
<b>2 days</b>	<b>48 hours</b>
<b>2 years</b>	<b>24 months</b>



**Master 42b**

# ***Go Fish! Cards***

<b>1 hour</b>	<b>60 minutes</b>
<b>1 week</b>	<b>7 days</b>
<b>2 weeks</b>	<b>14 days</b>
<b>2 hours</b>	<b>120 minutes</b>
<b>3 days</b>	<b>72 hours</b>



Master 42c

# Go Fish! Cards (For Extension)

<b>5 minutes</b>	<b>300 seconds</b>
<b>3 hours</b>	<b>180 minutes</b>
<b>5 hours</b>	<b>300 minutes</b>
<b>3 minutes</b>	<b>180 seconds</b>
<b>1 year</b>	<b>52 weeks</b>



Master 42d

# Go Fish! Cards (For Extension)

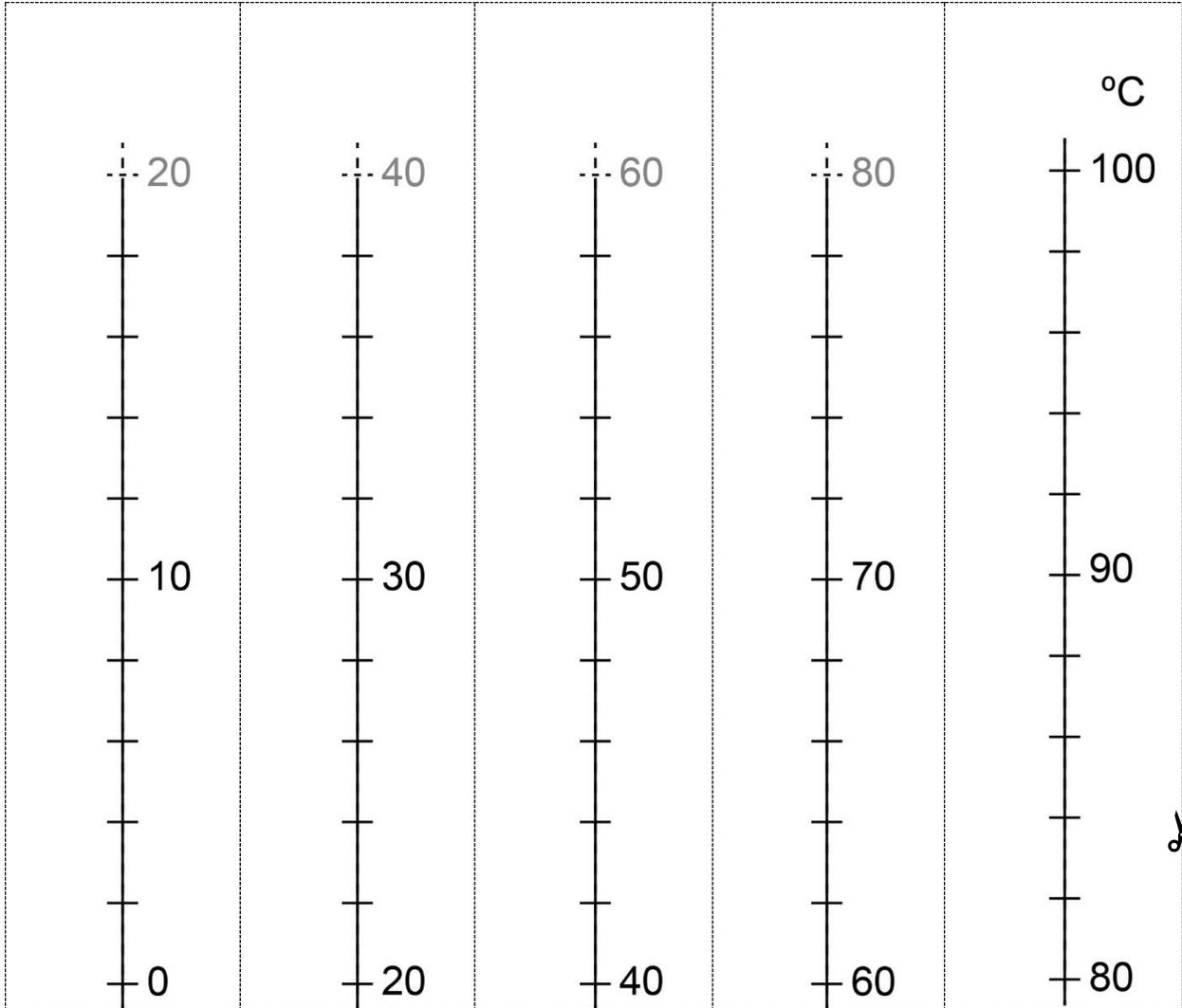
<b>2 years</b>	<b>24 months</b>
<b>8 weeks</b>	<b>56 days</b>





Master 44

# Number Line Thermometer



# Temperature Benchmark Cards

	<b>BOILING</b> Boiling water 100°C		<b>HOT</b> Hot drink 65°C
	<b>COOL</b> Lake water for swimming 20°C		<b>WARM</b> Swimming pool water 28°C
	<b>COLD</b> Cold lake water 10°C		<b>FREEZING</b> Ice 0°C
	<b>HOT</b> Summer day 25°C		<b>VERY HOT</b> Heat wave 35°C
	<b>WARM</b> Spring day 20°C		<b>WARM</b> Room temperature 20°C
	<b>COOL</b> Fall day 10°C		<b>COLD</b> Cold day 0°C
	<b>Healthy body</b> temperature 37°C		<b>Fever</b> 39°C

Master 46

## Connections: Life as a Tree!

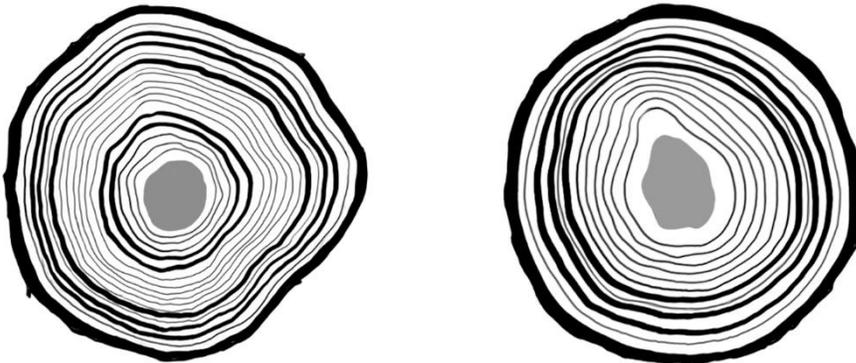
As a tree grows, it adds one growth ring each year.  
Some trees live to be hundreds of years old.



The older rings are at the centre of the tree.  
The newer rings are at the outside, near the bark.

Thicker rings tell us growing conditions were good.  
Thinner rings tell us growing conditions were poor.

Look at these tree trunks.



- Which tree is older?  
How much older?
- Which rings show good growing years?  
Which rings show years that were not so good?
- Do you think these trees grew in the same area? Explain.

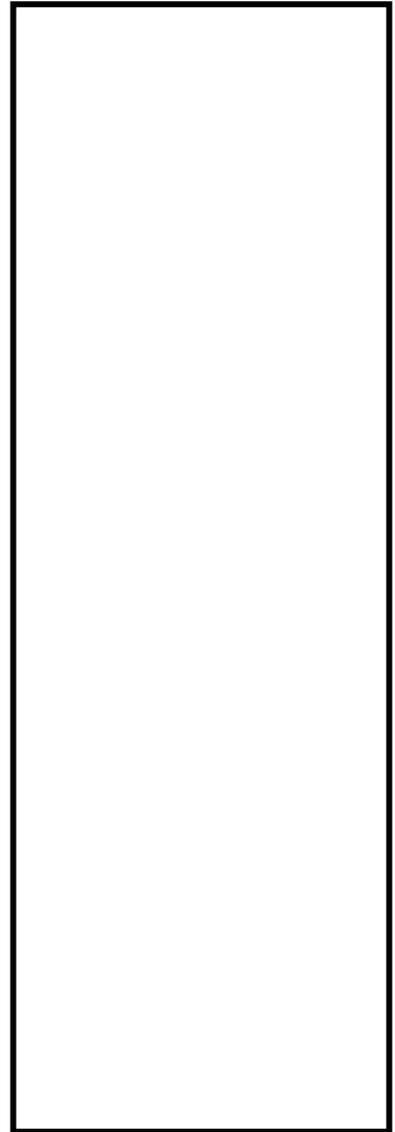
Master 47

# Paper Rectangles

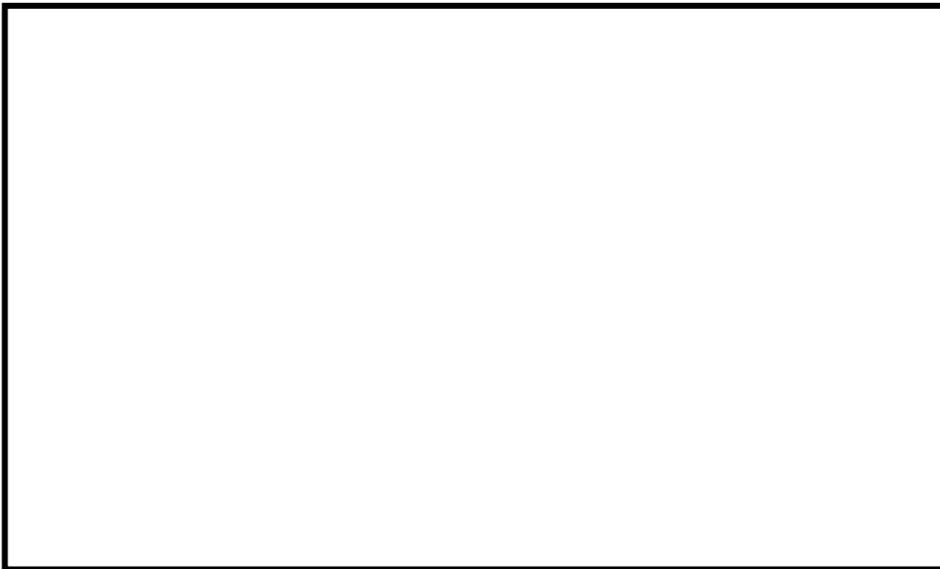
A



B



C



Name \_\_\_\_\_ Date \_\_\_\_\_

Master 48

# Let's Measure It!

Measuring:    Mass                    Capacity                    <circle one>

Item	Estimate	Actual Measure

Order from least to greatest:

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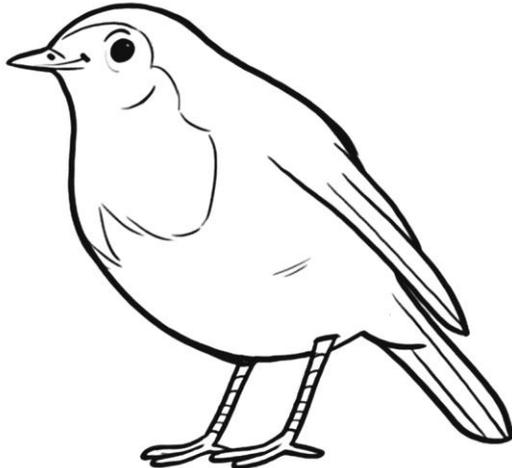
---

### Connections: Park News

A hummingbird and robin are spotted.  
The hummingbird has a mass of 4 g.



What might the mass of the robin be?



#### Lost and Found

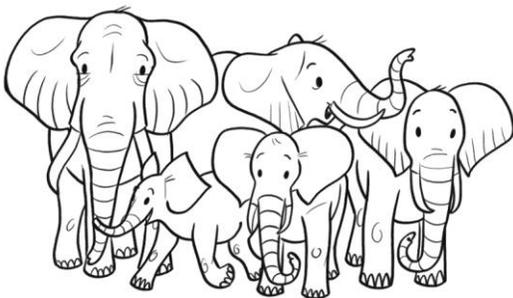
Water bottles are left behind  
in a picnic area.



The black bottle has a  
capacity of 2 L.

How much might each of  
the other bottles hold?

Annie returns from an African safari and  
shares this image.



The largest elephant has a mass of 6000 kg.  
What might the mass of each of the other  
elephants be?

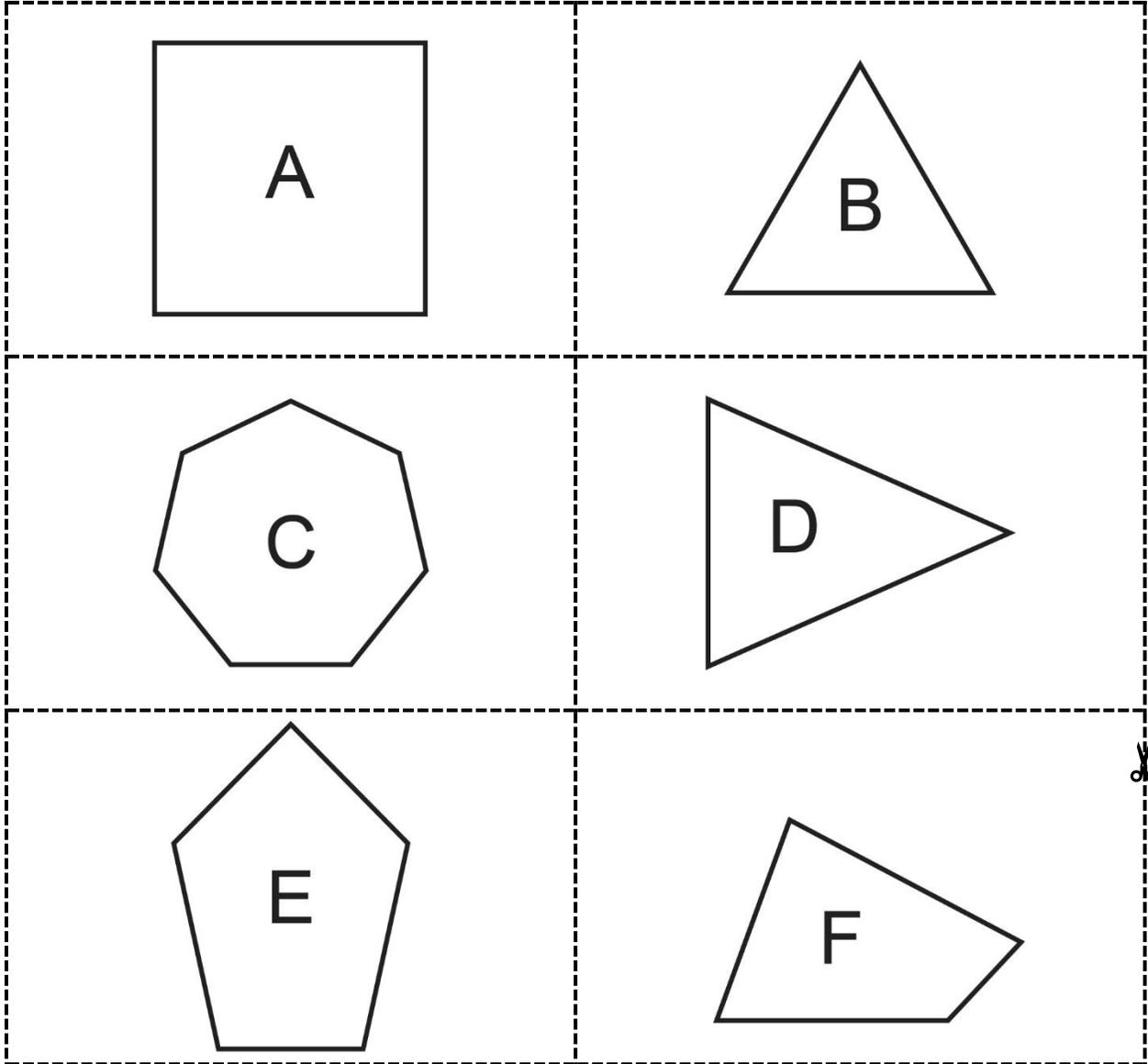
#### Fun Fact

An African elephant has  
about 450 L of blood.

Research how much  
blood other animals have,  
including you!

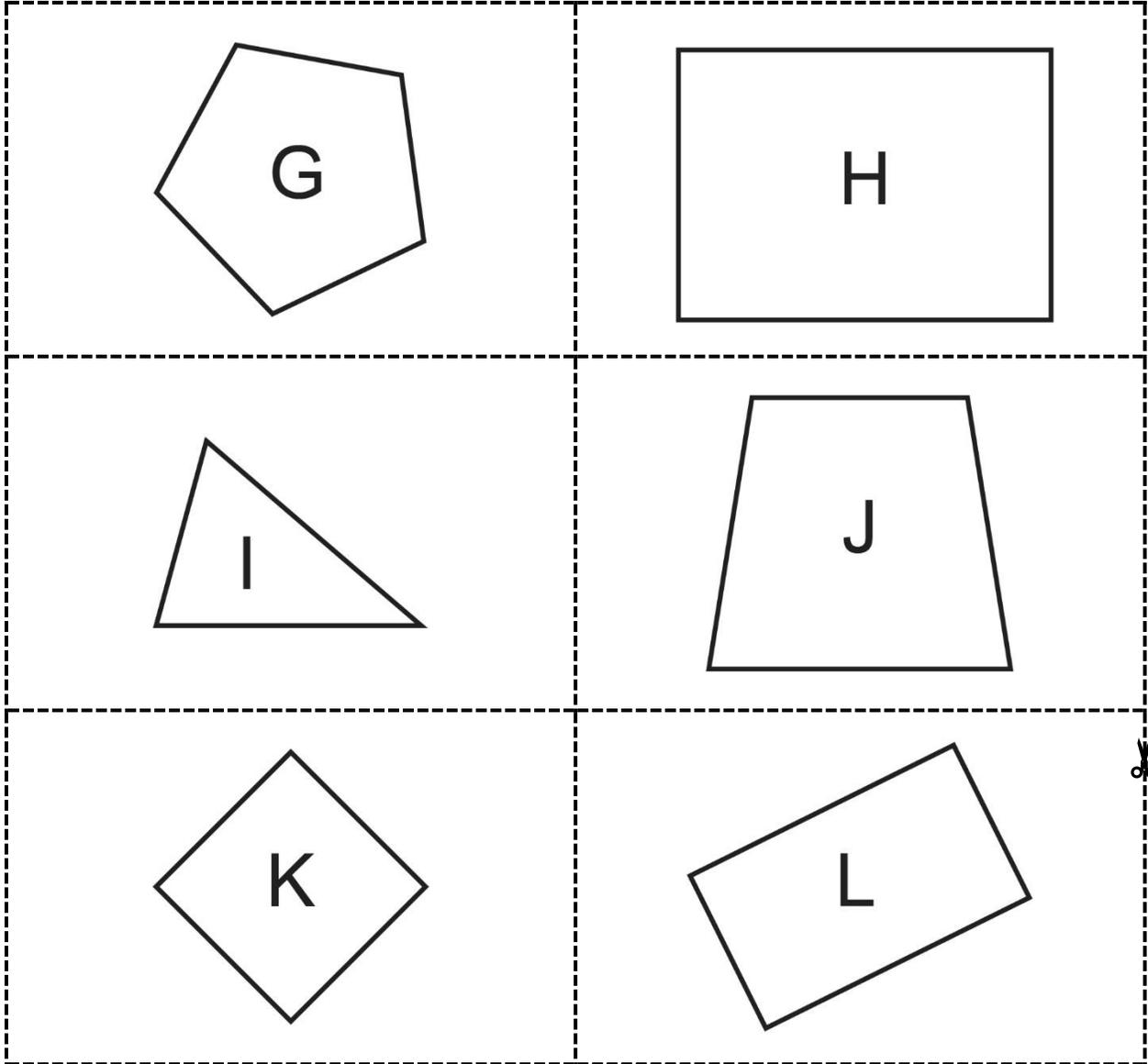
Master 50a

# Polygons



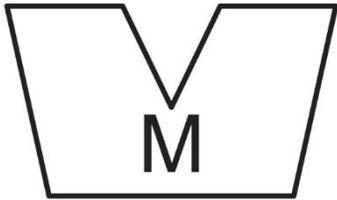
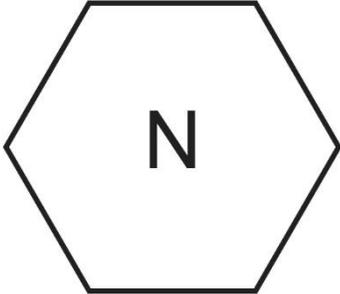
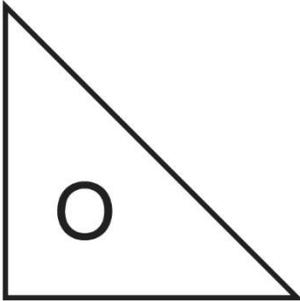
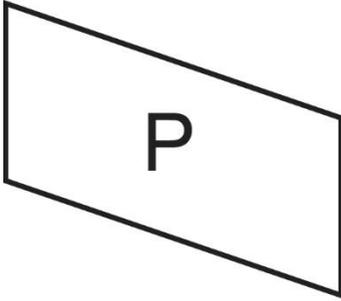
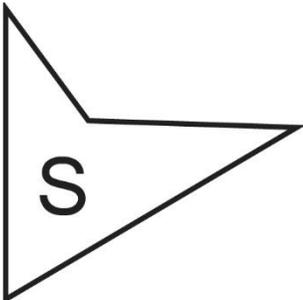
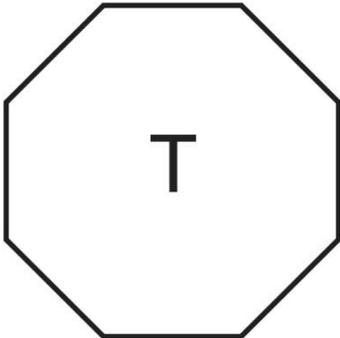
Master 50b

# Polygons



Master 50c

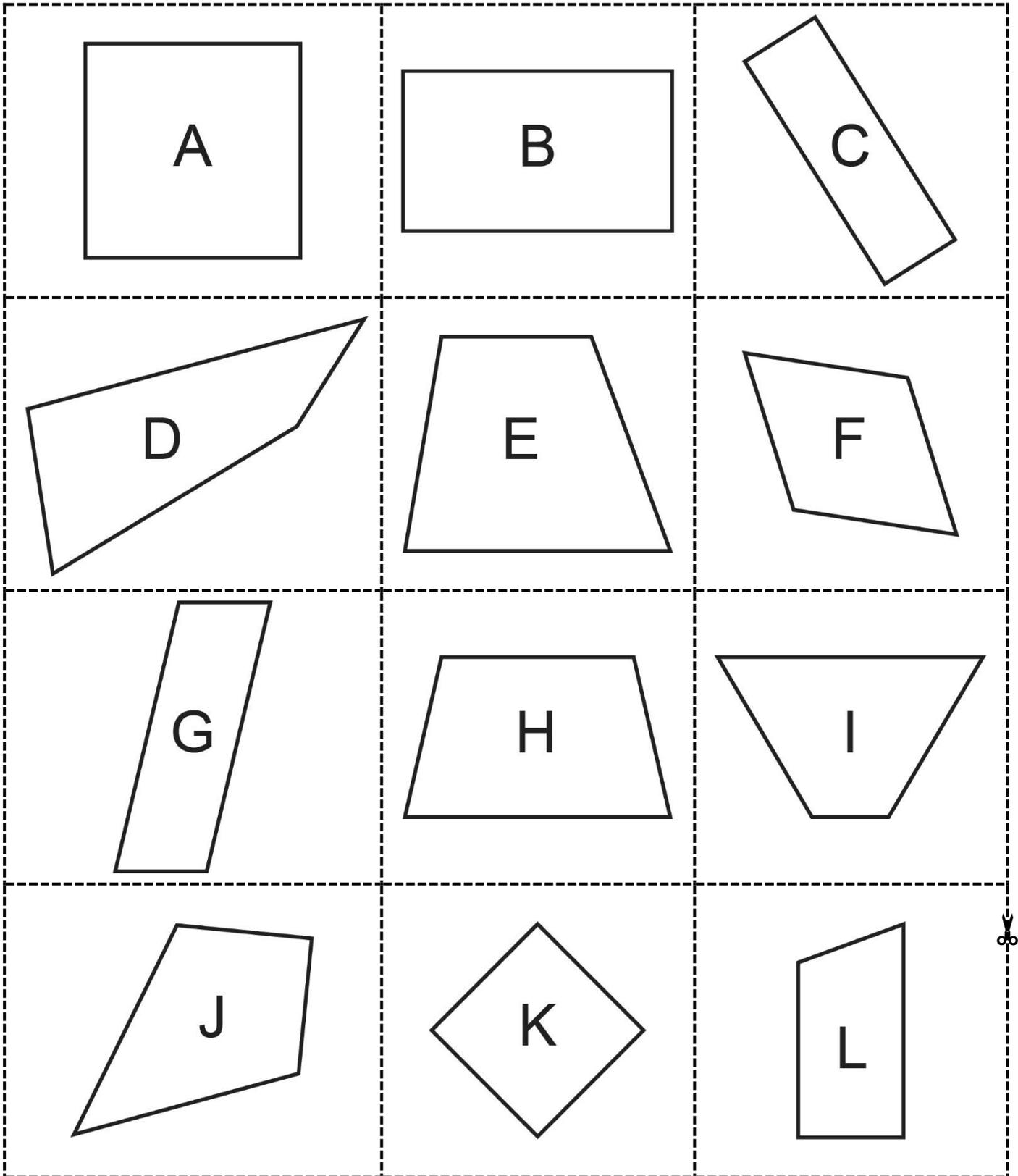
# Polygons

 <p>M</p>	 <p>N</p>
 <p>O</p>	 <p>P</p>
 <p>Q</p>	 <p>R</p>
 <p>S</p>	 <p>T</p>



Master 51

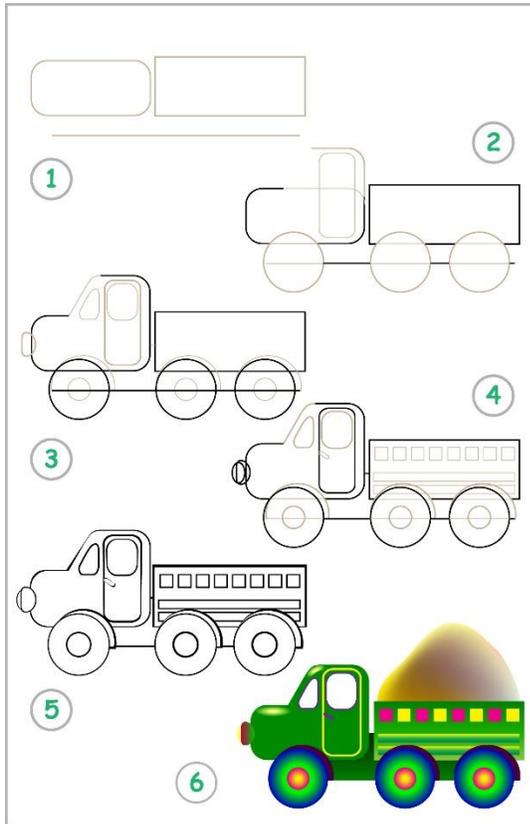
# Quadrilaterals



**Master 52**

# Connections: Drawing from Shapes

Many artists start their drawings with simple shapes like circles, rectangles, and triangles.

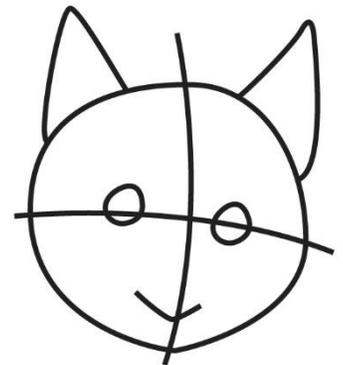


To draw this truck, the artist started with a line, a rectangle, and a rectangle with rounded corners.

What other shapes were used to finish the drawing?  
What do they represent?

When first learning to draw, it is often easiest to start with simple shapes as guides.

For example, to draw a cat, we might start with a circle for the head and triangles for the ears.



Try using shapes to draw a picture of your favourite animal.

**Attributes of Shapes Instructions**

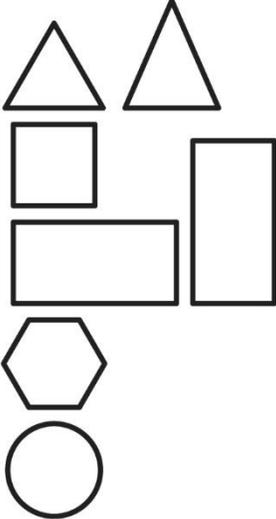
<b>Number rolled</b>	<b>Team who rolled</b>	<b>Other team</b>
1	Point to a shape.	Name the shape in two ways.
2	Point to two shapes.	Explain how the shapes are alike and how they are different.
3	Name an attribute to sort by.	Point to all shapes with that attribute.
4	Point to a shape that would be in the overlap of a Venn diagram.	Name two attributes that could have been used to sort. If possible, find a shape that belongs in each loop.
5	Name an attribute.	Point to a shape with that attribute. Draw or describe a new shape that has the same attribute.
6	Choose a shape. Create a riddle to describe your shape.	Solve the riddle. Point to the shape.

Name \_\_\_\_\_ Date \_\_\_\_\_

Master 54

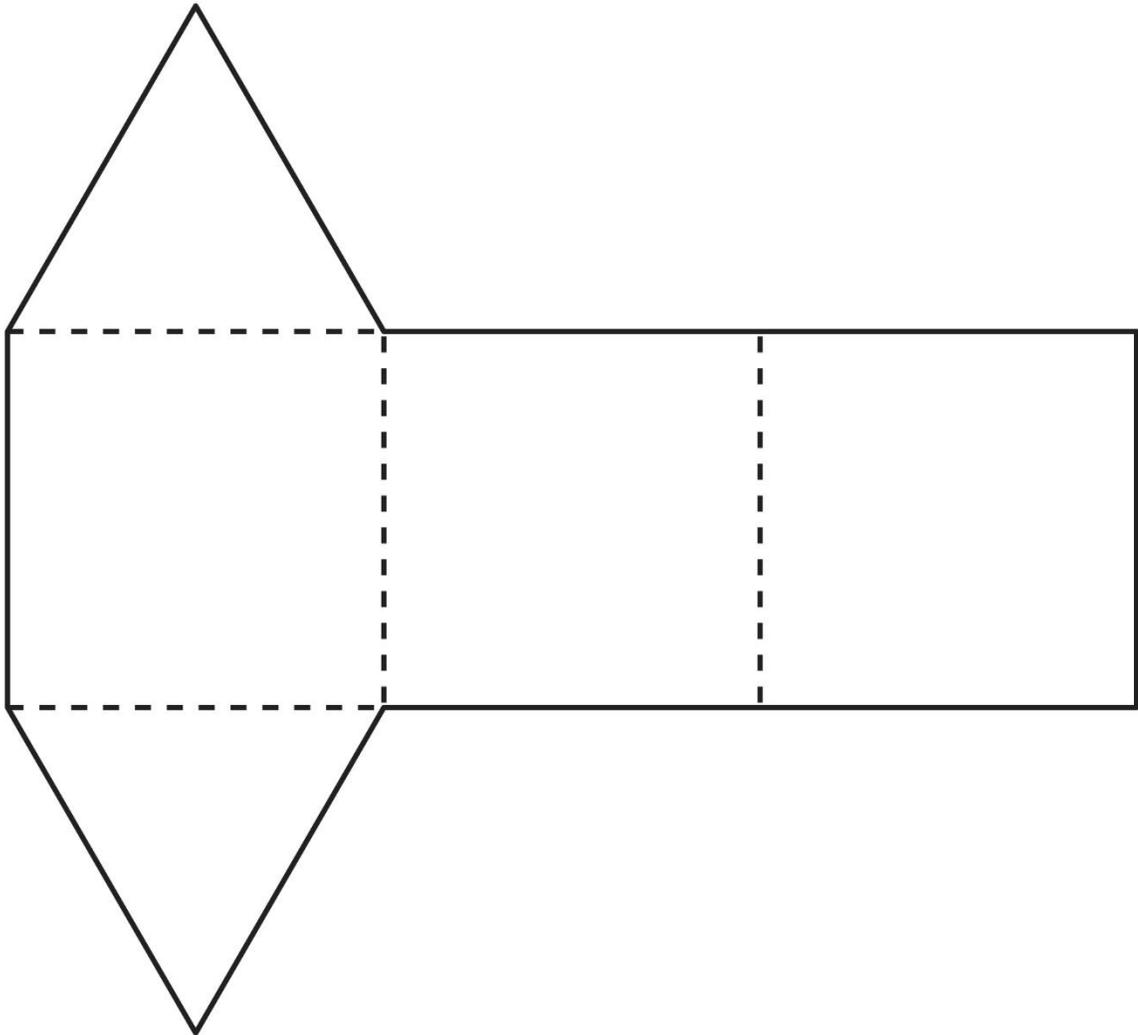
# Our Solid Recording Sheet

Our Solid: \_\_\_\_\_

Attributes	Number of...
<p>Faces</p>  <p>Shape of Base:</p> <p>_____</p>	
Edges	
Vertices	
Curved Surfaces	

Master 55a

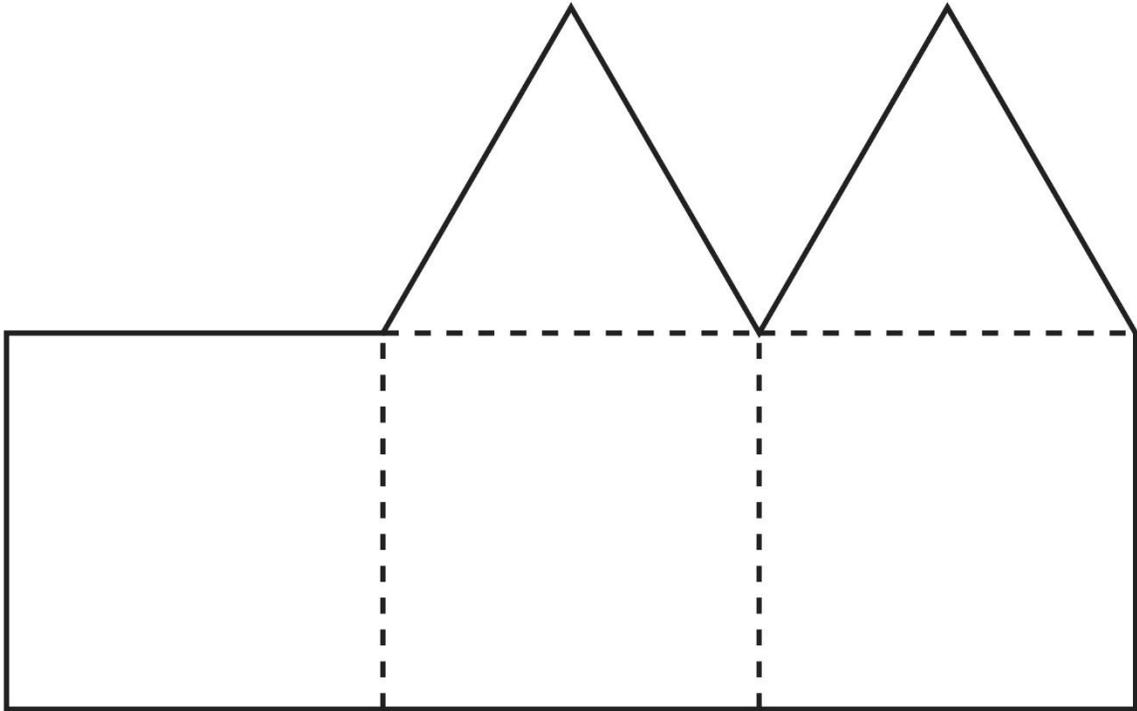
# Is It a Net?



Name \_\_\_\_\_ Date \_\_\_\_\_

Master 55b

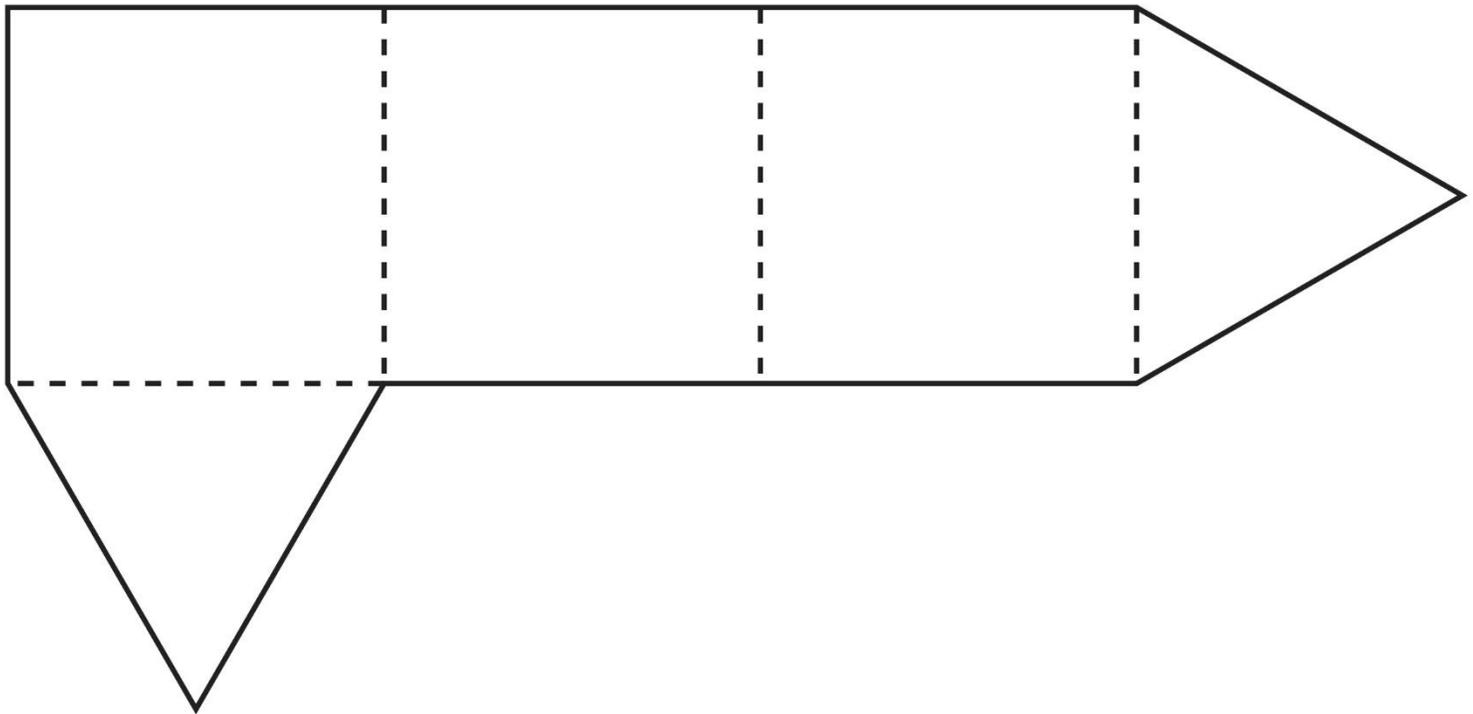
# Is It a Net?



Name \_\_\_\_\_ Date \_\_\_\_\_

Master 55c

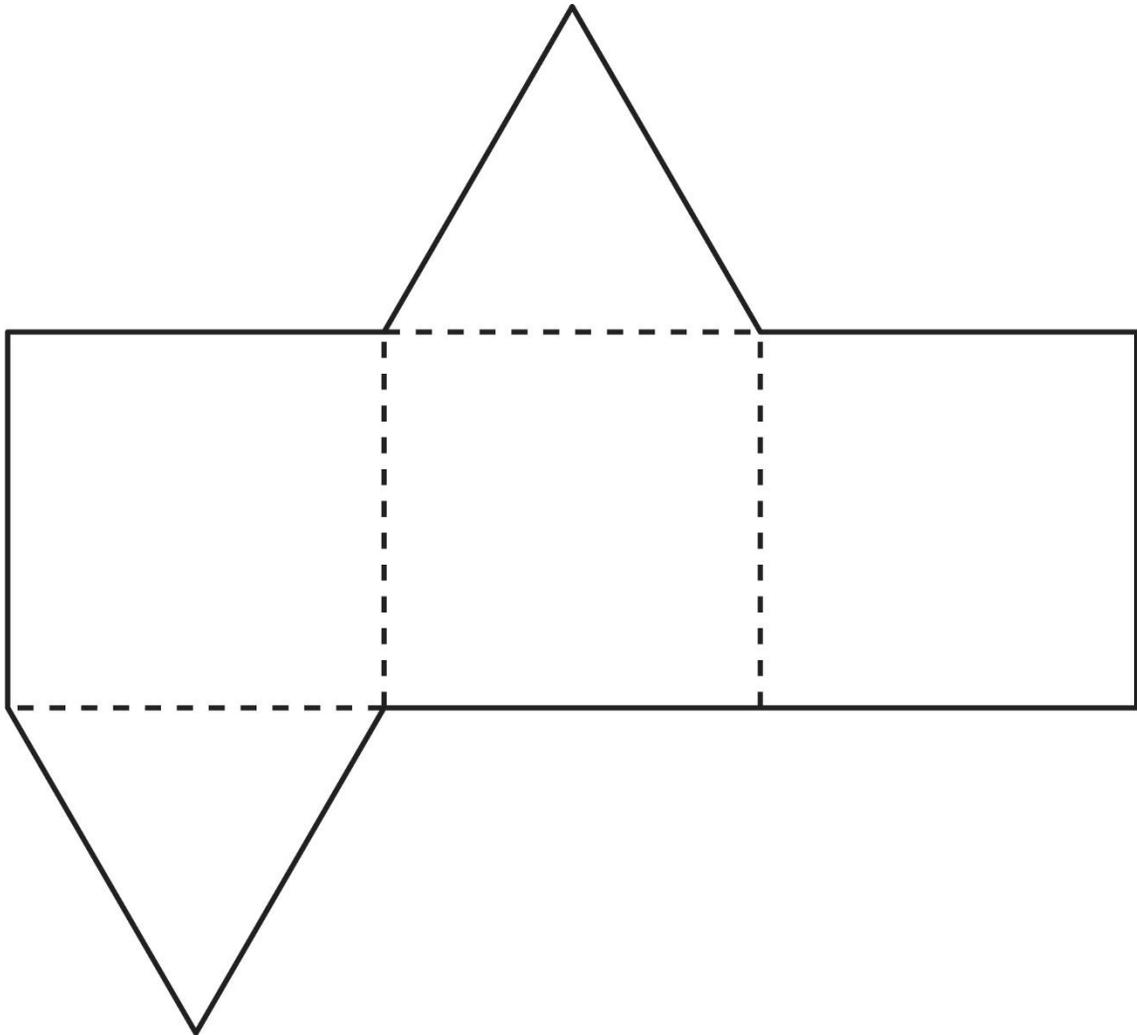
# Is It a Net?



Name \_\_\_\_\_ Date \_\_\_\_\_

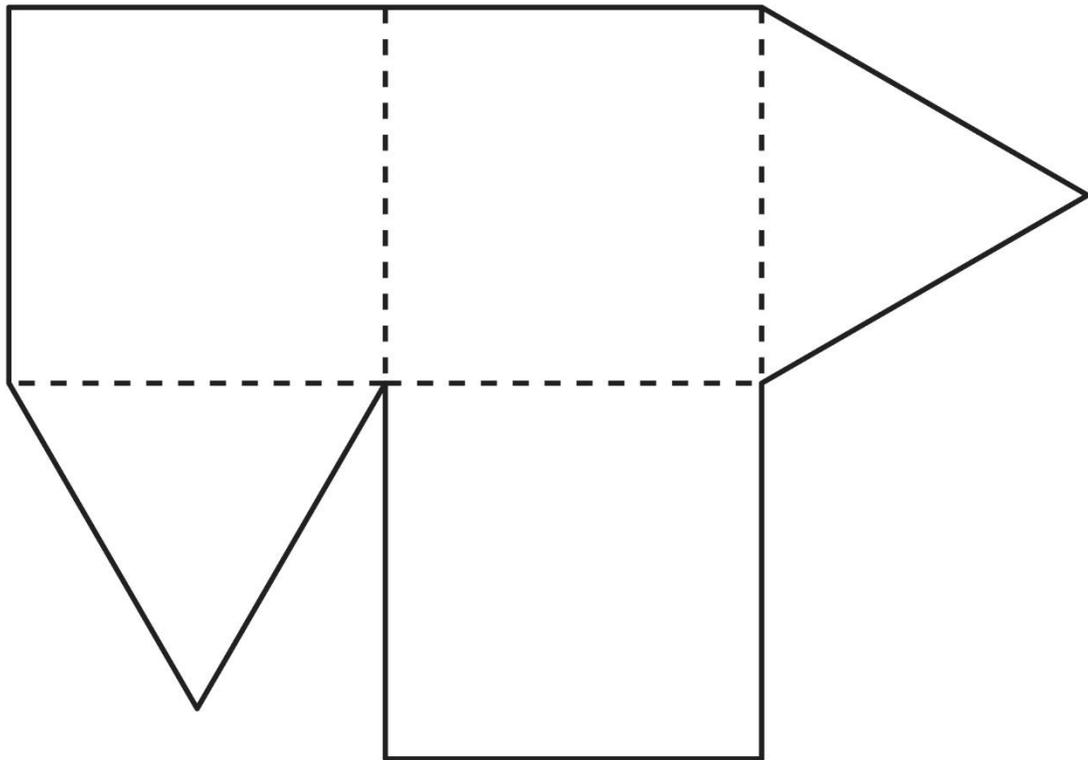
Master 55d

# Is It a Net?



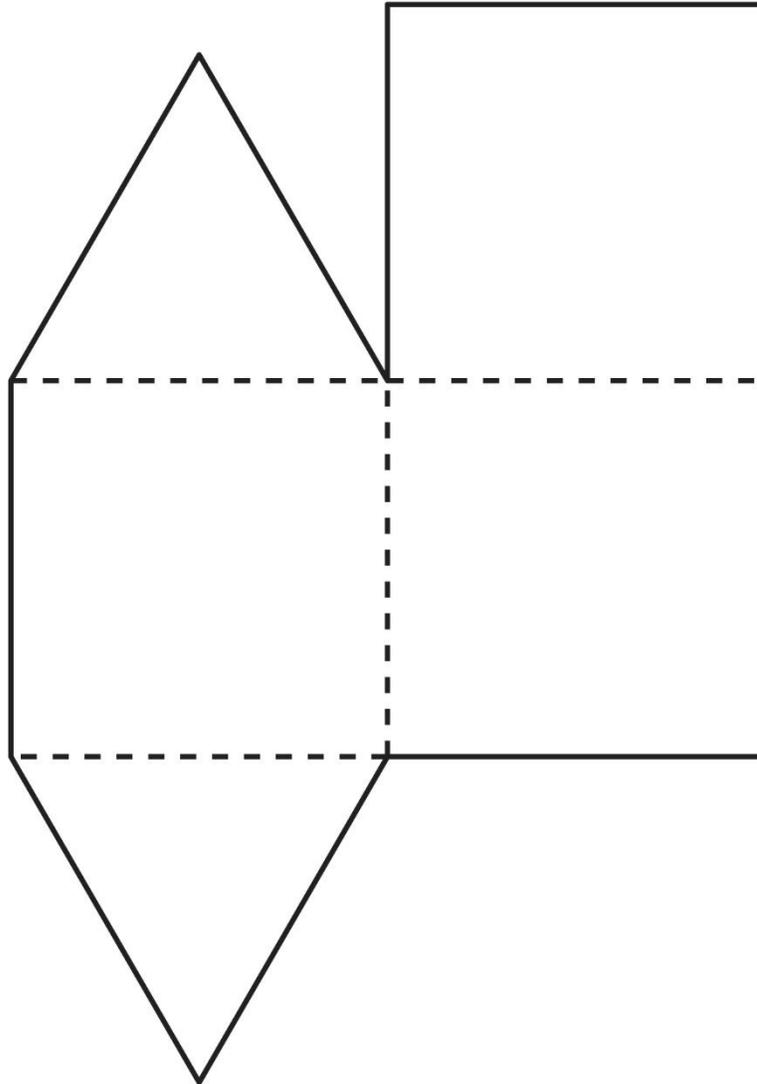
Master 55e

# Is It a Net?



Master 55f

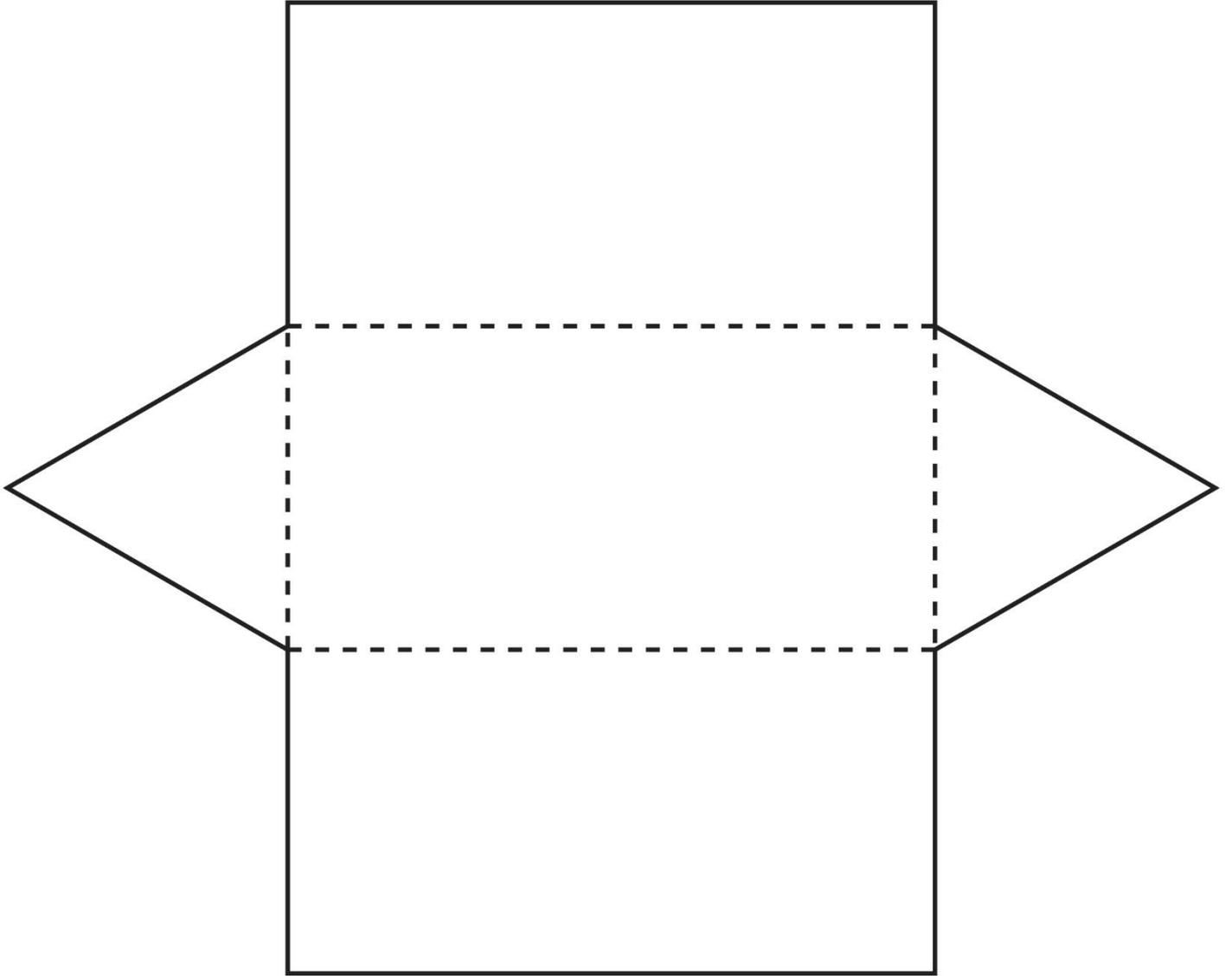
# Is It a Net?



Name \_\_\_\_\_ Date \_\_\_\_\_

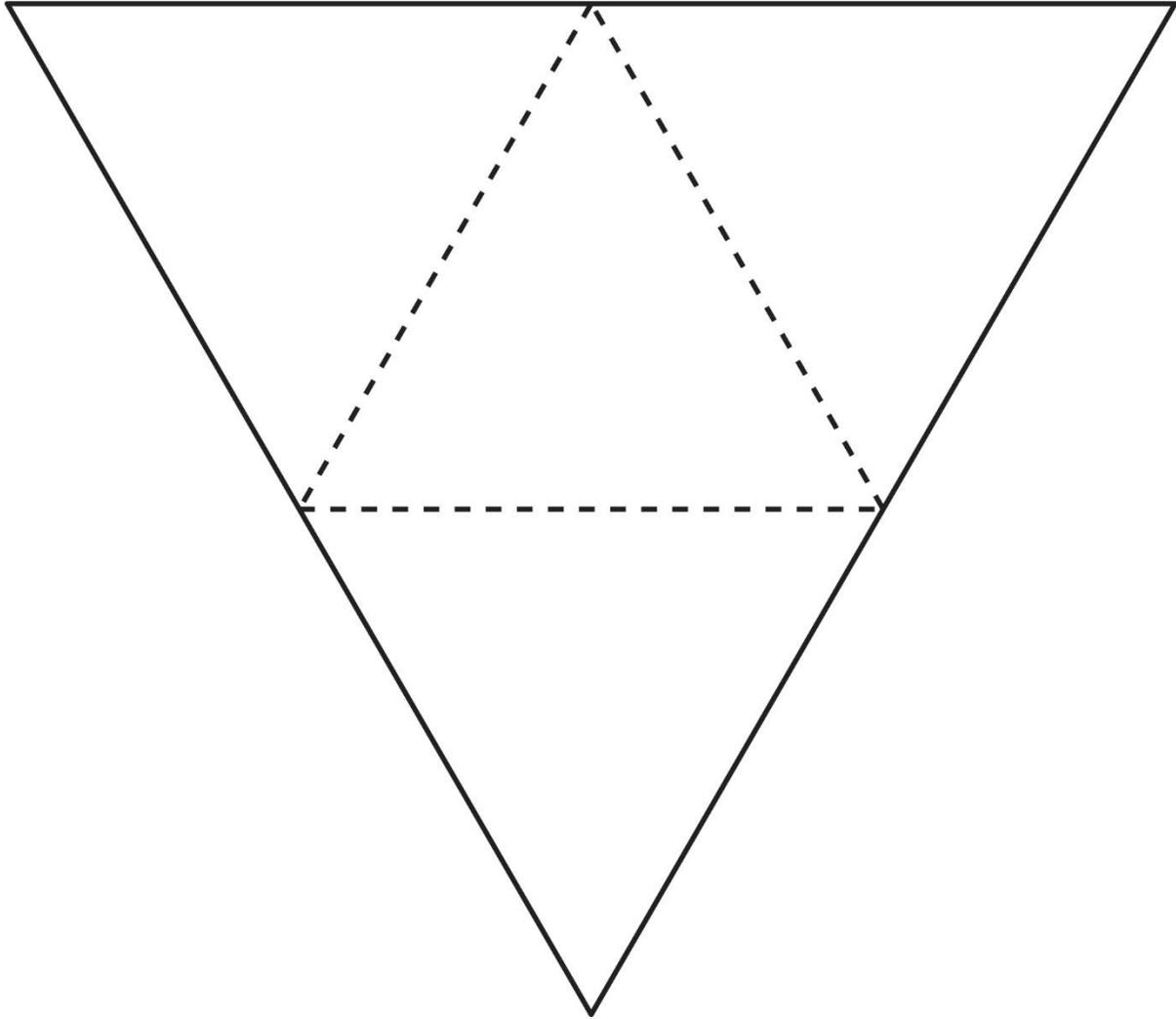
Master 56a

# Nets of Solids



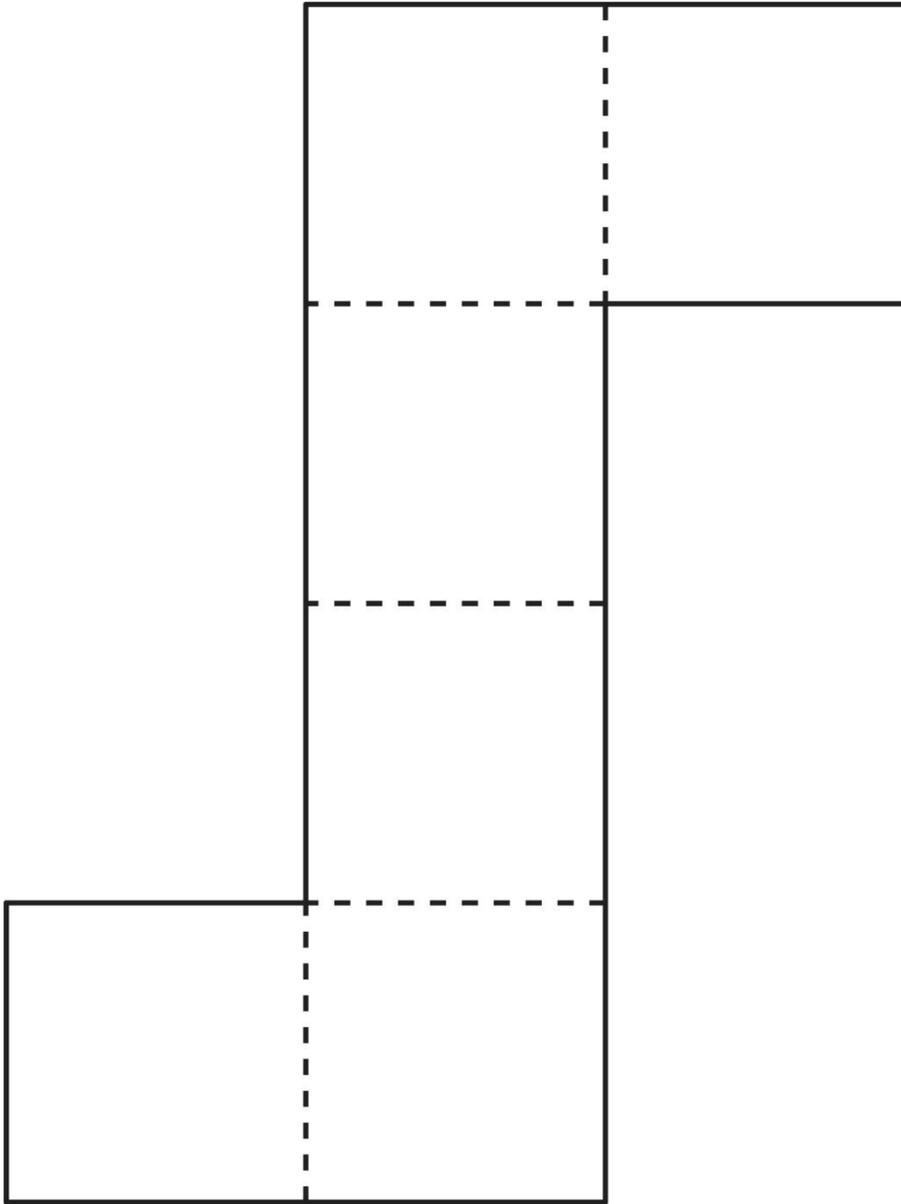
Master 56b

# Nets of Solids



Master 56c

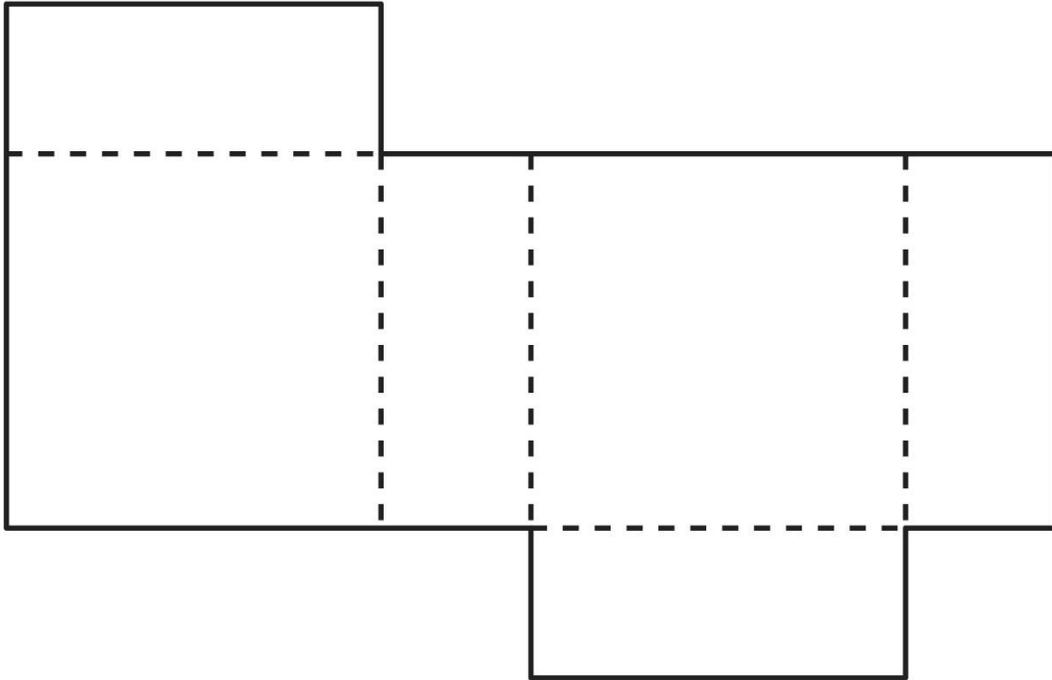
# Nets of Solids



Name \_\_\_\_\_ Date \_\_\_\_\_

Master 56d

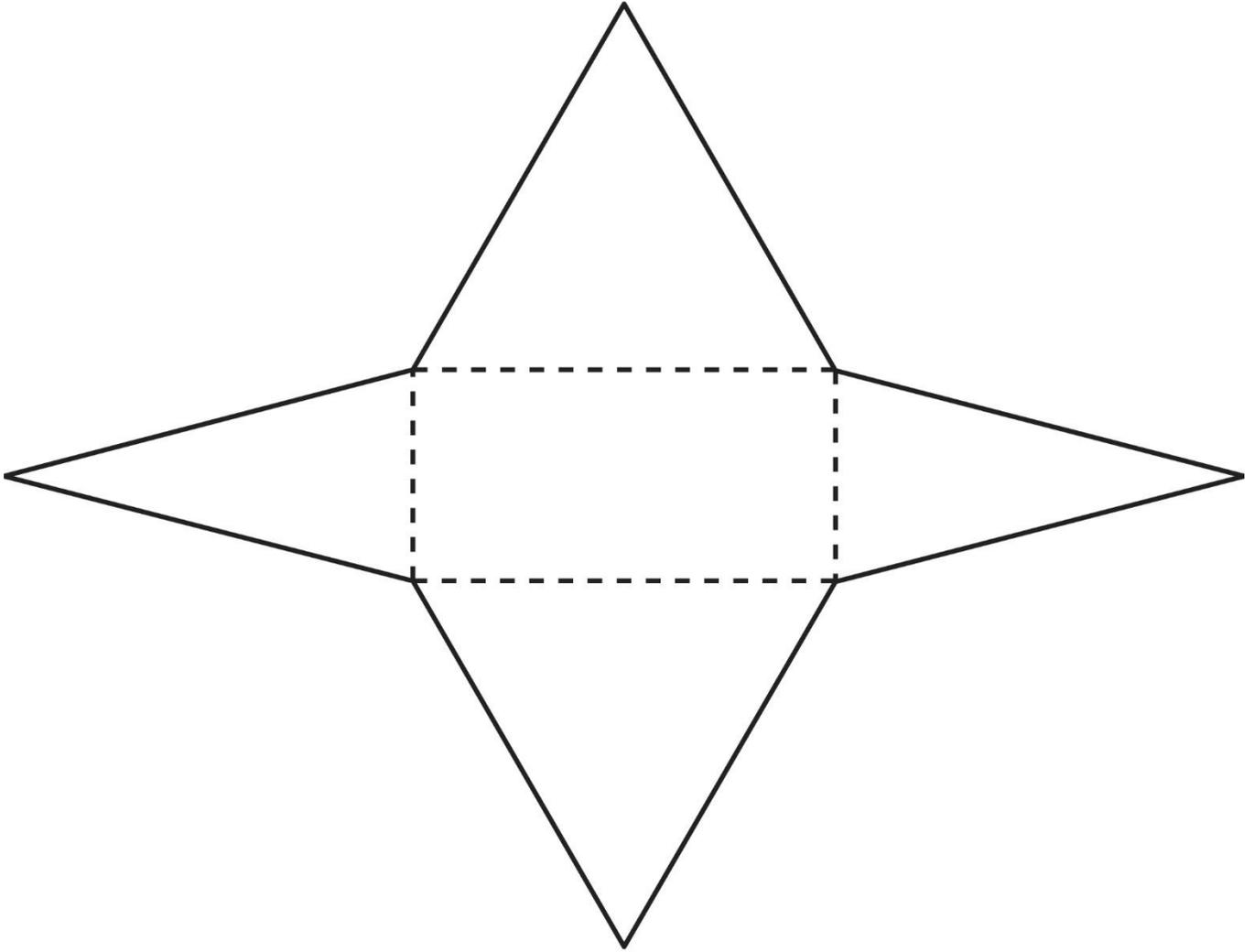
# Nets of Solids



Name \_\_\_\_\_ Date \_\_\_\_\_

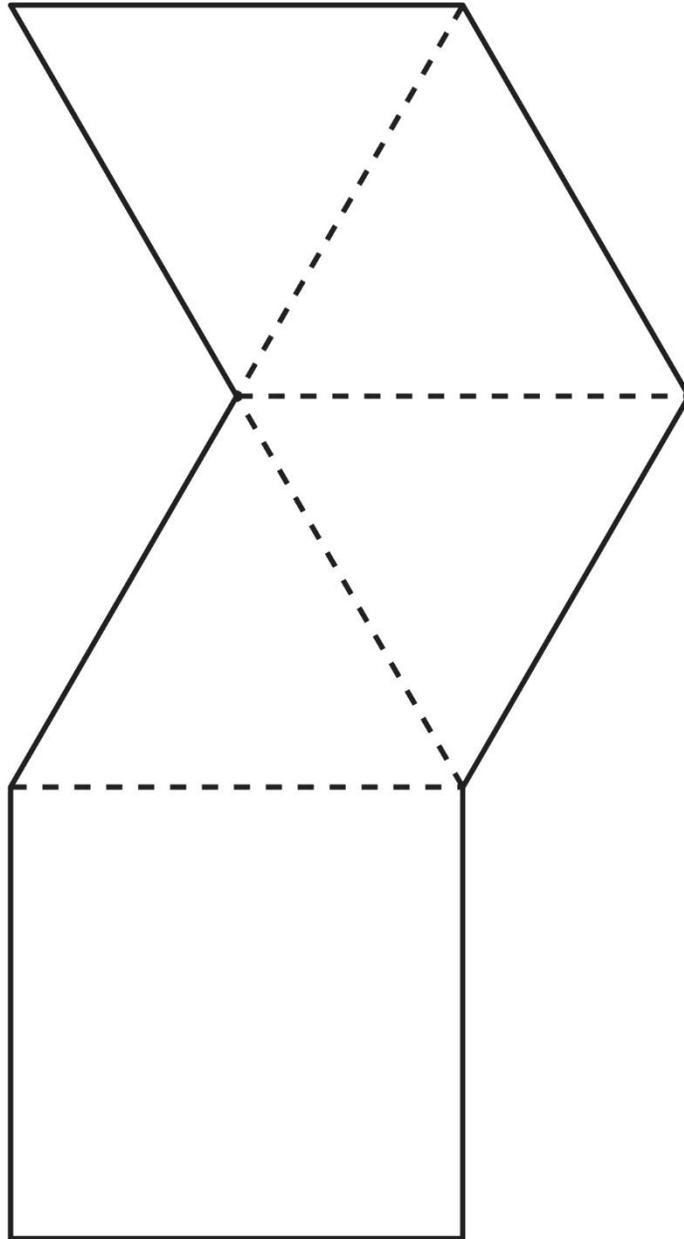
Master 56e

# Nets of Solids



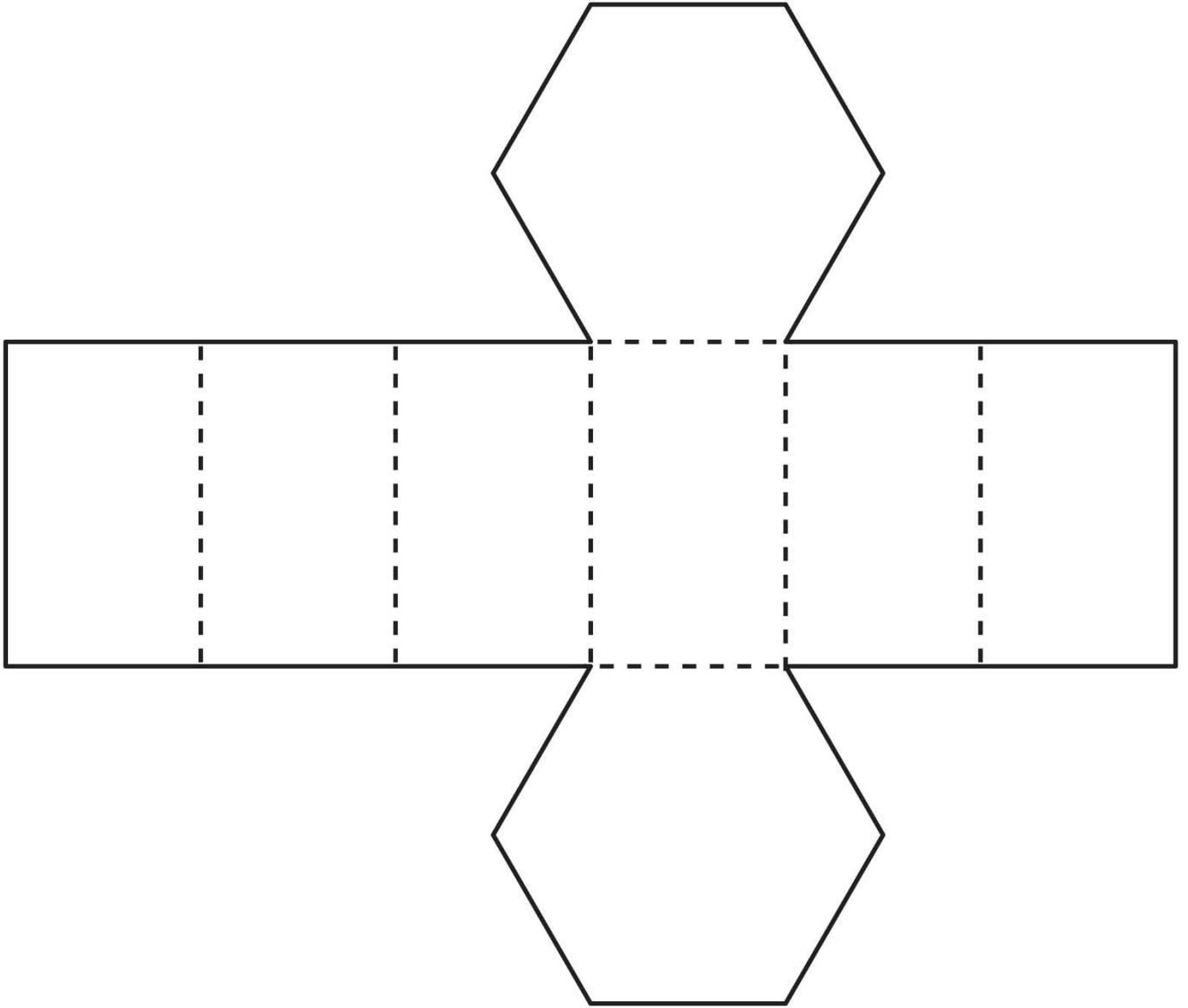
Master 56f

# Nets of Solids



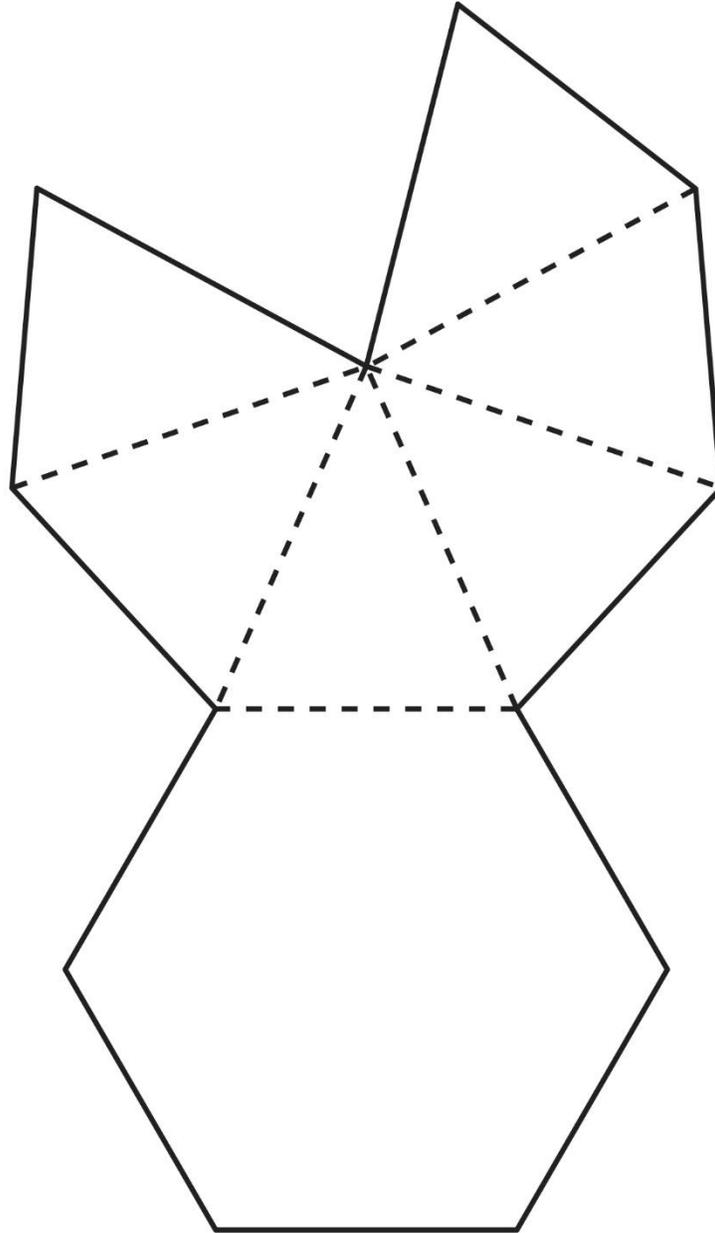
Master 56g

# Nets of Solids



Master 56h

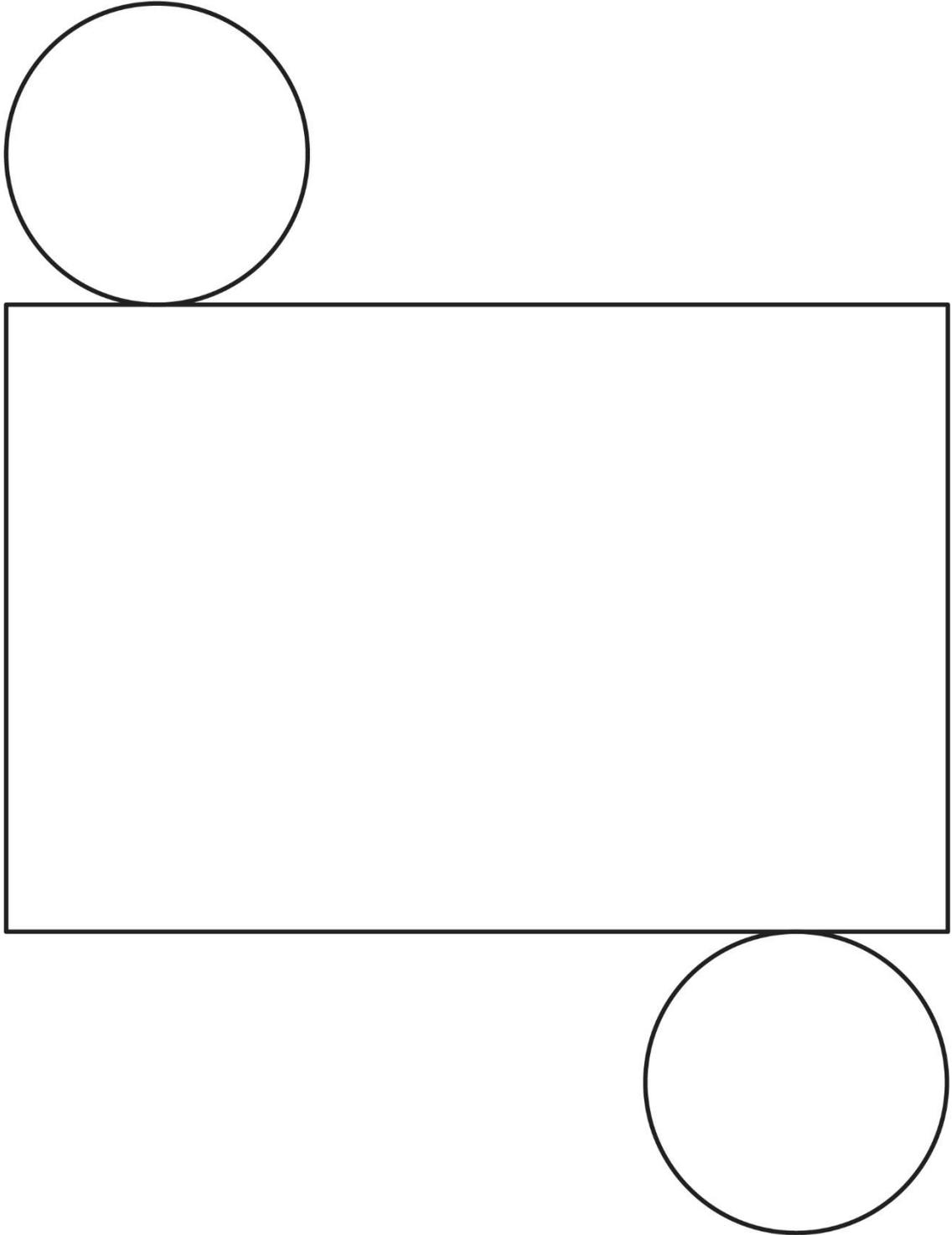
# Nets of Solids



Name \_\_\_\_\_ Date \_\_\_\_\_

Master 56i

# Nets of Solids



## Connections: Teatime

Tea comes in many interesting flavours.  
Have you ever heard of Gummy Bear Tea or Vanilla Berry Cupcake Tea?

Tea leaves can be packaged in tea bags.  
Hot water goes through the tiny holes in the bags,  
causing the tea leaves to expand and release their flavour.

The bags may look like triangular pyramids or be circular or square.



Tea leaves can also be used loose.  
For example, they can be put in a glass teapot  
with a tea infuser shaped like a cylinder.

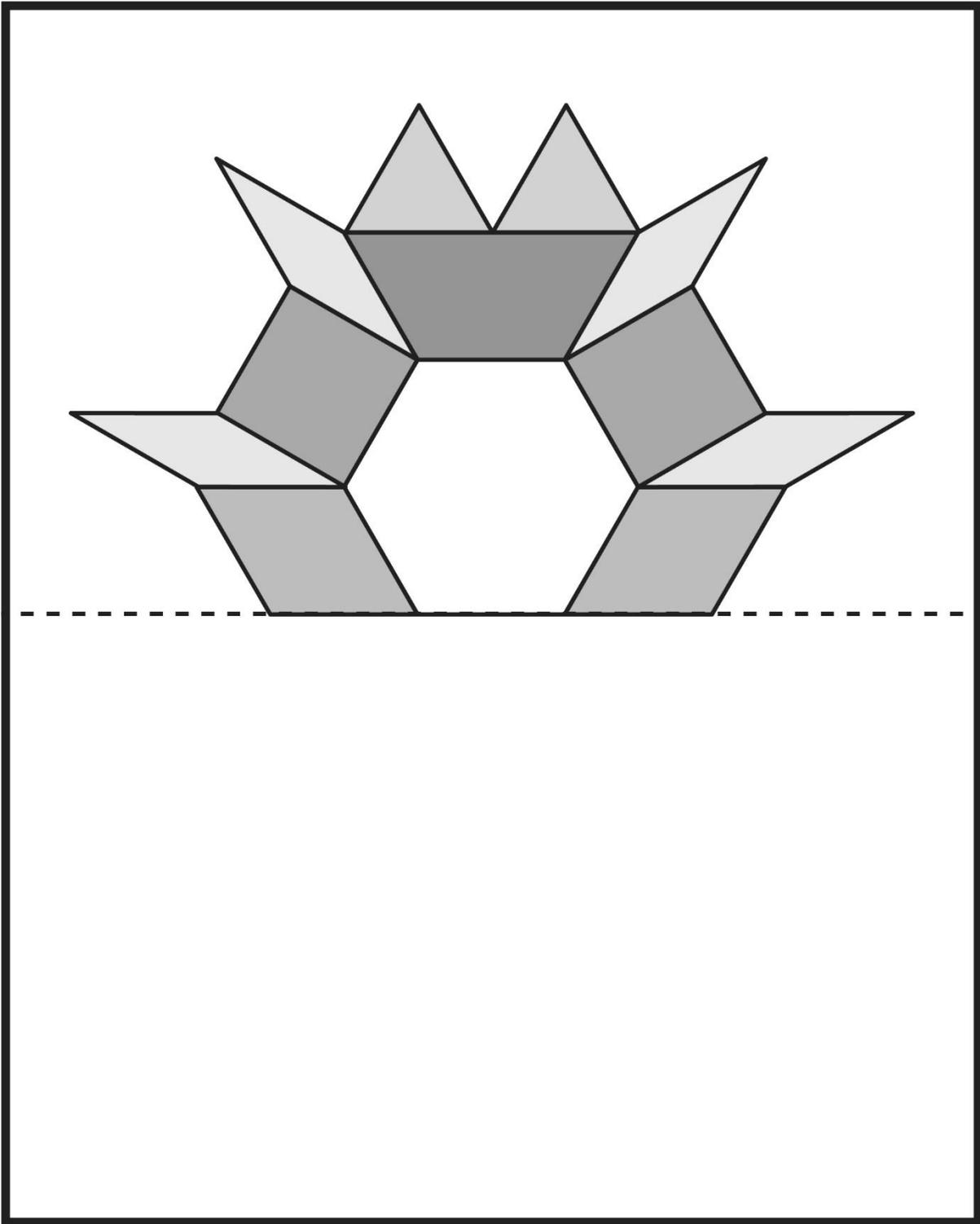
Create your own flavour of tea.  
How would you package it?  
Describe the 2-D shape or 3-D solid you would use.  
What are the advantages and disadvantages of the “package shape”  
you chose?

### Checklist

- environmentally friendly
- room for tea leaves to expand
- material allows water to enter easily
- fits in a cup or mug

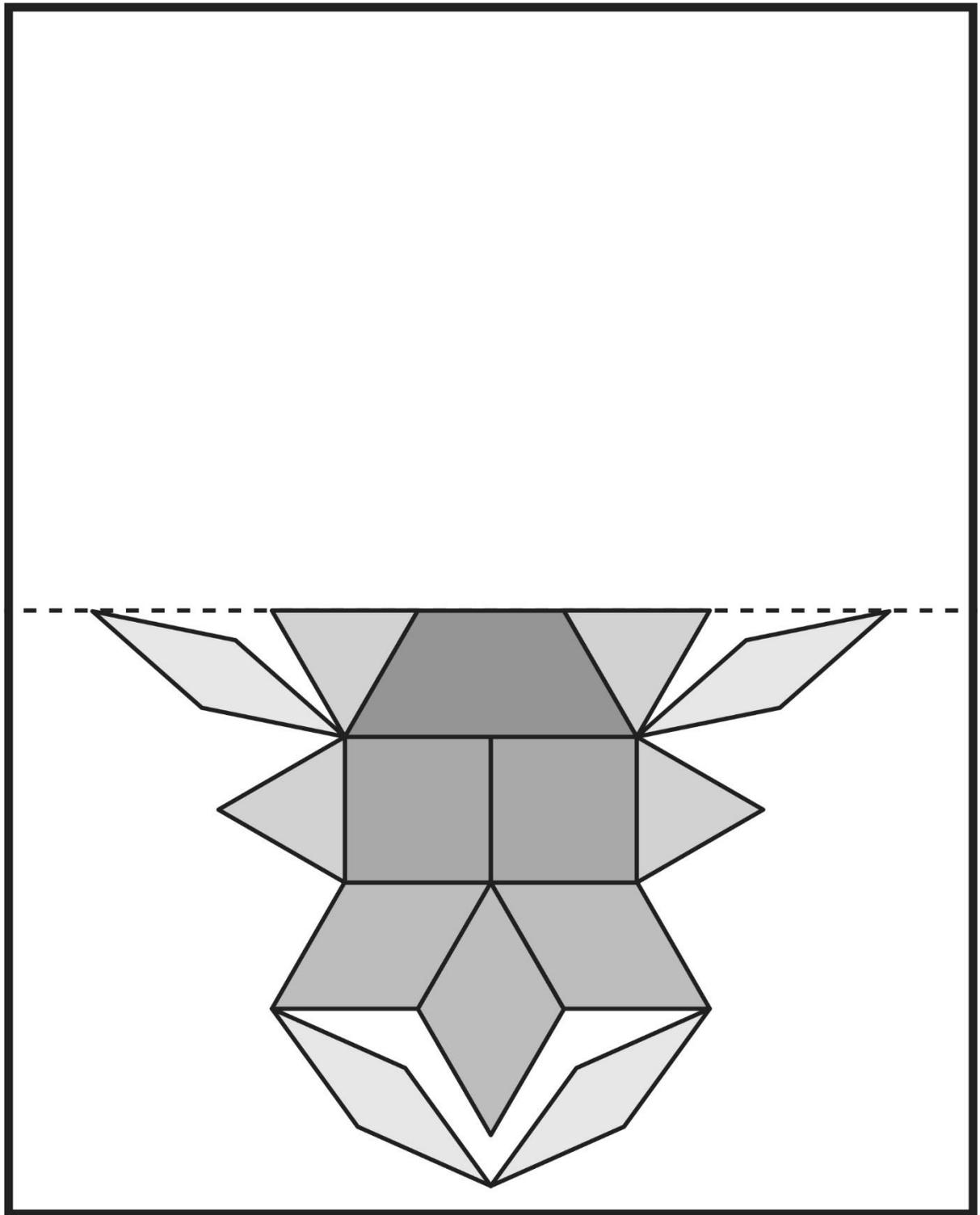
Master 58a

# Pattern Block Symmetry



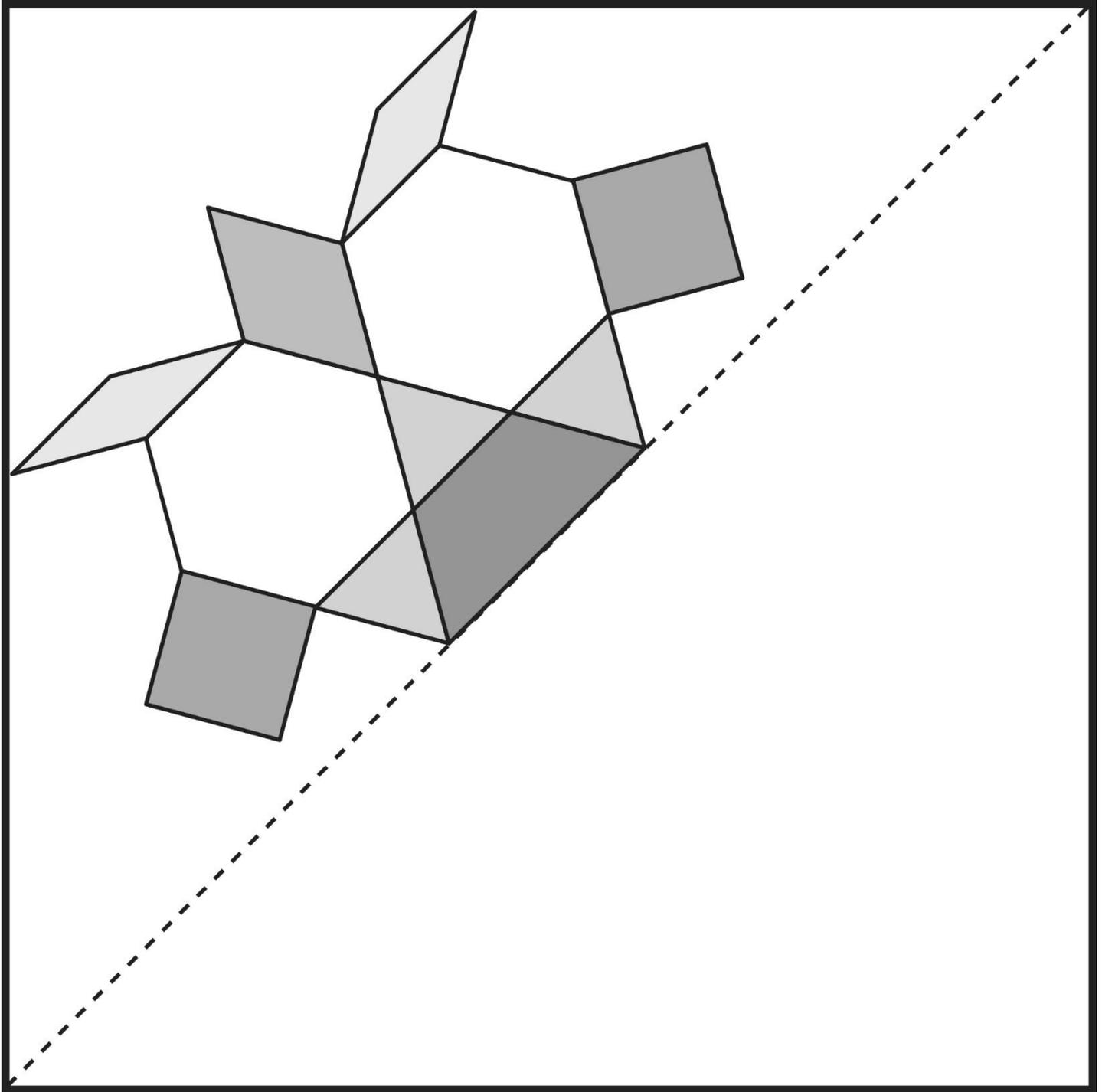
Master 58b

# Pattern Block Symmetry



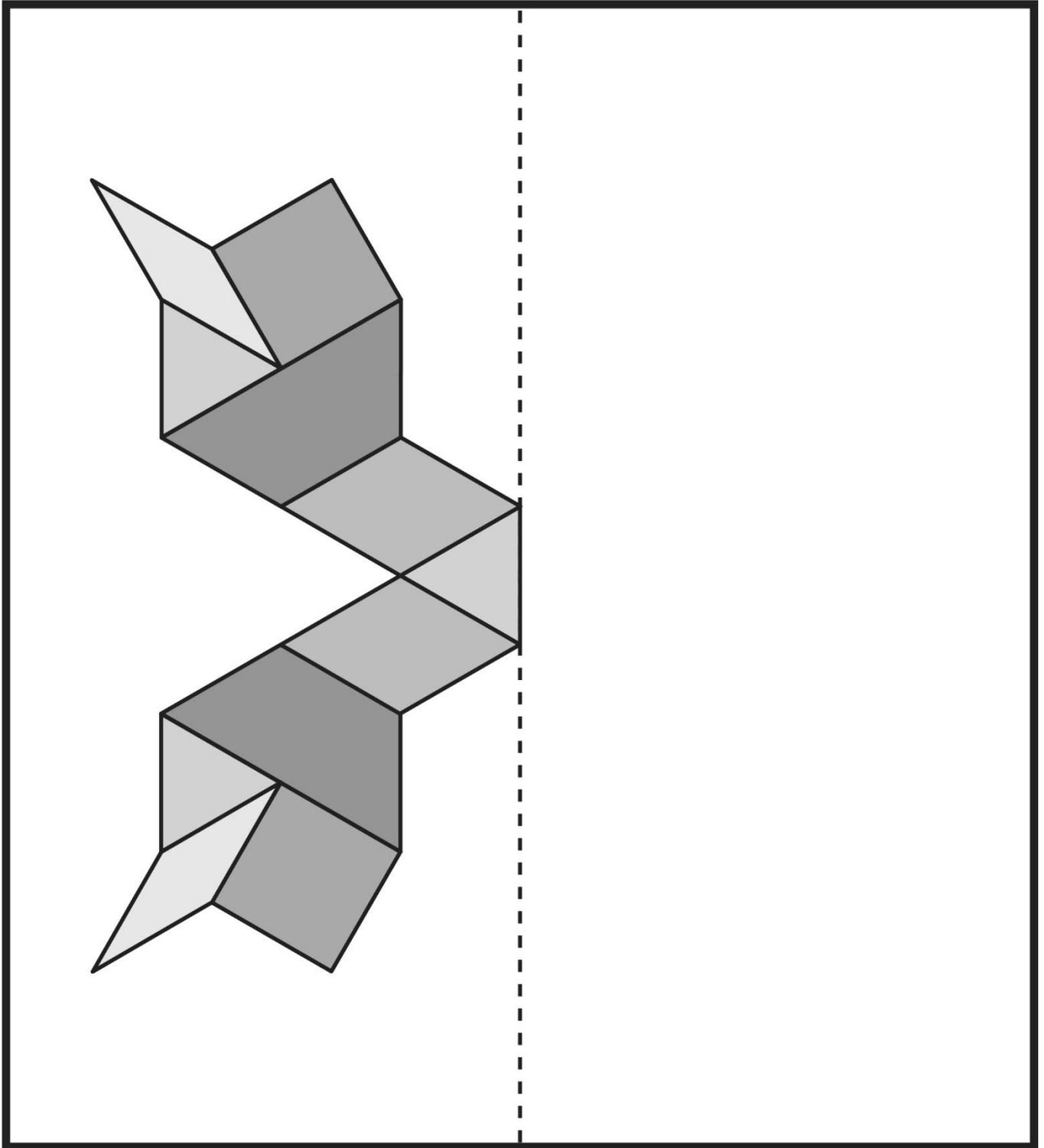
Master 58c

# Pattern Block Symmetry



Master 58d

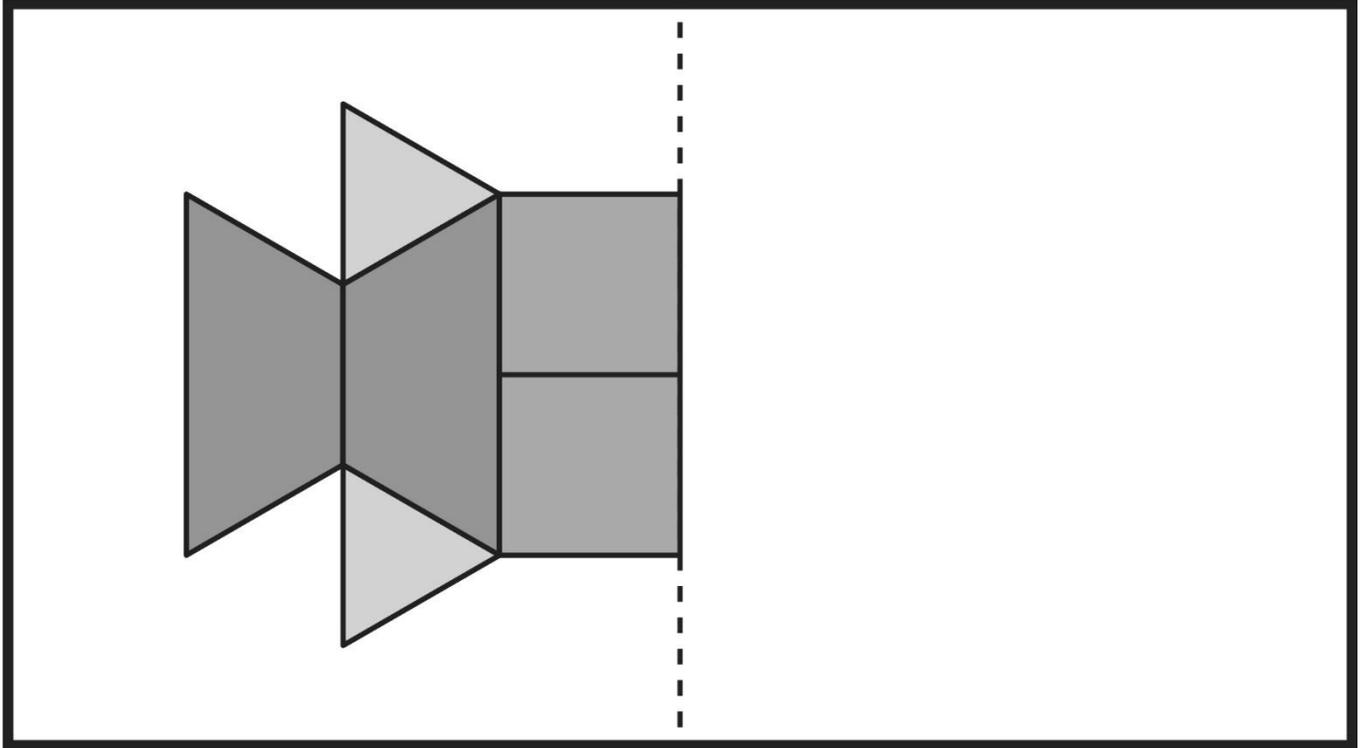
# Pattern Block Symmetry



Name \_\_\_\_\_ Date \_\_\_\_\_

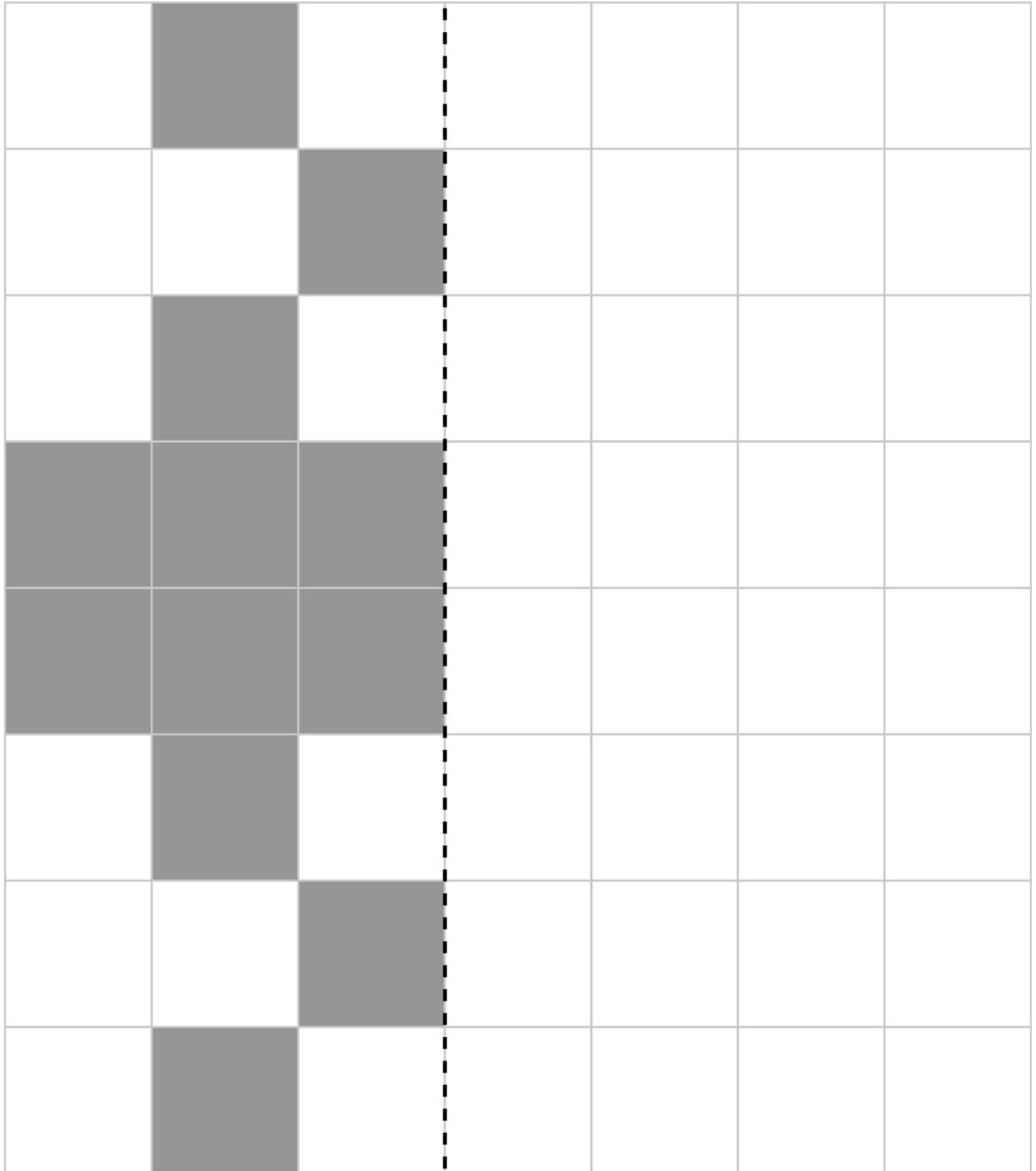
Master 58e

## Pattern Block Symmetry (Accommodation)



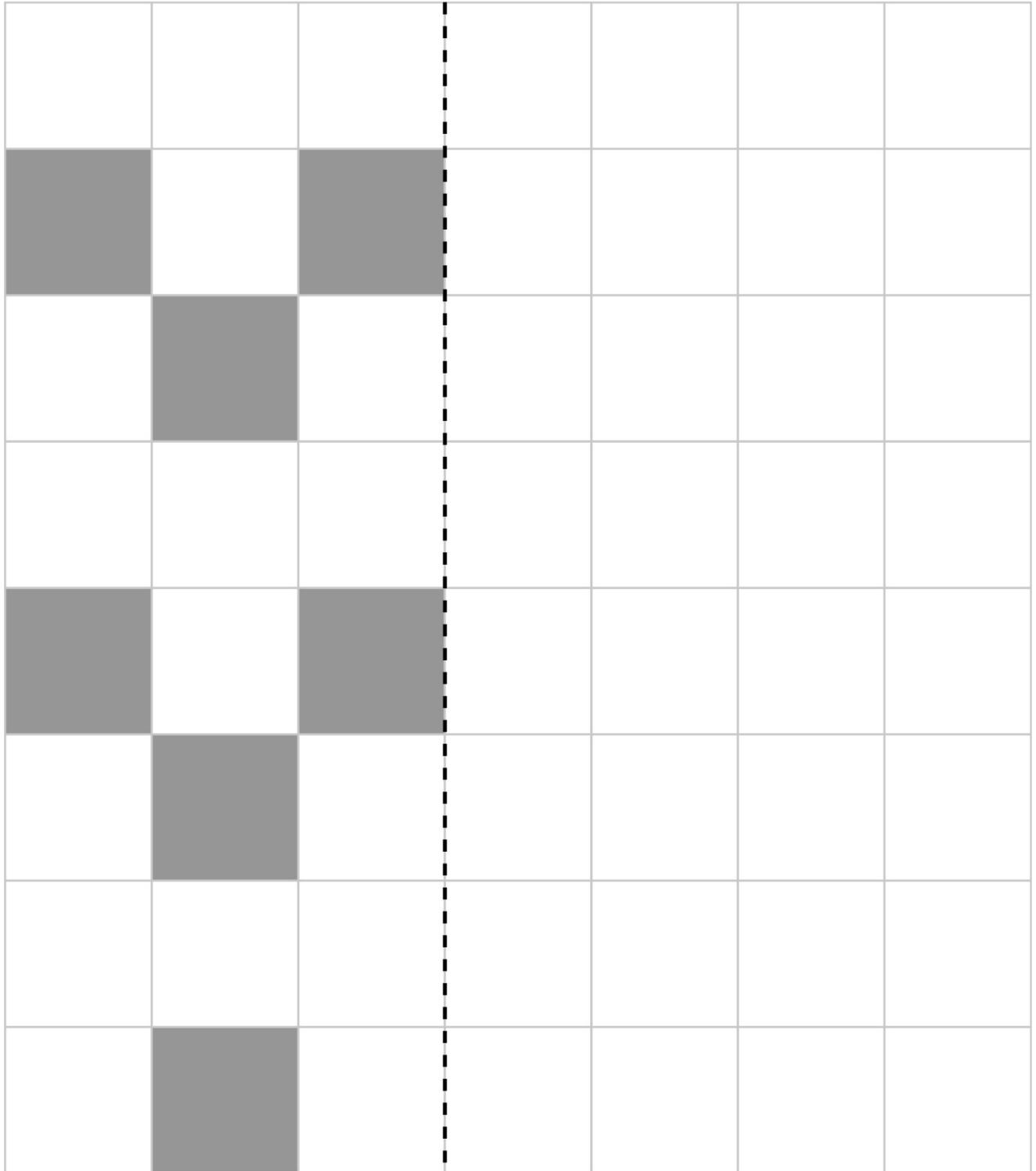
Master 59a

# Tile Symmetry



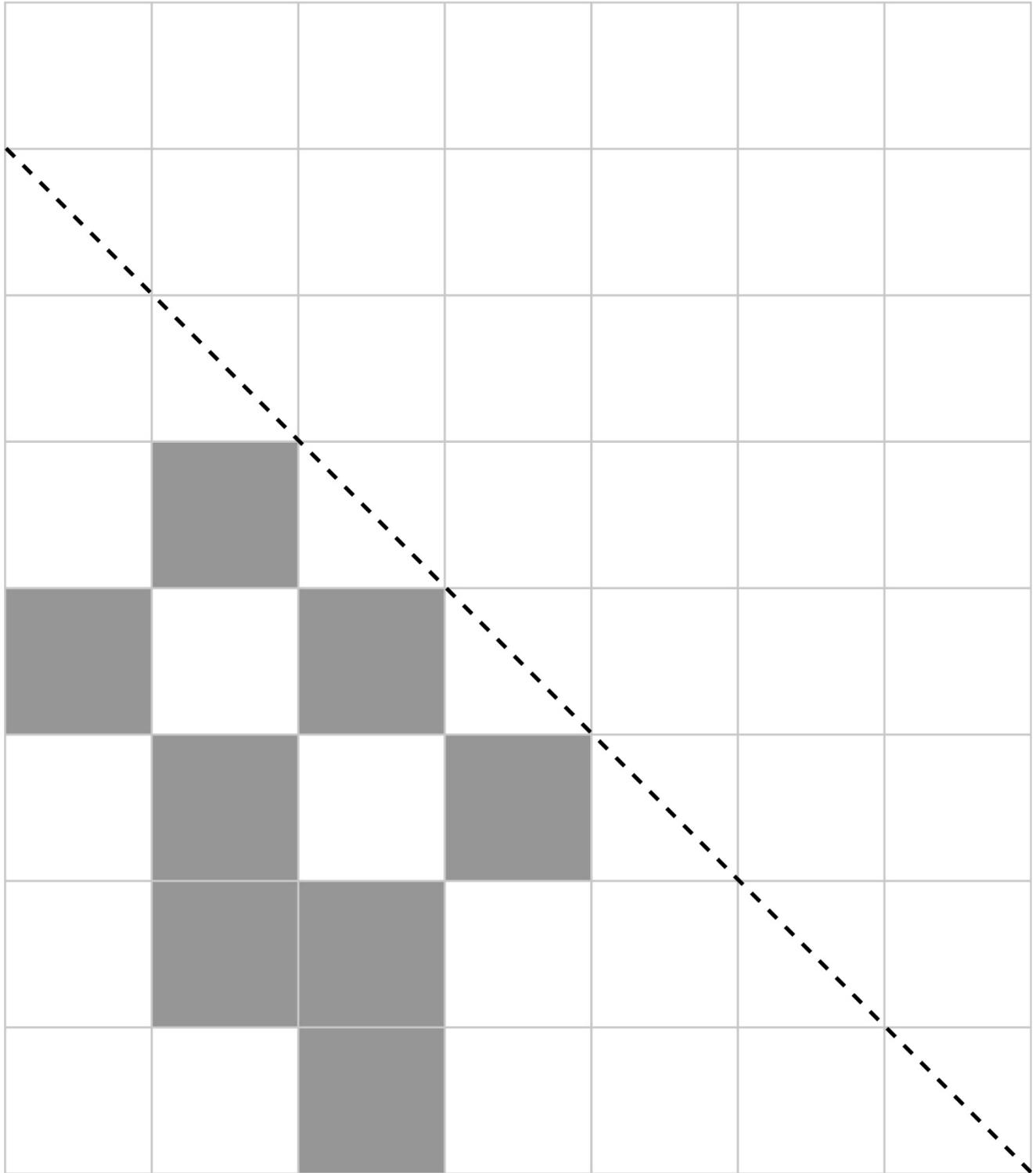
Master 59b

# Tile Symmetry



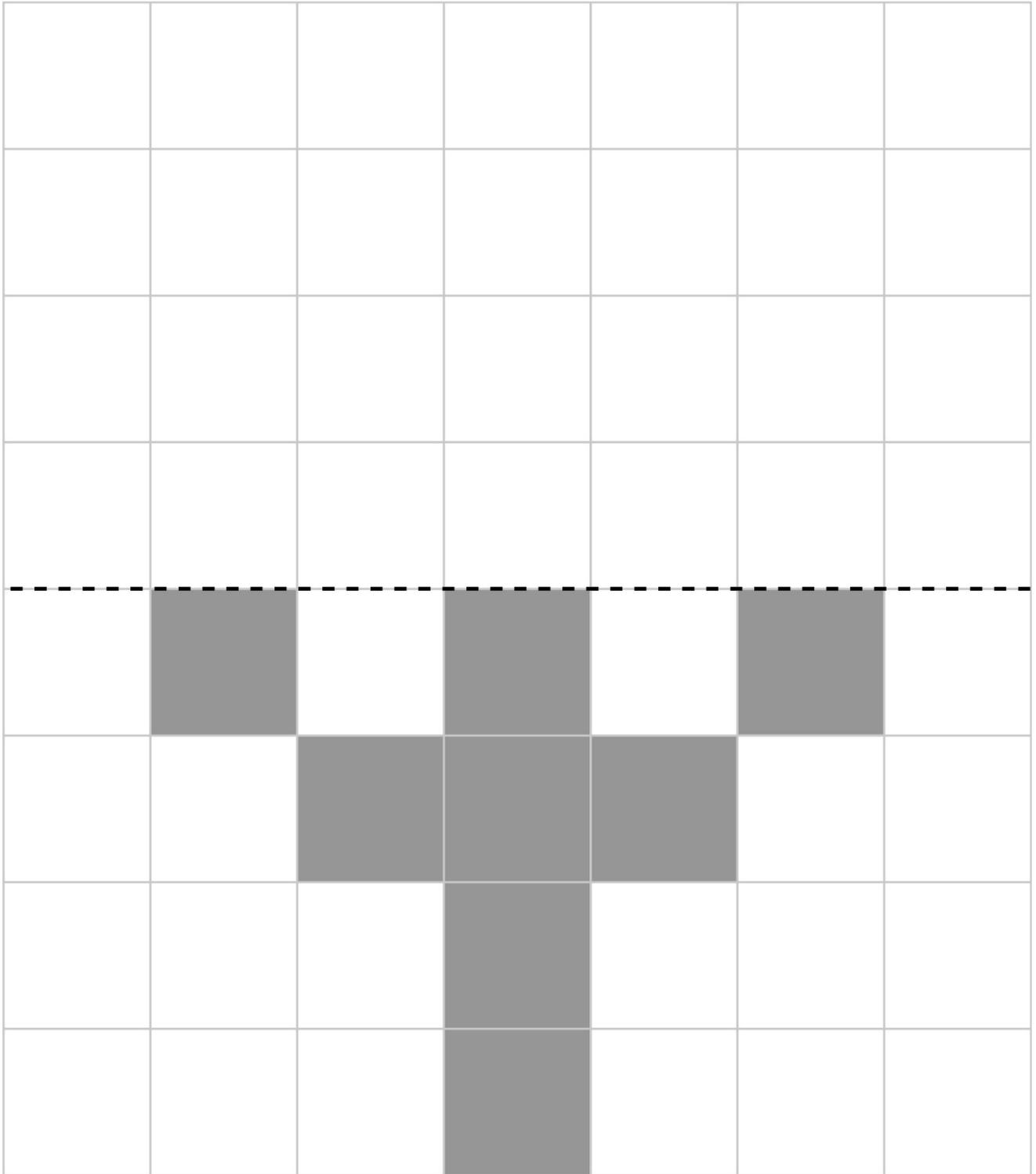
Master 59c

# Tile Symmetry



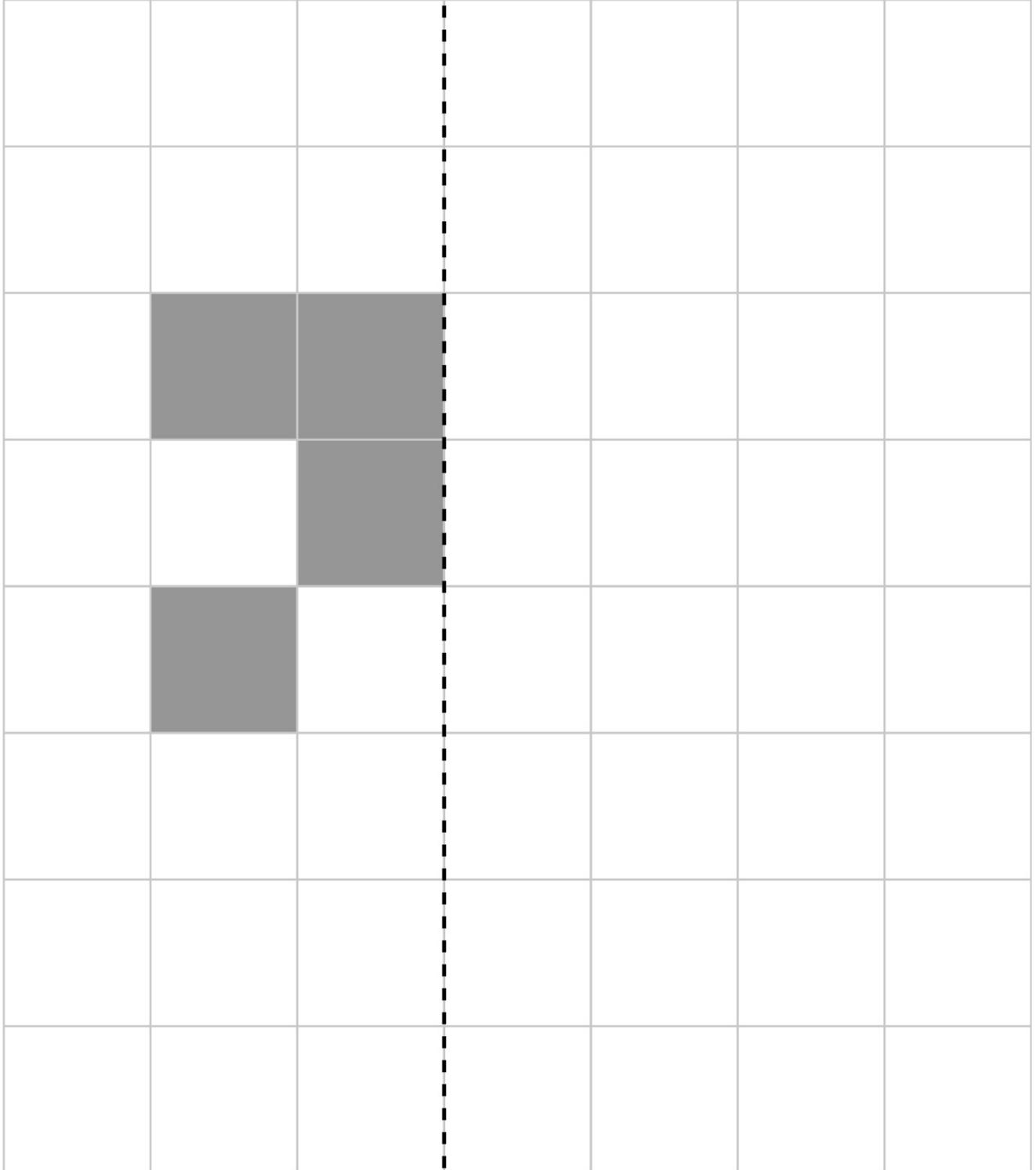
Master 59d

# Tile Symmetry



Master 59e

# Tile Symmetry (Accommodation)



Master 60

## Connections: Take a Closer Look at Nature

Can you find symmetry in these objects from nature?  
Where else might you find symmetry in nature?

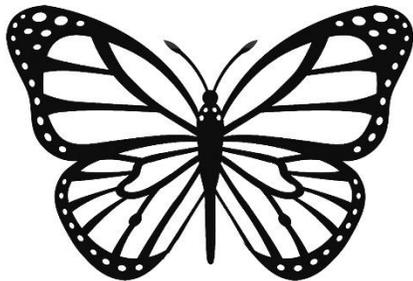
This is a leaf of the Sugar Maple.  
It is on the Canadian flag.



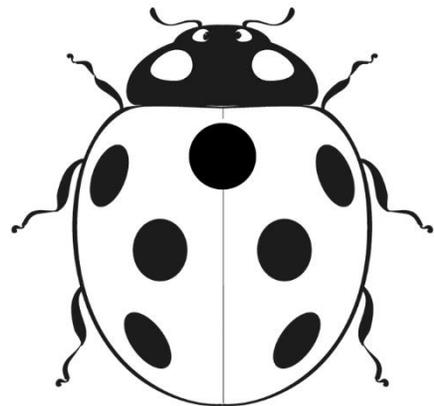
Have you ever looked closely at  
a snowflake?  
No two snowflakes are alike.



Many Monarch butterflies migrate  
5000 km to Mexico for the winter.



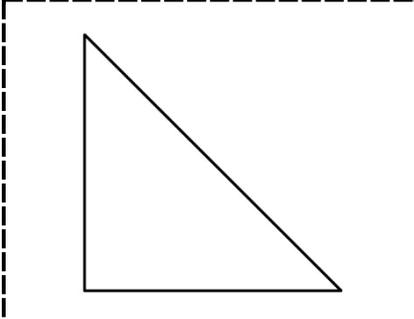
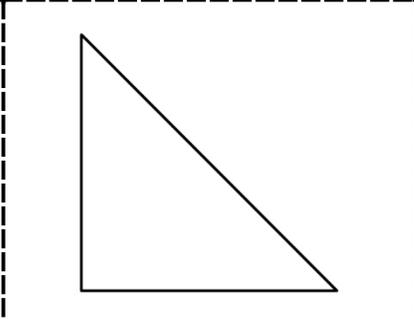
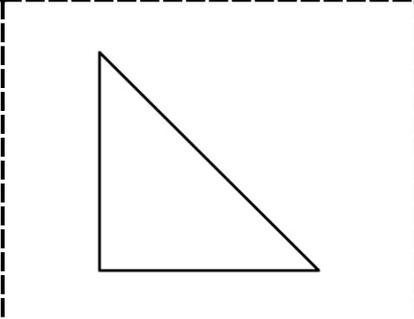
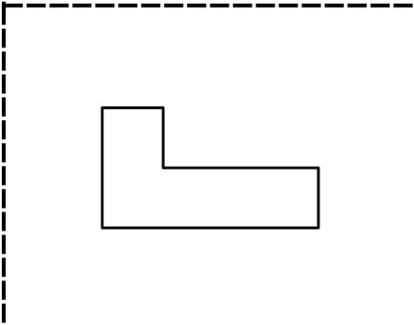
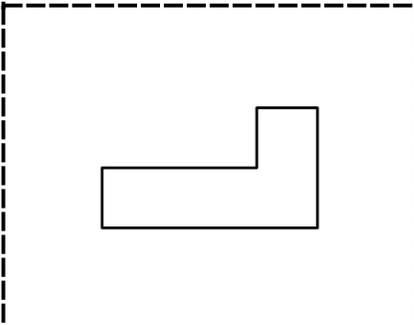
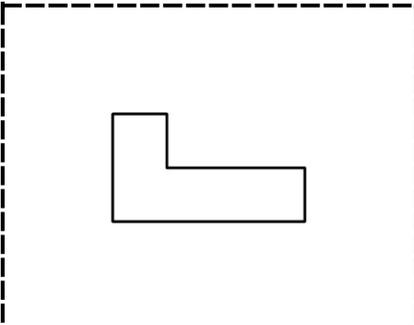
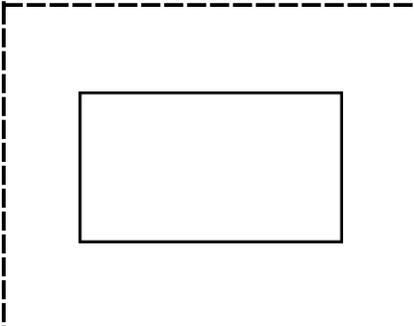
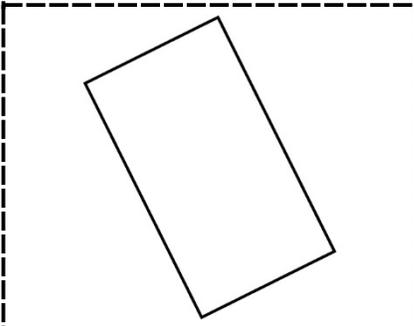
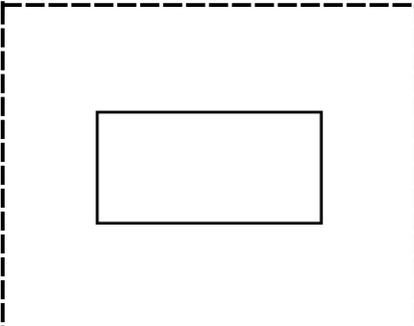
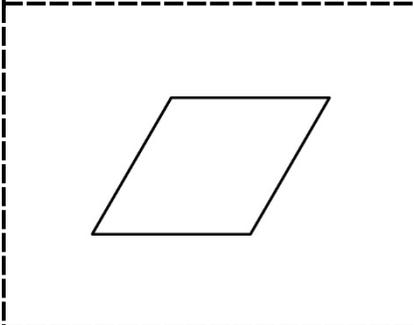
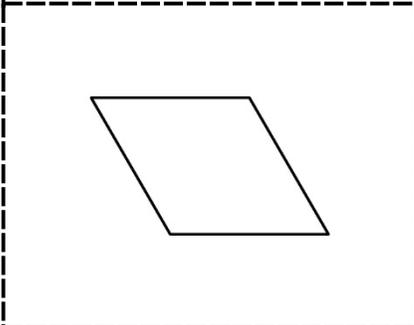
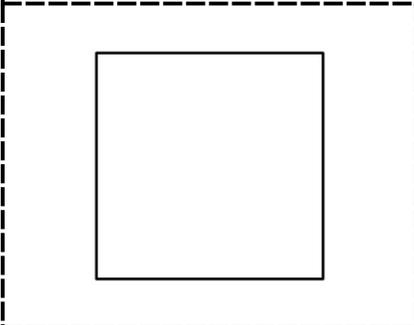
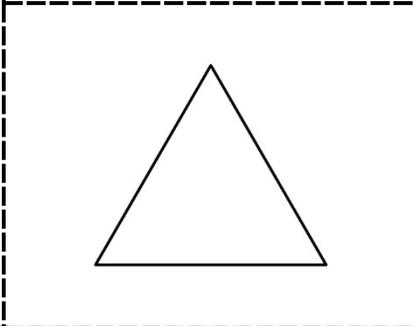
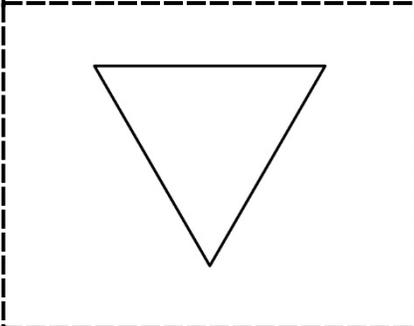
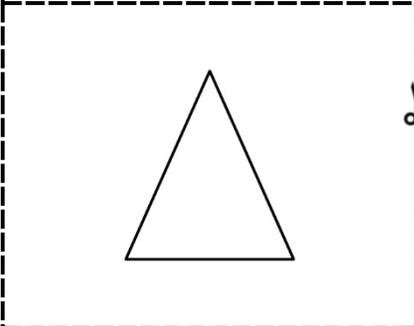
The spots on a ladybug, along  
with its colourful body, are meant  
to warn predators to stay away.



Name \_\_\_\_\_ Date \_\_\_\_\_

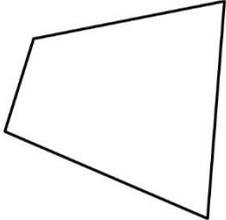
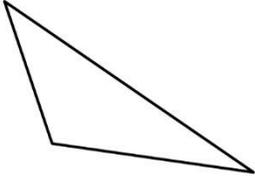
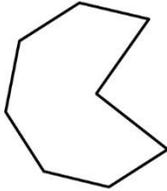
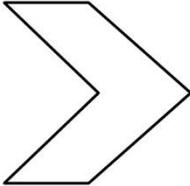
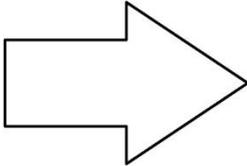
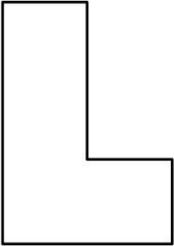
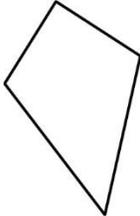
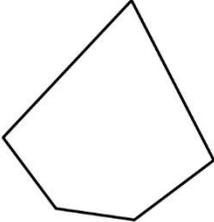
Master 61

# Congruent Shapes

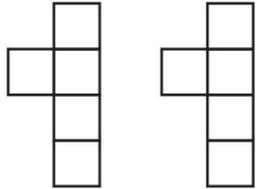
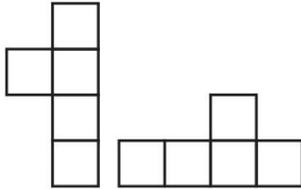
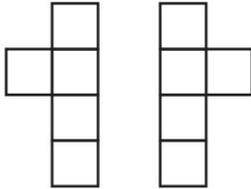
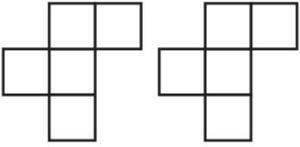
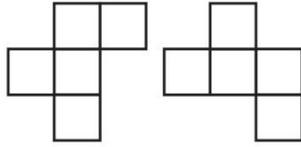
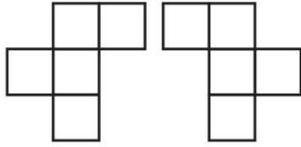
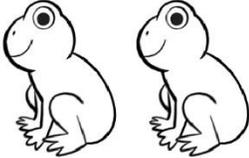
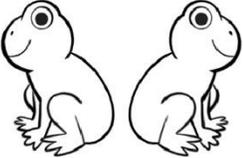
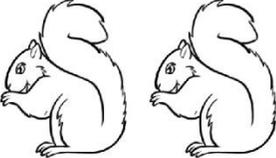
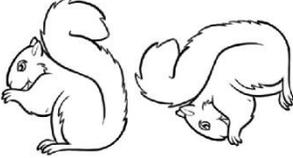
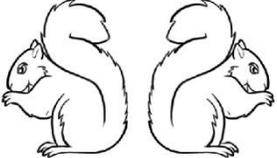
		
		
		
		
		

Master 62

# Amusement Park Shapes

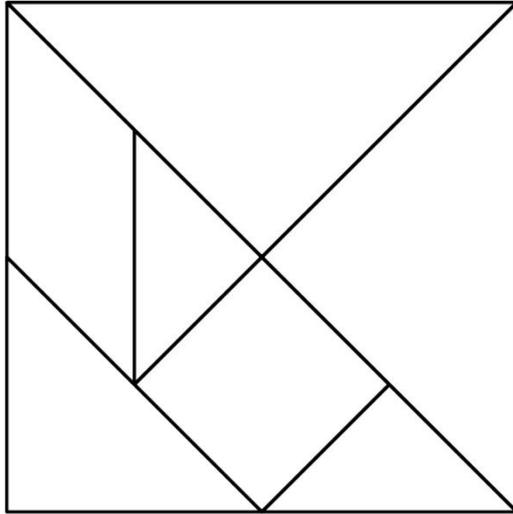
	
	
	
	

# Transformation Matching Cards

<p><b>Translation (slide)</b></p>	<p><b>Rotation (turn)</b></p>	<p><b>Reflection (flip)</b></p>
		
		
		
		

Master 64

# Tangram Cutouts



Name \_\_\_\_\_ Date \_\_\_\_\_

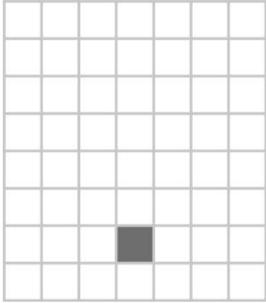
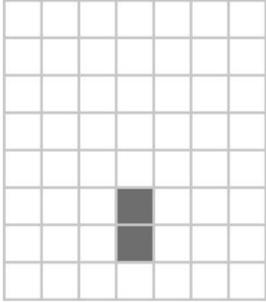
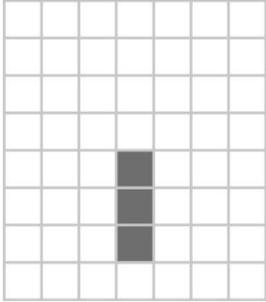
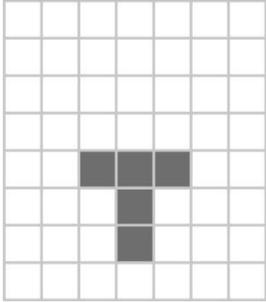
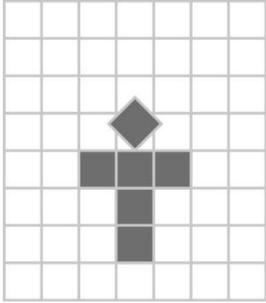
Master 65

# Tangram Grid



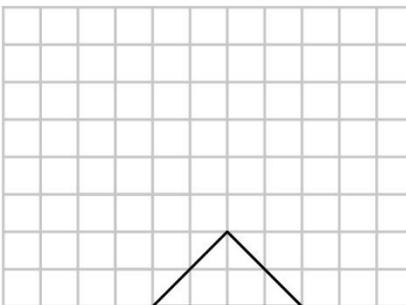
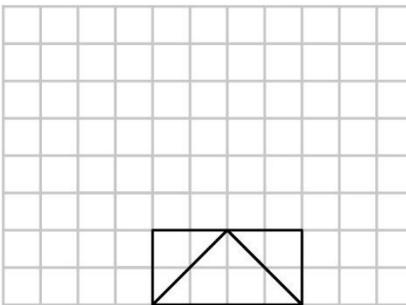
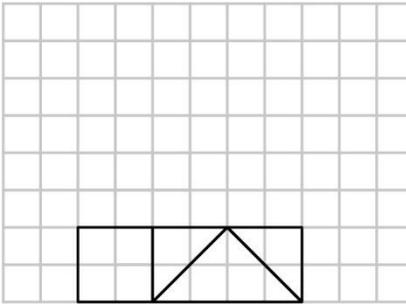
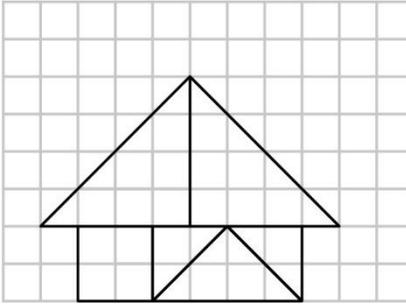
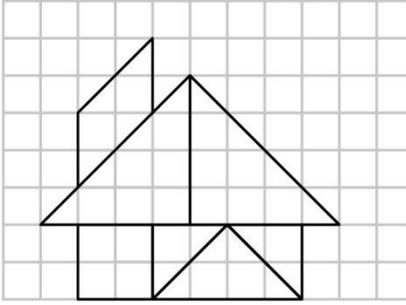
Master 66a

## Picture Instructions: Tiles

<p>Place a tile in the second row from the bottom, in the middle square.</p>	
<p>Place a tile in the square directly above the first tile so sides are touching.</p>	
<p>Place a tile in the square directly above the second tile so sides are touching.</p>	
<p>Place one square to the right and left of the top tile so sides are touching.</p>	
<p>Turn a tile so it is sitting on a vertex. Place it in the square above the middle tile in the row of three tiles. Its vertex should touch the middle of the other tile's side.</p>	

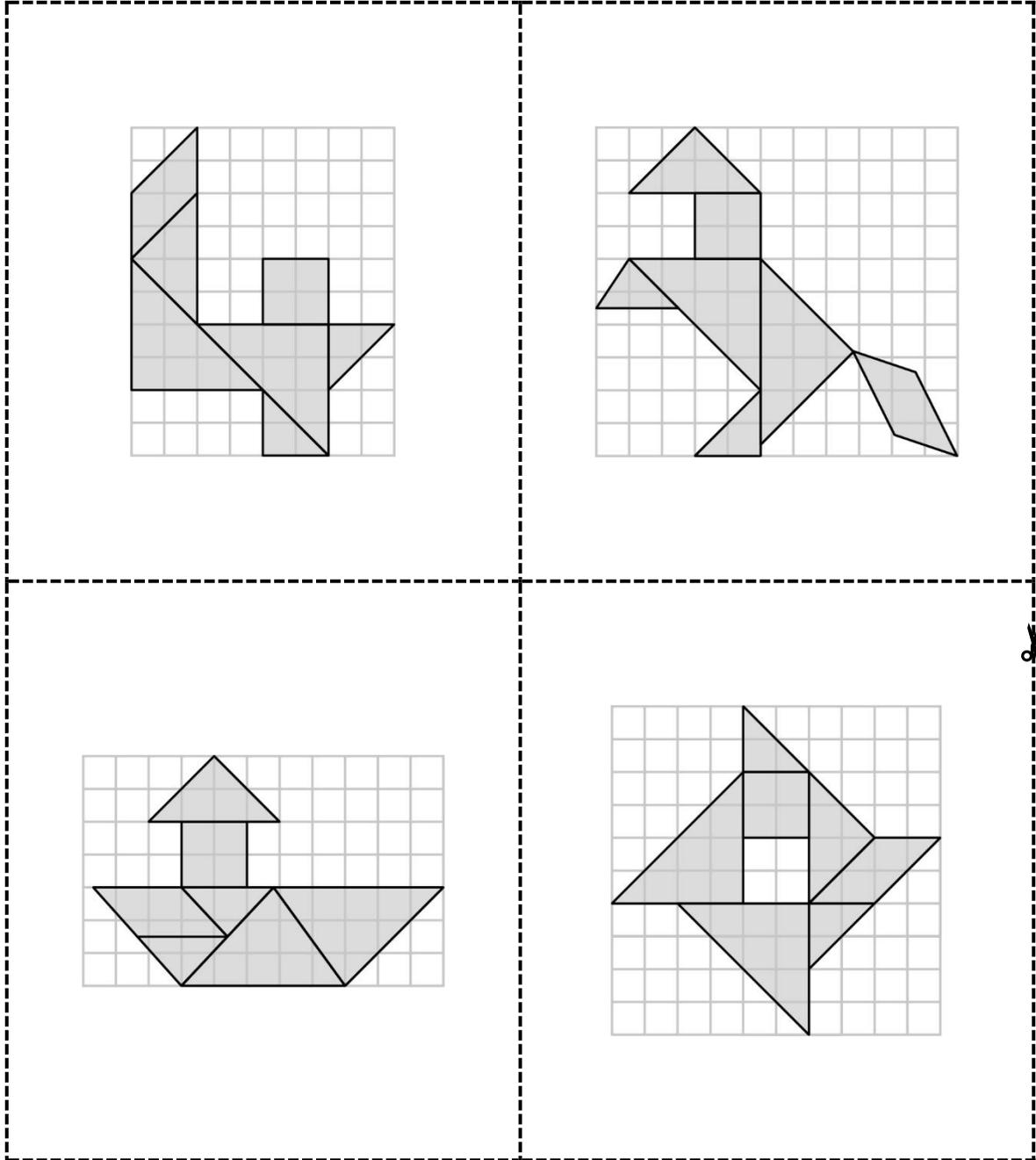
**Master 66b**

# Picture Instructions: Tangram

<p>Place the medium triangle so its long side lines up with the bottom of the grid.</p> <p>Its left vertex touches the 4th vertical grid line from the left.</p>	
<p>Place a small triangle on each side of the medium triangle.</p> <p>The long side of each matches a side of the medium triangle to make a rectangle.</p>	
<p>Place the square on the left side of the rectangle to make a longer rectangle.</p>	
<p>Place the two large triangles together with square corners touching at the bottom to make a larger triangle.</p> <p>Place this triangle on top of the long rectangle to make a house.</p>	
<p>Place the parallelogram to the left of the large triangle to make a chimney.</p> <p>The short sides of the parallelogram should lie along the 2nd and 4th vertical grid lines from the left.</p>	

Master 67a

# Tangram Pictures



Master 67b

# Colour Tile Pictures

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Master 68a

# Dance Move Cards

Hop on 2 Feet	Step Touch Left
Step Touch Right	Slide Left
Slide Right	Grapevine Left
Grapevine Right	Clap Hands



Master 68b

# Dance Move Cards

Spin Around	Touch Right Knee to Elbow
Touch Left Knee to Elbow	Dig Left Heel
Dig Right Heel	Cross Over Left
Cross Over Right	Snap Fingers



Name \_\_\_\_\_ Date \_\_\_\_\_

Master 68c

# Dance Move Cards

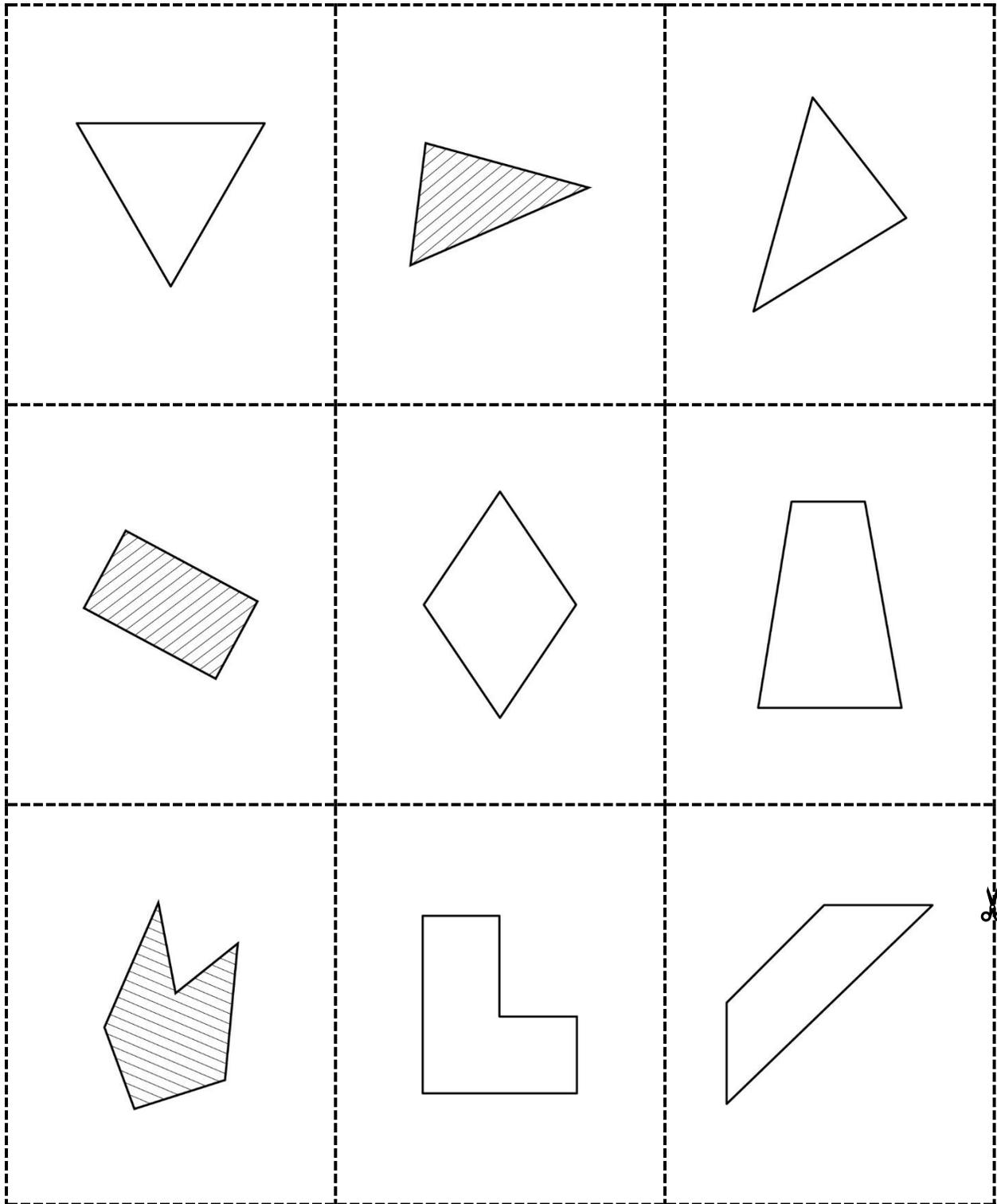
Turn Right	Turn Left





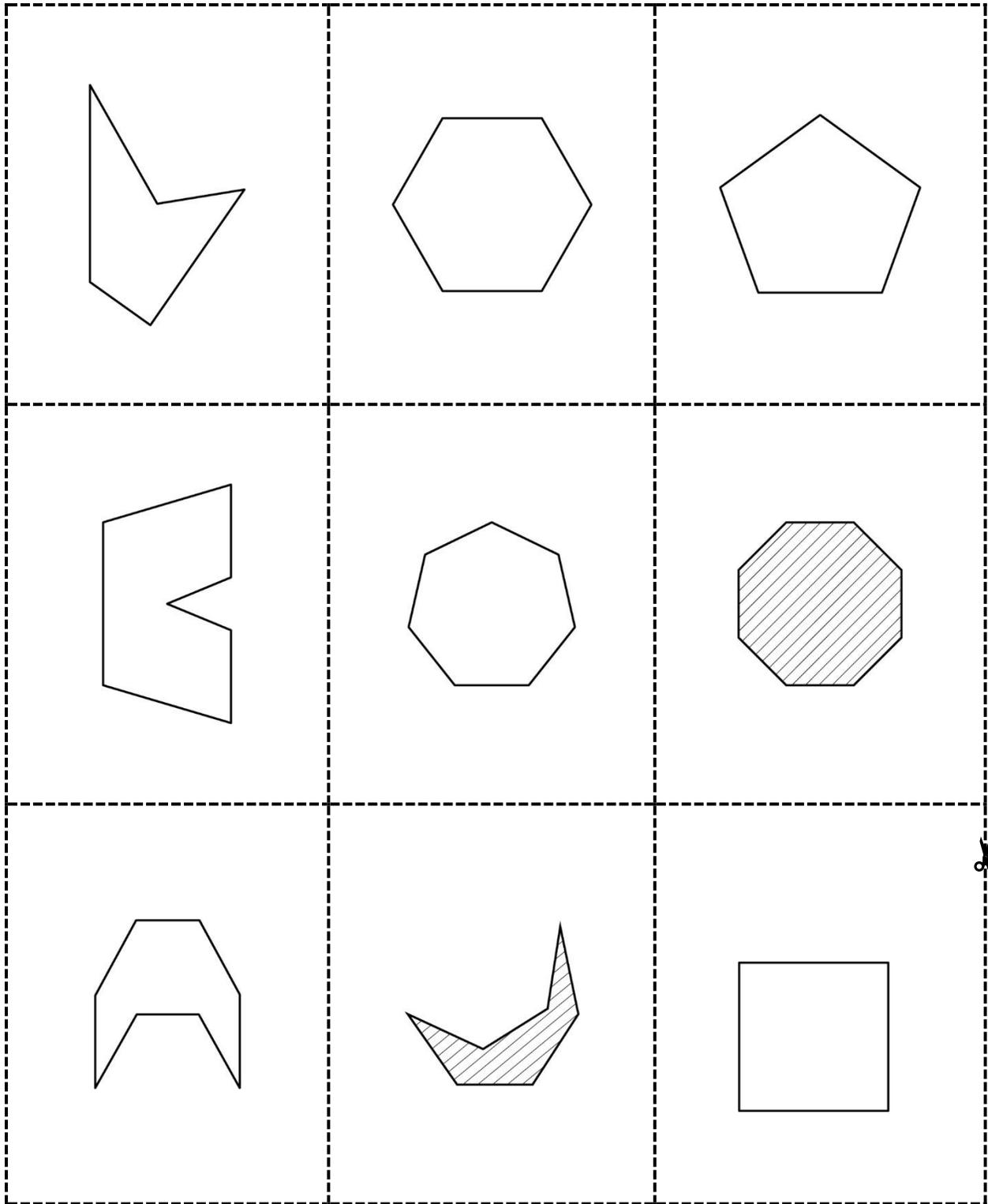
Master 70a

# 2-D Shapes



Master 70b

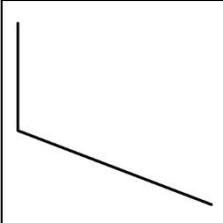
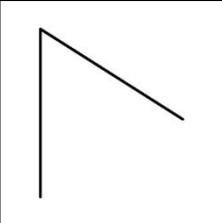
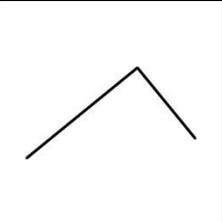
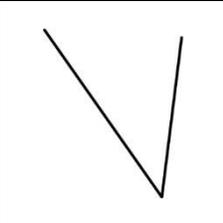
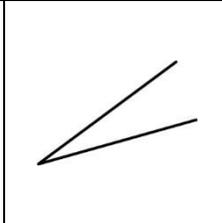
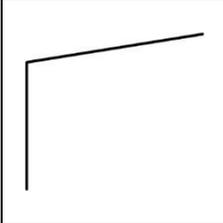
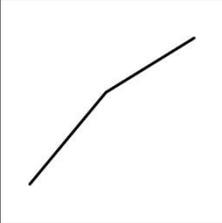
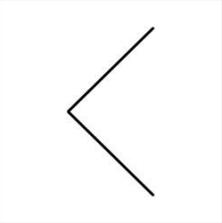
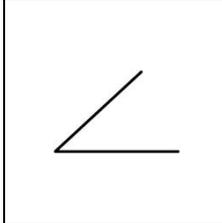
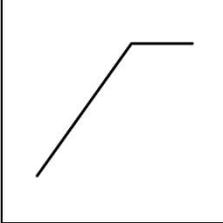
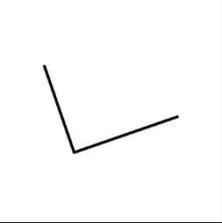
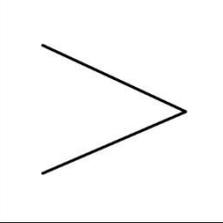
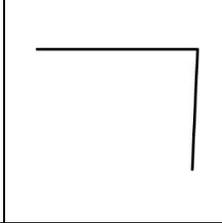
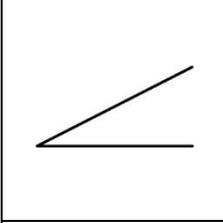
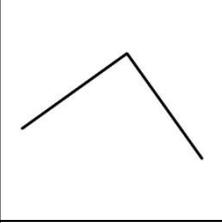
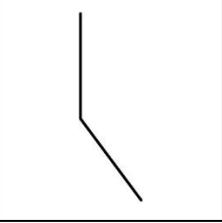
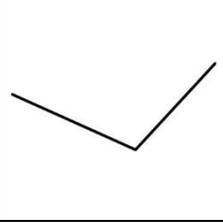
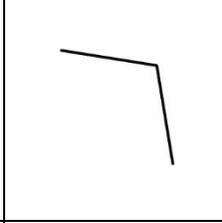
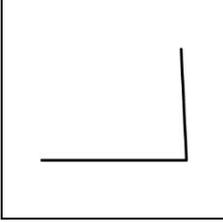
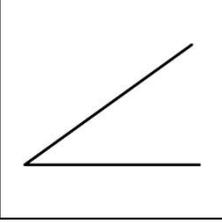
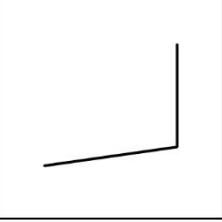
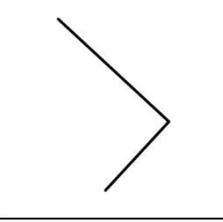
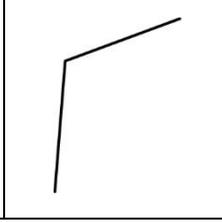
# 2-D Shapes



Master 71a

# Angle Search

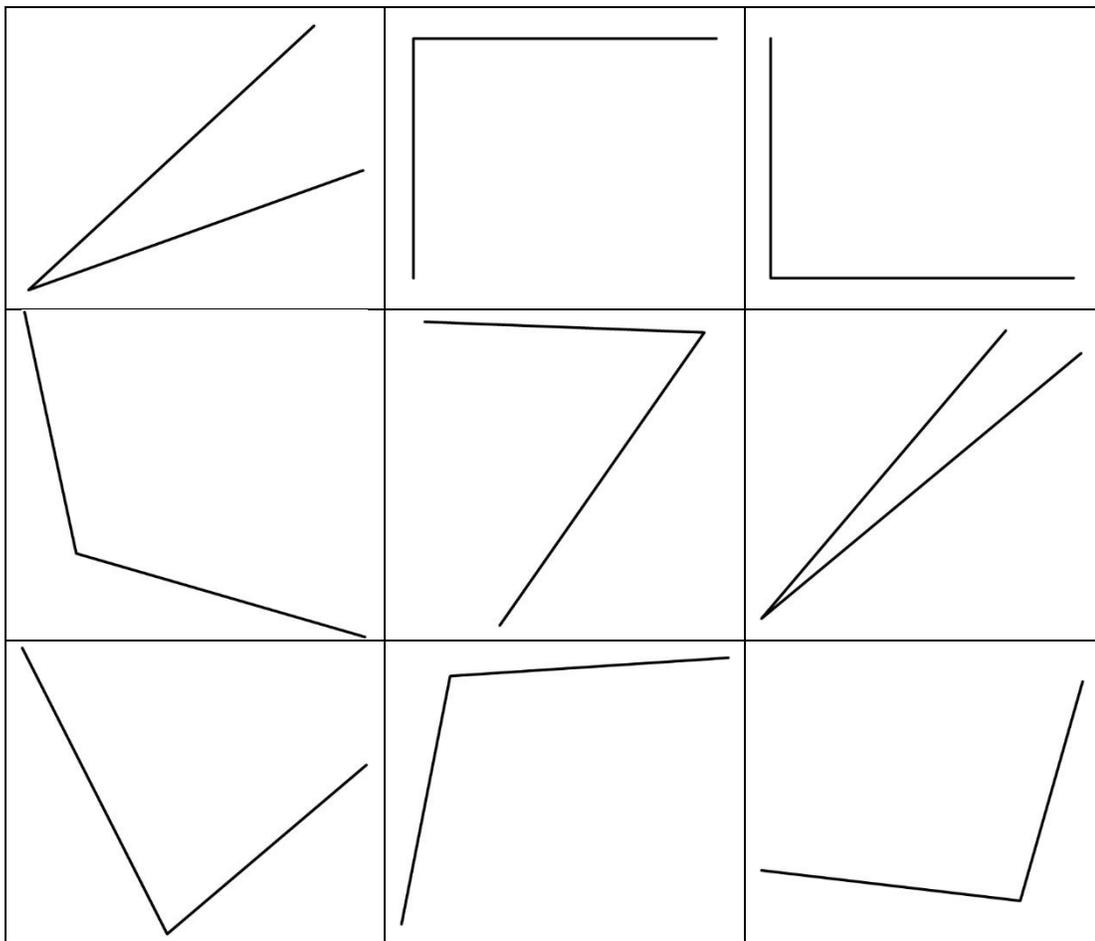
- Angle is less than a right angle.
- Angle is a right angle.
- Angle is greater than a right angle.

Master 71b

# Angle Search (Accommodation)

- Angle is less than a right angle.
- Angle is a right angle.
- Angle is greater than a right angle.



## Connections: Art with Geometry

This art of a fox was created by Isla, a young student artist. She used lots of lines, angles, and shapes to create the drawing. How would you describe this art to a friend?

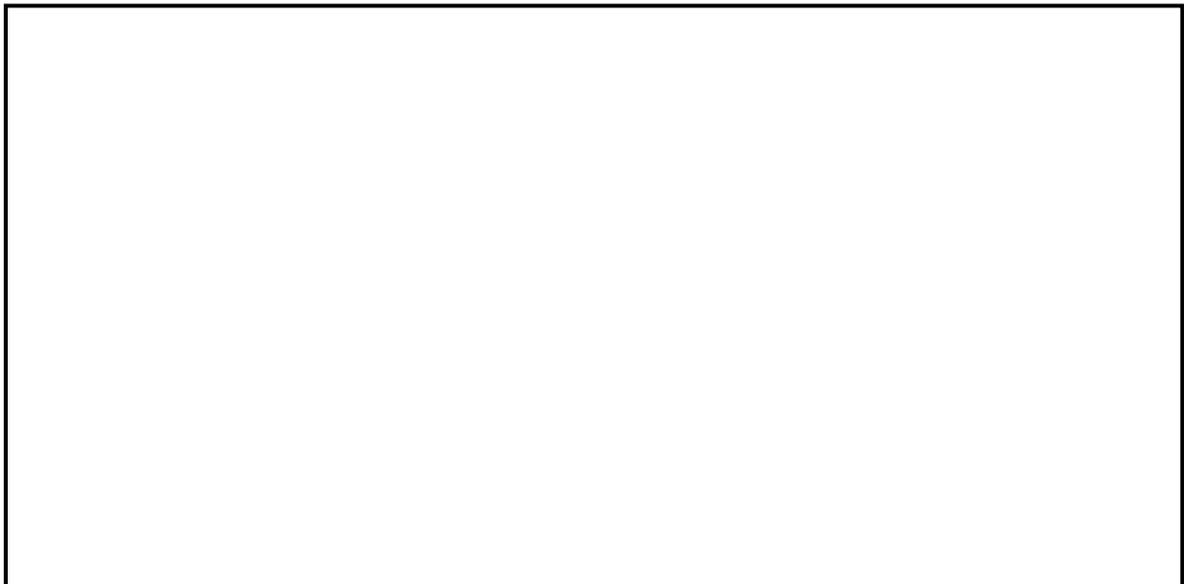


If you want to see more artwork by Isla, check out:  
[https://www.instagram.com/creations\\_by\\_isla](https://www.instagram.com/creations_by_isla).

Create your own piece of art that meets these criteria.

- has at least 3 different shapes
- has at least 4 of each type of angle (right angle, angle greater than a right angle, and angle less than a right angle)

You might choose to use Pattern Blocks create your art.



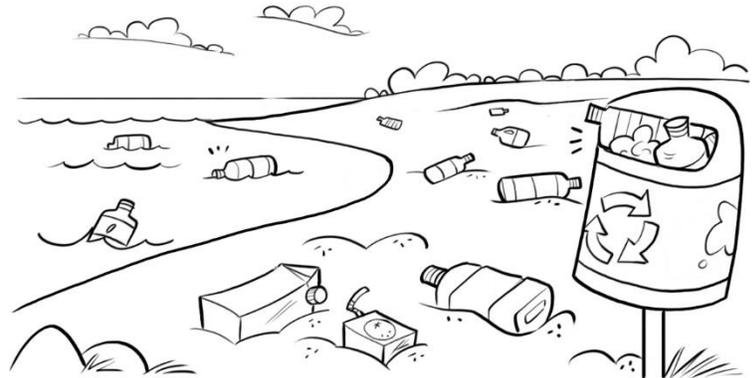
## Connections: Protecting Our Environment

### Did You Know?

20 000 plastic bottles are bought around the world every second.

It takes a lot more water to make a plastic bottle than it does to fill it.

It can take up to 1000 years for plastic to decompose.  
That's 10 times as long as a person might live!



### What Can We Do to Help Protect Our Environment?

- Drink water from reusable bottles.
- Place lunch and snacks in reusable containers.
- Use reusable cloth bags.
- Use paper straws.

Do you do any of these things?

How much plastic do you save?

### Plastic Footprint Challenge

Over one week, collect data on the number of single-use plastics you use each day.

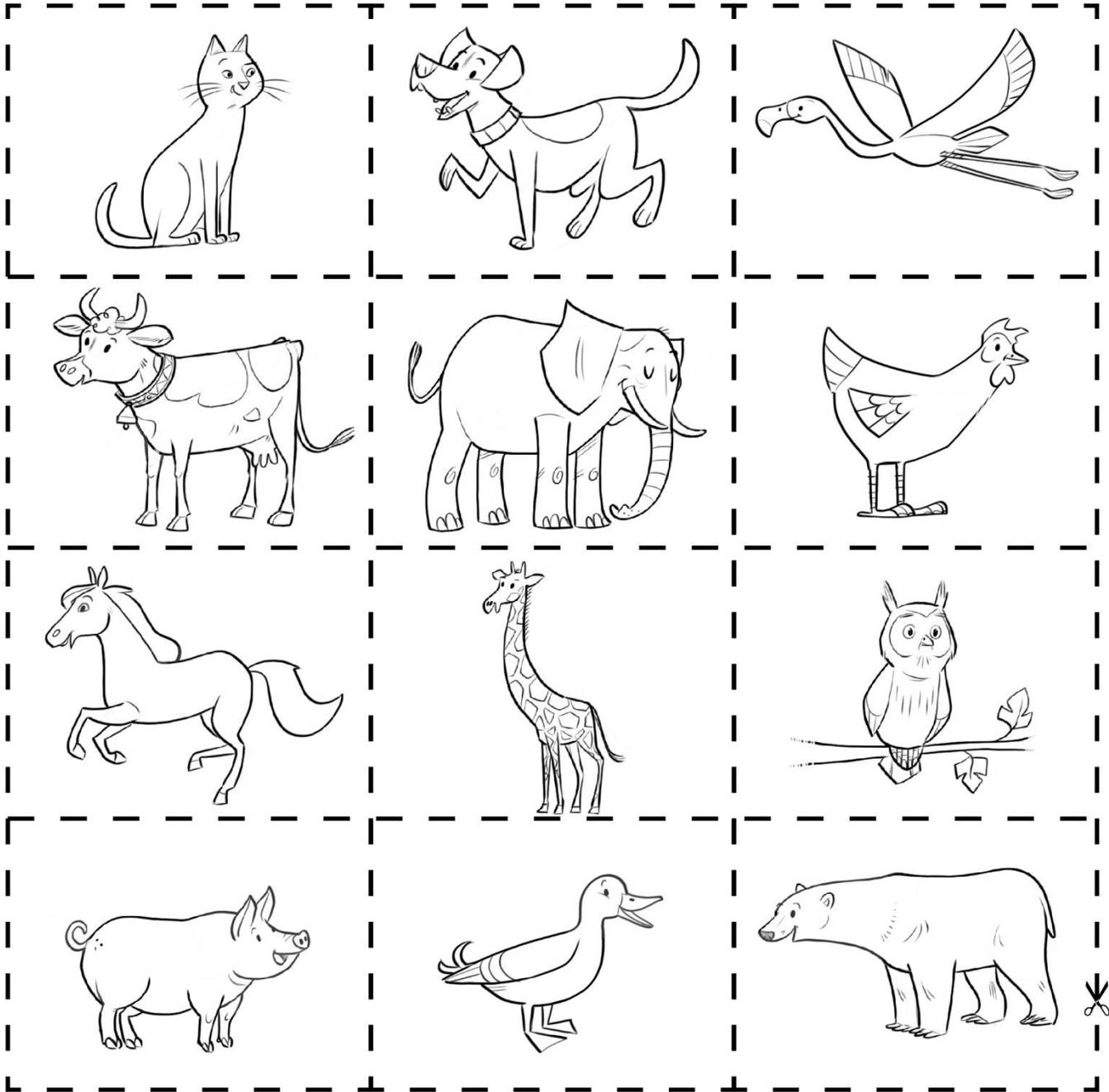
Record how many of each type you use (for example, bottles, bags, straws, and cutlery).

Display the data and present them to the class.

You may choose to use more than one graph.

Master 74a

# Animal Sort

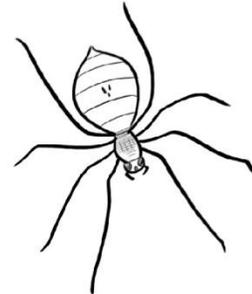
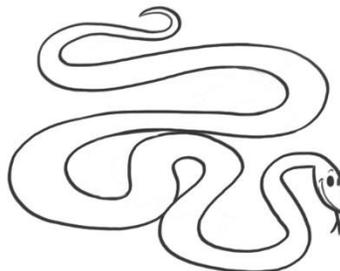
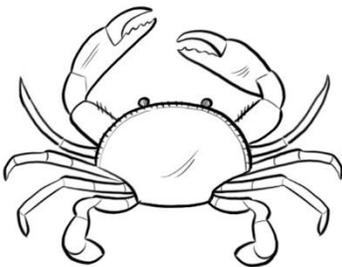
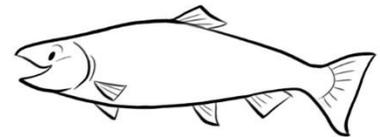
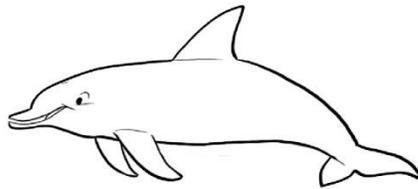
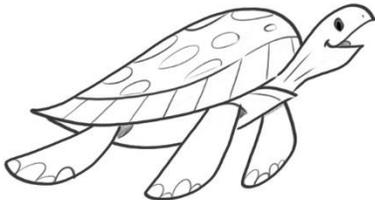
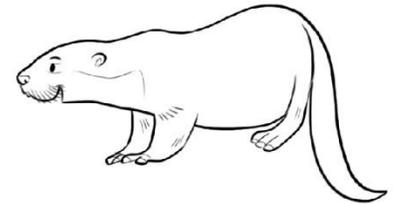
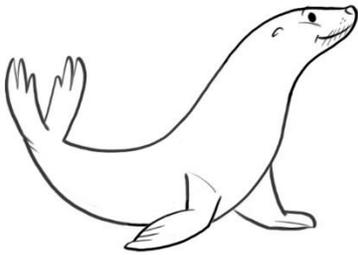
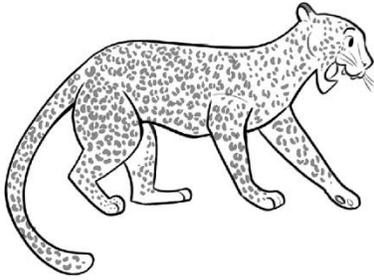


Name \_\_\_\_\_

Date \_\_\_\_\_

Master 74b

# Animal Sort (cont'd)



Master 75

## Items in a Store's Return Bin

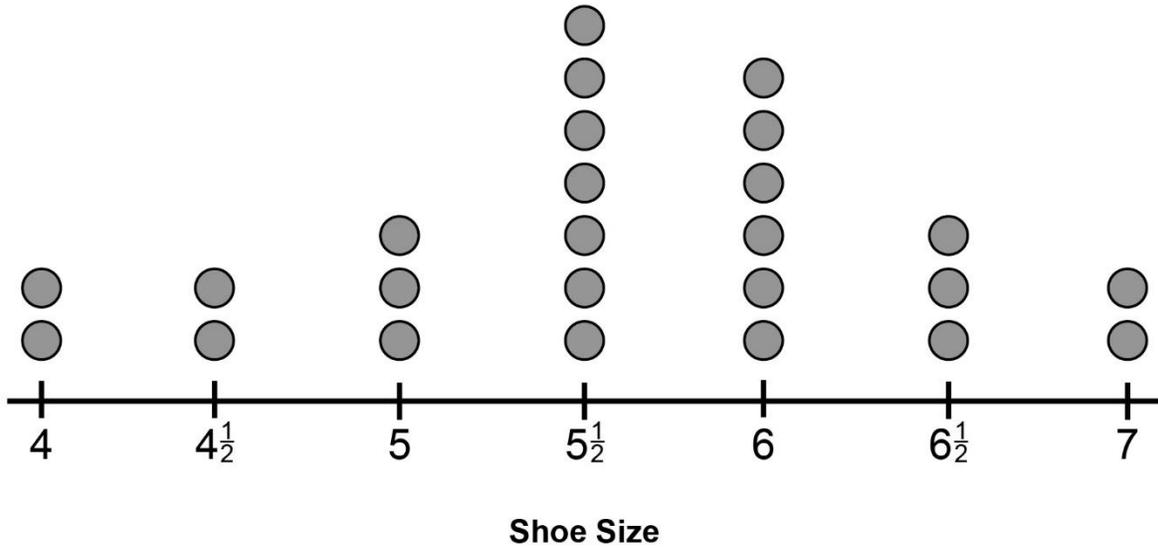
<b>Toaster</b>	<b>Frying pan</b>	<b>Building blocks</b>
<b>Stuffed animal bear</b>	<b>Mugs</b>	<b>Scooter</b>
<b>Running shoes</b>	<b>Light bulbs</b>	<b>Sweater</b>
<b>Car snow brush</b>	<b>Jigsaw puzzle</b>	<b>Jeans</b>
<b>Rain boots</b>	<b>Board game</b>	<b>Socks</b>
<b>T-shirt</b>	<b>Snowsuit</b>	<b>Soccer ball</b>



Master 76

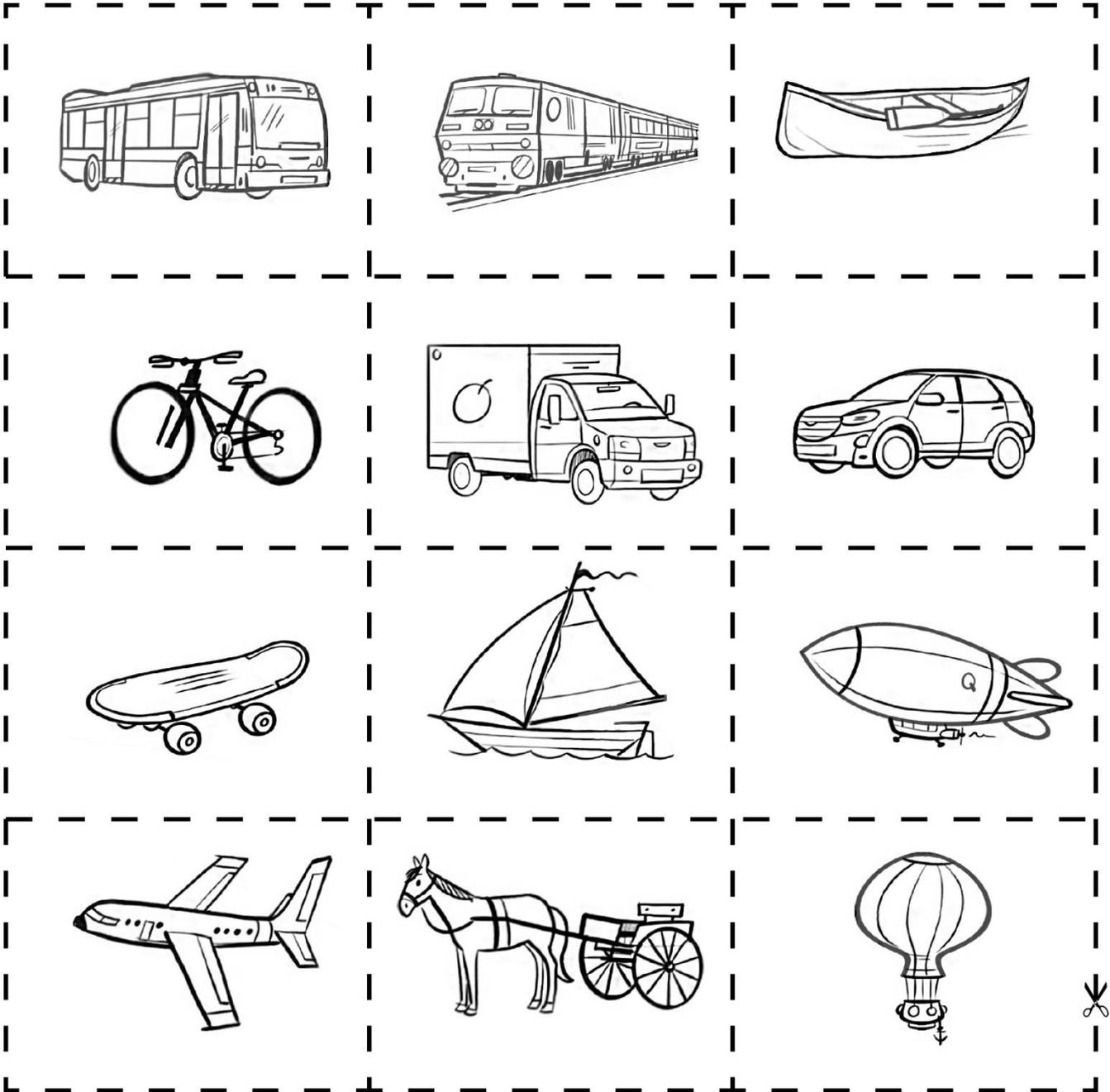
# Shoe-Size Line Plot

## Shoe Size of Students



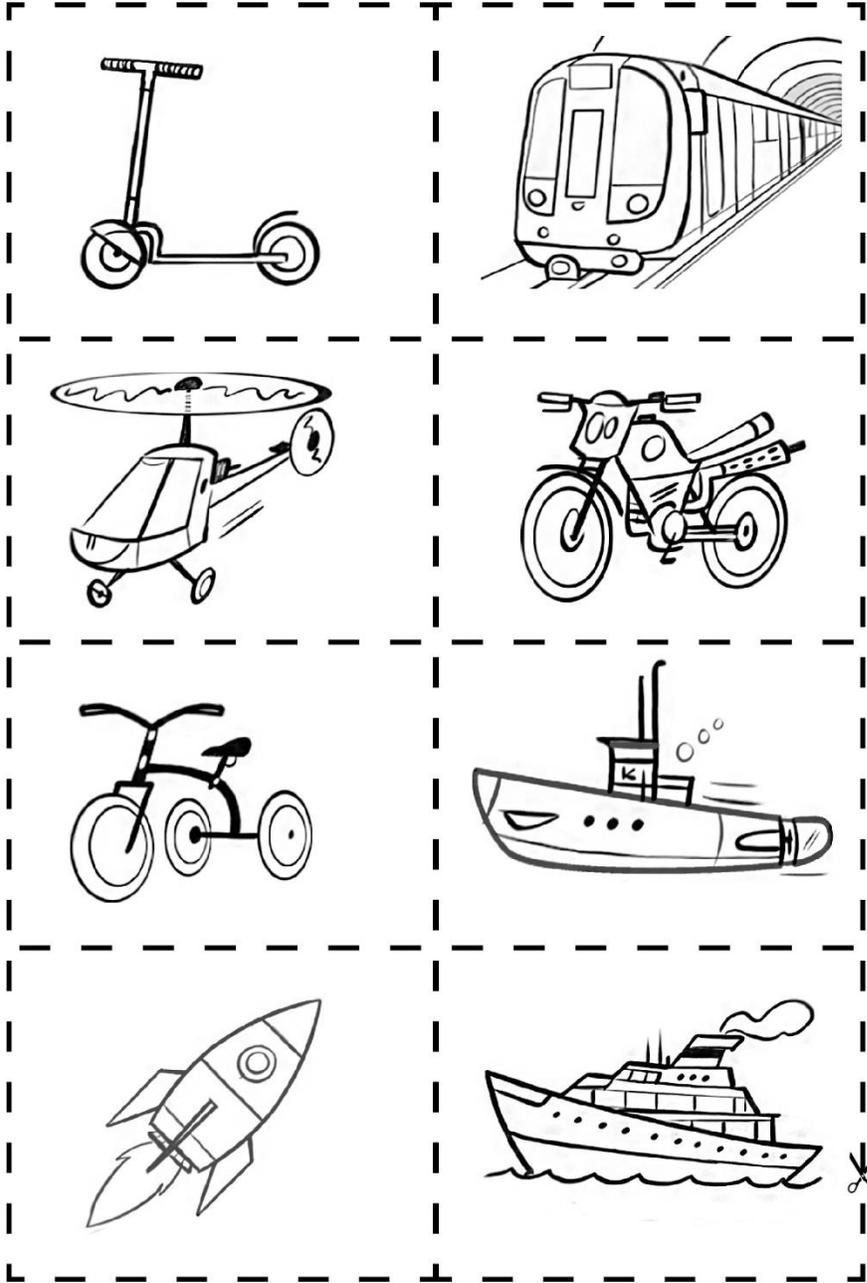
Master 77a

# Types of Transportation



Master 77b

# Types of Transportation



Master 78

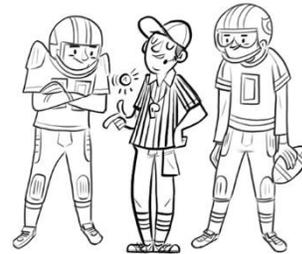
## Connections: What's the Chance?

Chance is the likelihood that something will happen.  
Chance is all around us.

We hear chance when we listen to the weather forecast.  
"It is very likely to rain tomorrow."



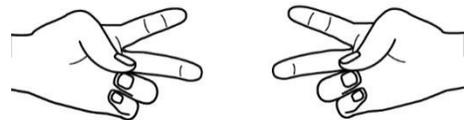
We see chance when watching a football game.  
A coin is tossed to see who gets the ball first.



Have you ever spun to win a prize?  
What is the chance of winning a good prize?  
Why do you think this is?



Think about games you play.  
What is the chance of both players showing scissors when playing Rock, Paper, Scissors?



What is the chance of finding a four-leaf clover?



What is the chance of getting an egg with two yolks?



# Activity 1 Assessment

## Numbers All Around Us

Recognizing and Writing Numerals							
<p>Reads and writes numbers to 100</p> <p>“25, twenty-five”</p>	<p>Matches numerals to 100 to quantities</p> <div style="text-align: center;"> <table border="1"> <tr> <td style="text-align: center;">Tens</td> <td style="text-align: center;">Ones</td> </tr> <tr> <td style="text-align: center;">  </td> <td style="text-align: center;">  </td> </tr> </table> </div> <p>“25 is 2 tens and 5 ones.”</p>	Tens	Ones			<p>Reads and writes numbers to 1000</p> <p>“250; two hundred fifty”</p>	<p>Matches numerals to 1000 to quantities</p> <p>“It says this box contains 250 envelopes.”</p>
Tens	Ones						
							
Observations/Documentation							

# Activity 2 Assessment

## Counting to 1000

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

# Activity 3 Assessment

## Skip-Counting Forward and Backward

Counting to 1000 (Skip-Counting)			
<p>Skip-counts forward and backward by factors of 10</p> <p>By 2s: "42, 44, 46, 48, 50, ..."                      By 5s: "95, 100, 105, 110, 115, ..."                      By 10s: "120, 130, 140, 150, 160, ..."</p>	<p>Flexibly skip-counts forward and backward by factors of 10</p> <p>By 2s: "43, 45, 47, 49, 51, ..."                      By 5s: "96, 101, 106, 111, 116, ..."</p>	<p>Skip-counts forward and backward by factors of 1000</p> <p>By 4s: "104, 108, 112, 116, ..."                      By 25s: "325, 350, 375, 400, ..."</p>	<p>Flexibly skip-counts forward and backward.</p> <p>By 3s: "153, 156, 159, 162, ..."                      By 4s: "105, 109, 113, 117, ..."                      By 25s: "326, 351, 376, 401, ..."                      By 100s: "401, 501, 601, 701, ..."</p>
Observations/Documentation			

## Activity 4 Assessment Consolidation

Counting to 1000 (by 1's)			
Counts on to 20 "13, 14, 15, 16, 17, 18, 19"	Counts on and back within 100, bridging tens "48, 49, 50, 51, 52"	Counts on and back within 1000, bridging hundreds "498, 499, 500, 501, 502"	Flexibly counts on and back within 1000, bridging tens and hundreds "603, 602, 601, 600, 599"
Observations/Documentation			
Counting to 1000 (Skip-Counting)			
Skip-counts forward and backward by factors of 10 By 2s: "42, 44, 46, 48, 50, ..." By 5s: "95, 100, 105, 110, 115, ..." By 10s: "120, 130, 140, 150, 160, ..."	Flexibly skip-counts forward and backward by factors of 10 By 2s: "43, 45, 47, 49, 51, ..." By 5s: "96, 101, 106, 111, 116, ..."	Skip-counts forward and backward by factors of 1000 By 4s: "104, 108, 112, 116, ..." By 25s: "325, 350, 375, 400, ..."	Flexibly skip-counts forward and backward. By 3s: "153, 156, 159, 162, ..." By 4s: "105, 109, 113, 117, ..." By 25s: "326, 351, 376, 401, ..." By 100s: "401, 501, 601, 701, ..."
Observations/Documentation			

# Activity 5 Assessment

## Estimating Quantities

### Estimating Quantities

Guesses or counts



"About 500!"

Creates a referent of 10



"There are lots of groups of 10."

Creates a referent of 100



"I counted out 100."

### Observations/Documentation

# Activity 5 Assessment

## Estimating Quantities

### Estimating Quantities (con't)

Compares to a referent (more or less)



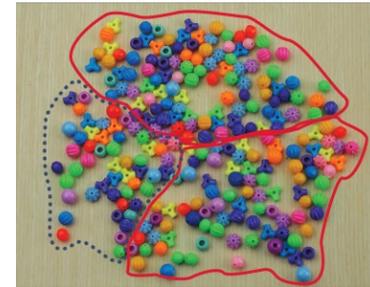
"More than 200."

Gives estimate as a range (physically groups)



"Between 200 and 300."

Estimates using visual strategies



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

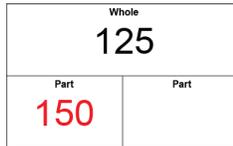
### Observations/Documentation

# Activity 6 Assessment

## Composing and Decomposing Quantities

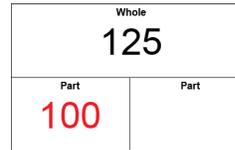
### Decomposing and Composing Quantities

Randomly chooses a number as a part



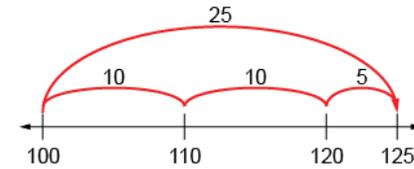
"I like the number 150."

Finds one part of a whole



"I thought of a number less than 125: 100."

Counts on or back to find the other part



"I counted on: 100, 110, 120, 125; the other part is 25."

### Observations/Documentation

Composes the whole in different ways using known pairs

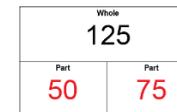
100 and 25  
50 and 75

Uses patterns systematically to compose the whole, considering 0

Part	Part
125	0
124	1
123	2
122	3

"I kept taking 1 from a part and giving it to the other."

Uses number relationships and mental strategies to compose the whole

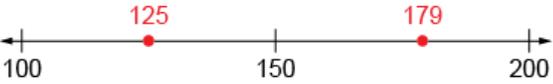
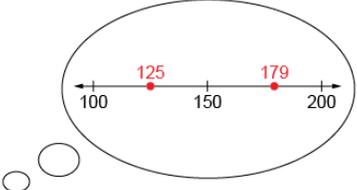


"75: I know 50 and 50 make 100, and 25 more makes 125."

### Observations/Documentation

# Activity 7 Assessment

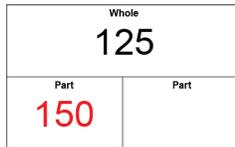
## Comparing and Ordering Quantities

Comparing and Ordering Quantities		
<p>Orders numbers randomly</p> <p><b>125 245 179</b></p> <p>"I just put down any card."</p>	<p>Models with manipulatives</p>  <p>125                      245</p>	<p>Uses benchmark on hundred chart or number line</p>  <p>"I compared the numbers to 150."</p>
Observations/Documentation		
<p>Visualizes hundred chart or number line</p>  <p>"I picture 179 farther to the right than 125."</p>	<p>Compares numbers, digit by digit (with the same place value)</p>  <p>"Both start with 1, 2 is less than 7, and 5 is less than 9. So, 125 is less than 179."</p>	<p>Orders three or more quantities (e.g., using early place-value, mental strategies)</p> <p><b>179 245 326</b></p> <p>"326 is greatest because 3 hundreds is more than both 2 hundreds and 1 hundred."</p>
Observations/Documentation		

# Activity 8 Assessment Consolidation

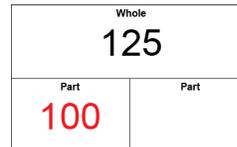
## Decomposing and Composing Quantities

Randomly chooses a number as a part



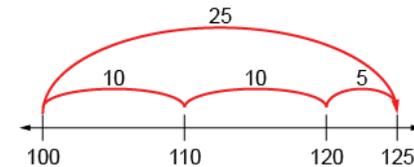
"I like the number 150."

Finds one part of a whole



"I thought of a number less than 125: 100."

Counts on or back to find the other part



"I counted on: 100, 110, 120, 125; the other part is 25."

### Observations/Documentation

Composes the whole in different ways using known pairs

100 and 25  
50 and 75

Uses patterns systematically to compose the whole, considering 0

Part	Part
125	0
124	1
123	2
122	3

"I kept taking 1 from a part and giving it to the other."

Uses number relationships and mental strategies to compose the whole



"75: I know 50 and 50 make 100, and 25 more makes 125."

### Observations/Documentation

# Activity 8 Assessment Consolidation

## Comparing and Ordering Quantities

Orders numbers randomly

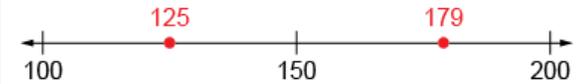
125 245 179

"I just put down any card."

Models with manipulatives



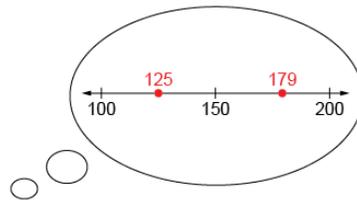
Uses benchmark on hundred chart or number line



"I compared the numbers to 150."

## Observations/Documentation

Visualizes hundred chart or number line



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

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."

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."

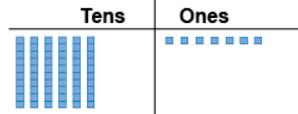
## Observations/Documentation

# Activity 9 Assessment

## Building Numbers

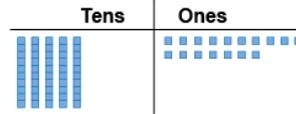
### Composing and Decomposing 3-Digit Numbers

Composes and decomposes using tens and ones (one way)



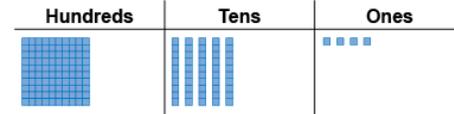
"I modelled 67."

Composes and decomposes using tens and ones (more than one way)



"I traded a ten for 10 ones."

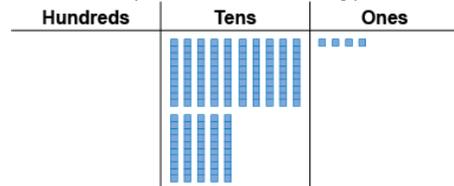
Composes and decomposes using hundreds, tens, and ones (one way)



"I modelled 154."

### Observations/Documentation

Composes and decomposes using hundreds, tens, and ones (more than one way)



"I traded the hundred for 10 tens."

Uses place value to write a number in different ways

"One hundred fifty-four  
 $154 = 100 + 50 + 4$ ;  
 1 hundred, 5 tens, 4 ones;  
 1 hundred, 4 tens, 14 ones  
 □|||||♦♦♦♦"

Understands relationships among digits

"The digit 4 in 429 represents  
 4 hundreds, 40 tens, or 400 ones."

### Observations/Documentation

# Activity 10 Assessment

## Representing Numbers in Different Ways

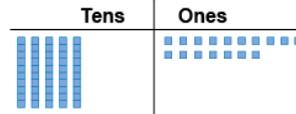
### Composing and Decomposing 3-Digit Numbers

Composes and decomposes using tens and ones (one way)



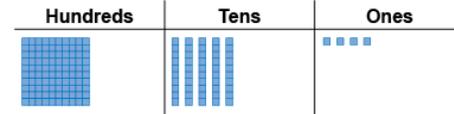
"I modelled 67."

Composes and decomposes using tens and ones (more than one way)



"I traded a ten for 10 ones."

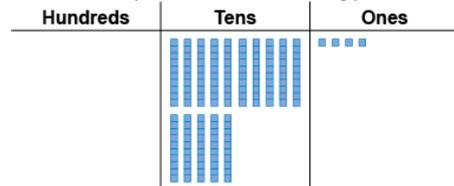
Composes and decomposes using hundreds, tens, and ones (one way)



"I modelled 154."

### Observations/Documentation

Composes and decomposes using hundreds, tens, and ones (more than one way)



"I traded the hundred for 10 tens."

Uses place value to write a number in different ways

"One hundred fifty-four  
 $154 = 100 + 50 + 4$ ;  
 1 hundred, 5 tens, 4 ones;  
 1 hundred, 4 tens, 14 ones  
 □|||||♦♦♦♦"

Understands relationships among digits

"The digit 4 in 429 represents  
 4 hundreds, 40 tens, or 400 ones."

### Observations/Documentation

# Activity 11 Assessment

## What's the Number?

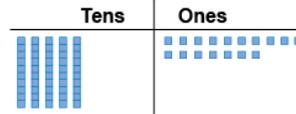
### Composing and Decomposing 3-Digit Numbers

Composes and decomposes using tens and ones (one way)



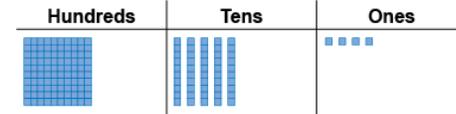
"I modelled 67."

Composes and decomposes using tens and ones (more than one way)



"I traded a ten for 10 ones."

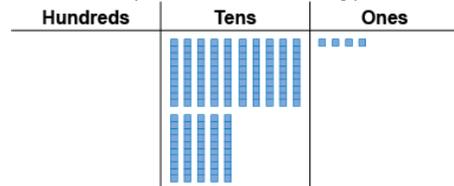
Composes and decomposes using hundreds, tens, and ones (one way)



"I modelled 154."

### Observations/Documentation

Composes and decomposes using hundreds, tens, and ones (more than one way)



"I traded the hundred for 10 tens."

Uses place value to write a number in different ways

"One hundred fifty-four  
 $154 = 100 + 50 + 4$ ;  
 1 hundred, 5 tens, 4 ones;  
 1 hundred, 4 tens, 14 ones  
 □|||||♦♦♦♦"

Understands relationships among digits

"The digit 4 in 429 represents  
 4 hundreds, 40 tens, or 400 ones."

### Observations/Documentation

# Activity 12 Assessment

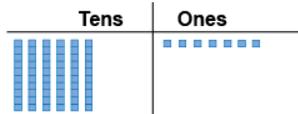
## Rounding Numbers

Estimating Numbers			
<p>Compares to benchmark of 10</p> <p>“23 is greater than 10.”</p>	<p>Identifies benchmark numbers (multiples of 10)</p> <p>“23 lies between 20 and 30.”</p>	<p>Compares to benchmark numbers (multiples of 10)</p>  <p>“23 is closer to 20 than to 30.”</p>	<p>Uses benchmark numbers to round to nearest 10</p> <p>“Since 23 is closer to 20 than to 30, 23 rounds to 20.”</p>
Observations/Documentation			

# Activity 13 Assessment Consolidation

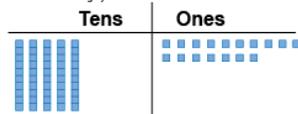
## Composing and Decomposing 3-Digit Numbers

Composes and decomposes using tens and ones (one way)



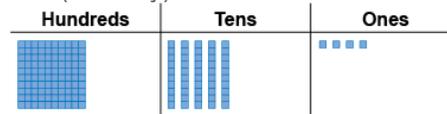
"I modelled 67."

Composes and decomposes using tens and ones (more than one way)



"I traded a ten for 10 ones."

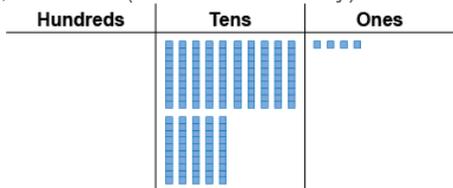
Composes and decomposes using hundreds, tens, and ones (one way)



"I modelled 154."

### Observations/Documentation

Composes and decomposes using hundreds, tens, and ones (more than one way)



"I traded the hundred for 10 tens."

Uses place value to write a number in different ways

"One hundred fifty-four  
 $154 = 100 + 50 + 4$ ;  
 1 hundred, 5 tens, 4 ones;  
 1 hundred, 4 tens, 14 ones  
 □|||||♦♦♦♦"

Understands relationships among digits

"The digit 4 in 429 represents  
 4 hundreds, 40 tens, or 400 ones."

### Observations/Documentation

# Activity 13 Assessment Consolidation

## Estimating Numbers

Compares to benchmark of 10

“23 is greater than 10.”

Identifies benchmark numbers  
(multiples of 10)

“23 lies between 20 and 30.”

Compares to benchmark numbers  
(multiples of 10)



“23 is closer to 20 than to 30.”

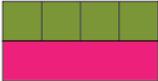
Uses benchmark numbers to round  
to nearest 10

“Since 23 is closer to 20 than to 30,  
23 rounds to 20.”

## Observations/Documentation

# Activity 14 Assessment

## Exploring Equal Parts

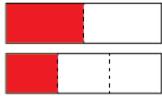
Partitioning Quantities to Form Fractions			
<p>Partitions whole (area or length) into parts that are not equal</p>  <p>"I folded the strip into 4 parts."</p>	<p>Partitions whole (area or length) into equal parts</p>  <p>"I folded the line into 4 equal parts."</p>	<p>Names the unit fraction</p>  <p>"Each part represents one-sixth."</p>	<p>Counts parts using unit fractions</p>  <p>"1 one-fourth, 2 one-fourths, 3 one-fourths, 4 one-fourths"</p>
Observations/Documentation			

# Activity 14 Assessment

## Exploring Equal Parts

### Partitioning Quantities to Form Fractions (con't)

Compares unit fractions

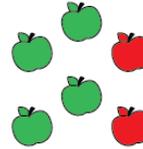


"One-half is bigger than one-third of the same whole."

Understands relationship between number of parts and size of parts

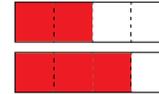
"When I divide the whole into more parts, the parts get smaller."

Uses fraction symbol to represent fractional quantities of whole



$\frac{4}{6}$  of the apples are green."

Compares fractions with the same denominator

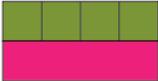


" $\frac{3}{4}$  is bigger than  $\frac{2}{4}$  because one more part is shaded."

### Observations/Documentation

# Activity 15 Assessment

## Comparing Fractions 1

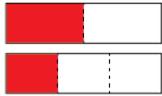
Partitioning Quantities to Form Fractions			
<p>Partitions whole (area or length) into parts that are not equal</p>  <p>"I folded the strip into 4 parts."</p>	<p>Partitions whole (area or length) into equal parts</p>  <p>"I folded the line into 4 equal parts."</p>	<p>Names the unit fraction</p>  <p>"Each part represents one-sixth."</p>	<p>Counts parts using unit fractions</p>  <p>"1 one-fourth, 2 one-fourths, 3 one-fourths, 4 one-fourths"</p>
Observations/Documentation			

# Activity 15 Assessment

## Comparing Fractions 1

### Partitioning Quantities to Form Fractions (con't)

Compares unit fractions

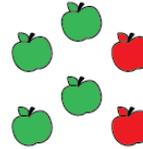


“One-half is bigger than one-third of the same whole.”

Understands relationship between number of parts and size of parts

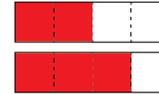
“When I divide the whole into more parts, the parts get smaller.”

Uses fraction symbol to represent fractional quantities of whole



$\frac{4}{6}$  of the apples are green.”

Compares fractions with the same denominator

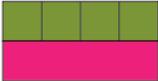


“ $\frac{3}{4}$  is bigger than  $\frac{2}{4}$  because one more part is shaded.”

### Observations/Documentation

# Activity 16 Assessment

## Comparing Fractions 2

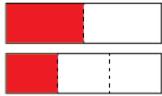
Partitioning Quantities to Form Fractions			
<p>Partitions whole (area or length) into parts that are not equal</p>  <p>"I folded the strip into 4 parts."</p>	<p>Partitions whole (area or length) into equal parts</p>  <p>"I folded the line into 4 equal parts."</p>	<p>Names the unit fraction</p>  <p>"Each part represents one-sixth."</p>	<p>Counts parts using unit fractions</p>  <p>"1 one-fourth, 2 one-fourths, 3 one-fourths, 4 one-fourths"</p>
Observations/Documentation			

# Activity 16 Assessment

## Comparing Fractions 2

### Partitioning Quantities to Form Fractions (con't)

Compares unit fractions

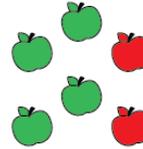


“One-half is bigger than one-third of the same whole.”

Understands relationship between number of parts and size of parts

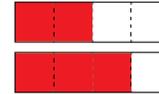
“When I divide the whole into more parts, the parts get smaller.”

Uses fraction symbol to represent fractional quantities of whole



$\frac{4}{6}$  of the apples are green.”

Compares fractions with the same denominator

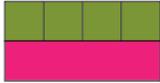


“ $\frac{3}{4}$  is bigger than  $\frac{2}{4}$  because one more part is shaded.”

### Observations/Documentation

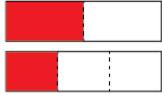
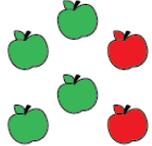
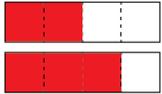
# Activity 18 Assessment

## Partitioning Sets

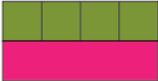
Partitioning Quantities to Form Fractions			
<p>Partitions whole (area or length) into parts that are not equal</p>  <p>"I folded the strip into 4 parts."</p>	<p>Partitions whole (area or length) into equal parts</p>  <p>"I folded the line into 4 equal parts."</p>	<p>Names the unit fraction</p>  <p>"Each part represents one-sixth."</p>	<p>Counts parts using unit fractions</p>  <p>"1 one-fourth, 2 one-fourths, 3 one-fourths, 4 one-fourths"</p>
Observations/Documentation			

# Activity 18 Assessment

## Partitioning Sets

Partitioning Quantities to Form Fractions (con't)			
<p>Compares unit fractions</p>  <p>“One-half is bigger than one-third of the same whole.”</p>	<p>Understands relationship between number of parts and size of parts</p> <p>“When I divide the whole into more parts, the parts get smaller.”</p>	<p>Uses fraction symbol to represent fractional quantities of whole</p>  <p><math>\frac{4}{6}</math> of the apples are green.”</p>	<p>Compares fractions with the same denominator</p>  <p><math>\frac{3}{4}</math> is bigger than <math>\frac{2}{4}</math> because one more part is shaded.”</p>
Observations/Documentation			

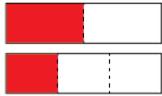
# Activity 19 Assessment Consolidation

Partitioning Quantities to Form Fractions			
<p>Partitions whole (area or length) into parts that are not equal</p>  <p>"I folded the strip into 4 parts."</p>	<p>Partitions whole (area or length) into equal parts</p>  <p>"I folded the line into 4 equal parts."</p>	<p>Names the unit fraction</p>  <p>"Each part represents one-sixth."</p>	<p>Counts parts using unit fractions</p>  <p>"1 one-fourth, 2 one-fourths, 3 one-fourths, 4 one-fourths"</p>
Observations/Documentation			

# Activity 19 Assessment Consolidation

## Partitioning Quantities to Form Fractions (con't)

Compares unit fractions

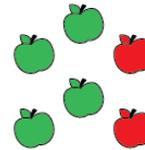


“One-half is bigger than one-third of the same whole.”

Understands relationship between number of parts and size of parts

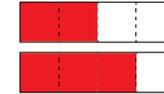
“When I divide the whole into more parts, the parts get smaller.”

Uses fraction symbol to represent fractional quantities of whole



$\frac{4}{6}$  of the apples are green.”

Compares fractions with the same denominator



“ $\frac{3}{4}$  is bigger than  $\frac{2}{4}$  because one more part is shaded.”

## Observations/Documentation

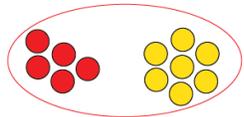
# Activity 19 Assessment

## Modelling Addition and Subtraction

### Developing Meaning of Addition and Subtraction

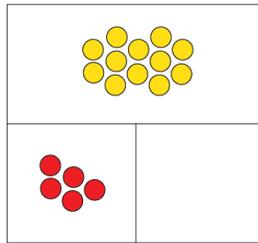
Recognizes addition and subtraction situations

Join



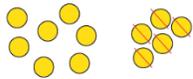
$$5 + 7 = \underline{\quad}$$

Part-part-whole



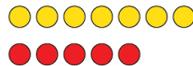
$$5 + \underline{\quad} = 12$$

Separate



$$12 - 5 = \underline{\quad}$$

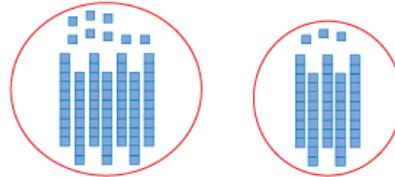
Compare



$$7 = 5 + \underline{\quad}$$

Models concretely to add and subtract

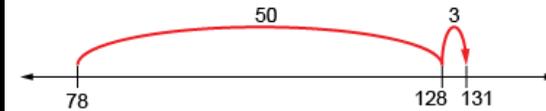
$$78 + 53 = \underline{\quad}$$



"78" "88, 98, 108, 118, 128, 129, 130, 131"

Models and symbolizes addition and subtraction

$$78 + 53 = \underline{\quad}$$



"I add 5 tens and 3 ones.  
 $78 + 53 = 78 + 50 + 3$ , or 131"

### Observations/Documentation

# Activity 19 Assessment

## Modelling Addition and Subtraction

### Developing Meaning of Addition and Subtraction (con't)

Estimates sums and differences to check reasonableness

$131 - 42 = 89$   
 "130 - 40 = 90, which is close to 89 so my answer is reasonable."

Creates and solves problems

"There are 131 birds in the tree.  
 Some birds flew away.  
 Now there are 42 birds in the tree.  
 How many birds flew away?"

$131 - \square = 42$   
 89 birds flew away.

Uses properties and inverse operations of addition and subtraction to solve problems

$131 - \square = 42$   
 "I can think addition to help me solve the problem:  
 $42 + \square = 131$ "

### Observations/Documentation

# Activity 19 Assessment

## Modelling Addition and Subtraction

Developing Fluency for Addition and Subtraction		
Fluently adds and subtracts within 5 "I know $4 + 1 = 5$ and $5 - 1 = 4$ ."	Fluently adds and subtracts to 10 "I know $8 + 2 = 10$ and $10 - 2 = 8$ ." (complements to 10)	Fluently adds and subtracts to 20 "I can use doubles. I know $9 + 9 = 18$ and $18 - 9 = 9$ ."
Observations/Documentation		
Uses known sums and differences to solve addition and subtraction equations " $25 + 37 = \square$ I know $25 + 30 = 55$ , and 55 plus 5 is 60, and 2 more makes 62." (decomposing, known facts)	Develops mental strategies and algorithms $29 + 32 = \square$ I take 1 from 32 and give it to 29 to get $30 + 31$ . $30 + 30 = 60$ , and 1 more is 61." (compensation)	Estimates sums and differences $49 + 38 = \square$ "49 is close to 50. 38 is close to 40. $50 + 40 = 90$ " (using benchmarks)
Observations/Documentation		

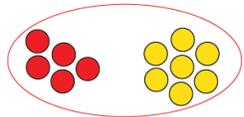
# Activity 20 Assessment

## Estimating Sums and Differences

### Developing Meaning of Addition and Subtraction

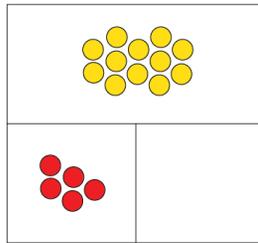
Recognizes addition and subtraction situations

Join



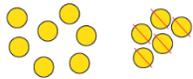
$$5 + 7 = \underline{\quad}$$

Part-part-whole



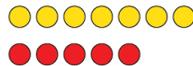
$$5 + \underline{\quad} = 12$$

Separate



$$12 - 5 = \underline{\quad}$$

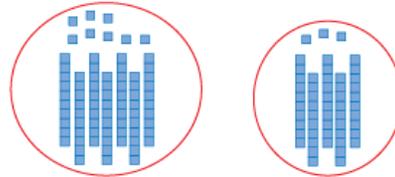
Compare



$$7 = 5 + \underline{\quad}$$

Models concretely to add and subtract

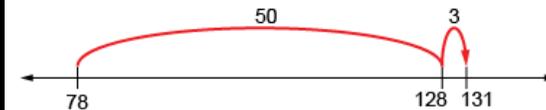
$$78 + 53 = \underline{\quad}$$



"78" "88, 98, 108, 118, 128, 129, 130, 131"

Models and symbolizes addition and subtraction

$$78 + 53 = \underline{\quad}$$



"I add 5 tens and 3 ones.  
 $78 + 53 = 78 + 50 + 3$ , or 131"

### Observations/Documentation

## Activity 20 Assessment

### Estimating Sums and Differences

#### Developing Meaning of Addition and Subtraction (con't)

Estimates sums and differences to check reasonableness

$131 - 42 = 89$   
 "130 - 40 = 90, which is close to 89 so my answer is reasonable."

Creates and solves problems

"There are 131 birds in the tree.  
 Some birds flew away.  
 Now there are 42 birds in the tree.  
 How many birds flew away?"

$131 - \square = 42$   
 89 birds flew away.

Uses properties and inverse operations of addition and subtraction to solve problems

$131 - \square = 42$   
 "I can think addition to help me solve the problem:  
 $42 + \square = 131$ "

#### Observations/Documentation

# Activity 20 Assessment

## Estimating Sums and Differences

Developing Fluency for Addition and Subtraction		
Fluently adds and subtracts within 5 “I know $4 + 1 = 5$ and $5 - 1 = 4$ .”	Fluently adds and subtracts to 10 “I know $8 + 2 = 10$ and $10 - 2 = 8$ .” (complements to 10)	Fluently adds and subtracts to 20 “I can use doubles. I know $9 + 9 = 18$ and $18 - 9 = 9$ .”
Observations/Documentation		
Uses known sums and differences to solve addition and subtraction equations “ $25 + 37 = \square$ I know $25 + 30 = 55$ , and 55 plus 5 is 60, and 2 more makes 62.” (decomposing, known facts)	Develops mental strategies and algorithms $29 + 32 = \square$ I take 1 from 32 and give it to 29 to get $30 + 31$ . $30 + 30 = 60$ , and 1 more is 61.” (compensation)	Estimates sums and differences $49 + 38 = \square$ “49 is close to 50. 38 is close to 40. $50 + 40 = 90$ ” (using benchmarks)
Observations/Documentation		

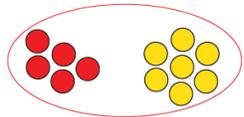
# Activity 21 Assessment

## Adding and Subtracting Money Amounts

### Developing Meaning of Addition and Subtraction

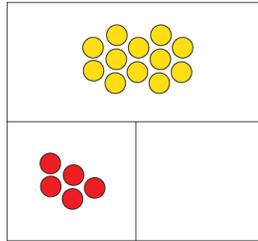
Recognizes addition and subtraction situations

Join



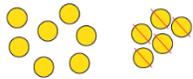
$$5 + 7 = \underline{\quad}$$

Part-part-whole



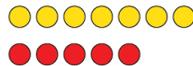
$$5 + \underline{\quad} = 12$$

Separate



$$12 - 5 = \underline{\quad}$$

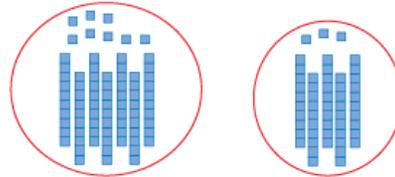
Compare



$$7 = 5 + \underline{\quad}$$

Models concretely to add and subtract

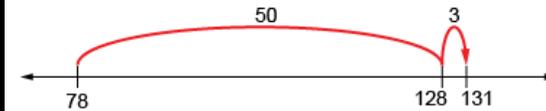
$$78 + 53 = \underline{\quad}$$



"78" "88, 98, 108, 118, 128, 129, 130, 131"

Models and symbolizes addition and subtraction

$$78 + 53 = \underline{\quad}$$



"I add 5 tens and 3 ones.  
 $78 + 53 = 78 + 50 + 3$ , or 131"

### Observations/Documentation

# Activity 21 Assessment

## Adding and Subtracting Money Amounts

### Developing Meaning of Addition and Subtraction (con't)

Estimates sums and differences to check reasonableness

$131 - 42 = 89$   
 "130 - 40 = 90, which is close to 89 so my answer is reasonable."

Creates and solves problems

"There are 131 birds in the tree.  
 Some birds flew away.  
 Now there are 42 birds in the tree.  
 How many birds flew away?"

$131 - \square = 42$   
 89 birds flew away.

Uses properties and inverse operations of addition and subtraction to solve problems

$131 - \square = 42$   
 "I can think addition to help me solve the problem:  
 $42 + \square = 131$ "

### Observations/Documentation

# Activity 21 Assessment

## Adding and Subtracting Money Amounts

Developing Fluency for Addition and Subtraction		
Fluently adds and subtracts within 5 “I know $4 + 1 = 5$ and $5 - 1 = 4$ .”	Fluently adds and subtracts to 10 “I know $8 + 2 = 10$ and $10 - 2 = 8$ .” (complements to 10)	Fluently adds and subtracts to 20 “I can use doubles. I know $9 + 9 = 18$ and $18 - 9 = 9$ .”
Observations/Documentation		
Uses known sums and differences to solve addition and subtraction equations “ $25 + 37 = \square$ I know $25 + 30 = 55$ , and 55 plus 5 is 60, and 2 more makes 62.” (decomposing, known facts)	Develops mental strategies and algorithms $29 + 32 = \square$ I take 1 from 32 and give it to 29 to get $30 + 31$ . $30 + 30 = 60$ , and 1 more is 61.” (compensation)	Estimates sums and differences $49 + 38 = \square$ “49 is close to 50. 38 is close to 40. $50 + 40 = 90$ ” (using benchmarks)
Observations/Documentation		

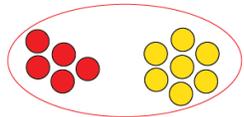
# Activity 22 Assessment

## Using Mental Math to Add and Subtract

### Developing Meaning of Addition and Subtraction

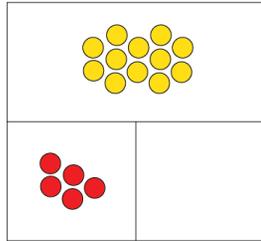
Recognizes addition and subtraction situations

Join



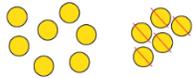
$$5 + 7 = \underline{\quad}$$

Part-part-whole



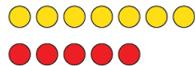
$$5 + \underline{\quad} = 12$$

Separate



$$12 - 5 = \underline{\quad}$$

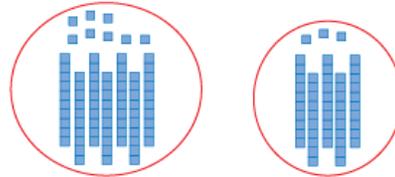
Compare



$$7 = 5 + \underline{\quad}$$

Models concretely to add and subtract

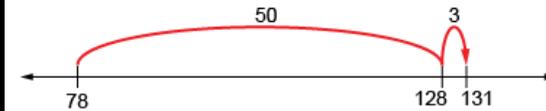
$$78 + 53 = \underline{\quad}$$



"78" "88, 98, 108, 118, 128, 129, 130, 131"

Models and symbolizes addition and subtraction

$$78 + 53 = \underline{\quad}$$



"I add 5 tens and 3 ones.  
 $78 + 53 = 78 + 50 + 3$ , or 131"

### Observations/Documentation

## Activity 22 Assessment

### Using Mental Math to Add and Subtract

#### Developing Meaning of Addition and Subtraction (con't)

Estimates sums and differences to check reasonableness

$131 - 42 = 89$   
 "130 - 40 = 90, which is close to 89 so my answer is reasonable."

Creates and solves problems

"There are 131 birds in the tree.  
 Some birds flew away.  
 Now there are 42 birds in the tree.  
 How many birds flew away?"

$131 - \square = 42$   
 89 birds flew away.

Uses properties and inverse operations of addition and subtraction to solve problems

$131 - \square = 42$   
 "I can think addition to help me solve the problem:  
 $42 + \square = 131$ "

#### Observations/Documentation

## Activity 22 Assessment

### Using Mental Math to Add and Subtract

Developing Fluency for Addition and Subtraction		
Fluently adds and subtracts within 5 "I know $4 + 1 = 5$ and $5 - 1 = 4$ ."	Fluently adds and subtracts to 10 "I know $8 + 2 = 10$ and $10 - 2 = 8$ ." (complements to 10)	Fluently adds and subtracts to 20 "I can use doubles." I know $9 + 9 = 18$ and $18 - 9 = 9$ ."
Observations/Documentation		
Uses known sums and differences to solve addition and subtraction equations " $25 + 37 = \square$ I know $25 + 30 = 55$ , and 55 plus 5 is 60, and 2 more makes 62." (decomposing, known facts)	Develops mental strategies and algorithms $29 + 32 = \square$ I take 1 from 32 and give it to 29 to get $30 + 31$ . $30 + 30 = 60$ , and 1 more is 61." (compensation)	Estimates sums and differences $49 + 38 = \square$ "49 is close to 50. 38 is close to 40. $50 + 40 = 90$ " (using benchmarks)
Observations/Documentation		

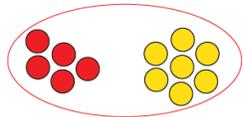
# Activity 23 Assessment

## Mastering Addition and Subtraction Facts

### Developing Meaning of Addition and Subtraction

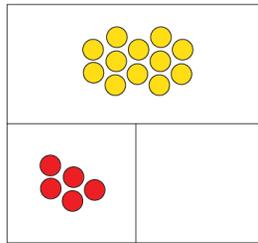
Recognizes addition and subtraction situations

Join



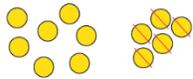
$$5 + 7 = \underline{\quad}$$

Part-part-whole



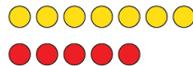
$$5 + \underline{\quad} = 12$$

Separate



$$12 - 5 = \underline{\quad}$$

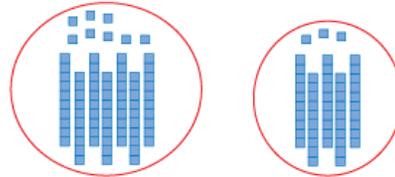
Compare



$$7 = 5 + \underline{\quad}$$

Models concretely to add and subtract

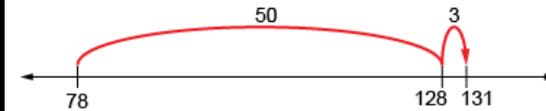
$$78 + 53 = \underline{\quad}$$



"78" "88, 98, 108, 118, 128, 129, 130, 131"

Models and symbolizes addition and subtraction

$$78 + 53 = \underline{\quad}$$



"I add 5 tens and 3 ones.  
 $78 + 53 = 78 + 50 + 3$ , or 131"

### Observations/Documentation

# Activity 23 Assessment

## Mastering Addition and Subtraction Facts

### Developing Meaning of Addition and Subtraction (con't)

Estimates sums and differences to check reasonableness

$131 - 42 = 89$   
 "130 - 40 = 90, which is close to 89 so my answer is reasonable."

Creates and solves problems

"There are 131 birds in the tree.  
 Some birds flew away.  
 Now there are 42 birds in the tree.  
 How many birds flew away?"

$131 - \square = 42$   
 89 birds flew away.

Uses properties and inverse operations of addition and subtraction to solve problems

$131 - \square = 42$   
 "I can think addition to help me solve the problem:  
 $42 + \square = 131$ "

### Observations/Documentation

# Activity 23 Assessment

## Mastering Addition and Subtraction Facts

Developing Fluency for Addition and Subtraction		
Fluently adds and subtracts within 5 "I know $4 + 1 = 5$ and $5 - 1 = 4$ ."	Fluently adds and subtracts to 10 "I know $8 + 2 = 10$ and $10 - 2 = 8$ ." (complements to 10)	Fluently adds and subtracts to 20 "I can use doubles. I know $9 + 9 = 18$ and $18 - 9 = 9$ ."
Observations/Documentation		
Uses known sums and differences to solve addition and subtraction equations " $25 + 37 = \square$ I know $25 + 30 = 55$ , and 55 plus 5 is 60, and 2 more makes 62." (decomposing, known facts)	Develops mental strategies and algorithms $29 + 32 = \square$ I take 1 from 32 and give it to 29 to get $30 + 31$ . $30 + 30 = 60$ , and 1 more is 61." (compensation)	Estimates sums and differences $49 + 38 = \square$ "49 is close to 50. 38 is close to 40. $50 + 40 = 90$ " (using benchmarks)
Observations/Documentation		

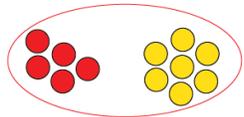
# Activity 24 Assessment

## Creating and Solving Problems

### Developing Meaning of Addition and Subtraction

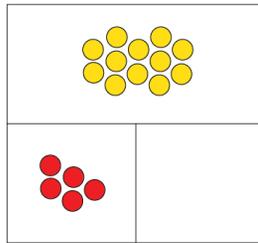
Recognizes addition and subtraction situations

Join



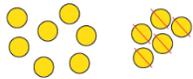
$$5 + 7 = \underline{\quad}$$

Part-part-whole



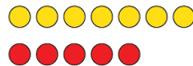
$$5 + \underline{\quad} = 12$$

Separate



$$12 - 5 = \underline{\quad}$$

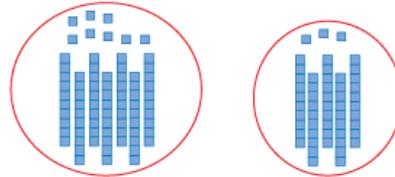
Compare



$$7 = 5 + \underline{\quad}$$

Models concretely to add and subtract

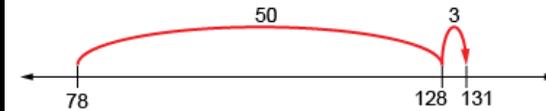
$$78 + 53 = \underline{\quad}$$



"78" "88, 98, 108, 118, 128, 129, 130, 131"

Models and symbolizes addition and subtraction

$$78 + 53 = \underline{\quad}$$



"I add 5 tens and 3 ones.  
 $78 + 53 = 78 + 50 + 3$ , or 131"

### Observations/Documentation

## Activity 24 Assessment

### Creating and Solving Problems

#### Developing Meaning of Addition and Subtraction (con't)

Estimates sums and differences to check reasonableness

$131 - 42 = 89$   
 "130 - 40 = 90, which is close to 89 so my answer is reasonable."

Creates and solves problems

"There are 131 birds in the tree.  
 Some birds flew away.  
 Now there are 42 birds in the tree.  
 How many birds flew away?"

$131 - \square = 42$   
 89 birds flew away.

Uses properties and inverse operations of addition and subtraction to solve problems

$131 - \square = 42$   
 "I can think addition to help me solve the problem:  
 $42 + \square = 131$ "

#### Observations/Documentation

# Activity 24 Assessment

## Creating and Solving Problems

Developing Fluency for Addition and Subtraction		
Fluently adds and subtracts within 5 “I know $4 + 1 = 5$ and $5 - 1 = 4$ .”	Fluently adds and subtracts to 10 “I know $8 + 2 = 10$ and $10 - 2 = 8$ .” (complements to 10)	Fluently adds and subtracts to 20 “I can use doubles. I know $9 + 9 = 18$ and $18 - 9 = 9$ .”
Observations/Documentation		
Uses known sums and differences to solve addition and subtraction equations “ $25 + 37 = \square$ I know $25 + 30 = 55$ , and 55 plus 5 is 60, and 2 more makes 62.” (decomposing, known facts)	Develops mental strategies and algorithms $29 + 32 = \square$ I take 1 from 32 and give it to 29 to get $30 + 31$ . $30 + 30 = 60$ , and 1 more is 61.” (compensation)	Estimates sums and differences $49 + 38 = \square$ “49 is close to 50. 38 is close to 40. $50 + 40 = 90$ ” (using benchmarks)
Observations/Documentation		

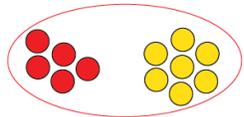
# Activity 25 Assessment

## Creating and Solving Problems with Larger Numbers

### Developing Meaning of Addition and Subtraction

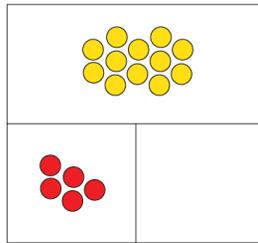
Recognizes addition and subtraction situations

Join



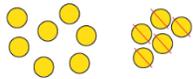
$$5 + 7 = \underline{\quad}$$

Part-part-whole



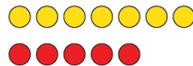
$$5 + \underline{\quad} = 12$$

Separate



$$12 - 5 = \underline{\quad}$$

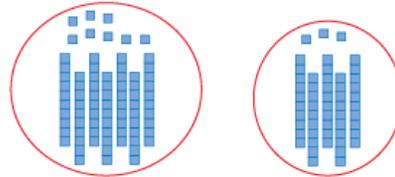
Compare



$$7 = 5 + \underline{\quad}$$

Models concretely to add and subtract

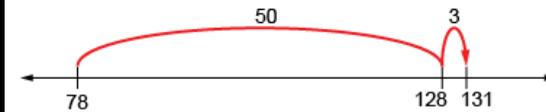
$$78 + 53 = \underline{\quad}$$



"78" "88, 98, 108, 118, 128, 129, 130, 131"

Models and symbolizes addition and subtraction

$$78 + 53 = \underline{\quad}$$



"I add 5 tens and 3 ones.  
 $78 + 53 = 78 + 50 + 3$ , or 131"

### Observations/Documentation

# Activity 25 Assessment

## Creating and Solving Problems with Larger Numbers

### Developing Meaning of Addition and Subtraction (con't)

Estimates sums and differences to check reasonableness

$131 - 42 = 89$   
 "130 - 40 = 90, which is close to 89 so my answer is reasonable."

Creates and solves problems

"There are 131 birds in the tree.  
 Some birds flew away.  
 Now there are 42 birds in the tree.  
 How many birds flew away?"

$131 - \square = 42$   
 89 birds flew away.

Uses properties and inverse operations of addition and subtraction to solve problems

$131 - \square = 42$   
 "I can think addition to help me solve the problem:  
 $42 + \square = 131$ "

### Observations/Documentation

# Activity 25 Assessment

## Creating and Solving Problems with Larger Numbers

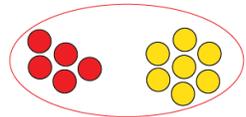
Developing Fluency for Addition and Subtraction		
Fluently adds and subtracts within 5 “I know $4 + 1 = 5$ and $5 - 1 = 4$ .”	Fluently adds and subtracts to 10 “I know $8 + 2 = 10$ and $10 - 2 = 8$ .” (complements to 10)	Fluently adds and subtracts to 20 “I can use doubles. I know $9 + 9 = 18$ and $18 - 9 = 9$ .”
Observations/Documentation		
Uses known sums and differences to solve addition and subtraction equations “ $25 + 37 = \square$ I know $25 + 30 = 55$ , and 55 plus 5 is 60, and 2 more makes 62.” (decomposing, known facts)	Develops mental strategies and algorithms $29 + 32 = \square$ I take 1 from 32 and give it to 29 to get $30 + 31$ . $30 + 30 = 60$ , and 1 more is 61.” (compensation)	Estimates sums and differences $49 + 38 = \square$ “49 is close to 50. 38 is close to 40. $50 + 40 = 90$ ” (using benchmarks)
Observations/Documentation		

# Activity 26 Assessment Consolidation

## Developing Meaning of Addition and Subtraction

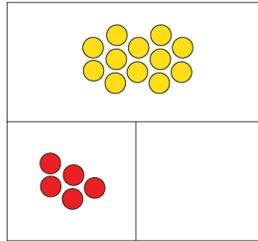
Recognizes addition and subtraction situations

Join



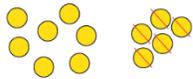
$$5 + 7 = \underline{\quad}$$

Part-part-whole



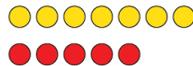
$$5 + \underline{\quad} = 12$$

Separate



$$12 - 5 = \underline{\quad}$$

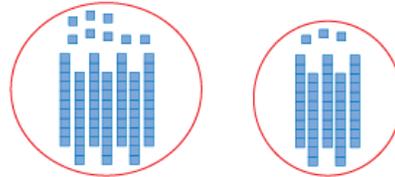
Compare



$$7 = 5 + \underline{\quad}$$

Models concretely to add and subtract

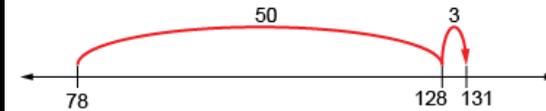
$$78 + 53 = \underline{\quad}$$



"78" "88, 98, 108, 118, 128, 129, 130, 131"

Models and symbolizes addition and subtraction

$$78 + 53 = \underline{\quad}$$



"I add 5 tens and 3 ones.  
 $78 + 53 = 78 + 50 + 3$ , or 131"

## Observations/Documentation

# Activity 26 Assessment Consolidation

## Developing Meaning of Addition and Subtraction (con't)

Estimates sums and differences to check reasonableness

$131 - 42 = 89$   
 "130 - 40 = 90, which is close to 89 so my answer is reasonable."

Creates and solves problems

"There are 131 birds in the tree.  
 Some birds flew away.  
 Now there are 42 birds in the tree.  
 How many birds flew away?"

$131 - \square = 42$   
 89 birds flew away.

Uses properties and inverse operations of addition and subtraction to solve problems

$131 - \square = 42$   
 "I can think addition to help me solve the problem:  
 $42 + \square = 131$ "

## Observations/Documentation

# Activity 26 Assessment

## Consolidation

### Developing Fluency for Addition and Subtraction

Fluently adds and subtracts within 5

"I know  $4 + 1 = 5$  and  $5 - 1 = 4$ ."

Fluently adds and subtracts to 10

"I know  $8 + 2 = 10$  and  $10 - 2 = 8$ ."  
(complements to 10)

Fluently adds and subtracts to 20

"I can use doubles.  
I know  $9 + 9 = 18$  and  $18 - 9 = 9$ ."

### Observations/Documentation

Uses known sums and differences to solve addition and subtraction equations

" $25 + 37 = \square$   
I know  $25 + 30 = 55$ , and 55 plus 5 is 60,  
and 2 more makes 62."  
(decomposing, known facts)

Develops mental strategies and algorithms

$29 + 32 = \square$   
I take 1 from 32 and give it to 29 to get  $30 + 31$ .  
 $30 + 30 = 60$ , and 1 more is 61."  
(compensation)

Estimates sums and differences

$49 + 38 = \square$   
"49 is close to 50.  
38 is close to 40.  
 $50 + 40 = 90$ "  
(using benchmarks)

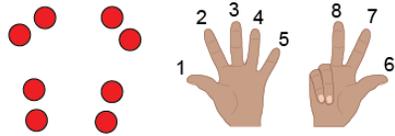
### Observations/Documentation

# Activity 27 Assessment

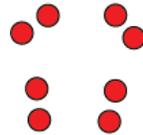
## Exploring Multiplication

### Multiplying 1-Digit Numbers

Groups objects and counts by 1s

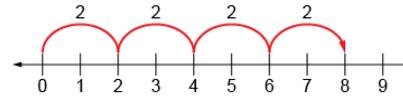


Groups objects and skip-counts



"2, 4, 6, 8"

Uses repeated addition



"2 + 2 + 2 + 2 = 8."

Models using multiplicative thinking



"4 rows of 2 is 8."

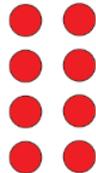
### Observations/Documentation

Understands relationship between operations

"I can think of  $2 + 2 + 2 + 2 = 8$  as 4 groups of 2."

Uses multiplication symbol

" $4 \times 2 = 8$ "



Multiplies fluently (e.g., uses properties of multiplication)

" $4 \times 2 = 8$   
 $2 \times 4 = 8$ "

Creates and solves problems involving equal groups

$4 \times 2 = 8$

"There are 4 bicycles in the shed. How many wheels are there altogether?"

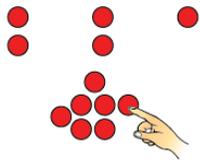
### Observations/Documentation

# Activity 28 Assessment

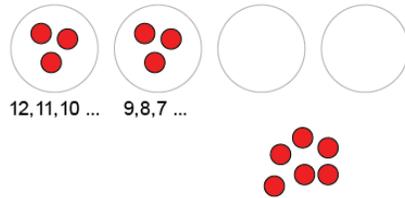
## Exploring Division

### Dividing 1-Digit Numbers

Models using equal sharing

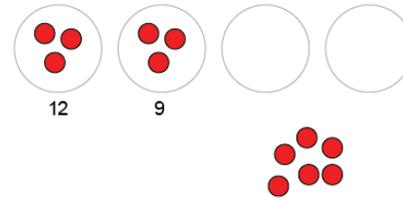


Models using equal grouping, counting by 1s

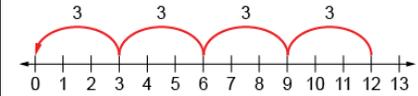


"I know 3 go in each group."

Models using equal grouping, skip-counting backward



Uses repeated subtraction



"4 jumps of 3 backward is the same as  $12 - 3 - 3 - 3 - 3 = 0$ ."

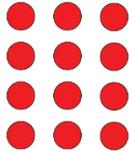
### Observations/Documentation

# Activity 28 Assessment

## Exploring Division

### Dividing 1-Digit Numbers (con't)

Models using multiplicative thinking, and uses division symbol

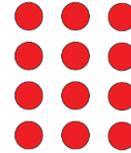


“12 divided into groups of 3 is  
4 groups  
 $12 \div 3 = 4.$ ”

Divides fluently

“I know  $12 \div 4 = 3,$   
so  $12 \div 3 = 4.$ ”

Creates and solves problems involving equal sharing and grouping



“There are 12 wheels  
on tricycles in the shed.  
How many tricycles are there?”

Understands relationships among operations

“I know  $12 - 3 - 3 - 3 - 3 = 0,$   
so I also know that  $12 \div 3 = 4.$   
I also know that  $4 \times 3 = 12$ ”

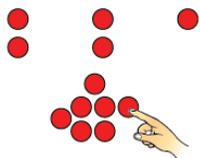
### Observations/Documentation

# Activity 29 Assessment

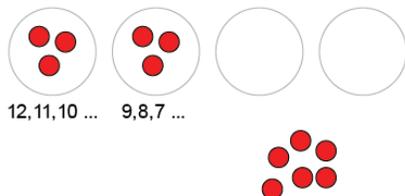
## Relating Multiplication and Division

### Dividing 1-Digit Numbers

Models using equal sharing

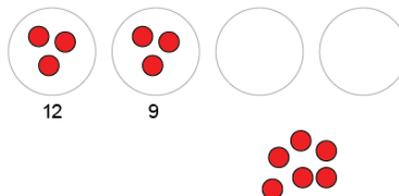


Models using equal grouping, counting by 1s

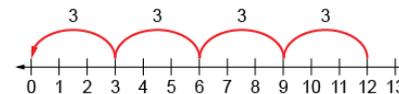


"I know 3 go in each group."

Models using equal grouping, skip-counting backward



Uses repeated subtraction



"4 jumps of 3 backward is the same as  $12 - 3 - 3 - 3 - 3 = 0$ ."

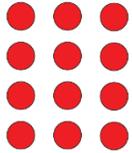
### Observations/Documentation

# Activity 29 Assessment

## Relating Multiplication and Division

### Dividing 1-Digit Numbers (con't)

Models using multiplicative thinking, and uses division symbol

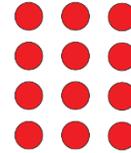


“12 divided into groups of 3 is  
4 groups  
 $12 \div 3 = 4$ .”

Divides fluently

“I know  $12 \div 4 = 3$ ,  
so  $12 \div 3 = 4$ .”

Creates and solves problems involving equal sharing and grouping



“There are 12 wheels  
on tricycles in the shed.  
How many tricycles are there?”

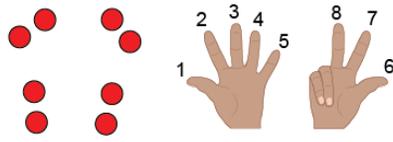
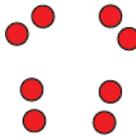
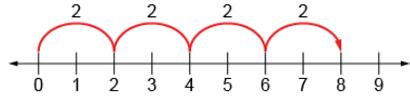
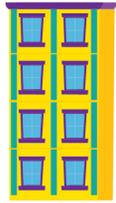
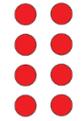
Understands relationships among operations

“I know  $12 - 3 - 3 - 3 - 3 = 0$ ,  
so I also know that  $12 \div 3 = 4$ .  
I also know that  $4 \times 3 = 12$ ”

### Observations/Documentation

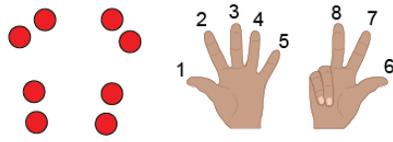
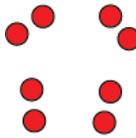
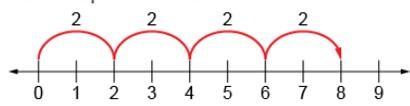
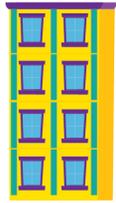
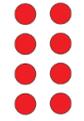
# Activity 30 Assessment

## Properties of Multiplication

Multiplying 1-Digit Numbers			
<p>Groups objects and counts by 1s</p> 	<p>Groups objects and skip-counts</p>  <p>"2, 4, 6, 8"</p>	<p>Uses repeated addition</p>  <p>"2 + 2 + 2 + 2 = 8."</p>	<p>Models using multiplicative thinking</p>  <p>"4 rows of 2 is 8."</p>
Observations/Documentation			
<p>Understands relationship between operations</p> <p>"I can think of <math>2 + 2 + 2 + 2 = 8</math> as 4 groups of 2."</p> 	<p>Uses multiplication symbol</p> <p>"<math>4 \times 2 = 8</math>"</p>	<p>Multiplies fluently (e.g., uses properties of multiplication)</p> <p>"<math>4 \times 2 = 8</math> <math>2 \times 4 = 8</math>"</p>	<p>Creates and solves problems involving equal groups</p> <p><math>4 \times 2 = 8</math></p> <p>"There are 4 bicycles in the shed. How many wheels are there altogether?"</p>
Observations/Documentation			

# Activity 31 Assessment

## Creating and Solving Problems

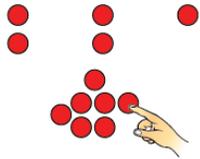
Multiplying 1-Digit Numbers			
<p>Groups objects and counts by 1s</p> 	<p>Groups objects and skip-counts</p>  <p>"2, 4, 6, 8"</p>	<p>Uses repeated addition</p>  <p>"2 + 2 + 2 + 2 = 8."</p>	<p>Models using multiplicative thinking</p>  <p>"4 rows of 2 is 8."</p>
Observations/Documentation			
<p>Understands relationship between operations</p> <p>"I can think of <math>2 + 2 + 2 + 2 = 8</math> as 4 groups of 2."</p> 	<p>Uses multiplication symbol</p> <p>"<math>4 \times 2 = 8</math>"</p>	<p>Multiplies fluently (e.g., uses properties of multiplication)</p> <p>"<math>4 \times 2 = 8</math> <math>2 \times 4 = 8</math>"</p>	<p>Creates and solves problems involving equal groups</p> <p><math>4 \times 2 = 8</math></p> <p>"There are 4 bicycles in the shed. How many wheels are there altogether?"</p>
Observations/Documentation			

# Activity 31 Assessment

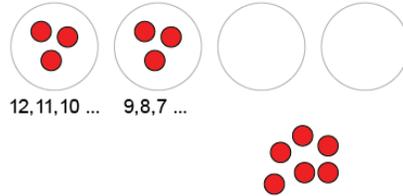
## Creating and Solving Problems

### Dividing 1-Digit Numbers

Models using equal sharing

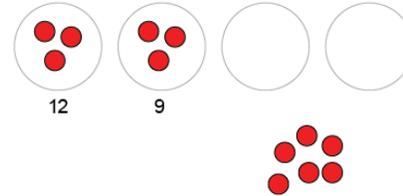


Models using equal grouping, counting by 1s

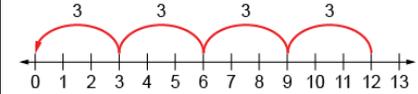


"I know 3 go in each group."

Models using equal grouping, skip-counting backward



Uses repeated subtraction



"4 jumps of 3 backward is the same as  $12 - 3 - 3 - 3 - 3 = 0$ ."

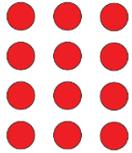
### Observations/Documentation

# Activity 31 Assessment

## Creating and Solving Problems

### Dividing 1-Digit Numbers (con't)

Models using multiplicative thinking, and uses division symbol

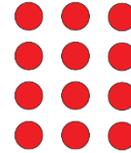


“12 divided into groups of 3 is  
4 groups  
 $12 \div 3 = 4$ .”

Divides fluently

“I know  $12 \div 4 = 3$ ,  
so  $12 \div 3 = 4$ .”

Creates and solves problems involving equal sharing and grouping



“There are 12 wheels  
on tricycles in the shed.  
How many tricycles are there?”

Understands relationships among operations

“I know  $12 - 3 - 3 - 3 - 3 = 0$ ,  
so I also know that  $12 \div 3 = 4$ .  
I also know that  $4 \times 3 = 12$ ”

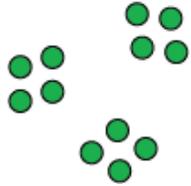
### Observations/Documentation

# Activity 32 Assessment

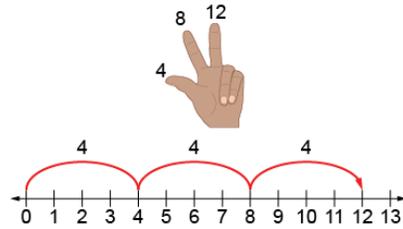
## The Games Room

### Developing Fluency with Multiplication and Division

Models with concrete materials and counts by 1s



Uses skip-counting forward and backward



Works flexibly with numbers (e.g., uses repeated addition or subtraction, familiar facts)

$$4 + 4 + 4 = 12$$

I know  $2 \times 4 = 8$  and one more group of 4 is 12, so  $3 \times 4 = 12$ .

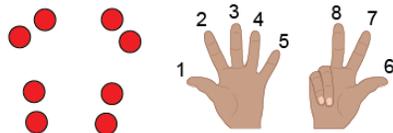
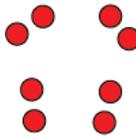
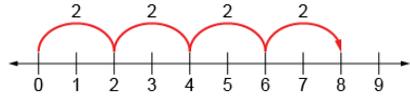
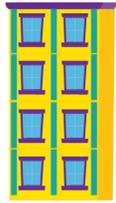
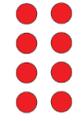
I know  $4 \times 3 = 12$ , so  $3 \times 4$  also equals 12.

Fluently multiplies and divides

"I just know that  $3 \times 4 = 12$ ."

### Observations/Documentation

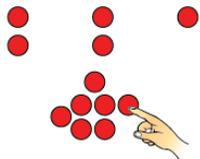
# Activity 33 Assessment Consolidation

Multiplying 1-Digit Numbers			
<p>Groups objects and counts by 1s</p> 	<p>Groups objects and skip-counts</p>  <p>"2, 4, 6, 8"</p>	<p>Uses repeated addition</p>  <p>"2 + 2 + 2 + 2 = 8."</p>	<p>Models using multiplicative thinking</p>  <p>"4 rows of 2 is 8."</p>
Observations/Documentation			
<p>Understands relationship between operations</p> <p>"I can think of <math>2 + 2 + 2 + 2 = 8</math> as 4 groups of 2."</p> 	<p>Uses multiplication symbol</p> <p>"<math>4 \times 2 = 8</math>"</p>	<p>Multiplies fluently (e.g., uses properties of multiplication)</p> <p>"<math>4 \times 2 = 8</math> <math>2 \times 4 = 8</math>"</p>	<p>Creates and solves problems involving equal groups</p> <p><math>4 \times 2 = 8</math></p> <p>"There are 4 bicycles in the shed. How many wheels are there altogether?"</p>
Observations/Documentation			

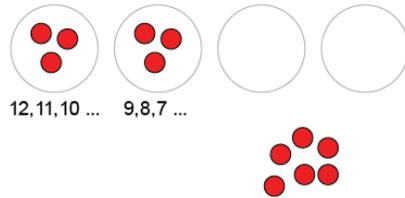
# Activity 33 Assessment Consolidation

## Dividing 1-Digit Numbers

Models using equal sharing

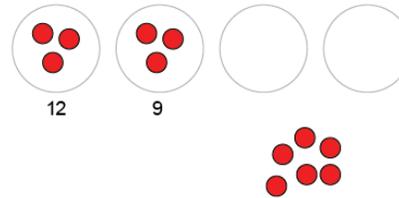


Models using equal grouping, counting by 1s

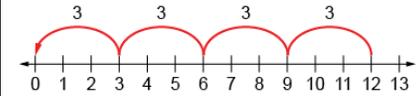


"I know 3 go in each group."

Models using equal grouping, skip-counting backward



Uses repeated subtraction



"4 jumps of 3 backward is the same as  $12 - 3 - 3 - 3 - 3 = 0$ ."

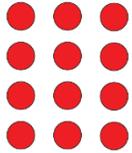
## Observations/Documentation

# Activity 33 Assessment

## Consolidation

### Dividing 1-Digit Numbers (con't)

Models using multiplicative thinking, and uses division symbol

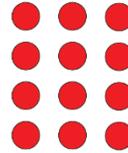


“12 divided into groups of 3 is  
4 groups  
 $12 \div 3 = 4$ .”

Divides fluently

“I know  $12 \div 4 = 3$ ,  
so  $12 \div 3 = 4$ .”

Creates and solves problems involving equal sharing and grouping



“There are 12 wheels  
on tricycles in the shed.  
How many tricycles are there?”

Understands relationships among operations

“I know  $12 - 3 - 3 - 3 - 3 = 0$ ,  
so I also know that  $12 \div 3 = 4$ .  
I also know that  $4 \times 3 = 12$ ”

### Observations/Documentation

# Activity 34 Assessment

## Estimating and Counting Money

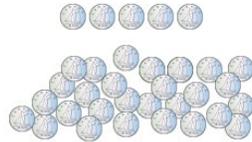
### Estimating Money Amounts

Scans quantity of coins (disregards value of the coins)



"There's a lot of coins. I think it's about \$100."

Uses a referent to estimate the value of a collection of one denomination



"There's about 5 groups of 5 dimes, so about \$2.50."

Estimates the value of a mixed collection of coins to the nearest dollar



"I see about 10 loonies and 10 quarters, which is about \$12."

Makes reasonable estimates of mixed collections in dollars and cents



"There's \$55 dollars in bills and about \$4 in loonies and quarters. I don't think the rest of the coins make a dollar. So, my estimate is about \$59.50."

### Observations/Documentation

# Activity 35 Assessment

## Investigating Equality with Money

### Understanding Equality with Money

Uses like coins to show equivalent amounts



"I know 5 nickels make 1 quarter and 4 quarters make \$1."

Uses different denominations of coins to show equivalent amounts



"I can show 25 cents with 5 nickels, then trade 2 nickels for a dime."

Determines total cost of purchase and shows equivalent amounts in different ways



\$1.25      \$3.70

$$\$3.70 + \$1.25 = \$4.95$$



"I can pay \$4.95 using lots of different coins, but I could also pay with a \$5 bill, and get 5 cents change."

Determines total value of purchase and shows equivalent amount in most efficient way



$$\$6.25 + \$5.45 + \$4.50 = \$16.20$$



"I know that I can start with \$15 in bills, then add 1 dollar and twenty cents."

### Observations/Documentation

# Activity 36 Assessment

## Purchasing and Making Change

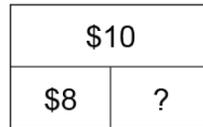
### Comparing Money Amounts and Making Change

Compares money amounts using part-part-whole relationship



“The total cost is the whole. That’s \$10. The cost of each item is a part. The items cost \$6 and \$4.”

Uses part-part-whole relationship to find a missing part



“Part + Part = whole so,  $8 + ? = 10$  or  $10 - 8 = ?$  I model \$10 with coins, then take away \$8. I am left with \$2, the missing part.”

Makes change using skip-counting

I had a \$5 bill.  
I bought:



Change:



“I skip-counted on from \$3.50 by 25s, adding a quarter each time. 6 quarters is the same as \$1.50.”

Uses different strategies to make change efficiently (e.g., counting on, counting back)

I had a \$10 bill.  
I bought:



\$8.85

Change:



“I counted on from \$8.85 and needed only 3 coins to get to \$10.”

### Observations/Documentation

# Activity 36 Assessment

## Purchasing and Making Change

### Understanding Equality with Money

Uses like coins to show equivalent amounts



"I know 5 nickels make 1 quarter and 4 quarters make \$1."

Uses different denominations of coins to show equivalent amounts



"I can show 25 cents with 5 nickels, then trade 2 nickels for a dime."

Determines total cost of purchase and shows equivalent amounts in different ways



\$1.25      \$3.70

$$\$3.70 + \$1.25 = \$4.95$$



"I can pay \$4.95 using lots of different coins, but I could also pay with a \$5 bill, and get 5 cents change."

Determines total value of purchase and shows equivalent amount in most efficient way



$$\$6.25 + \$5.45 + \$4.50 = \$16.20$$



"I know that I can start with \$15 in bills, then add 1 dollar and twenty cents."

### Observations/Documentation

# Activity 37 Assessment

## Setting a Financial Goal

Meeting a Financial Goal			
<p>Identifies ways to earn and spend money (thinks strictly in cash transactions)</p>  <p>"I can think of lots of ways to earn money to buy something I want."</p>	<p>Identifies ways to earn, spend, and receive money</p>  <p>"I can sell things that I don't use anymore to make extra money."</p>	<p>Identifies ways to earn money and make payments</p>  <p>"After I earn money, I can deposit it and make payments in lots of ways."</p>	<p>Creates a reasonable financial plan considering all components (earning, spending, and saving)</p> <p>"There are so many things to think about when you set a financial goal."</p>
Observations/Documentation			

# Activity 37 Assessment

## Setting a Financial Goal

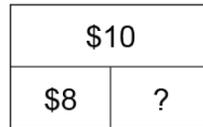
### Comparing Money Amounts and Making Change

Compares money amounts using part-part-whole relationship



“The total cost is the whole. That’s \$10. The cost of each item is a part. The items cost \$6 and \$4.”

Uses part-part-whole relationship to find a missing part



“Part + Part = whole so,  $8 + ? = 10$  or  $10 - 8 = ?$  I model \$10 with coins, then take away \$8. I am left with \$2, the missing part.”

Makes change using skip-counting

I had a \$5 bill.  
I bought:



Change:



“I skip-counted on from \$3.50 by 25s, adding a quarter each time. 6 quarters is the same as \$1.50.”

Uses different strategies to make change efficiently (e.g., counting on, counting back)

I had a \$10 bill.  
I bought:



\$8.85

Change:



“I counted on from \$8.85 and needed only 3 coins to get to \$10.”

### Observations/Documentation

# Activity 38 Assessment Consolidation

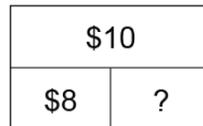
## Comparing Money Amounts and Making Change

Compares money amounts using part-part-whole relationship



“The total cost is the whole. That’s \$10. The cost of each item is a part. The items cost \$6 and \$4.”

Uses part-part-whole relationship to find a missing part



“Part + Part = whole so,  $8 + ? = 10$  or  $10 - 8 = ?$  I model \$10 with coins, then take away \$8. I am left with \$2, the missing part.”

Makes change using skip-counting



“I skip-counted on from \$3.50 by 25s, adding a quarter each time. 6 quarters is the same as \$1.50.”

Uses different strategies to make change efficiently (e.g., counting on, counting back)



“I counted on from \$8.85 and needed only 3 coins to get to \$10.”

## Observations/Documentation

# Activity 38 Assessment Consolidation

## Understanding Equality with Money

Uses like coins to show equivalent amounts



"I know 5 nickels make 1 quarter and 4 quarters make \$1."

Uses different denominations of coins to show equivalent amounts



$$25 = 10 + 5 + 5 + 5$$

"I can show 25 cents with 5 nickels, then trade 2 nickels for a dime."

Determines total cost of purchase and shows equivalent amounts in different ways



**\$1.25**      **\$3.70**

$$\$3.70 + \$1.25 = \$4.95$$



"I can pay \$4.95 using lots of different coins, but I could also pay with a \$5 bill, and get 5 cents change."

Determines total value of purchase and shows equivalent amount in most efficient way



$$\$6.25 + \$5.45 + \$4.50 = \$16.20$$

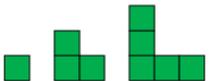
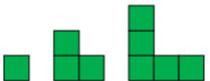


"I know that I can start with \$15 in bills, then add 1 dollar and twenty cents."

## Observations/Documentation

# Activity 1 Assessment

## Describing and Extending Patterns

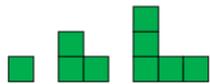
Generalizing and Representing Increasing and Decreasing Patterns															
<p>Recognizes that a pattern increases or decreases</p>  <p>“The terms are getting bigger.”</p>	<p>Identifies how a pattern changes (describes rule)</p>  <p>“It grows by 2 tiles each time.”</p>	<p>Represents patterns symbolically and writes rules using addition or subtraction</p> <p>1, 3, 5, ... “Start at 1 and add 2 each time.”</p> <p>17, 14, 11, ... “Start at 17 and take away 3 each time.”</p>	<p>Extends patterns using repeated addition and subtraction</p> <p>1, 3, 5, 7, 9, 11, ... “I added 2 over and over.”</p> <p>17, 14, 11, 8, 5, 2 “I subtracted 3 over and over.”</p>												
Observations/Documentation															
<p>Finds missing terms or errors in patterns</p> <p>3, 8, 13, 18, 22, 28, .... “Start at 3 and add 5 each time. 18 + 5 = 23, so 22 should be 23.”</p>	<p>Creates patterns and explains pattern rules</p> <p>“85, 75, 65, 55, .... I started with my house number and took away 10 each time.”</p>	<p>Uses patterns to solve problems</p> <p>“If I save 2 quarters a day, when will I have 10 quarters? 2, 4, 6, 8, 10 I will have 10 quarters after 5 days.”</p>	<p>Identifies and extends patterns involving multiplication</p> <table border="1" data-bbox="1459 966 1869 1039"> <tr> <td>Input</td> <td>1</td> <td>2</td> <td>3</td> <td>4</td> <td>5</td> </tr> <tr> <td>Output</td> <td>2</td> <td>4</td> <td>6</td> <td>8</td> <td>10</td> </tr> </table> <p>“Each input number is multiplied by 2.”</p>	Input	1	2	3	4	5	Output	2	4	6	8	10
Input	1	2	3	4	5										
Output	2	4	6	8	10										
Observations/Documentation															

# Activity 2 Assessment

## Representing Patterns

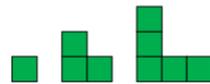
### Generalizing and Representing Increasing and Decreasing Patterns

Recognizes that a pattern increases or decreases



"The terms are getting bigger."

Identifies how a pattern changes (describes rule)



"It grows by 2 tiles each time."

Represents patterns symbolically and writes rules using addition or subtraction

1, 3, 5, ...  
"Start at 1 and add 2 each time."  
17, 14, 11, ...  
"Start at 17 and take away 3 each time."

Extends patterns using repeated addition and subtraction

1, 3, 5, 7, 9, 11, ...  
"I added 2 over and over."  
17, 14, 11, 8, 5, 2  
"I subtracted 3 over and over."

### Observations/Documentation

Finds missing terms or errors in patterns

3, 8, 13, 18, 22, 28, ....  
"Start at 3 and add 5 each time.  
 $18 + 5 = 23$ , so 22 should be 23."

Creates patterns and explains pattern rules

"85, 75, 65, 55, ....  
I started with my house number and took away 10 each time."

Uses patterns to solve problems

"If I save 2 quarters a day, when will I have 10 quarters?  
2, 4, 6, 8, 10  
I will have 10 quarters after 5 days."

Identifies and extends patterns involving multiplication

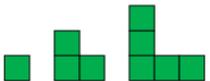
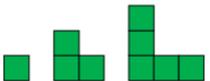
<b>Input</b>	1	2	3	4	5
<b>Output</b>	2	4	6	8	10

"Each input number is multiplied by 2."

### Observations/Documentation

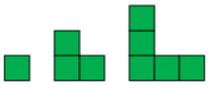
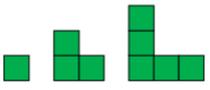
# Activity 3 Assessment

## Creating Patterns

Generalizing and Representing Increasing and Decreasing Patterns															
<p>Recognizes that a pattern increases or decreases</p>  <p>“The terms are getting bigger.”</p>	<p>Identifies how a pattern changes (describes rule)</p>  <p>“It grows by 2 tiles each time.”</p>	<p>Represents patterns symbolically and writes rules using addition or subtraction</p> <p>1, 3, 5, ... “Start at 1 and add 2 each time.”</p> <p>17, 14, 11, ... “Start at 17 and take away 3 each time.”</p>	<p>Extends patterns using repeated addition and subtraction</p> <p>1, 3, 5, 7, 9, 11, ... “I added 2 over and over.”</p> <p>17, 14, 11, 8, 5, 2 “I subtracted 3 over and over.”</p>												
Observations/Documentation															
<p>Finds missing terms or errors in patterns</p> <p>3, 8, 13, 18, 22, 28, .... “Start at 3 and add 5 each time. 18 + 5 = 23, so 22 should be 23.”</p>	<p>Creates patterns and explains pattern rules</p> <p>“85, 75, 65, 55, .... I started with my house number and took away 10 each time.”</p>	<p>Uses patterns to solve problems</p> <p>“If I save 2 quarters a day, when will I have 10 quarters? 2, 4, 6, 8, 10 I will have 10 quarters after 5 days.”</p>	<p>Identifies and extends patterns involving multiplication</p> <table border="1" data-bbox="1459 966 1869 1039"> <tr> <td>Input</td> <td>1</td> <td>2</td> <td>3</td> <td>4</td> <td>5</td> </tr> <tr> <td>Output</td> <td>2</td> <td>4</td> <td>6</td> <td>8</td> <td>10</td> </tr> </table> <p>“Each input number is multiplied by 2.”</p>	Input	1	2	3	4	5	Output	2	4	6	8	10
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Output	2	4	6	8	10										
Observations/Documentation															

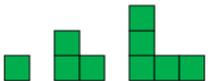
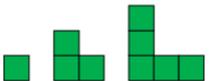
# Activity 4 Assessment

## Identifying Errors and Missing Terms

Generalizing and Representing Increasing and Decreasing Patterns															
<p>Recognizes that a pattern increases or decreases</p>  <p>“The terms are getting bigger.”</p>	<p>Identifies how a pattern changes (describes rule)</p>  <p>“It grows by 2 tiles each time.”</p>	<p>Represents patterns symbolically and writes rules using addition or subtraction</p> <p>1, 3, 5, ... “Start at 1 and add 2 each time.”</p> <p>17, 14, 11, ... “Start at 17 and take away 3 each time.”</p>	<p>Extends patterns using repeated addition and subtraction</p> <p>1, 3, 5, 7, 9, 11, ... “I added 2 over and over.”</p> <p>17, 14, 11, 8, 5, 2 “I subtracted 3 over and over.”</p>												
Observations/Documentation															
<p>Finds missing terms or errors in patterns</p> <p>3, 8, 13, 18, 22, 28, .... “Start at 3 and add 5 each time. 18 + 5 = 23, so 22 should be 23.”</p>	<p>Creates patterns and explains pattern rules</p> <p>“85, 75, 65, 55, .... I started with my house number and took away 10 each time.”</p>	<p>Uses patterns to solve problems</p> <p>“If I save 2 quarters a day, when will I have 10 quarters? 2, 4, 6, 8, 10 I will have 10 quarters after 5 days.”</p>	<p>Identifies and extends patterns involving multiplication</p> <table border="1" data-bbox="1459 966 1869 1039"> <tr> <td>Input</td> <td>1</td> <td>2</td> <td>3</td> <td>4</td> <td>5</td> </tr> <tr> <td>Output</td> <td>2</td> <td>4</td> <td>6</td> <td>8</td> <td>10</td> </tr> </table> <p>“Each input number is multiplied by 2.”</p>	Input	1	2	3	4	5	Output	2	4	6	8	10
Input	1	2	3	4	5										
Output	2	4	6	8	10										
Observations/Documentation															

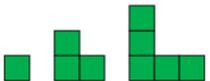
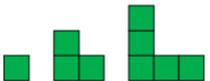
# Activity 5 Assessment

## Solving Problems

Generalizing and Representing Increasing and Decreasing Patterns															
<p>Recognizes that a pattern increases or decreases</p>  <p>“The terms are getting bigger.”</p>	<p>Identifies how a pattern changes (describes rule)</p>  <p>“It grows by 2 tiles each time.”</p>	<p>Represents patterns symbolically and writes rules using addition or subtraction</p> <p>1, 3, 5, ... “Start at 1 and add 2 each time.”</p> <p>17, 14, 11, ... “Start at 17 and take away 3 each time.”</p>	<p>Extends patterns using repeated addition and subtraction</p> <p>1, 3, 5, 7, 9, 11, ... “I added 2 over and over.”</p> <p>17, 14, 11, 8, 5, 2 “I subtracted 3 over and over.”</p>												
Observations/Documentation															
<p>Finds missing terms or errors in patterns</p> <p>3, 8, 13, 18, 22, 28, .... “Start at 3 and add 5 each time. 18 + 5 = 23, so 22 should be 23.”</p>	<p>Creates patterns and explains pattern rules</p> <p>“85, 75, 65, 55, .... I started with my house number and took away 10 each time.”</p>	<p>Uses patterns to solve problems</p> <p>“If I save 2 quarters a day, when will I have 10 quarters? 2, 4, 6, 8, 10 I will have 10 quarters after 5 days.”</p>	<p>Identifies and extends patterns involving multiplication</p> <table border="1" data-bbox="1459 966 1869 1039"> <tr> <td>Input</td> <td>1</td> <td>2</td> <td>3</td> <td>4</td> <td>5</td> </tr> <tr> <td>Output</td> <td>2</td> <td>4</td> <td>6</td> <td>8</td> <td>10</td> </tr> </table> <p>“Each input number is multiplied by 2.”</p>	Input	1	2	3	4	5	Output	2	4	6	8	10
Input	1	2	3	4	5										
Output	2	4	6	8	10										
Observations/Documentation															

# Activity 6 Assessment

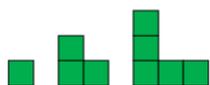
## Exploring Multiplicative Patterns

Generalizing and Representing Increasing and Decreasing Patterns															
<p>Recognizes that a pattern increases or decreases</p>  <p>“The terms are getting bigger.”</p>	<p>Identifies how a pattern changes (describes rule)</p>  <p>“It grows by 2 tiles each time.”</p>	<p>Represents patterns symbolically and writes rules using addition or subtraction</p> <p>1, 3, 5, ... “Start at 1 and add 2 each time.”</p> <p>17, 14, 11, ... “Start at 17 and take away 3 each time.”</p>	<p>Extends patterns using repeated addition and subtraction</p> <p>1, 3, 5, 7, 9, 11, ... “I added 2 over and over.”</p> <p>17, 14, 11, 8, 5, 2 “I subtracted 3 over and over.”</p>												
Observations/Documentation															
<p>Finds missing terms or errors in patterns</p> <p>3, 8, 13, 18, 22, 28, .... “Start at 3 and add 5 each time. 18 + 5 = 23, so 22 should be 23.”</p>	<p>Creates patterns and explains pattern rules</p> <p>“85, 75, 65, 55, .... I started with my house number and took away 10 each time.”</p>	<p>Uses patterns to solve problems</p> <p>“If I save 2 quarters a day, when will I have 10 quarters? 2, 4, 6, 8, 10 I will have 10 quarters after 5 days.”</p>	<p>Identifies and extends patterns involving multiplication</p> <table border="1" data-bbox="1459 966 1869 1039"> <tr> <td>Input</td> <td>1</td> <td>2</td> <td>3</td> <td>4</td> <td>5</td> </tr> <tr> <td>Output</td> <td>2</td> <td>4</td> <td>6</td> <td>8</td> <td>10</td> </tr> </table> <p>“Each input number is multiplied by 2.”</p>	Input	1	2	3	4	5	Output	2	4	6	8	10
Input	1	2	3	4	5										
Output	2	4	6	8	10										
Observations/Documentation															

# Activity 7 Assessment Consolidation

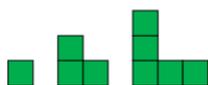
## Generalizing and Representing Increasing and Decreasing Patterns

Recognizes that a pattern increases or decreases



“The terms are getting bigger.”

Identifies how a pattern changes (describes rule)



“It grows by 2 tiles each time.”

Represents patterns symbolically and writes rules using addition or subtraction

1, 3, 5, ...  
“Start at 1 and add 2 each time.”  
17, 14, 11, ...  
“Start at 17 and take away 3 each time.”

Extends patterns using repeated addition and subtraction

1, 3, 5, 7, 9, 11, ...  
“I added 2 over and over.”  
17, 14, 11, 8, 5, 2  
“I subtracted 3 over and over.”

### Observations/Documentation

Finds missing terms or errors in patterns

3, 8, 13, 18, 22, 28, ...  
“Start at 3 and add 5 each time.  
 $18 + 5 = 23$ , so 22 should be 23.”

Creates patterns and explains pattern rules

“85, 75, 65, 55, ....  
I started with my house number and took away 10 each time.”

Uses patterns to solve problems

“If I save 2 quarters a day, when will I have 10 quarters?  
2, 4, 6, 8, 10  
I will have 10 quarters after 5 days.”

Identifies and extends patterns involving multiplication

<b>Input</b>	1	2	3	4	5
<b>Output</b>	2	4	6	8	10

“Each input number is multiplied by 2.”

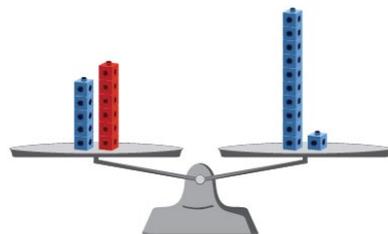
### Observations/Documentation

# Activity 8 Assessment

## Solving Equations Concretely

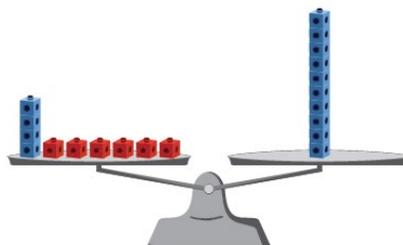
### Solving One-Step Addition and Subtraction Equations

Understands balance as equality



"5 + 6 equals 11."

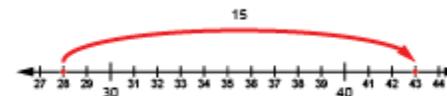
Uses concrete materials to solve for unknown



$$4 + \square = 10$$

"I added red cubes, one at a time, until the pans balanced;  $\square = 6$ ."

Uses number relationships (inverse operations)



$$28 = \square - 15$$

"I rewrote the equation as an addition equation:  $28 + 15 = \square$ ."

### Observations/Documentation

## Activity 8 Assessment

### Solving Equations Concretely

Solving One-Step Addition and Subtraction Equations (con't)		
<p>Decomposes and recomposes numbers (uses associative property)</p> $28 + 15 = 28 + 2 + 13$ $28 + 2 + 13 = 30 + 13$ $30 + 13 = 43$	<p>Describes a situation for a given equation with an unknown</p> $20 - \square = 13$ <p>"I had \$20. I spent some money and now I have \$13. How much did I spend?"</p>	<p>Uses strategies efficiently and flexibly to solve equations of different types (start, result, and change unknown)</p> $27 = \Delta - 18$ <p>"I rewrote using addition: <math>27 + 18 = \Delta</math>. Then, I used mental math: <math>27 + (18 + 2) = 47</math>, and <math>47 - 2 = 45</math>."</p>
Observations/Documentation		

## Activity 8 Assessment

### Solving Equations Concretely

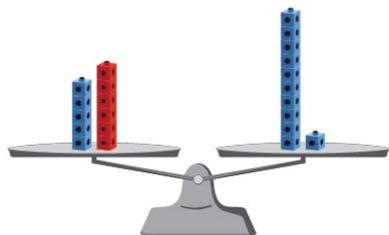
Variables and Symbols			
<p>Uses equal sign as balance (left side equals right side) and not equal sign as imbalance</p> $18 + 16 = 10 + 24$ $18 + 16 \neq 24 - 10$ <p>“The equal sign means that the numbers on both sides are worth the same amount.”</p>	<p>Uses symbols to represent unknown quantities</p> $18 + \square = 34$ <p>“I used a box to represent the unknown, but I could have used a different shape.”</p>	<p>Understands the unknown represents one quantity/value</p> $18 + \square = 34$ <p>“The box represents a number that would be added to 18 to make 34. No matter what the symbol is, it will always represent 16.”</p>	<p>Solves equations flexibly</p> $18 + \square = 34$ $34 - \square = 18$ $34 - 18 = \square$ <p>“In all of these equations, the symbol represents the same number, 16.”</p>
Observations/Documentation			

# Activity 9 Assessment

## Strategies for Solving Equations

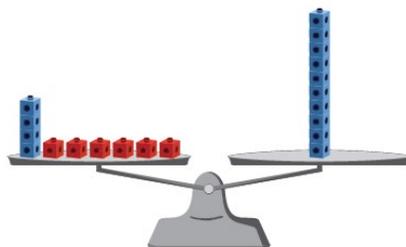
### Solving One-Step Addition and Subtraction Equations

Understands balance as equality



"5 + 6 equals 11."

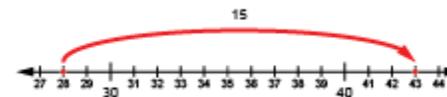
Uses concrete materials to solve for unknown



$$4 + \square = 10$$

"I added red cubes, one at a time, until the pans balanced;  $\square = 6$ ."

Uses number relationships (inverse operations)



$$28 = \square - 15$$

"I rewrote the equation as an addition equation:  $28 + 15 = \square$ ."

### Observations/Documentation

## Activity 9 Assessment Strategies for Solving Equations

Solving One-Step Addition and Subtraction Equations (con't)		
<p>Decomposes and recomposes numbers (uses associative property)</p> $28 + 15 = 28 + 2 + 13$ $28 + 2 + 13 = 30 + 13$ $30 + 13 = 43$	<p>Describes a situation for a given equation with an unknown</p> $20 - \square = 13$ <p>"I had \$20. I spent some money and now I have \$13. How much did I spend?"</p>	<p>Uses strategies efficiently and flexibly to solve equations of different types (start, result, and change unknown)</p> $27 = \Delta - 18$ <p>"I rewrote using addition: <math>27 + 18 = \Delta</math>. Then, I used mental math: <math>27 + (18 + 2) = 47</math>, and <math>47 - 2 = 45</math>."</p>
Observations/Documentation		

## Activity 9 Assessment Strategies for Solving Equations

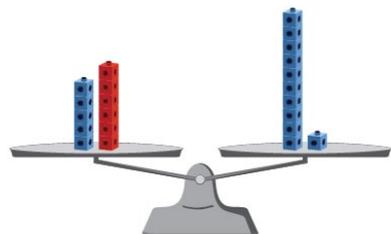
Variables and Symbols			
<p>Uses equal sign as balance (left side equals right side) and not equal sign as imbalance</p> $18 + 16 = 10 + 24$ $18 + 16 \neq 24 - 10$ <p>“The equal sign means that the numbers on both sides are worth the same amount.”</p>	<p>Uses symbols to represent unknown quantities</p> $18 + \square = 34$ <p>“I used a box to represent the unknown, but I could have used a different shape.”</p>	<p>Understands the unknown represents one quantity/value</p> $18 + \square = 34$ <p>“The box represents a number that would be added to 18 to make 34. No matter what the symbol is, it will always represent 16.”</p>	<p>Solves equations flexibly</p> $18 + \square = 34$ $34 - \square = 18$ $34 - 18 = \square$ <p>“In all of these equations, the symbol represents the same number, 16.”</p>
Observations/Documentation			

# Activity 10 Assessment

## Exploring the Associative Property

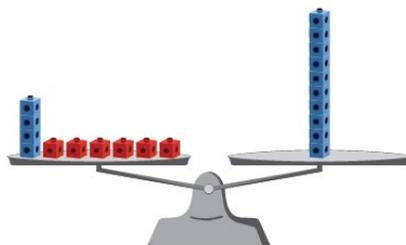
### Solving One-Step Addition and Subtraction Equations

Understands balance as equality



"5 + 6 equals 11."

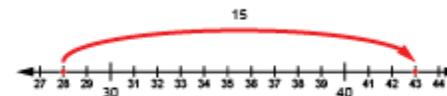
Uses concrete materials to solve for unknown



$$4 + \square = 10$$

"I added red cubes, one at a time, until the pans balanced;  $\square = 6$ ."

Uses number relationships (inverse operations)



$$28 = \square - 15$$

"I rewrote the equation as an addition equation:  $28 + 15 = \square$ ."

### Observations/Documentation

## Activity 10 Assessment

### Exploring the Associative Property

Solving One-Step Addition and Subtraction Equations (con't)		
<p>Decomposes and recomposes numbers (uses associative property)</p> $28 + 15 = 28 + 2 + 13$ $28 + 2 + 13 = 30 + 13$ $30 + 13 = 43$	<p>Describes a situation for a given equation with an unknown</p> $20 - \square = 13$ <p>"I had \$20. I spent some money and now I have \$13. How much did I spend?"</p>	<p>Uses strategies efficiently and flexibly to solve equations of different types (start, result, and change unknown)</p> $27 = \Delta - 18$ <p>"I rewrote using addition: <math>27 + 18 = \Delta</math>. Then, I used mental math: <math>27 + (18 + 2) = 47</math>, and <math>47 - 2 = 45</math>."</p>
Observations/Documentation		

# Activity 10 Assessment

## Exploring the Associative Property

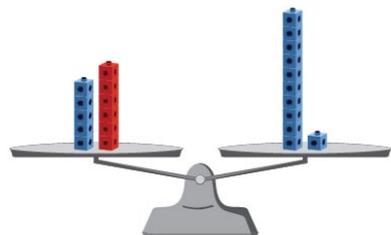
Variables and Symbols			
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Observations/Documentation			

# Activity 11 Assessment

## Creating Equations

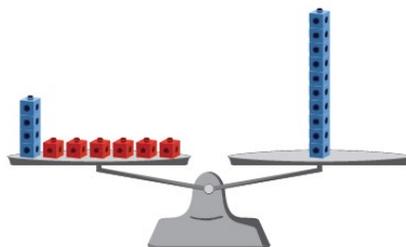
### Solving One-Step Addition and Subtraction Equations

Understands balance as equality



"5 + 6 equals 11."

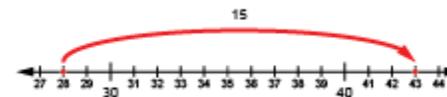
Uses concrete materials to solve for unknown



$$4 + \square = 10$$

"I added red cubes, one at a time, until the pans balanced;  $\square = 6$ ."

Uses number relationships (inverse operations)



$$28 = \square - 15$$

"I rewrote the equation as an addition equation:  $28 + 15 = \square$ ."

### Observations/Documentation

## Activity 11 Assessment

### Creating Equations

Solving One-Step Addition and Subtraction Equations (con't)		
<p>Decomposes and recomposes numbers (uses associative property)</p> $28 + 15 = 28 + 2 + 13$ $28 + 2 + 13 = 30 + 13$ $30 + 13 = 43$	<p>Describes a situation for a given equation with an unknown</p> $20 - \square = 13$ <p>"I had \$20. I spent some money and now I have \$13. How much did I spend?"</p>	<p>Uses strategies efficiently and flexibly to solve equations of different types (start, result, and change unknown)</p> $27 = \Delta - 18$ <p>"I rewrote using addition: <math>27 + 18 = \Delta</math>. Then, I used mental math: <math>27 + (18 + 2) = 47</math>, and <math>47 - 2 = 45</math>."</p>
Observations/Documentation		

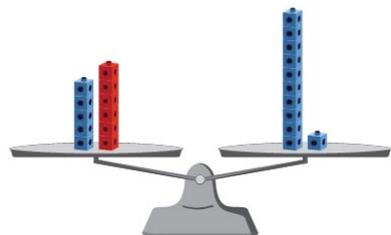
# Activity 11 Assessment

## Creating Equations

Variables and Symbols			
<p>Uses equal sign as balance (left side equals right side) and not equal sign as imbalance</p> $18 + 16 = 10 + 24$ $18 + 16 \neq 24 - 10$ <p>“The equal sign means that the numbers on both sides are worth the same amount.”</p>	<p>Uses symbols to represent unknown quantities</p> $18 + \square = 34$ <p>“I used a box to represent the unknown, but I could have used a different shape.”</p>	<p>Understands the unknown represents one quantity/value</p> $18 + \square = 34$ <p>“The box represents a number that would be added to 18 to make 34. No matter what the symbol is, it will always represent 16.”</p>	<p>Solves equations flexibly</p> $18 + \square = 34$ $34 - \square = 18$ $34 - 18 = \square$ <p>“In all of these equations, the symbol represents the same number, 16.”</p>
Observations/Documentation			

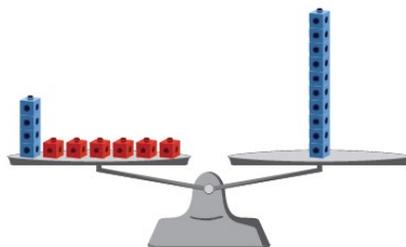
## Solving One-Step Addition and Subtraction Equations

Understands balance as equality



"5 + 6 equals 11."

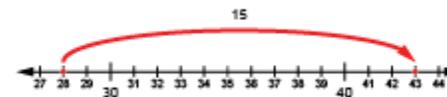
Uses concrete materials to solve for unknown



$$4 + \square = 10$$

"I added red cubes, one at a time, until the pans balanced;  $\square = 6$ ."

Uses number relationships (inverse operations)



$$28 = \square - 15$$

"I rewrote the equation as an addition equation:  $28 + 15 = \square$ ."

## Observations/Documentation

## Activity 12 Assessment Consolidation

Solving One-Step Addition and Subtraction Equations (con't)		
<p>Decomposes and recomposes numbers (uses associative property)</p> $28 + 15 = 28 + 2 + 13$ $28 + 2 + 13 = 30 + 13$ $30 + 13 = 43$	<p>Describes a situation for a given equation with an unknown</p> $20 - \square = 13$ <p>"I had \$20. I spent some money and now I have \$13. How much did I spend?"</p>	<p>Uses strategies efficiently and flexibly to solve equations of different types (start, result, and change unknown)</p> $27 = \Delta - 18$ <p>"I rewrote using addition: <math>27 + 18 = \Delta</math>. Then, I used mental math: <math>27 + (18 + 2) = 47</math>, and <math>47 - 2 = 45</math>."</p>
Observations/Documentation		

# Activity 12 Assessment Consolidation

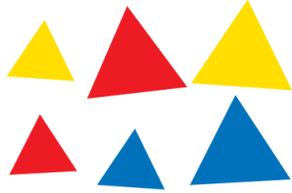
Variables and Symbols			
<p>Uses equal sign as balance (left side equals right side) and not equal sign as imbalance</p> $18 + 16 = 10 + 24$ $18 + 16 \neq 24 - 10$ <p>“The equal sign means that the numbers on both sides are worth the same amount.”</p>	<p>Uses symbols to represent unknown quantities</p> $18 + \square = 34$ <p>“I used a box to represent the unknown, but I could have used a different shape.”</p>	<p>Understands the unknown represents one quantity/value</p> $18 + \square = 34$ <p>“The box represents a number that would be added to 18 to make 34. No matter what the symbol is, it will always represent 16.”</p>	<p>Solves equations flexibly</p> $18 + \square = 34$ $34 - \square = 18$ $34 - 18 = \square$ <p>“In all of these equations, the symbol represents the same number, 16.”</p>
Observations/Documentation			

# Activity 13 Assessment

## Sorting with Attributes

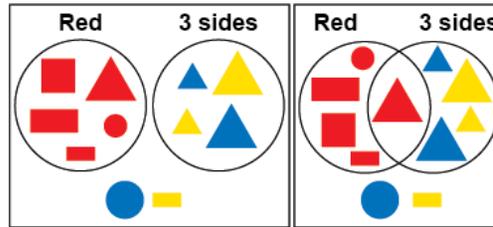
### Identifying and Sorting Attributes

Uses one attribute to sort (size, colour, shape)

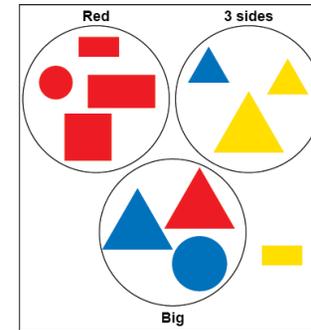


"I sorted the blocks by number of sides: 3."

Identifies 2 attributes and uses them to sort (with and without overlap)



Identifies 3 attributes and uses them to sort (without overlap)



"I used the attributes red, 3 sides, and big."

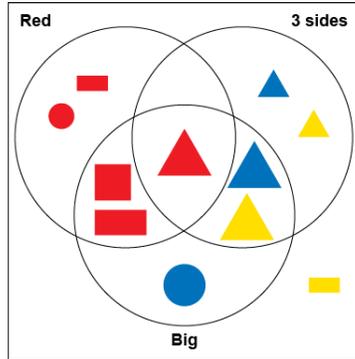
### Observations/Documentation

# Activity 13 Assessment

## Sorting with Attributes

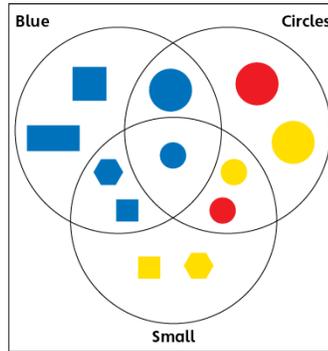
### Identifying and Sorting Attributes

Identifies 3 attributes and uses them to sort (with overlap)



“One block has all three attributes: red, 3 sides, and big.”

Identifies the sorting rule



“The centre overlap has a small, blue circle. So, this category must be blue, this must be small, and this must be circles.”

Uses attributes flexibly to sort (concretely and mentally)

Attributes: small, blue, 6-sides  
Centre overlap: small blue hexagon  
Overlaps:  
Small, blue blocks  
Small hexagons  
Blue hexagons

### Observations/Documentation

# Activity 14 Assessment

## Identifying and Extending Patterns

Identifying and Extending Repeating Patterns			
<p>Identifies repeating pattern (one of the changing attributes)</p>  <p>“Shape is changing. The pattern is: star, triangle, triangle.”</p>	<p>Identifies repeating pattern (two changing attributes)</p>  <p>“Colour and shape are changing.”</p>	<p>Identifies core of a repeating pattern</p>  <p>“The core is: blue star, blue triangle, red triangle.”</p>	<p>Uses core to extend the repeating pattern</p>  <p>“I drew the core on a piece of paper and moved it along the pattern to help me extend it.”</p>
Observations/Documentation			

# Activity 15 Assessment

## Creating Patterns

### Creating Repeating Patterns

Builds core with one attribute (e.g., always colour)



"red, blue, blue, yellow"

Builds core with one attribute (shape, size, colour)



"I changed shape."

Creates patterns with one attribute in many ways (shape, size, colour)



"I copied the core two more times."

### Observations/Documentation

Builds core with two attributes



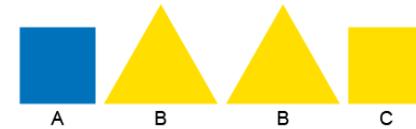
"I changed shape and colour."

Creates patterns with two attributes



"I copied the core two more times."

Represents the same pattern in many ways (e.g., letters, numbers, sounds)



"I represented the pattern core with letters: ABBC."

### Observations/Documentation

# Activity 16 Assessment Consolidation

## Identifying and Extending Repeating Patterns

Identifies repeating pattern (one of the changing attributes)



“Shape is changing. The pattern is: star, triangle, triangle.”

Identifies repeating pattern (two changing attributes)



“Colour and shape are changing.”

Identifies core of a repeating pattern



“The core is: blue star, blue triangle, red triangle.”

Uses core to extend the repeating pattern



“I drew the core on a piece of paper and moved it along the pattern to help me extend it.”

## Observations/Documentation

# Activity 16 Assessment Consolidation

## Creating Repeating Patterns

Builds core with one attribute (e.g., always colour)



"red, blue, blue, yellow"

Builds core with one attribute (shape, size, colour)



"I changed shape."

Creates patterns with one attribute in many ways (shape, size, colour)



"I copied the core two more times."

## Observations/Documentation

Builds core with two attributes



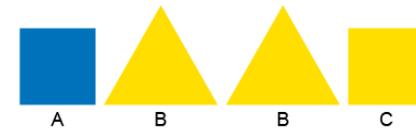
"I changed shape and colour."

Creates patterns with two attributes



"I copied the core two more times."

Represents the same pattern in many ways (e.g., letters, numbers, sounds)



"I represented the pattern core with letters: ABBC."

## Observations/Documentation

# Activity 1 Assessment

## Estimating Length

### Measuring Length and Perimeter

Uses non-standard units to measure



"The rectangle is 5 paper clips long.  
Its perimeter is 16 paper clips."

Uses standard-sized items to measure

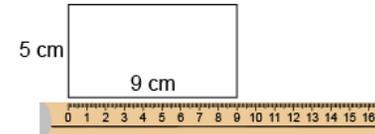


"The rectangle is 17 centicubes long.  
Its perimeter is 54 centicubes."

Uses benchmarks to estimate in standard units (m, cm)

"I used a big step as a referent for one metre. The classroom is about 7 big steps, or 7 m wide. Its perimeter is about 30 big steps, or 30 m."

Measures using standard units (m, cm)



"The perimeter is 28 cm."

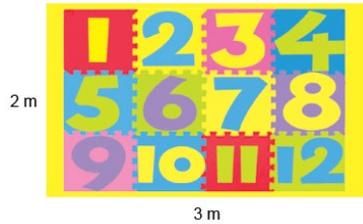
### Observations/Documentation

# Activity 1 Assessment

## Estimating Length

### Measuring Length and Perimeter (con't)

Selects and uses appropriate standard units



"I would use m because cm are too small. The perimeter is 10 m because  $3 + 2 + 3 + 2 = 10$ ."

Relates standard units of length (1 m = 100 cm)

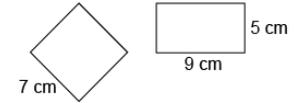


"The door has a perimeter of 8 m. Since 1 m = 100 cm, 8 m = 800 cm."

Uses smaller units to give more accurate measures

"The rug is between 2 m and 3 m long. If I use cm, I can be more accurate: 285 cm."

Compares using standard units



"Rectangle:  $5 + 9 + 5 + 9 = 28$  cm  
Square:  $7 \times 4 = 28$  cm. The perimeters are the same."

### Observations/Documentation

## Activity 2 Assessment

### Relating Centimetres and Metres

#### Measuring Length and Perimeter

Uses non-standard units to measure



“The rectangle is 5 paper clips long.  
Its perimeter is 16 paper clips.”

Uses standard-sized items to measure

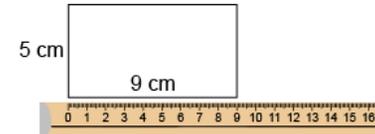


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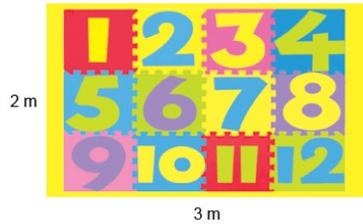
#### Observations/Documentation

# Activity 2 Assessment

## Relating Centimetres and Metres

### Measuring Length and Perimeter (con't)

Selects and uses appropriate standard units



"I would use m because cm are too small. The perimeter is 10 m because  $3 + 2 + 3 + 2 = 10$ ."

Relates standard units of length (1 m = 100 cm)

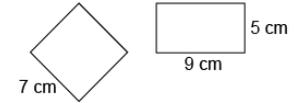


"The door has a perimeter of 8 m. Since 1 m = 100 cm, 8 m = 800 cm."

Uses smaller units to give more accurate measures

"The rug is between 2 m and 3 m long. If I use cm, I can be more accurate: 285 cm."

Compares using standard units



"Rectangle:  $5 + 9 + 5 + 9 = 28$  cm  
Square:  $7 \times 4 = 28$  cm. The perimeters are the same."

### Observations/Documentation

# Activity 3 Assessment

## Measuring Length

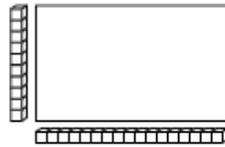
### Measuring Length and Perimeter

Uses non-standard units to measure



"The rectangle is 5 paper clips long.  
Its perimeter is 16 paper clips."

Uses standard-sized items to measure

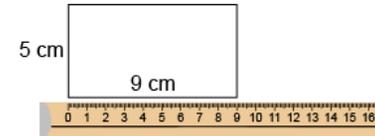


"The rectangle is 17 centicubes long.  
Its perimeter is 54 centicubes."

Uses benchmarks to estimate in standard units (m, cm)

"I used a big step as a referent for one metre. The classroom is about 7 big steps, or 7 m wide. Its perimeter is about 30 big steps, or 30 m."

Measures using standard units (m, cm)



"The perimeter is 28 cm."

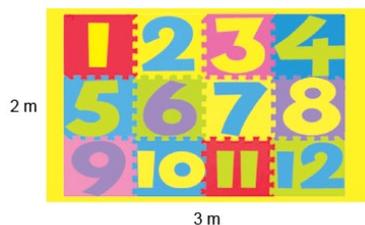
### Observations/Documentation

# Activity 3 Assessment

## Measuring Length

### Measuring Length and Perimeter (con't)

Selects and uses appropriate standard units



2 m

3 m

"I would use m because cm are too small. The perimeter is 10 m because  $3 + 2 + 3 + 2 = 10$ ."

Relates standard units of length (1 m = 100 cm)

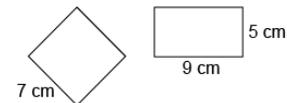


"The door has a perimeter of 8 m. Since 1 m = 100 cm, 8 m = 800 cm."

Uses smaller units to give more accurate measures

"The rug is between 2 m and 3 m long. If I use cm, I can be more accurate: 285 cm."

Compares using standard units

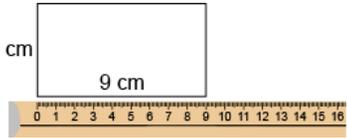


"Rectangle:  $5 + 9 + 5 + 9 = 28$  cm  
Square:  $7 \times 4 = 28$  cm. The perimeters are the same."

### Observations/Documentation

# Activity 4 Assessment

## Introducing Perimeter

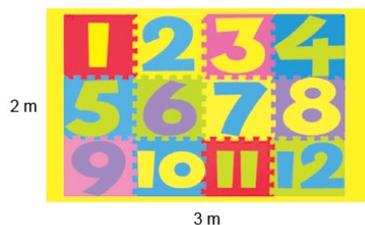
Measuring Length and Perimeter			
<p>Uses non-standard units to measure</p>  <p>“The rectangle is 5 paper clips long. Its perimeter is 16 paper clips.”</p>	<p>Uses standard-sized items to measure</p>  <p>“The rectangle is 17 centicubes long. Its perimeter is 54 centicubes.”</p>	<p>Uses benchmarks to estimate in standard units (m, cm)</p> <p>“I used a big step as a referent for one metre. The classroom is about 7 big steps, or 7 m wide. Its perimeter is about 30 big steps, or 30 m.”</p>	<p>Measures using standard units (m, cm)</p>  <p>“The perimeter is 28 cm.”</p>
Observations/Documentation			

# Activity 4 Assessment

## Introducing Perimeter

### Measuring Length and Perimeter (con't)

Selects and uses appropriate standard units



2 m

3 m

"I would use m because cm are too small. The perimeter is 10 m because  $3 + 2 + 3 + 2 = 10$ ."

Relates standard units of length (1 m = 100 cm)



3 m

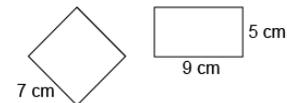
1 m

"The door has a perimeter of 8 m. Since 1 m = 100 cm, 8 m = 800 cm."

Uses smaller units to give more accurate measures

"The rug is between 2 m and 3 m long. If I use cm, I can be more accurate: 285 cm."

Compares using standard units



7 cm

9 cm

5 cm

"Rectangle:  $5 + 9 + 5 + 9 = 28$  cm  
Square:  $7 \times 4 = 28$  cm. The perimeters are the same."

### Observations/Documentation

# Activity 5 Assessment

## Measuring Perimeter

### Measuring Length and Perimeter

Uses non-standard units to measure



“The rectangle is 5 paper clips long.  
Its perimeter is 16 paper clips.”

Uses standard-sized items to measure

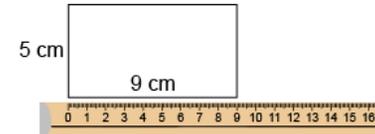


“The rectangle is 17 centicubes long.  
Its perimeter is 54 centicubes.”

Uses benchmarks to estimate in standard units (m, cm)

“I used a big step as a referent for one metre. The classroom is about 7 big steps, or 7 m wide. Its perimeter is about 30 big steps, or 30 m.”

Measures using standard units (m, cm)



“The perimeter is 28 cm.”

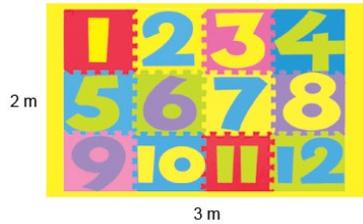
### Observations/Documentation

# Activity 5 Assessment

## Measuring Perimeter

### Measuring Length and Perimeter (con't)

Selects and uses appropriate standard units



2 m

3 m

"I would use m because cm are too small. The perimeter is 10 m because  $3 + 2 + 3 + 2 = 10$ ."

Relates standard units of length (1 m = 100 cm)



3 m

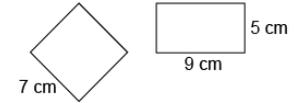
1 m

"The door has a perimeter of 8 m. Since 1 m = 100 cm, 8 m = 800 cm."

Uses smaller units to give more accurate measures

"The rug is between 2 m and 3 m long. If I use cm, I can be more accurate: 285 cm."

Compares using standard units



7 cm

9 cm

5 cm

"Rectangle:  $5 + 9 + 5 + 9 = 28$  cm  
Square:  $7 \times 4 = 28$  cm. The perimeters are the same."

### Observations/Documentation

# Activity 6 Assessment

## How Many Can You Make?

### Measuring Length and Perimeter

Uses non-standard units to measure



"The rectangle is 5 paper clips long.  
Its perimeter is 16 paper clips."

Uses standard-sized items to measure

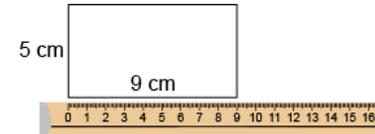


"The rectangle is 17 centicubes long.  
Its perimeter is 54 centicubes."

Uses benchmarks to estimate in standard units (m, cm)

"I used a big step as a referent for one metre. The classroom is about 7 big steps, or 7 m wide. Its perimeter is about 30 big steps, or 30 m."

Measures using standard units (m, cm)



"The perimeter is 28 cm."

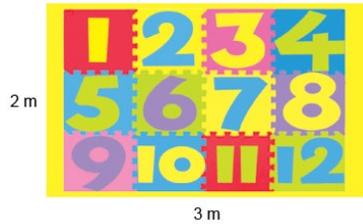
### Observations/Documentation

# Activity 6 Assessment

## How Many Can You Make?

### Measuring Length and Perimeter (con't)

Selects and uses appropriate standard units



"I would use m because cm are too small. The perimeter is 10 m because  $3 + 2 + 3 + 2 = 10$ ."

Relates standard units of length (1 m = 100 cm)

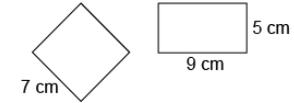


"The door has a perimeter of 8 m. Since 1 m = 100 cm, 8 m = 800 cm."

Uses smaller units to give more accurate measures

"The rug is between 2 m and 3 m long. If I use cm, I can be more accurate: 285 cm."

Compares using standard units



"Rectangle:  $5 + 9 + 5 + 9 = 28$  cm  
Square:  $7 \times 4 = 28$  cm. The perimeters are the same."

### Observations/Documentation

# Activity 7 Assessment Consolidation

## Measuring Length and Perimeter

Uses non-standard units to measure



"The rectangle is 5 paper clips long.  
Its perimeter is 16 paper clips."

Uses standard-sized items to measure

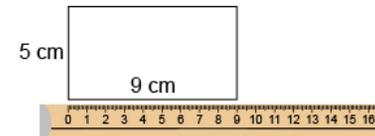


"The rectangle is 17 centicubes long.  
Its perimeter is 54 centicubes."

Uses benchmarks to estimate in standard units (m, cm)

"I used a big step as a referent for one metre. The classroom is about 7 big steps, or 7 m wide. Its perimeter is about 30 big steps, or 30 m."

Measures using standard units (m, cm)



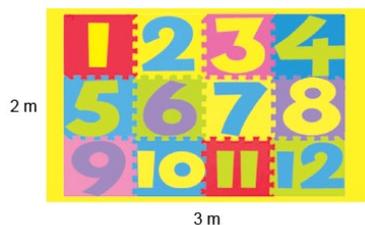
"The perimeter is 28 cm."

## Observations/Documentation

# Activity 7 Assessment Consolidation

## Measuring Length and Perimeter (con't)

Selects and uses appropriate standard units



"I would use m because cm are too small. The perimeter is 10 m because  $3 + 2 + 3 + 2 = 10$ ."

Relates standard units of length (1 m = 100 cm)

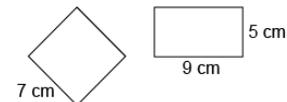


"The door has a perimeter of 8 m. Since 1 m = 100 cm, 8 m = 800 cm."

Uses smaller units to give more accurate measures

"The rug is between 2 m and 3 m long. If I use cm, I can be more accurate: 285 cm."

Compares using standard units



"Rectangle:  $5 + 9 + 5 + 9 = 28$  cm  
Square:  $7 \times 4 = 28$  cm. The perimeters are the same."

## Observations/Documentation

# Activity 8 Assessment

## Measuring the Passage of Time

Time and Measurement Relationships		
<p>Uses non-standard units to measure passage of time</p> <p>“I used a sand timer and in one flip, I did 30 jumping jacks.”</p>	<p>Uses benchmarks to estimate and measure time</p> <p>“Two episodes of my favourite TV show take 1 hour.”</p>	<p>Uses standard units to measure passage of time</p> <p>“I used a stopwatch. Recess lasts 20 minutes. I used a calendar. The school week lasts 5 days.”</p>
Observations/Documentation		
<p>Selects and uses appropriate unit to measure time</p> <p>“I would measure a school day in hours and the time it takes to walk to the library in minutes.”</p>	<p>Reads time on an analogue and digital clock</p>  <p>“It is 10 minutes after 9.”</p>	<p>Understands relationships among time units</p> <p>“1 hour is 60 minutes. So, 2 hours is 120 minutes. 1 year is 12 months. So, 2 years is 24 months</p>
Observations/Documentation		

# Activity 9 Assessment

## Relationships Among Units of Time

Time and Measurement Relationships		
<p>Uses non-standard units to measure passage of time</p> <p>“I used a sand timer and in one flip, I did 30 jumping jacks.”</p>	<p>Uses benchmarks to estimate and measure time</p> <p>“Two episodes of my favourite TV show take 1 hour.”</p>	<p>Uses standard units to measure passage of time</p> <p>“I used a stopwatch. Recess lasts 20 minutes. I used a calendar. The school week lasts 5 days.”</p>
Observations/Documentation		
<p>Selects and uses appropriate unit to measure time</p> <p>“I would measure a school day in hours and the time it takes to walk to the library in minutes.”</p>	<p>Reads time on an analogue and digital clock</p>  <p>“It is 10 minutes after 9.”</p>	<p>Understands relationships among time units</p> <p>“1 hour is 60 minutes. So, 2 hours is 120 minutes. 1 year is 12 months. So, 2 years is 24 months</p>
Observations/Documentation		

# Activity 10 Assessment

## Telling Time

Time and Measurement Relationships		
<p>Uses non-standard units to measure passage of time</p> <p>“I used a sand timer and in one flip, I did 30 jumping jacks.”</p>	<p>Uses benchmarks to estimate and measure time</p> <p>“Two episodes of my favourite TV show take 1 hour.”</p>	<p>Uses standard units to measure passage of time</p> <p>“I used a stopwatch. Recess lasts 20 minutes. I used a calendar. The school week lasts 5 days.”</p>
Observations/Documentation		
<p>Selects and uses appropriate unit to measure time</p> <p>“I would measure a school day in hours and the time it takes to walk to the library in minutes.”</p>	<p>Reads time on an analogue and digital clock</p> <div style="text-align: center;">  </div> <p>“It is 10 minutes after 9.”</p>	<p>Understands relationships among time units</p> <p>“1 hour is 60 minutes. So, 2 hours is 120 minutes. 1 year is 12 months. So, 2 years is 24 months</p>
Observations/Documentation		

# Activity 11 Assessment

## Reading a Thermometer

Understanding Temperature			
<p>Relates temperature to experiences</p> <p>“When it is hot outside, I don’t need to wear a jacket. I can wear shorts.”</p>	<p>Creates benchmark temperatures for air and water</p> <p>“Room temperature is a benchmark for 20°C.”</p>	<p>Uses benchmarks to estimate temperatures</p> <p>“It is a bit warmer outside than the temperature in the classroom. I think it is about 23°C.”</p>	<p>Uses a thermometer to measure temperature</p> <div style="text-align: center;">  </div> <p>“The outside temperature is 25°C.”</p>
Observations/Documentation			

# Activity 12 Assessment Consolidation

Time and Measurement Relationships		
<p>Uses non-standard units to measure passage of time</p> <p>“I used a sand timer and in one flip, I did 30 jumping jacks.”</p>	<p>Uses benchmarks to estimate and measure time</p> <p>“Two episodes of my favourite TV show take 1 hour.”</p>	<p>Uses standard units to measure passage of time</p> <p>“I used a stopwatch. Recess lasts 20 minutes. I used a calendar. The school week lasts 5 days.”</p>
Observations/Documentation		
<p>Selects and uses appropriate unit to measure time</p> <p>“I would measure a school day in hours and the time it takes to walk to the library in minutes.”</p>	<p>Reads time on an analogue and digital clock</p> <div style="text-align: center;">  </div> <p>“It is 10 minutes after 9.”</p>	<p>Understands relationships among time units</p> <p>“1 hour is 60 minutes. So, 2 hours is 120 minutes. 1 year is 12 months. So, 2 years is 24 months</p>
Observations/Documentation		

# Activity 13 Assessment

## Measuring Area Using Non-Standard Units

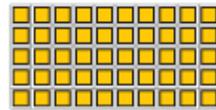
### Using Standard Units to Estimate, Measure, and Compare Area

Uses non-standard units to measure



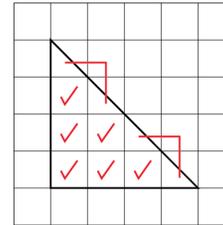
"Its area is 8 Colour Tiles."

Uses standard-sized items to measure



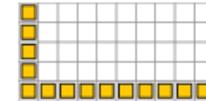
"Its area is 50 square centimetres."

Uses partial units to get more precise measure



"6 whole squares and  
4 half squares.  
Area is 8 square centimetres."

Measures using multiple copies of a unit



"I skip-counted by 10 five times:  
10, 20, 30, 40, 50.  
Area is 50 square centimetres."

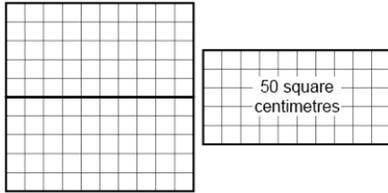
### Observations/Documentation

# Activity 13 Assessment

## Measuring Area Using Non-Standard Units

### Using Standard Units to Estimate, Measure, and Compare Area (con't)

Measures using intermediary shape (e.g., shape whose area is known)



"Each rectangle has area 50 square centimetres, so the area of the square is 100 square centimetres."

Uses benchmarks to estimate in standard units

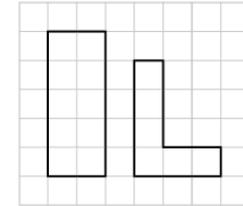


"Area of hand: about 100 square centimetres. The card is a bit bigger, so I estimate 125 square centimetres."

Selects and uses appropriate standard units

"I would use square metres to measure the area of the floor because it is much bigger than a square made from metre sticks."

Compares using standard units



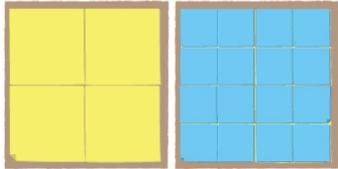
"The rectangle: 10 square centimetres is bigger than 6 square centimetres."

# Activity 13 Assessment

## Measuring Area Using Non-Standard Units

### Relationships in Area, Mass, and Capacity

Measures using different non-standard units for area, mass, and capacity



"I covered the shape with big squares, then with small squares."

Uses the relationship between non-standard units to explain measures

"The bigger the cube, the fewer I needed to fill the milk carton."

The smaller the square, the more I needed to cover the shape."

Uses conservation of area and mass to predict measures



"I reshaped the modelling clay and its mass didn't change. It was 375 g both times."

Flexibly uses the relationships among measurement units

"375 g is less than 1 kg because 1 kg is 1000 g."

### Observations/Documentation

# Activity 14 Assessment

## Measuring Area Using Standard Units

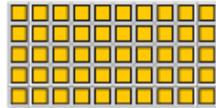
### Using Standard Units to Estimate, Measure, and Compare Area

Uses non-standard units to measure



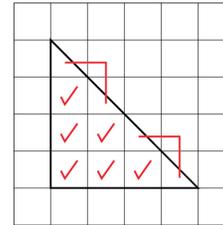
"Its area is 8 Colour Tiles."

Uses standard-sized items to measure



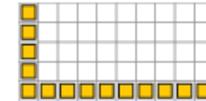
"Its area is 50 square centimetres."

Uses partial units to get more precise measure



"6 whole squares and  
4 half squares.  
Area is 8 square centimetres."

Measures using multiple copies of a unit



"I skip-counted by 10 five times:  
10, 20, 30, 40, 50.  
Area is 50 square centimetres."

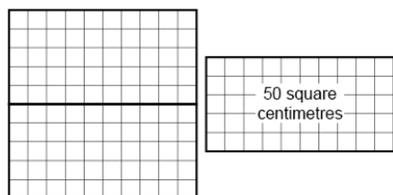
### Observations/Documentation

# Activity 14 Assessment

## Measuring Area Using Standard Units

### Using Standard Units to Estimate, Measure, and Compare Area (con't)

Measures using intermediary shape (e.g., shape whose area is known)



"Each rectangle has area 50 square centimetres, so the area of the square is 100 square centimetres."

Uses benchmarks to estimate in standard units

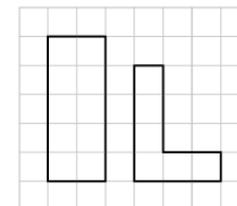


"Area of hand: about 100 square centimetres. The card is a bit bigger, so I estimate 125 square centimetres."

Selects and uses appropriate standard units

"I would use square metres to measure the area of the floor because it is much bigger than a square made from metre sticks."

Compares using standard units



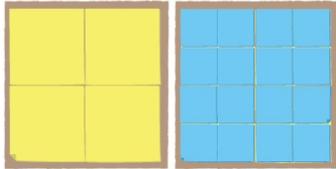
"The rectangle: 10 square centimetres is bigger than 6 square centimetres."

# Activity 14 Assessment

## Measuring Area Using Standard Units

### Relationships in Area, Mass, and Capacity

Measures using different non-standard units for area, mass, and capacity



"I covered the shape with big squares, then with small squares."

Uses the relationship between non-standard units to explain measures

"The bigger the cube, the fewer I needed to fill the milk carton.

The smaller the square, the more I needed to cover the shape."

Uses conservation of area and mass to predict measures



"I reshaped the modelling clay and its mass didn't change. It was 375 g both times."

Flexibly uses the relationships among measurement units

"375 g is less than 1 kg because 1 kg is 1000 g."

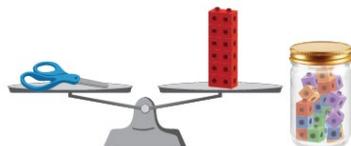
### Observations/Documentation

# Activity 15 Assessment

## Measuring Mass

### Using Standard Units to Estimate and Measure Mass and Capacity

Uses non-standard units to measure



“The scissors have a mass of about 12 linking cubes. The jar has a capacity of about 20 linking cubes.”

Uses multiple copies of standard-sized items to measure

“I added 1-g masses to the pan until the pans balanced. The eraser has a mass of 20 g.

I filled the 100-mL cylinder and poured it into the jug. I did this 6 times. The capacity of the jug is 600 mL.”

Measures using intermediary object (e.g., object whose mass/capacity is known)

“I know the soup can has a mass of about 300 g, so I started with that and added other masses.

I used the water bottle to fill the bowl. It didn't quite fill it, so I then used the 100-mL cylinder.”

### Observations/Documentation

# Activity 15 Assessment

## Measuring Mass

### Using Standard Units to Estimate and Measure Mass and Capacity (con't)

Uses benchmarks to estimate in standard units

“My pencil case is a bit heavier than a can of tuna, so I estimate 225 g.

The bottle is a bit smaller than a carton of milk, so I estimate 900 mL.”

Selects and uses appropriate standard units

“It’s lighter than a box of salt, so I will use grams.

It’s bigger than a milk carton, so I will use litres.”

Compares using standard units

“1 L is more than 750 mL, so the milk carton holds more than the yogurt tub.”

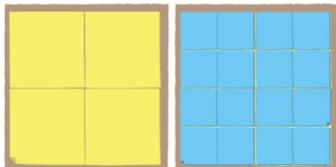
### Observations/Documentation

# Activity 15 Assessment

## Measuring Mass

### Relationships in Area, Mass, and Capacity

Measures using different non-standard units for area, mass, and capacity



"I covered the shape with big squares, then with small squares."

Uses the relationship between non-standard units to explain measures

"The bigger the cube, the fewer I needed to fill the milk carton.

The smaller the square, the more I needed to cover the shape."

Uses conservation of area and mass to predict measures



"I reshaped the modelling clay and its mass didn't change. It was 375 g both times."

Flexibly uses the relationships among measurement units

"375 g is less than 1 kg because 1 kg is 1000 g."

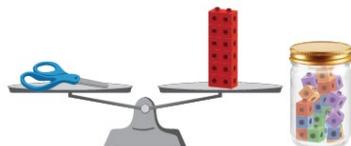
### Observations/Documentation

# Activity 16 Assessment

## Measuring Capacity

### Using Standard Units to Estimate and Measure Mass and Capacity

Uses non-standard units to measure



“The scissors have a mass of about 12 linking cubes. The jar has a capacity of about 20 linking cubes.”

Uses multiple copies of standard-sized items to measure

“I added 1-g masses to the pan until the pans balanced. The eraser has a mass of 20 g.

I filled the 100-mL cylinder and poured it into the jug. I did this 6 times. The capacity of the jug is 600 mL.”

Measures using intermediary object (e.g., object whose mass/capacity is known)

“I know the soup can has a mass of about 300 g, so I started with that and added other masses.

I used the water bottle to fill the bowl. It didn't quite fill it, so I then used the 100-mL cylinder.”

### Observations/Documentation

# Activity 16 Assessment

## Measuring Capacity

### Using Standard Units to Estimate and Measure Mass and Capacity (con't)

Uses benchmarks to estimate in standard units

“My pencil case is a bit heavier than a can of tuna, so I estimate 225 g.

The bottle is a bit smaller than a carton of milk, so I estimate 900 mL.”

Selects and uses appropriate standard units

“It’s lighter than a box of salt, so I will use grams.

It’s bigger than a milk carton, so I will use litres.”

Compares using standard units

“1 L is more than 750 mL, so the milk carton holds more than the yogurt tub.”

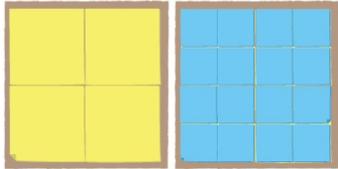
### Observations/Documentation

# Activity 16 Assessment

## Measuring Capacity

### Relationships in Area, Mass, and Capacity

Measures using different non-standard units for area, mass, and capacity



"I covered the shape with big squares, then with small squares."

Uses the relationship between non-standard units to explain measures

"The bigger the cube, the fewer I needed to fill the milk carton.

The smaller the square, the more I needed to cover the shape."

Uses conservation of area and mass to predict measures



"I reshaped the modelling clay and its mass didn't change. It was 375 g both times."

Flexibly uses the relationships among measurement units

"375 g is less than 1 kg because 1 kg is 1000 g."

### Observations/Documentation

# Activity 17 Assessment Consolidation

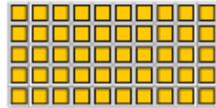
## Using Standard Units to Estimate, Measure, and Compare Area

Uses non-standard units to measure



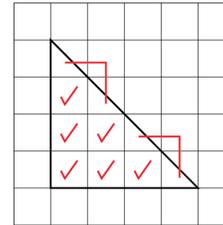
"Its area is 8 Colour Tiles."

Uses standard-sized items to measure



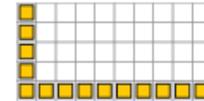
"Its area is 50 square centimetres."

Uses partial units to get more precise measure



"6 whole squares and  
4 half squares.  
Area is 8 square centimetres."

Measures using multiple copies of a unit



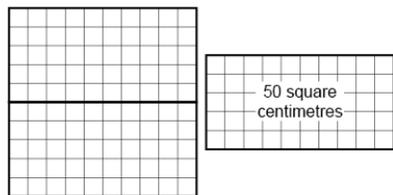
"I skip-counted by 10 five times:  
10, 20, 30, 40, 50.  
Area is 50 square centimetres."

## Observations/Documentation

# Activity 17 Assessment Consolidation

## Using Standard Units to Estimate, Measure, and Compare Area (con't)

Measures using intermediary shape (e.g., shape whose area is known)



"Each rectangle has area 50 square centimetres, so the area of the square is 100 square centimetres."

Uses benchmarks to estimate in standard units

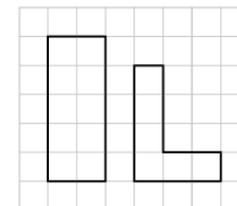


"Area of hand: about 100 square centimetres. The card is a bit bigger, so I estimate 125 square centimetres."

Selects and uses appropriate standard units

"I would use square metres to measure the area of the floor because it is much bigger than a square made from metre sticks."

Compares using standard units

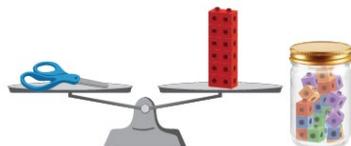


"The rectangle: 10 square centimetres is bigger than 6 square centimetres."

# Activity 17 Assessment Consolidation

## Using Standard Units to Estimate and Measure Mass and Capacity

Uses non-standard units to measure



“The scissors have a mass of about 12 linking cubes. The jar has a capacity of about 20 linking cubes.”

Uses multiple copies of standard-sized items to measure

“I added 1-g masses to the pan until the pans balanced. The eraser has a mass of 20 g.

I filled the 100-mL cylinder and poured it into the jug. I did this 6 times. The capacity of the jug is 600 mL.”

Measures using intermediary object (e.g., object whose mass/capacity is known)

“I know the soup can has a mass of about 300 g, so I started with that and added other masses.

I used the water bottle to fill the bowl. It didn't quite fill it, so I then used the 100-mL cylinder.”

## Observations/Documentation

# Activity 17 Assessment Consolidation

Using Standard Units to Estimate and Measure Mass and Capacity (con't)		
<p>Uses benchmarks to estimate in standard units</p> <p>“My pencil case is a bit heavier than a can of tuna, so I estimate 225 g.</p> <p>The bottle is a bit smaller than a carton of milk, so I estimate 900 mL.”</p>	<p>Selects and uses appropriate standard units</p> <p>“It’s lighter than a box of salt, so I will use grams.</p> <p>It’s bigger than a milk carton, so I will use litres.”</p>	<p>Compares using standard units</p> <p>“1 L is more than 750 mL, so the milk carton holds more than the yogurt tub.”</p>
Observations/Documentation		

# Activity 1 Assessment

## Sorting Polygons

### Investigating Geometric Attributes of 2-D Shapes

Recognizes and names familiar 2-D shapes

"The top of my desk has the shape of a rectangle."

Groups shapes that share the same geometric attributes



"The first three shapes all have 5 sides, so they are pentagons. The last shape doesn't belong. It has 6 sides."

Analyzes geometric attributes of 2-D shapes (e.g., number and length of sides, number of vertices)



"The first two are irregular pentagons as not all sides are equal. The third one is regular because all sides are equal."

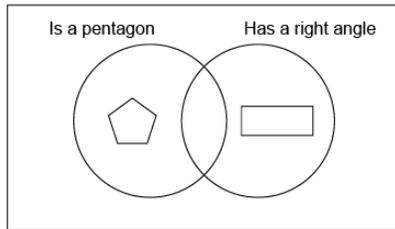
### Observations/Documentation

# Activity 1 Assessment

## Sorting Polygons

### Investigating Geometric Attributes of 2-D Shapes (con't)

Uses attributes to compare and sort shapes



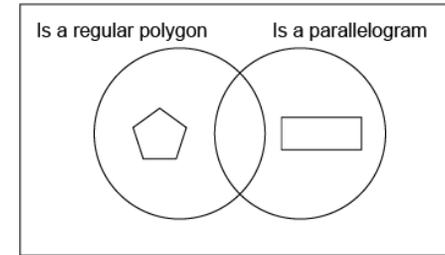
"I need a shape with 5 sides and at least one right angle to go in the overlap."

Uses attributes to name shapes in different ways



"A rectangle can also be called a parallelogram because it has 2 pairs of parallel sides."

Sorts, classifies, and names shapes flexibly using geometric attributes



"The sorting rule could be 'Is a regular polygon and is a parallelogram.'"

### Observations/Documentation

## Activity 2 Assessment

### What's the Sorting Rule?

#### Investigating Geometric Attributes of 2-D Shapes

Recognizes and names familiar 2-D shapes

"The top of my desk has the shape of a rectangle."

Groups shapes that share the same geometric attributes



"The first three shapes all have 5 sides, so they are pentagons. The last shape doesn't belong. It has 6 sides."

Analyzes geometric attributes of 2-D shapes (e.g., number and length of sides, number of vertices)



"The first two are irregular pentagons as not all sides are equal. The third one is regular because all sides are equal."

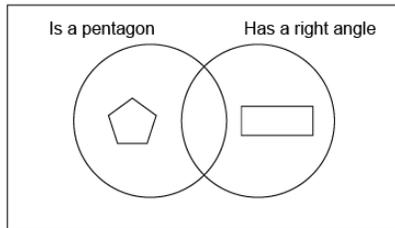
#### Observations/Documentation

# Activity 2 Assessment

## What's the Sorting Rule?

### Investigating Geometric Attributes of 2-D Shapes (con't)

Uses attributes to compare and sort shapes



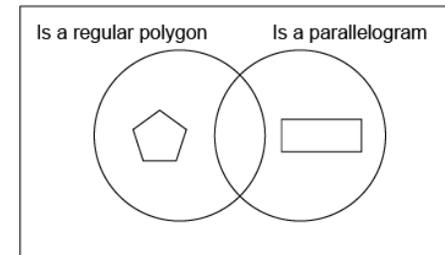
"I need a shape with 5 sides and at least one right angle to go in the overlap."

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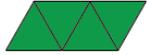
### Observations/Documentation

# Activity 3 Assessment

## Composing Shapes

### Composing and Decomposing 2-D Shapes

Constructs composite shape using copies of the same Pattern Block



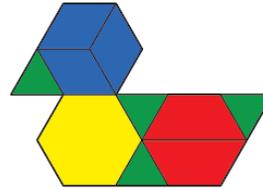
"I can use 4 triangles to make a parallelogram."

Constructs composite shape from Pattern Blocks in more than one way



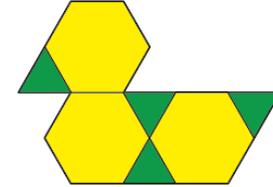
"I can also use 2 triangles and a rhombus to make a parallelogram."

Completes a picture outline with Pattern Blocks



"I used 10 blocks to cover the outline. I tried to use a variety of blocks."

Constructs composite shapes in many ways by decomposing shapes and rearranging parts



"I traded 3 blue blocks for a yellow block, and 2 red blocks for a yellow block. I was able to cover the outline using only 7 blocks. When I use only green blocks, it takes 22 blocks."

### Observations/Documentation

# Activity 4 Assessment

## Exploring Quadrilaterals

### Investigating Geometric Attributes of 2-D Shapes

Recognizes and names familiar 2-D shapes

"The top of my desk has the shape of a rectangle."

Groups shapes that share the same geometric attributes



"The first three shapes all have 5 sides, so they are pentagons. The last shape doesn't belong. It has 6 sides."

Analyzes geometric attributes of 2-D shapes (e.g., number and length of sides, number of vertices)



"The first two are irregular pentagons as not all sides are equal. The third one is regular because all sides are equal."

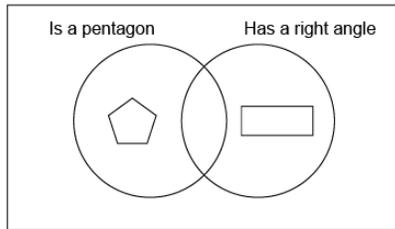
### Observations/Documentation

# Activity 4 Assessment

## Exploring Quadrilaterals

### Investigating Geometric Attributes of 2-D Shapes (con't)

Uses attributes to compare and sort shapes



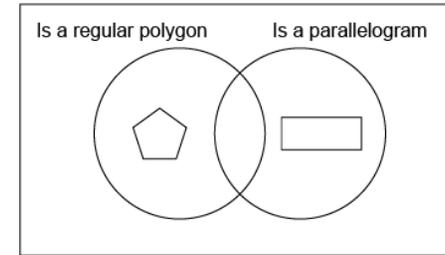
"I need a shape with 5 sides and at least one right angle to go in the overlap."

Uses attributes to name shapes in different ways



"A rectangle can also be called a parallelogram because it has 2 pairs of parallel sides."

Sorts, classifies, and names shapes flexibly using geometric attributes



"The sorting rule could be 'Is a regular polygon and is a parallelogram.'"

### Observations/Documentation

# Activity 5 Assessment Consolidation

## Investigating Geometric Attributes of 2-D Shapes

Recognizes and names familiar 2-D shapes

"The top of my desk has the shape of a rectangle."

Groups shapes that share the same geometric attributes



"The first three shapes all have 5 sides, so they are pentagons. The last shape doesn't belong. It has 6 sides."

Analyzes geometric attributes of 2-D shapes (e.g., number and length of sides, number of vertices)



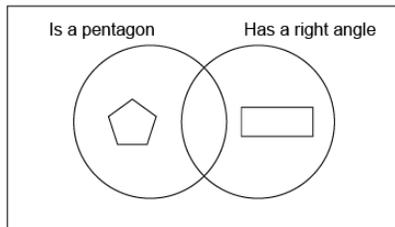
"The first two are irregular pentagons as not all sides are equal. The third one is regular because all sides are equal."

## Observations/Documentation

# Activity 5 Assessment Consolidation

## Investigating Geometric Attributes of 2-D Shapes (con't)

Uses attributes to compare and sort shapes



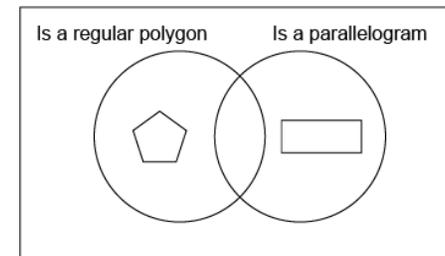
"I need a shape with 5 sides and at least one right angle to go in the overlap."

Uses attributes to name shapes in different ways



"A rectangle can also be called a parallelogram because it has 2 pairs of parallel sides."

Sorts, classifies, and names shapes flexibly using geometric attributes



"The sorting rule could be 'Is a regular polygon and is a parallelogram.'"

## Observations/Documentation

# Activity 5 Assessment Consolidation

## Composing and Decomposing 2-D Shapes

Constructs composite shape using copies of the same Pattern Block



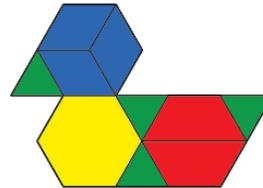
"I can use 4 triangles to make a parallelogram."

Constructs composite shape from Pattern Blocks in more than one way



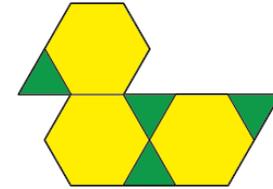
"I can also use 2 triangles and a rhombus to make a parallelogram."

Completes a picture outline with Pattern Blocks



"I used 10 blocks to cover the outline. I tried to use a variety of blocks."

Constructs composite shapes in many ways by decomposing shapes and rearranging parts

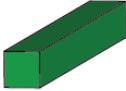
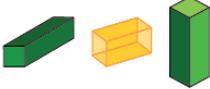


"I traded 3 blue blocks for a yellow block, and 2 red blocks for a yellow block. I was able to cover the outline using only 7 blocks. When I use only green blocks, it takes 22 blocks."

## Observations/Documentation

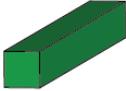
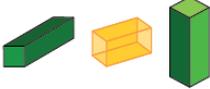
# Activity 6 Assessment

## Exploring Geometric Attributes of Solids

Investigating Geometric Attributes of 3-D Solids			
<p>Identifies and describes geometric attributes of individual solids</p>  <p>“This 3-D solid has 2 square bases, 4 rectangular faces, 12 edges, and 8 vertices.”</p> <p>Or “This 3-D solid has 2 rectangular bases, 2 square faces, 2 rectangular faces, 12 edges, and 8 vertices.”</p>	<p>Groups solids that share the same geometric attributes</p>  <p>“All these solids have the same geometric attributes, so they are all square-based prisms.”</p>	<p>Builds solids based on given geometric attributes</p>  <p>“I made a square pyramid. It has 4 triangle faces and 1 square base.”</p>	<p>Sorts, classifies and names solids using geometric attributes</p>  <p>“All pyramids have faces that are triangles.”</p>
Observations/Documentation			

# Activity 7 Assessment

## Building Solids

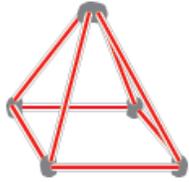
Investigating Geometric Attributes of 3-D Solids			
<p>Identifies and describes geometric attributes of individual solids</p>  <p>“This 3-D solid has 2 square bases, 4 rectangular faces, 12 edges, and 8 vertices.”</p> <p>Or “This 3-D solid has 2 rectangular bases, 2 square faces, 2 rectangular faces, 12 edges, and 8 vertices.”</p>	<p>Groups solids that share the same geometric attributes</p>  <p>“All these solids have the same geometric attributes, so they are all square-based prisms.”</p>	<p>Builds solids based on given geometric attributes</p>  <p>“I made a square pyramid. It has 4 triangle faces and 1 square base.”</p>	<p>Sorts, classifies and names solids using geometric attributes</p>  <p>“All pyramids have faces that are triangles.”</p>
Observations/Documentation			

# Activity 8 Assessment

## Constructing Skeletons

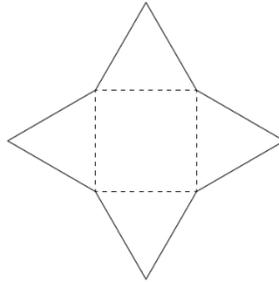
### Composing and Decomposing 3-D Solids

Constructs skeletons of 3-D solids by decomposing solids into 2-D shapes and matching



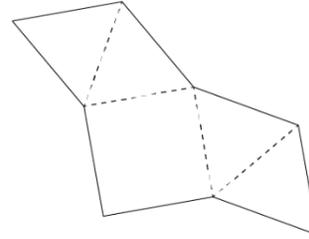
"I started by making a square as the base, then added the triangular faces."

Identifies nets of 3-D solids by folding



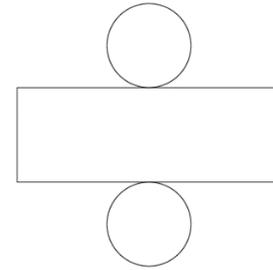
"I folded this net and made a square-based pyramid."

Recognizes nets of 3-D solids by decomposing and matching (visualization)



"When I imagine folding it in my mind, I see the triangles wrapping around the square to make a pyramid."

Constructs and deconstructs solids flexibly using skeletons and nets



"This net will make a cylinder, but I can't make a skeleton of a cylinder because it doesn't have vertices and edges."

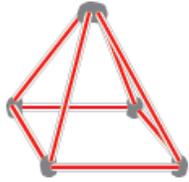
### Observations/Documentation

# Activity 9 Assessment

## Working with Nets

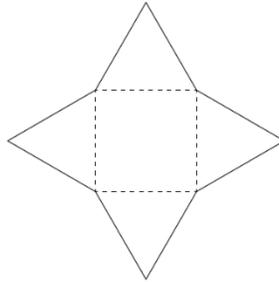
### Composing and Decomposing 3-D Solids

Constructs skeletons of 3-D solids by decomposing solids into 2-D shapes and matching



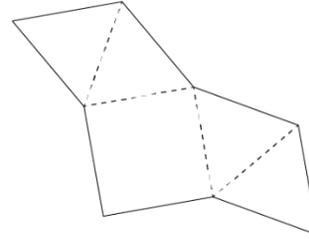
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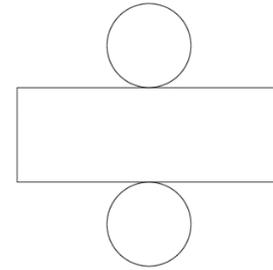
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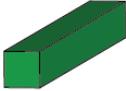
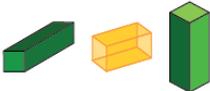
Constructs and deconstructs solids flexibly using skeletons and nets



"This net will make a cylinder, but I can't make a skeleton of a cylinder because it doesn't have vertices and edges."

### Observations/Documentation

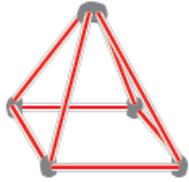
# Activity 10 Assessment Consolidation

Investigating Geometric Attributes of 3-D Solids			
<p>Identifies and describes geometric attributes of individual solids</p>  <p>“This 3-D solid has 2 square bases, 4 rectangular faces, 12 edges, and 8 vertices.”</p> <p>Or “This 3-D solid has 2 rectangular bases, 2 square faces, 2 rectangular faces, 12 edges, and 8 vertices.”</p>	<p>Groups solids that share the same geometric attributes</p>  <p>“All these solids have the same geometric attributes, so they are all square-based prisms.”</p>	<p>Builds solids based on given geometric attributes</p>  <p>“I made a square pyramid. It has 4 triangle faces and 1 square base.”</p>	<p>Sorts, classifies and names solids using geometric attributes</p>  <p>“All pyramids have faces that are triangles.”</p>
Observations/Documentation			

# Activity 10 Assessment Consolidation

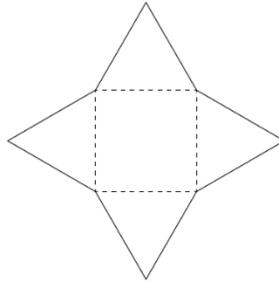
## Composing and Decomposing 3-D Solids

Constructs skeletons of 3-D solids by decomposing solids into 2-D shapes and matching



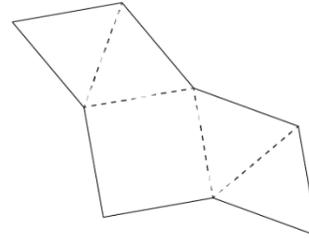
"I started by making a square as the base, then added the triangular faces."

Identifies nets of 3-D solids by folding



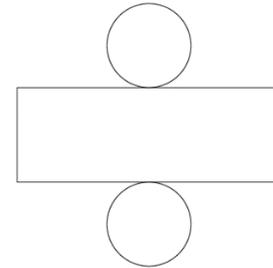
"I folded this net and made a square-based pyramid."

Recognizes nets of 3-D solids by decomposing and matching (visualization)



"When I imagine folding it in my mind, I see the triangles wrapping around the square to make a pyramid."

Constructs and deconstructs solids flexibly using skeletons and nets



"This net will make a cylinder, but I can't make a skeleton of a cylinder because it doesn't have vertices and edges."

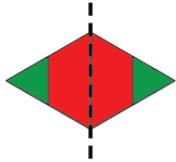
## Observations/Documentation

# Activity 11 Assessment

## Identifying Symmetrical Designs

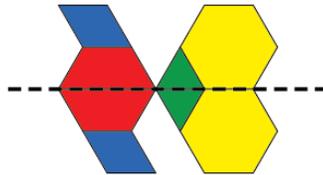
### Exploring Symmetry with 2-D Shapes

Identifies a line of symmetry in a design



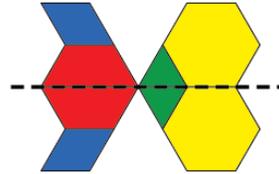
"I see one line of symmetry. If I fold the design on the line, the 2 sides match exactly."

Completes a symmetrical design, placing most shapes correctly



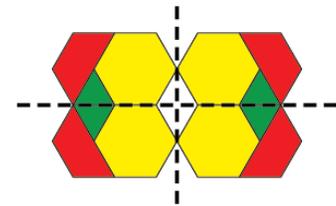
"I'm not sure about the blue block, but it looks right to me."

Successfully completes a symmetrical design and uses math language to describe it



"This design is symmetrical because all the blocks below the line are reflections of the blocks above the line. I used a Mira to check."

Constructs symmetrical designs and identifies all lines of symmetry



"I made my own design. It has 2 lines of symmetry."

### Observations/Documentation

# Activity 12 Assessment

## Exploring Congruency

Applying Transformations to 2-D Shapes		
<p>Identifies congruent shapes with same orientation</p>  <p>“These shapes are congruent because they have the same shape and size and are facing the same way.”</p>	<p>Identifies congruent shapes with different orientations (uses physical movement)</p>  <p>“These shapes are congruent because when I turn one shape, it matches the other shape exactly.”</p>	<p>Identifies congruent shapes with different orientations (uses visualization)</p>  <p>“These shapes are congruent because I can picture turning one shape half a turn to match the other.”</p>
Observations/Documentation		

# Activity 12 Assessment

## Exploring Congruency

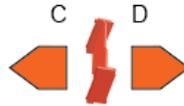
### Applying Transformations to 2-D Shapes (con't)

Identifies translations but struggles to differentiate between reflections and rotations



"I would translate A to the right to get B.  
I'm not sure whether I would reflect or rotate C to get D."

Performs the transformation needed to match two congruent shapes (i.e., rotation, reflection, or translation)



"I used a Mira and the two shapes matched exactly. So, Shape C was reflected."

Uses orientation to flexibly predict and describe transformation of congruent shapes



"From A to B: same orientation, so translation to the right; from C to D: opposite orientations, so a reflection in vertical line between C and D; from E to F: different orientations, so quarter-turn clockwise rotation."

### Observations/Documentation

# Activity 13 Assessment

## Exploring Transformations

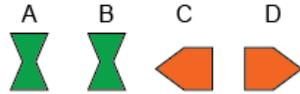
Applying Transformations to 2-D Shapes		
<p>Identifies congruent shapes with same orientation</p>  <p>“These shapes are congruent because they have the same shape and size and are facing the same way.”</p>	<p>Identifies congruent shapes with different orientations (uses physical movement)</p>  <p>“These shapes are congruent because when I turn one shape, it matches the other shape exactly.”</p>	<p>Identifies congruent shapes with different orientations (uses visualization)</p>  <p>“These shapes are congruent because I can picture turning one shape half a turn to match the other.”</p>
Observations/Documentation		

# Activity 13 Assessment

## Exploring Transformations

### Applying Transformations to 2-D Shapes (con't)

Identifies translations but struggles to differentiate between reflections and rotations



"I would translate A to the right to get B.  
I'm not sure whether I would reflect or rotate C to get D."

Performs the transformation needed to match two congruent shapes (i.e., rotation, reflection, or translation)



"I used a Mira and the two shapes matched exactly. So, Shape C was reflected."

Uses orientation to flexibly predict and describe transformation of congruent shapes



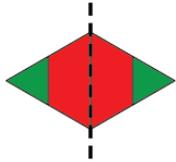
"From A to B: same orientation, so translation to the right; from C to D: opposite orientations, so a reflection in vertical line between C and D; from E to F: different orientations, so quarter-turn clockwise rotation."

### Observations/Documentation

# Activity 14 Assessment Consolidation

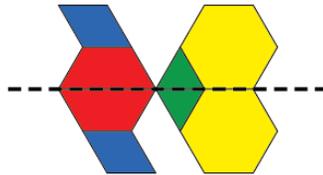
## Exploring Symmetry with 2-D Shapes

Identifies a line of symmetry in a design



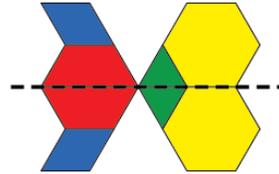
"I see one line of symmetry. If I fold the design on the line, the 2 sides match exactly."

Completes a symmetrical design, placing most shapes correctly



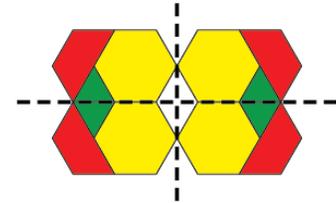
"I'm not sure about the blue block, but it looks right to me."

Successfully completes a symmetrical design and uses math language to describe it



"This design is symmetrical because all the blocks below the line are reflections of the blocks above the line. I used a Mira to check."

Constructs symmetrical designs and identifies all lines of symmetry



"I made my own design. It has 2 lines of symmetry."

## Observations/Documentation

# Activity 14 Assessment Consolidation

Applying Transformations to 2-D Shapes		
<p>Identifies congruent shapes with same orientation</p>  <p>“These shapes are congruent because they have the same shape and size and are facing the same way.”</p>	<p>Identifies congruent shapes with different orientations (uses physical movement)</p>  <p>“These shapes are congruent because when I turn one shape, it matches the other shape exactly.”</p>	<p>Identifies congruent shapes with different orientations (uses visualization)</p>  <p>“These shapes are congruent because I can picture turning one shape half a turn to match the other.”</p>
Observations/Documentation		

# Activity 14 Assessment Consolidation

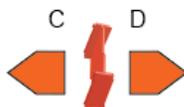
## Applying Transformations to 2-D Shapes (con't)

Identifies translations but struggles to differentiate between reflections and rotations



"I would translate A to the right to get B.  
I'm not sure whether I would reflect or rotate C to get D."

Performs the transformation needed to match two congruent shapes (i.e., rotation, reflection, or translation)



"I used a Mira and the two shapes matched exactly. So, Shape C was reflected."

Uses orientation to flexibly predict and describe transformation of congruent shapes



"From A to B: same orientation, so translation to the right; from C to D: opposite orientations, so a reflection in vertical line between C and D; from E to F: different orientations, so quarter-turn clockwise rotation."

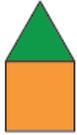
## Observations/Documentation

# Activity 15 Assessment

## Describing Location

### Locating and Mapping Objects

Uses positional language to describe location



“The green triangle is above the orange square.  
The orange square is below the green triangle.”

Uses positional and directional language to locate objects on a grid map



“The Grocery Store is 1 square up from the Basketball Court. The Bank is 1 square to the left of the Grocery Store.”

Describes the movement of an object from one location to another on a grid map



“To get from the Hospital to the Bank, I walk forward 2 squares to the Vet, then turn left and walk forward 2 squares.”

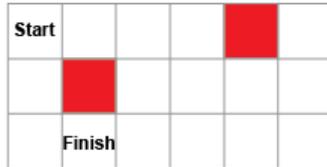
### Observations/Documentation

# Activity 15 Assessment

## Describing Location

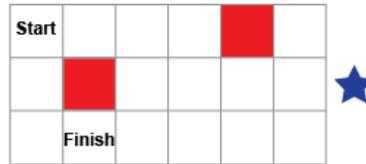
### Locating and Mapping Objects (con't)

Writes code to move from Start to Finish on a grid



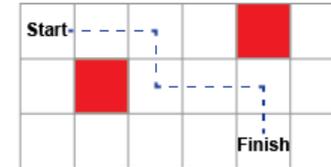
"From Start, move 2 squares right, 2 squares down, and 1 square left."

Considers perspective to give directions and code efficiently and flexibly



"My partner is looking at the grid from the right. So, from Start, move 2 squares down, 2 squares left, and 1 square up."

Uses loops to show repeated steps in a code



"Repeat 2 times: Move right 2 steps, then 1 step down."

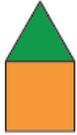
### Observations/Documentation

# Activity 16 Assessment

## Describing Movement on a Map

### Locating and Mapping Objects

Uses positional language to describe location



“The green triangle is above the orange square.  
The orange square is below the green triangle.”

Uses positional and directional language to locate objects on a grid map



“The Grocery Store is 1 square up from the Basketball Court. The Bank is 1 square to the left of the Grocery Store.”

Describes the movement of an object from one location to another on a grid map



“To get from the Hospital to the Bank, I walk forward 2 squares to the Vet, then turn left and walk forward 2 squares.”

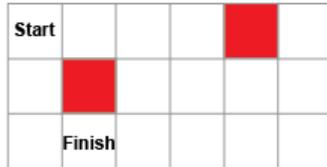
### Observations/Documentation

# Activity 16 Assessment

## Describing Movement on a Map

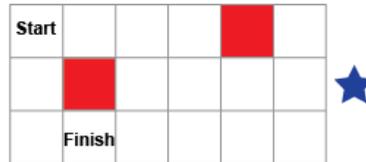
### Locating and Mapping Objects (con't)

Writes code to move from Start to Finish on a grid



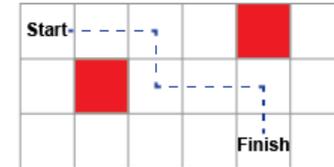
"From Start, move 2 squares right, 2 squares down, and 1 square left."

Considers perspective to give directions and code efficiently and flexibly



"My partner is looking at the grid from the right. So, from Start, move 2 squares down, 2 squares left, and 1 square up."

Uses loops to show repeated steps in a code



"Repeat 2 times: Move right 2 steps, then 1 step down."

### Observations/Documentation

# Activity 17 Assessment

## Coding on a Grid

### Locating and Mapping Objects

Uses positional language to describe location



“The green triangle is above the orange square.  
The orange square is below the green triangle.”

Uses positional and directional language to locate objects on a grid map



“The Grocery Store is 1 square up from the Basketball Court. The Bank is 1 square to the left of the Grocery Store.”

Describes the movement of an object from one location to another on a grid map



“To get from the Hospital to the Bank, I walk forward 2 squares to the Vet, then turn left and walk forward 2 squares.”

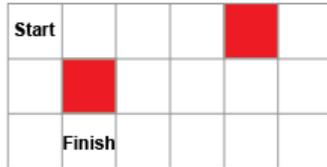
### Observations/Documentation

# Activity 17 Assessment

## Coding on a Grid

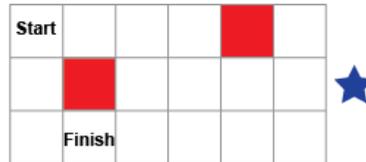
### Locating and Mapping Objects (con't)

Writes code to move from Start to Finish on a grid



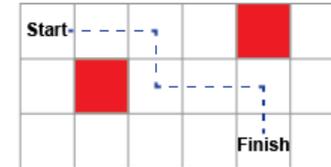
"From Start, move 2 squares right, 2 squares down, and 1 square left."

Considers perspective to give directions and code efficiently and flexibly



"My partner is looking at the grid from the right. So, from Start, move 2 squares down, 2 squares left, and 1 square up."

Uses loops to show repeated steps in a code



"Repeat 2 times: Move right 2 steps, then 1 step down."

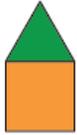
### Observations/Documentation

# Activity 18 Assessment

## Exploring Loops in Coding

### Locating and Mapping Objects

Uses positional language to describe location



“The green triangle is above the orange square.  
The orange square is below the green triangle.”

Uses positional and directional language to locate objects on a grid map



“The Grocery Store is 1 square up from the Basketball Court. The Bank is 1 square to the left of the Grocery Store.”

Describes the movement of an object from one location to another on a grid map



“To get from the Hospital to the Bank, I walk forward 2 squares to the Vet, then turn left and walk forward 2 squares.”

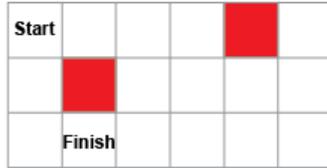
### Observations/Documentation

# Activity 18 Assessment

## Exploring Loops in Coding

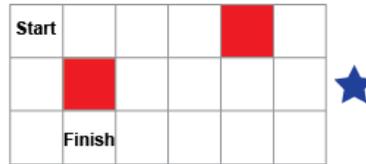
### Locating and Mapping Objects (con't)

Writes code to move from Start to Finish on a grid



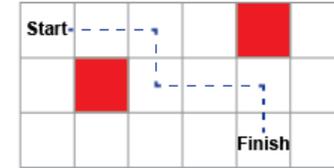
"From Start, move 2 squares right, 2 squares down, and 1 square left."

Considers perspective to give directions and code efficiently and flexibly



"My partner is looking at the grid from the right. So, from Start, move 2 squares down, 2 squares left, and 1 square up."

Uses loops to show repeated steps in a code



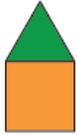
"Repeat 2 times: Move right 2 steps, then 1 step down."

### Observations/Documentation

# Activity 19 Assessment Consolidation

## Locating and Mapping Objects

Uses positional language to describe location



“The green triangle is above the orange square.  
The orange square is below the green triangle.”

Uses positional and directional language to locate objects on a grid map



“The Grocery Store is 1 square up from the Basketball Court. The Bank is 1 square to the left of the Grocery Store.”

Describes the movement of an object from one location to another on a grid map



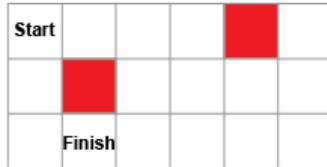
“To get from the Hospital to the Bank, I walk forward 2 squares to the Vet, then turn left and walk forward 2 squares.”

## Observations/Documentation

# Activity 19 Assessment Consolidation

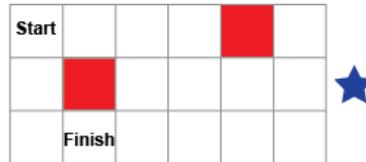
## Locating and Mapping Objects (con't)

Writes code to move from Start to Finish on a grid



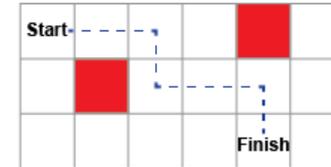
"From Start, move 2 squares right, 2 squares down, and 1 square left."

Considers perspective to give directions and code efficiently and flexibly



"My partner is looking at the grid from the right. So, from Start, move 2 squares down, 2 squares left, and 1 square up."

Uses loops to show repeated steps in a code



"Repeat 2 times: Move right 2 steps, then 1 step down."

## Observations/Documentation

# Activity 1 Assessment

## Interpreting Bar Graphs

### Reading and Interpreting Data Displays

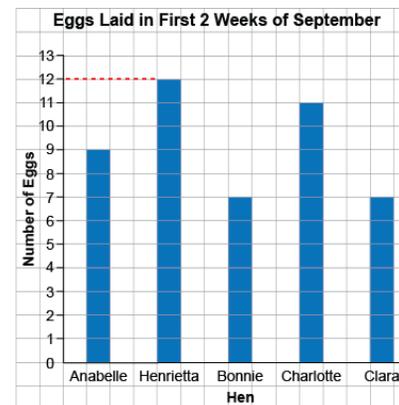
Notices the basic shape of graph

Counts symbols or squares to read data

Uses scale to read data

"1, 2, 3, ..., 10, 11, 12 squares are shaded.  
Henrietta laid 12 eggs."

"The bar has height 12. Henrietta laid  
12 eggs."



### Observations/Documentation

# Activity 1 Assessment

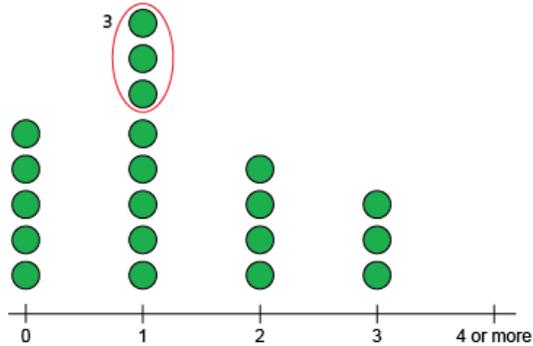
## Interpreting Bar Graphs

### Reading and Interpreting Data Displays (con't)

Makes direct comparisons between data

"1 squirrel was seen 3 more times than 0 squirrels."

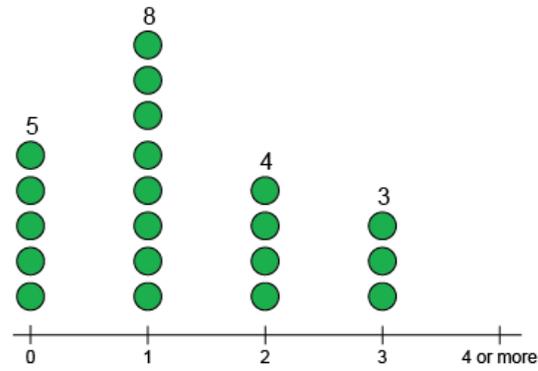
Squirrels Seen in One Hour (Winter)



Uses data to answer some questions

" $5 + 8 + 4 + 3 = 20$ ; 20 students were surveyed."

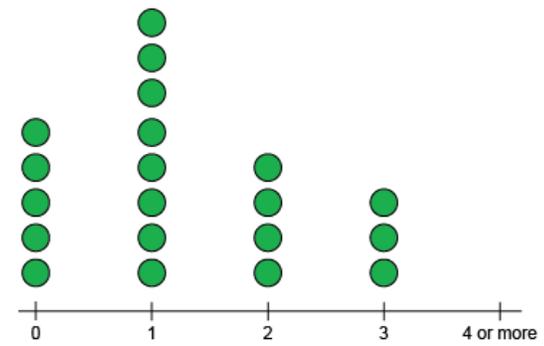
Squirrels Seen in One Hour (Winter)



Draws conclusions from data

"Most students saw 1 squirrel in one hour in the winter."

Squirrels Seen in One Hour (Winter)



### Observations/Documentation

# Activity 2 Assessment

## Interpreting Line Plots

### Reading and Interpreting Data Displays

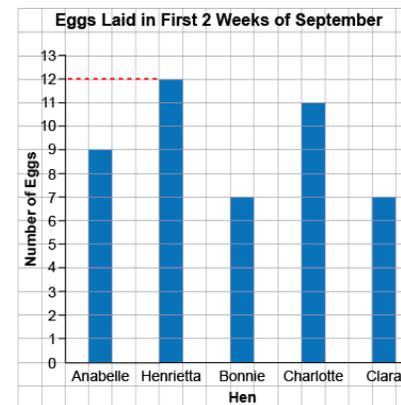
Notices the basic shape of graph

Counts symbols or squares to read data

Uses scale to read data

"1, 2, 3, ..., 10, 11, 12 squares are shaded.  
Henrietta laid 12 eggs."

"The bar has height 12. Henrietta laid  
12 eggs."



### Observations/Documentation

## Activity 2 Assessment

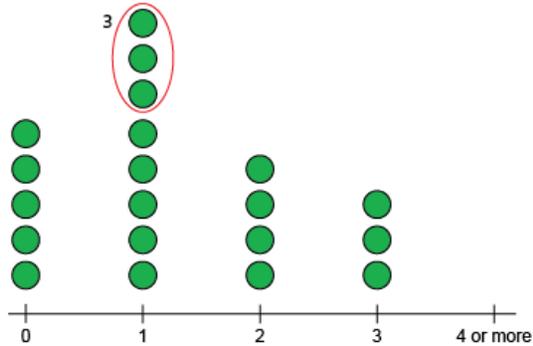
### Interpreting Line Plots

#### Reading and Interpreting Data Displays (con't)

Makes direct comparisons between data

"1 squirrel was seen 3 more times than 0 squirrels."

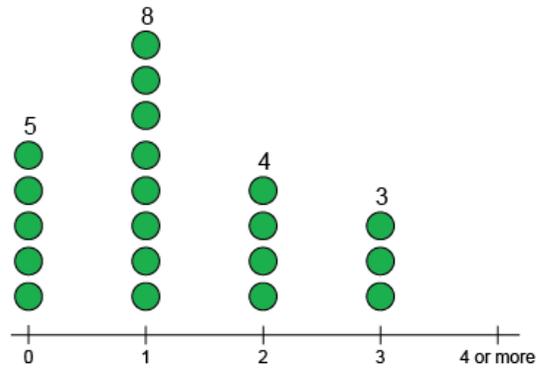
Squirrels Seen in One Hour (Winter)



Uses data to answer some questions

" $5 + 8 + 4 + 3 = 20$ ; 20 students were surveyed."

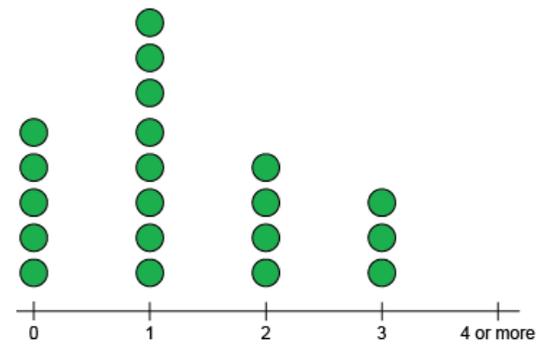
Squirrels Seen in One Hour (Winter)



Draws conclusions from data

"Most students saw 1 squirrel in one hour in the winter."

Squirrels Seen in One Hour (Winter)



#### Observations/Documentation

# Activity 3 Assessment

## Collecting Data

<b>Formulating Questions</b>			
<p>Makes statements that don't generate answers</p> <p>"I like to go swimming when it is hot outside."</p>	<p>Formulates questions to learn about people (no response options)</p> <p>"What do you do most often when it is very hot outside?"</p>	<p>Formulates questions to learn about people (incomplete response options)</p> <p>"What do you do most often when it is very hot outside: swim, find shade, turn up AC, drink water?"</p>	<p>Formulates clear questions with complete response options to collect relevant data</p> <p>"What do you do most often when it is very hot outside: swim, find shade, turn up AC, drink water, other?"</p>
<b>Observations/Documentation</b>			

# Activity 3 Assessment

## Collecting Data

### Interpreting Data and Making Informed Decisions

No organization of data

shade, water, AC, swim, water,  
water, shade, swim, water, water

Uses class list; no interpretation

- ✓ Juin Find shade
- Tommy
- ✓ Tai Swim
- ✓ Ioana Find Shade
- ✓ Mark Drink water
- ✓ Alex Swim
- ✓ Kim Drink water
- Jon
- ✓ Sadia Turn up AC
- ✓ Lise Drink water
- ✓ Dimitri Drink water
- Vicky
- ✓ Ali Drink water

"I'm not sure which answer was  
chosen most often."

Uses tally chart, table, or list

"I made a tally chart so I can easily  
see how many chose each answer."

Swim	
Find shade	
Turn up AC	
Drink water	
Other	

Uses collected data to answer  
question

"Most students drink water."

Swim	
Find shade	
Turn up AC	
Drink water	
Other	

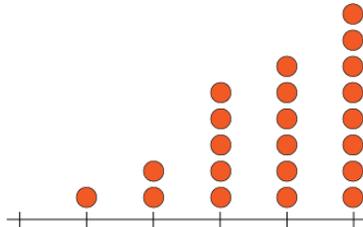
### Observations/Documentation

# Activity 4 Assessment

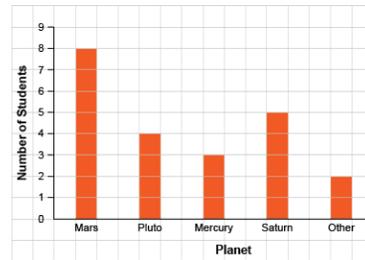
## Drawing Bar Graphs

### Creating Graphical Displays

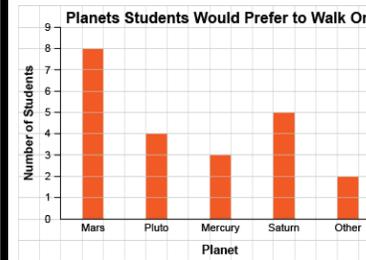
Creates graph but does not relate sample responses to labels



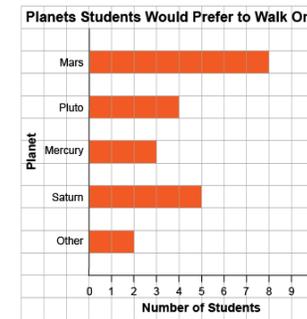
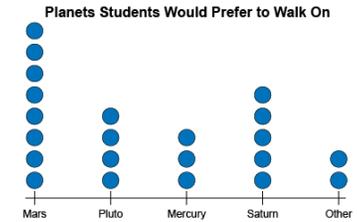
Creates graph with labels but omits title or scale



Successfully creates graphs (always of same type)



Creates graphs flexibly; shows same data on different graph types



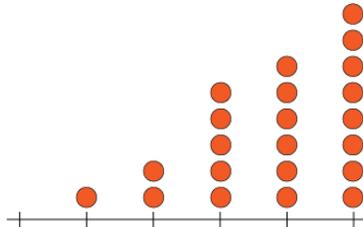
### Observations/Documentation

# Activity 5 Assessment

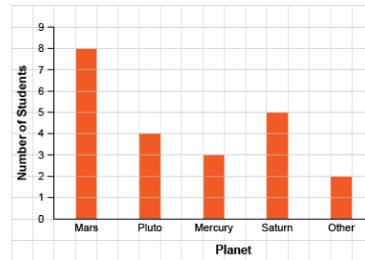
## Drawing Line Plots

### Creating Graphical Displays

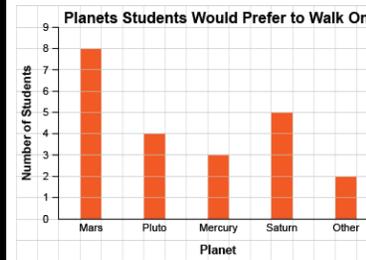
Creates graph but does not relate sample responses to labels



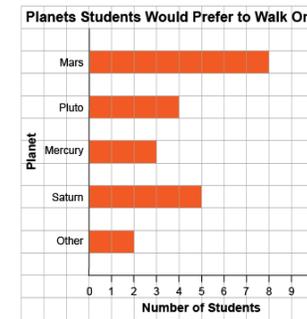
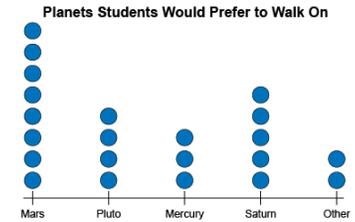
Creates graph with labels but omits title or scale



Successfully creates graphs (always of same type)



Creates graphs flexibly; shows same data on different graph types

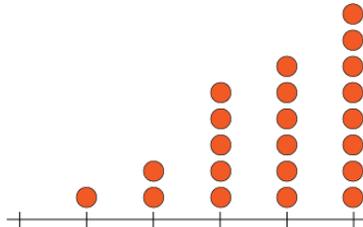


### Observations/Documentation

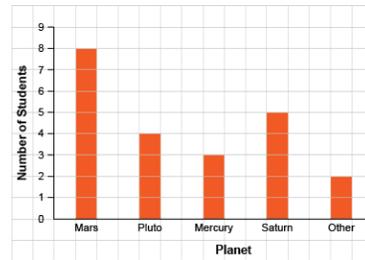
# Activity 6 Assessment Consolidation

## Creating Graphical Displays

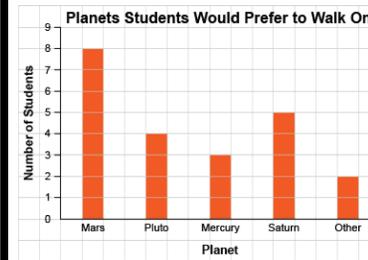
Creates graph but does not relate sample responses to labels



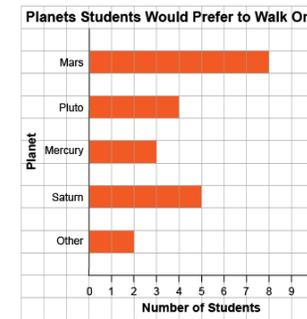
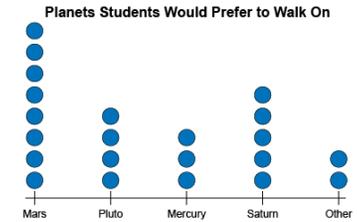
Creates graph with labels but omits title or scale



Successfully creates graphs (always of same type)



Creates graphs flexibly; shows same data on different graph types



## Observations/Documentation

# Activity 6 Assessment Consolidation

## Reading and Interpreting Data Displays

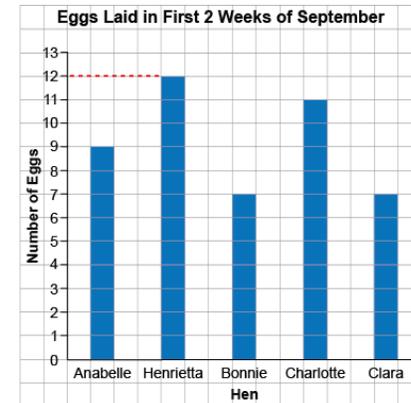
Notices the basic shape of graph

Counts symbols or squares to read data

Uses scale to read data

"1, 2, 3, ..., 10, 11, 12 squares are shaded.  
Henrietta laid 12 eggs."

"The bar has height 12. Henrietta laid  
12 eggs."



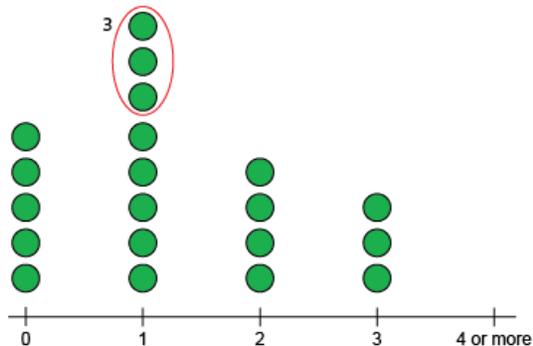
## Observations/Documentation

## Reading and Interpreting Data Displays (con't)

Makes direct comparisons between data

"1 squirrel was seen 3 more times than 0 squirrels."

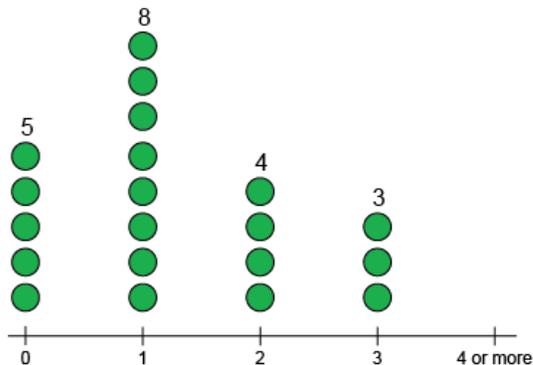
Squirrels Seen in One Hour (Winter)



Uses data to answer some questions

" $5 + 8 + 4 + 3 = 20$ ; 20 students were surveyed."

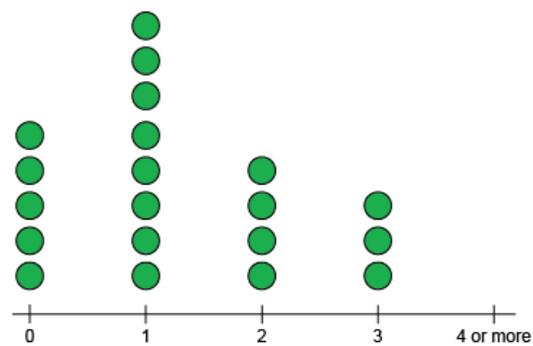
Squirrels Seen in One Hour (Winter)



Draws conclusions from data

"Most students saw 1 squirrel in one hour in the winter."

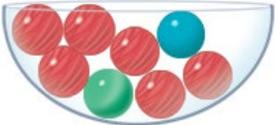
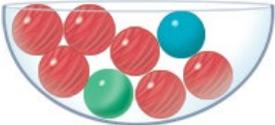
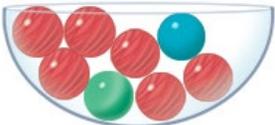
Squirrels Seen in One Hour (Winter)



## Observations/Documentation

# Activity 7 Assessment

## Describing the Likelihood of Outcomes

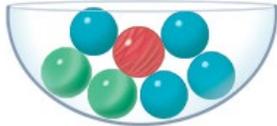
Describing Events Using the Language of Chance		
<p>Thinks outcomes of an experiment are always equally likely to happen</p>  <p>"I choose green. The chance of getting any colour is always the same."</p>	<p>Describes the likelihood of an event or outcome (e.g., impossible, likely, certain)</p>  <p>"It is <b>likely</b> that I will get red."</p>	<p>Makes predictions based on likelihoods</p>  <p>"If I draw a marble 8 times and put it back each time, I predict I will get red 6 times."</p>
Observations/Documentation		

# Activity 7 Assessment

## Describing the Likelihood of Outcomes

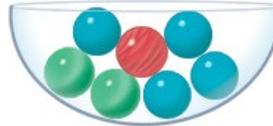
### Describing Events Using the Language of Chance (con't)

Lists all possible outcomes for an experiment



"I could get green, blue, or red, but not yellow or purple."

Compares the likelihoods of two outcomes



"It is **more likely** that I will get blue than green."

Identifies flexibly the likelihoods of outcomes in a simple probability experiment



"Blue is most likely, red is least likely, green is unlikely, and yellow is impossible."

### Observations/Documentation

# Activity 8 Assessment

## Understanding Chance

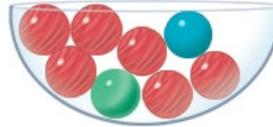
### Describing Events Using the Language of Chance

Thinks outcomes of an experiment are always equally likely to happen



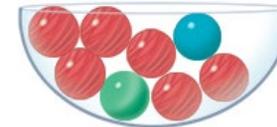
"I choose green. The chance of getting any colour is always the same."

Describes the likelihood of an event or outcome (e.g., impossible, likely, certain)



"It is **likely** that I will get red."

Makes predictions based on likelihoods



"If I draw a marble 8 times and put it back each time, I predict I will get red 6 times."

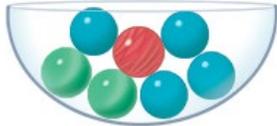
### Observations/Documentation

# Activity 8 Assessment

## Understanding Chance

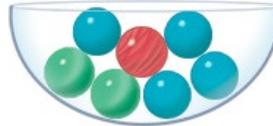
### Describing Events Using the Language of Chance (con't)

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"I could get green, blue, or red, but not yellow or purple."

Compares the likelihoods of two outcomes



"It is **more likely** that I will get blue than green."

Identifies flexibly the likelihoods of outcomes in a simple probability experiment



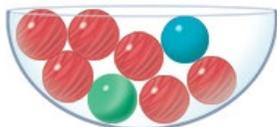
"Blue is most likely, red is least likely, green is unlikely, and yellow is impossible."

### Observations/Documentation

# Activity 9 Assessment Consolidation

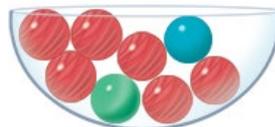
## Describing Events Using the Language of Chance

Thinks outcomes of an experiment are always equally likely to happen



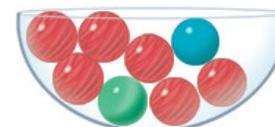
"I choose green. The chance of getting any colour is always the same."

Describes the likelihood of an event or outcome (e.g., impossible, likely, certain)



"It is **likely** that I will get red."

Makes predictions based on likelihoods



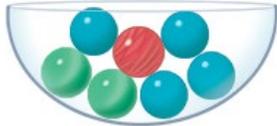
"If I draw a marble 8 times and put it back each time, I predict I will get red 6 times."

## Observations/Documentation

## Activity 9 Assessment Consolidation

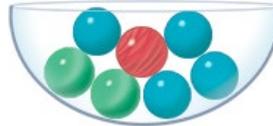
### Describing Events Using the Language of Chance (con't)

Lists all possible outcomes for an experiment



"I could get green, blue, or red,  
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"Blue is most likely, red is least likely, green is unlikely, and yellow is impossible."

### Observations/Documentation

Name \_\_\_\_\_ Date \_\_\_\_\_

**Math Mat  
Master 1**

# Thinking Space

# My Math Learning

I feel good about:

I wonder:

I am learning about:

I need more time with:

Name \_\_\_\_\_ Date \_\_\_\_\_

**Math Mat  
Master 3**

# Ten-Frames



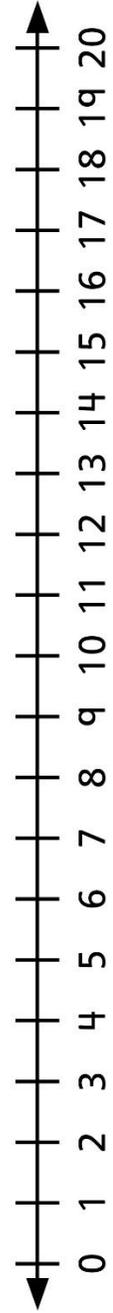
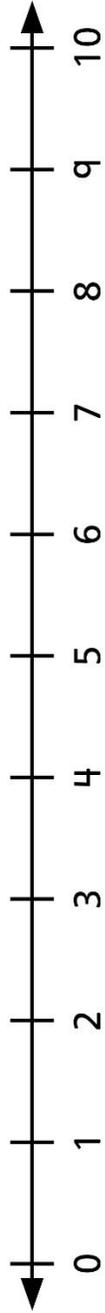
Name \_\_\_\_\_ Date \_\_\_\_\_

Math Mat  
Master 4

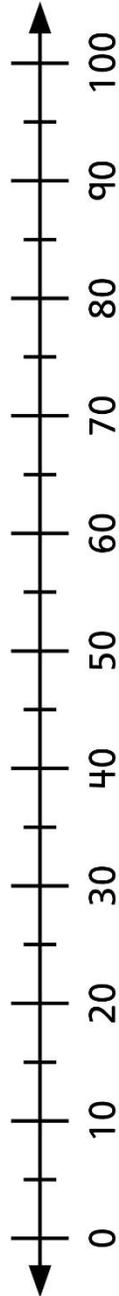
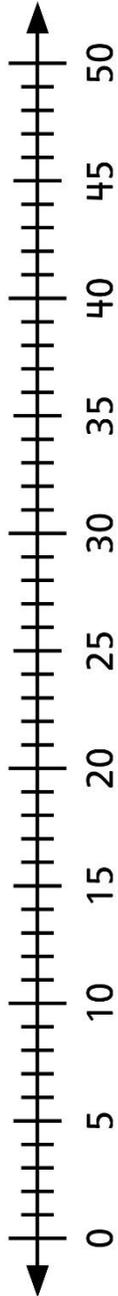
# Hundred Chart

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

# Number Lines



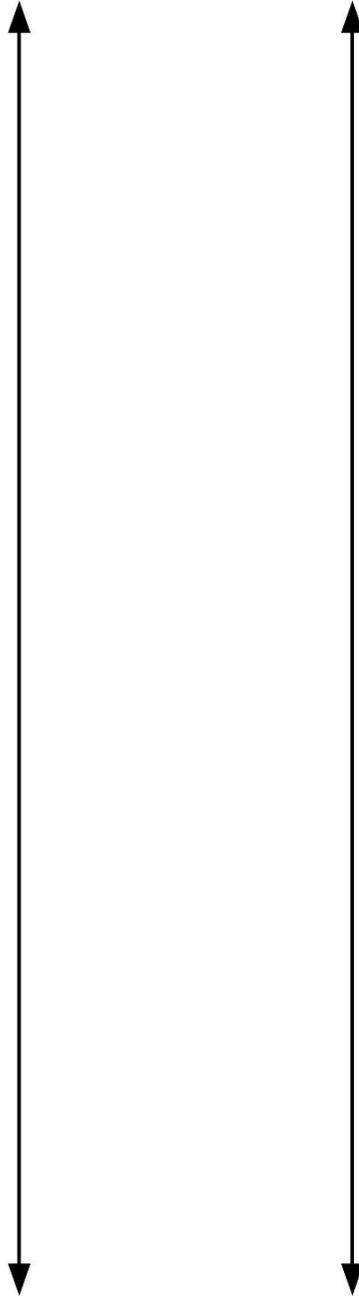
# Number Lines



Name \_\_\_\_\_ Date \_\_\_\_\_

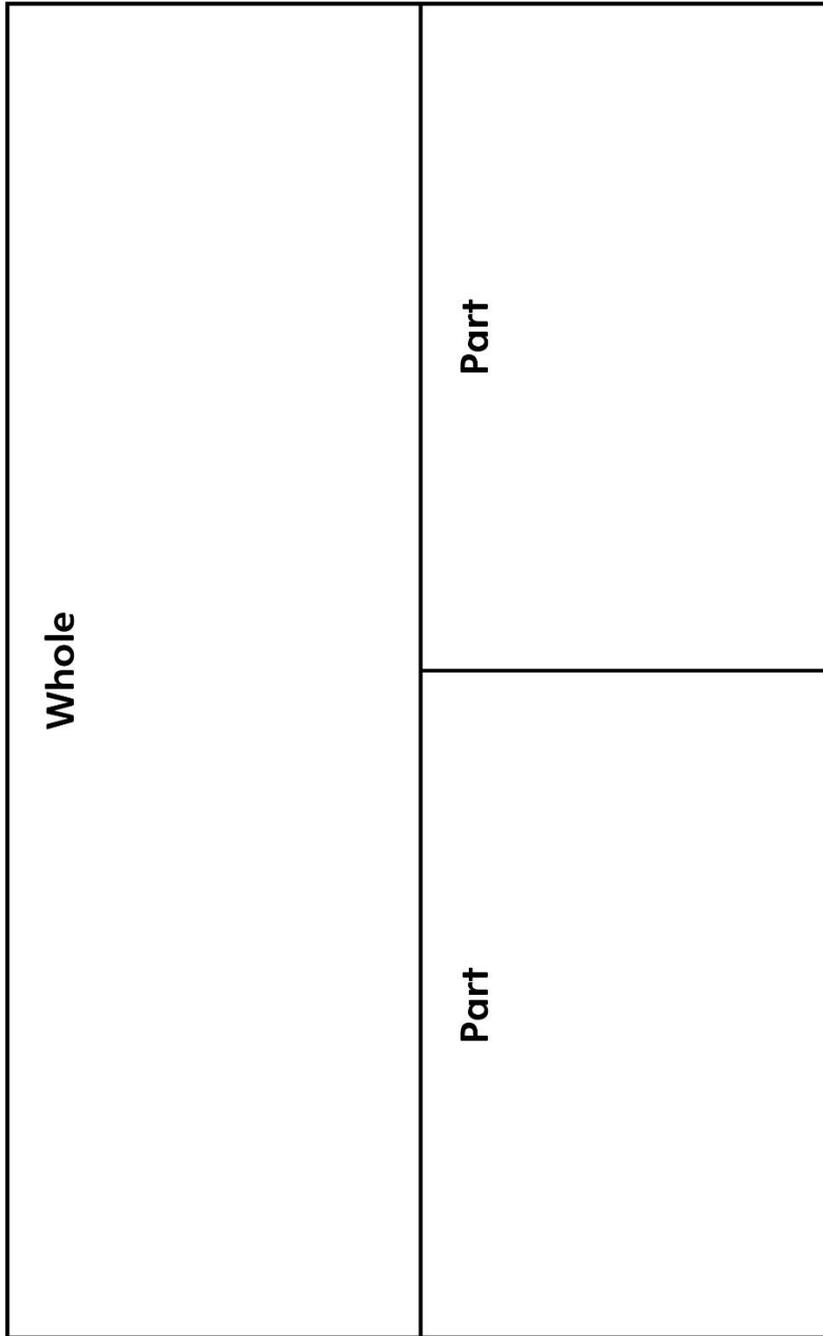
**Math Mat  
Master 7**

# Open Number Lines



**Math Mat  
Master 8**

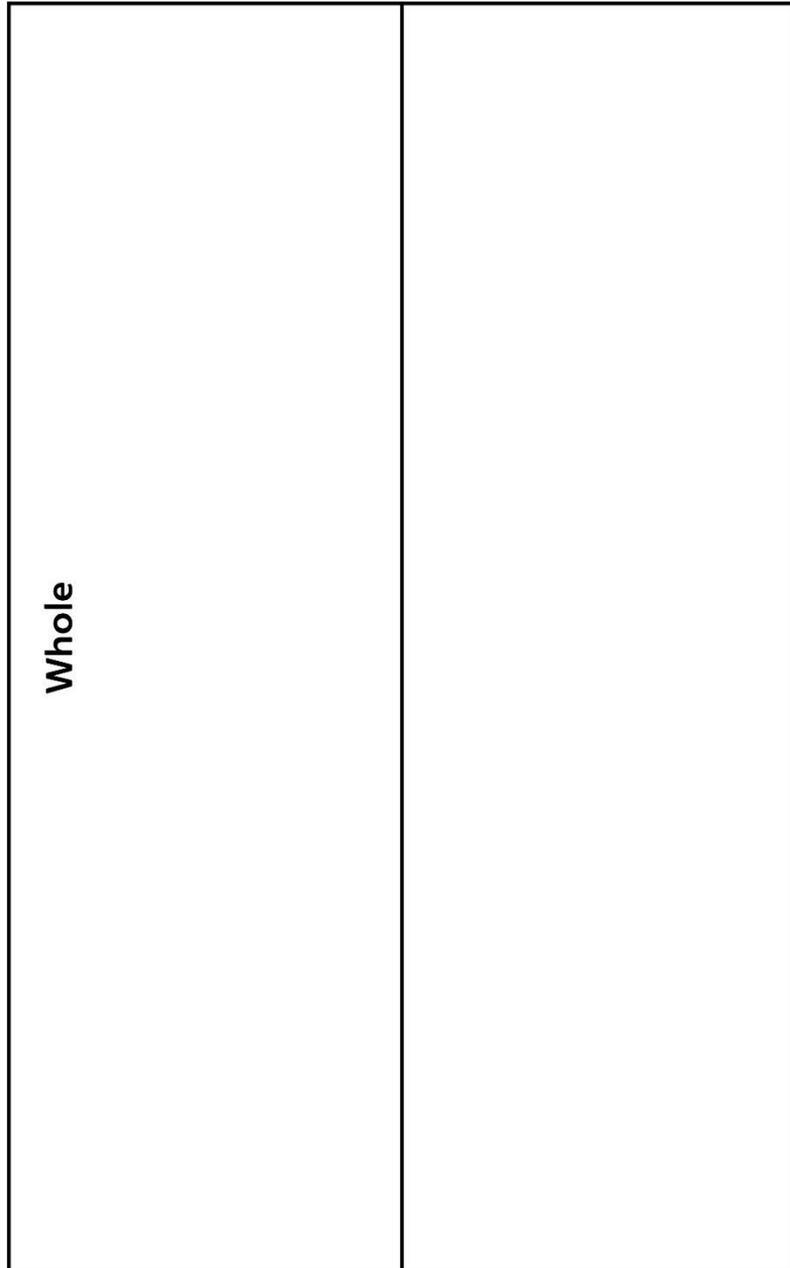
# Part-Part-Whole Mat



Name \_\_\_\_\_ Date \_\_\_\_\_

**Math Mat  
Master 9**

# Parts-to-Whole Mat



Math Mat  
Master 10

# Place-Value Mat

Ones	
Tens	
Hundreds	

My Number

**Math Mat  
Master 11**

# Place-Value Mat

Tenths	
•	
Ones	
Tens	
Hundreds	
Thousands	

My Number

Name \_\_\_\_\_ Date \_\_\_\_\_

Math Mat  
Master 12

# 10 + 10 Addition Chart

+	1	2	3	4	5	6	7	8	9	10
1	2	3	4	5	6	7	8	9	10	11
2	3	4	5	6	7	8	9	10	11	12
3	4	5	6	7	8	9	10	11	12	13
4	5	6	7	8	9	10	11	12	13	14
5	6	7	8	9	10	11	12	13	14	15
6	7	8	9	10	11	12	13	14	15	16
7	8	9	10	11	12	13	14	15	16	17
8	9	10	11	12	13	14	15	16	17	18
9	10	11	12	13	14	15	16	17	18	19
10	11	12	13	14	15	16	17	18	19	20

Name \_\_\_\_\_ Date \_\_\_\_\_

Math Mat  
Master 13

## 5 x 5 Multiplication Chart

×	1	2	3	4	5
1	1	2	3	4	5
2	2	4	6	8	10
3	3	6	9	12	15
4	4	8	12	16	20
5	5	10	15	20	25

Name \_\_\_\_\_ Date \_\_\_\_\_

Math Mat  
Master 14

# 10 x 10 Multiplication Chart

×	1	2	3	4	5	6	7	8	9	10
1	1	2	3	4	5	6	7	8	9	10
2	2	4	6	8	10	12	14	16	18	20
3	3	6	9	12	15	18	21	24	27	30
4	4	8	12	16	20	24	28	32	36	40
5	5	10	15	20	25	30	35	40	45	50
6	6	12	18	24	30	36	42	48	54	60
7	7	14	21	28	35	42	49	56	63	70
8	8	16	24	32	40	48	56	64	72	80
9	9	18	27	36	45	54	63	72	81	90
10	10	20	30	40	50	60	70	80	90	100

Name \_\_\_\_\_ Date \_\_\_\_\_

**Math Mat  
Master 15**

# 10 by 10 Chart


Name \_\_\_\_\_ Date \_\_\_\_\_

**Math Mat**  
**Master 16**

# Estimation Mat

<p><b>My Estimate</b></p>
---------------------------

Name \_\_\_\_\_ Date \_\_\_\_\_

**Math Mat**  
**Master 17**

# Sorting Mat

Yes	No

Name \_\_\_\_\_ Date \_\_\_\_\_

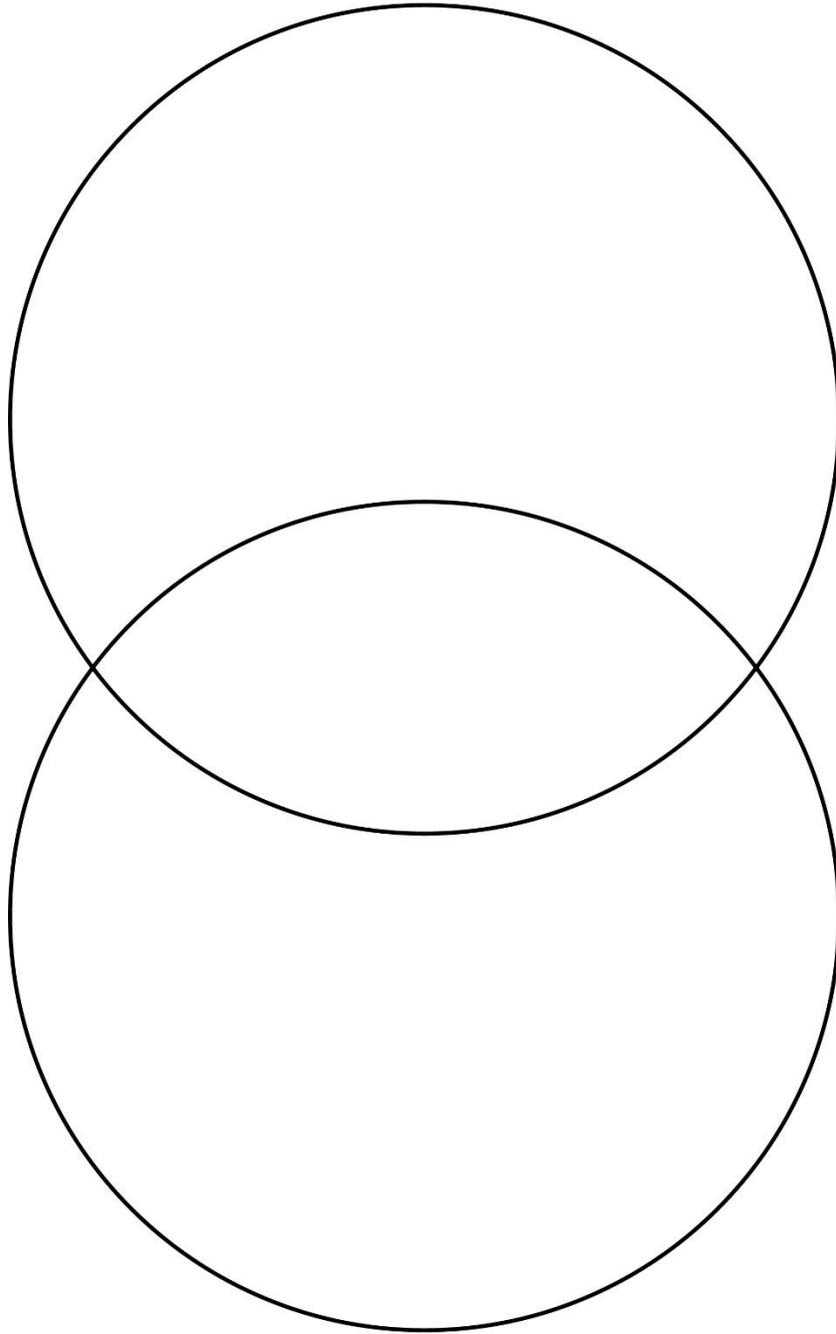
**Math Mat  
Master 18**

# 3-Column Chart


Name \_\_\_\_\_ Date \_\_\_\_\_

**Math Mat  
Master 19**

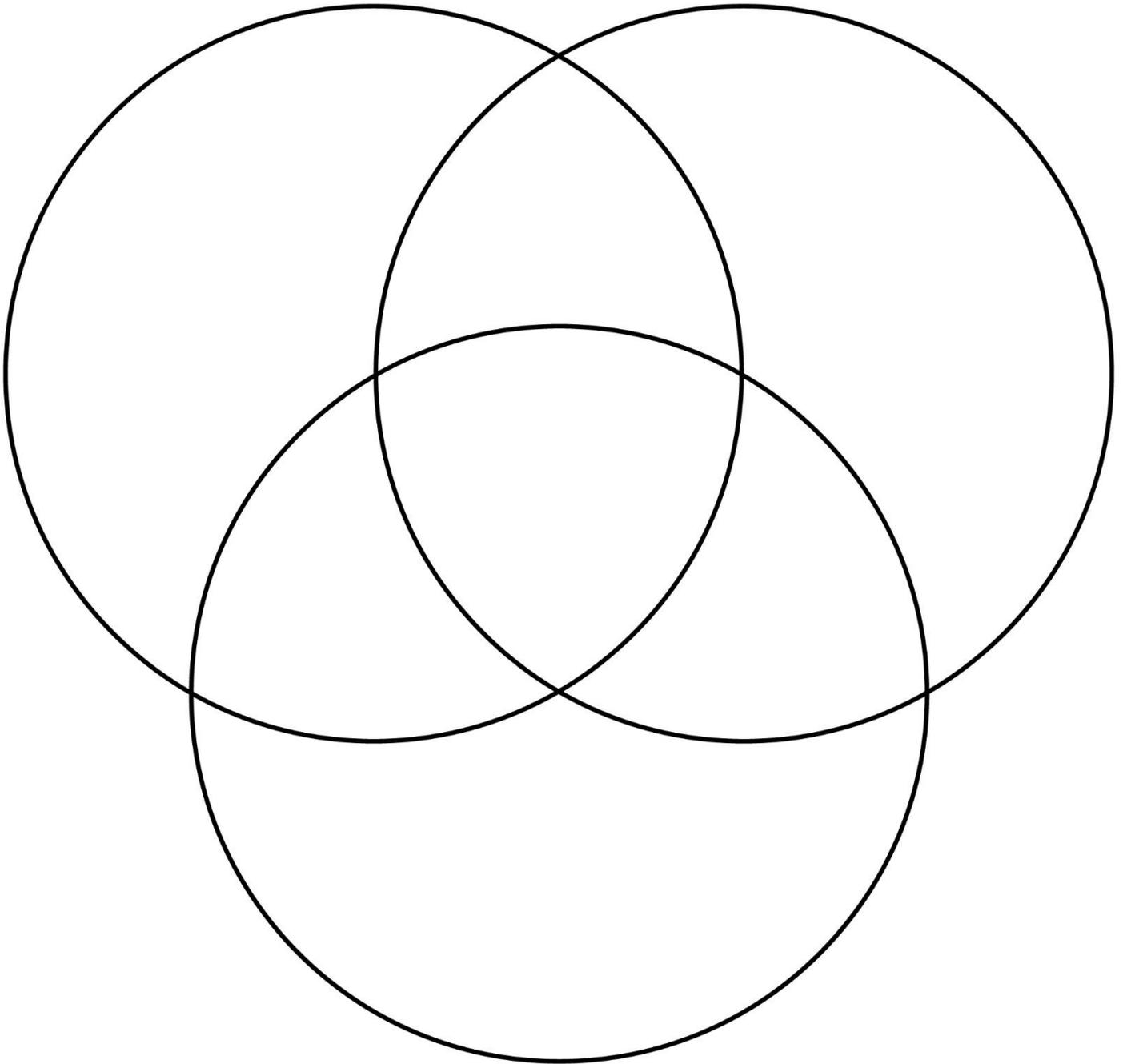
# Venn Diagram



Name \_\_\_\_\_ Date \_\_\_\_\_

**Math Mat  
Master 20**

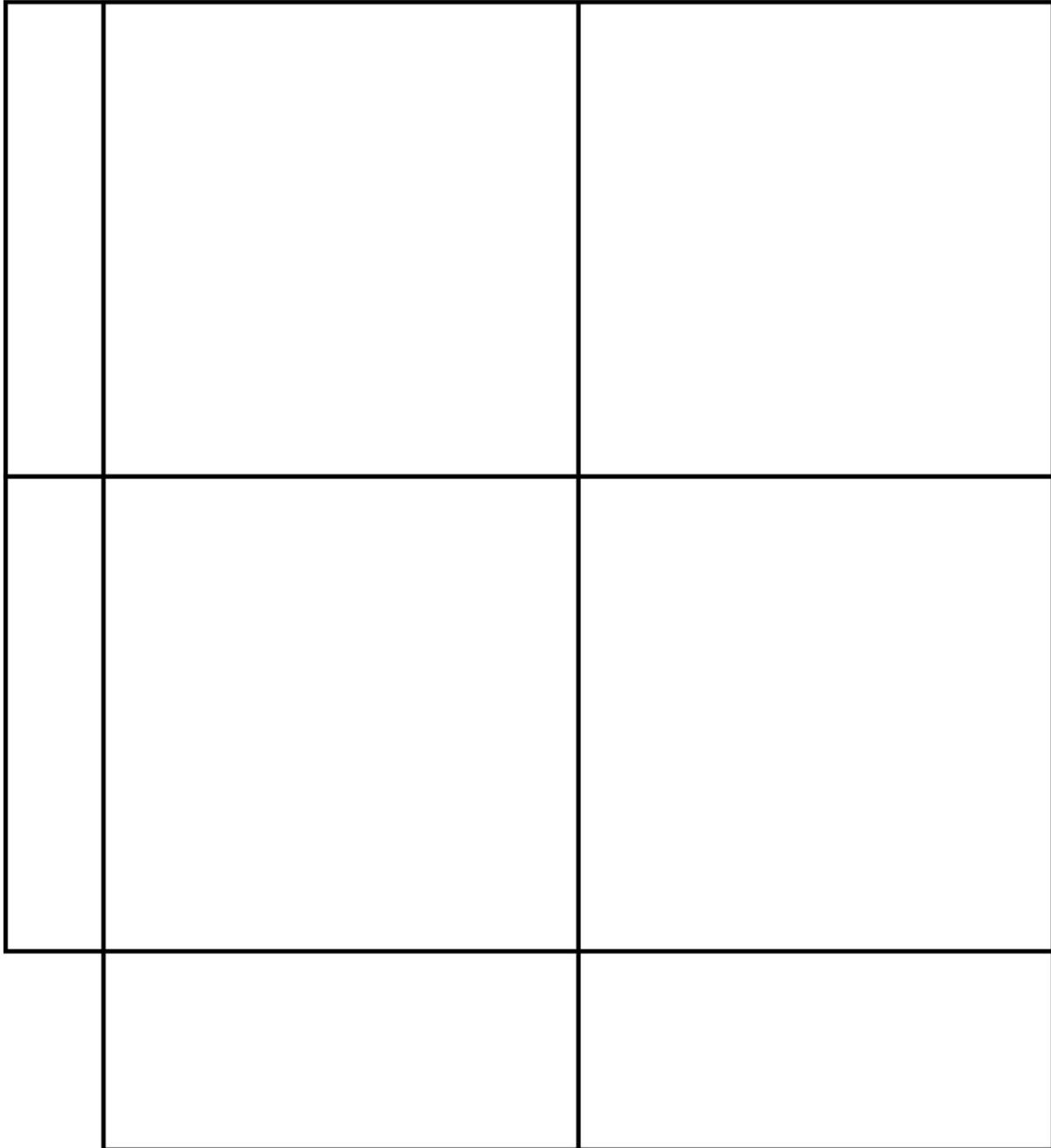
# Venn Diagram



Name \_\_\_\_\_ Date \_\_\_\_\_

**Math Mat  
Master 21**

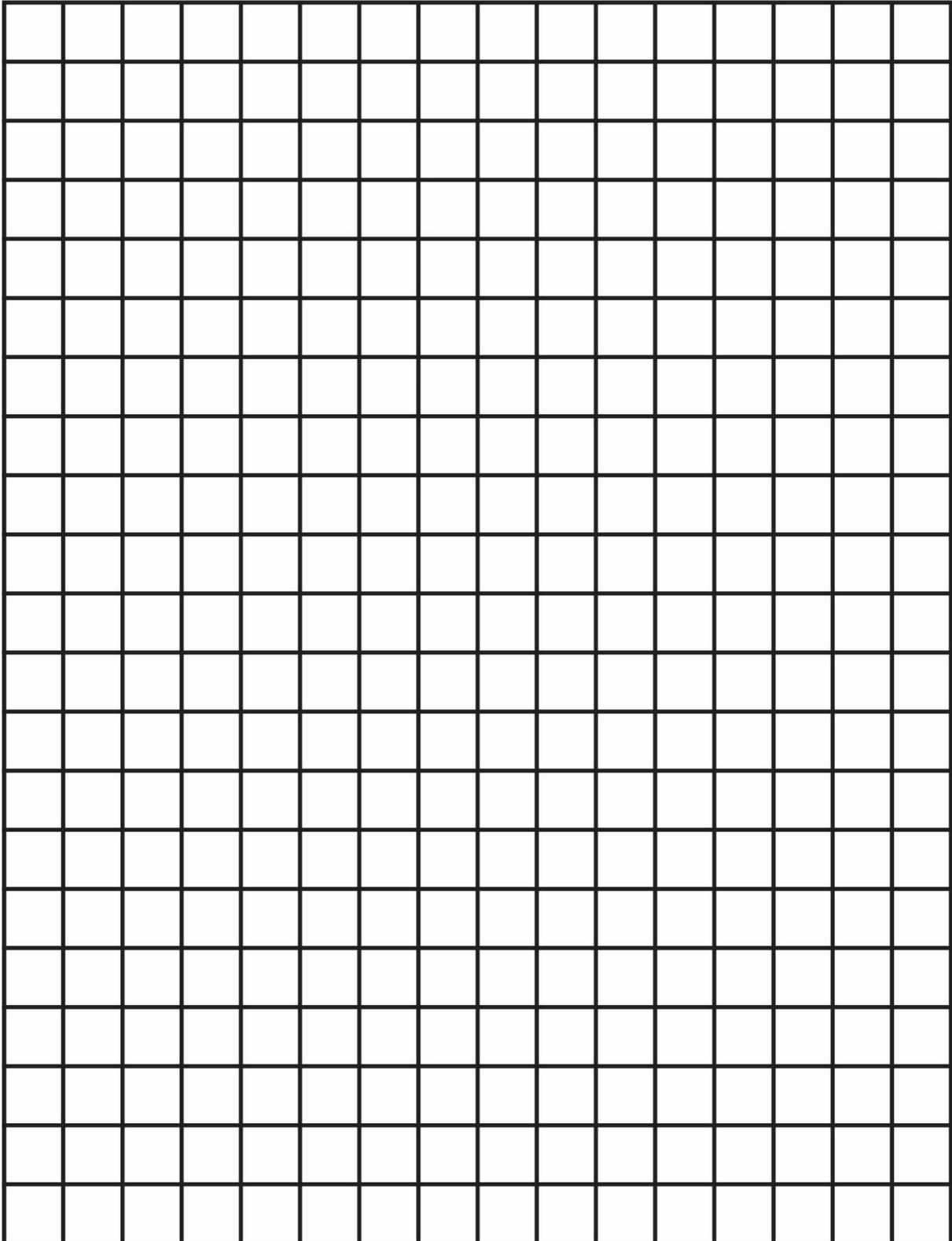
# Carroll Diagram



Name \_\_\_\_\_ Date \_\_\_\_\_

**Math Mat  
Master 22**

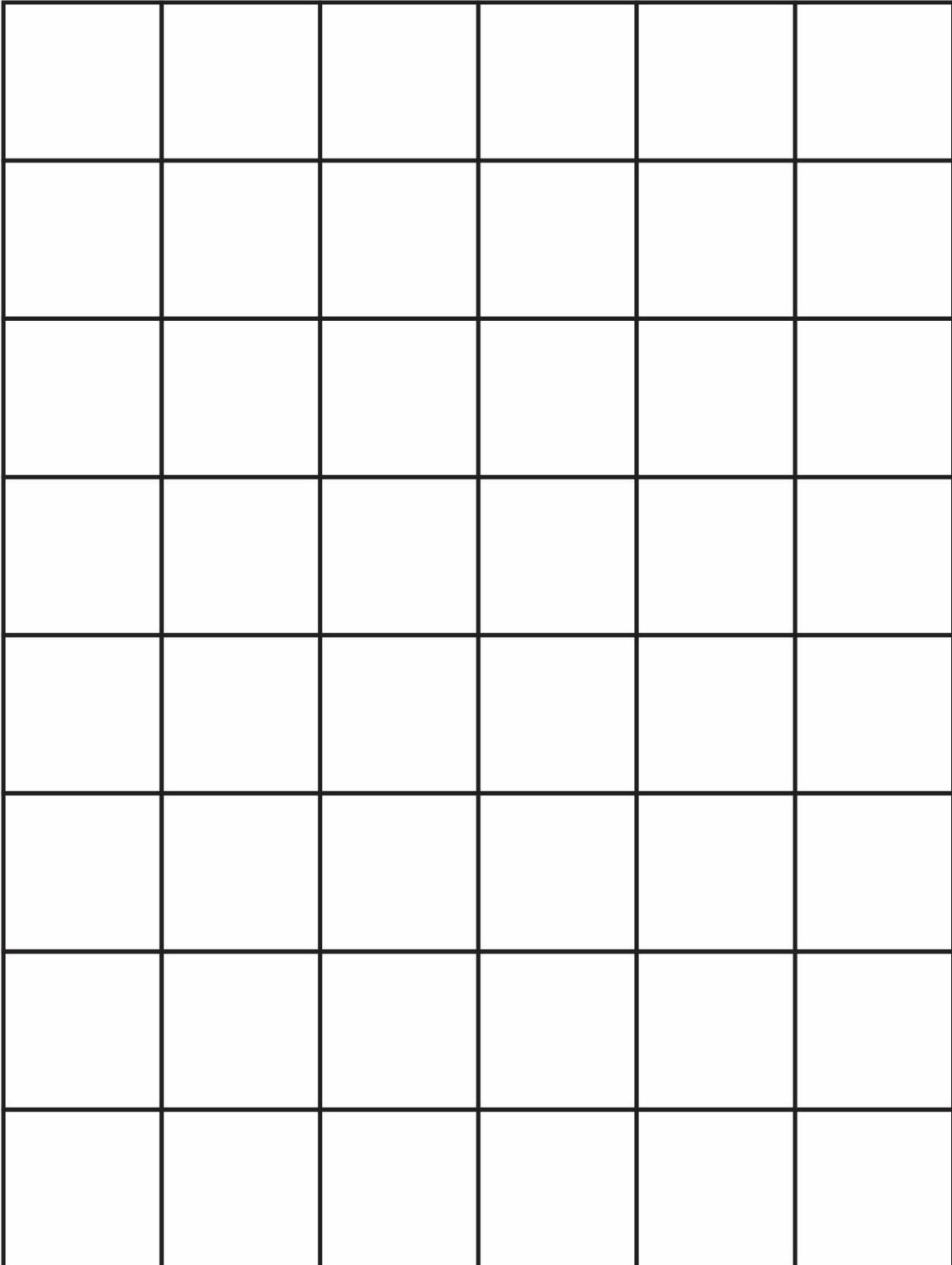
# 1-cm Grid Paper



Name \_\_\_\_\_ Date \_\_\_\_\_

**Math Mat  
Master 23**

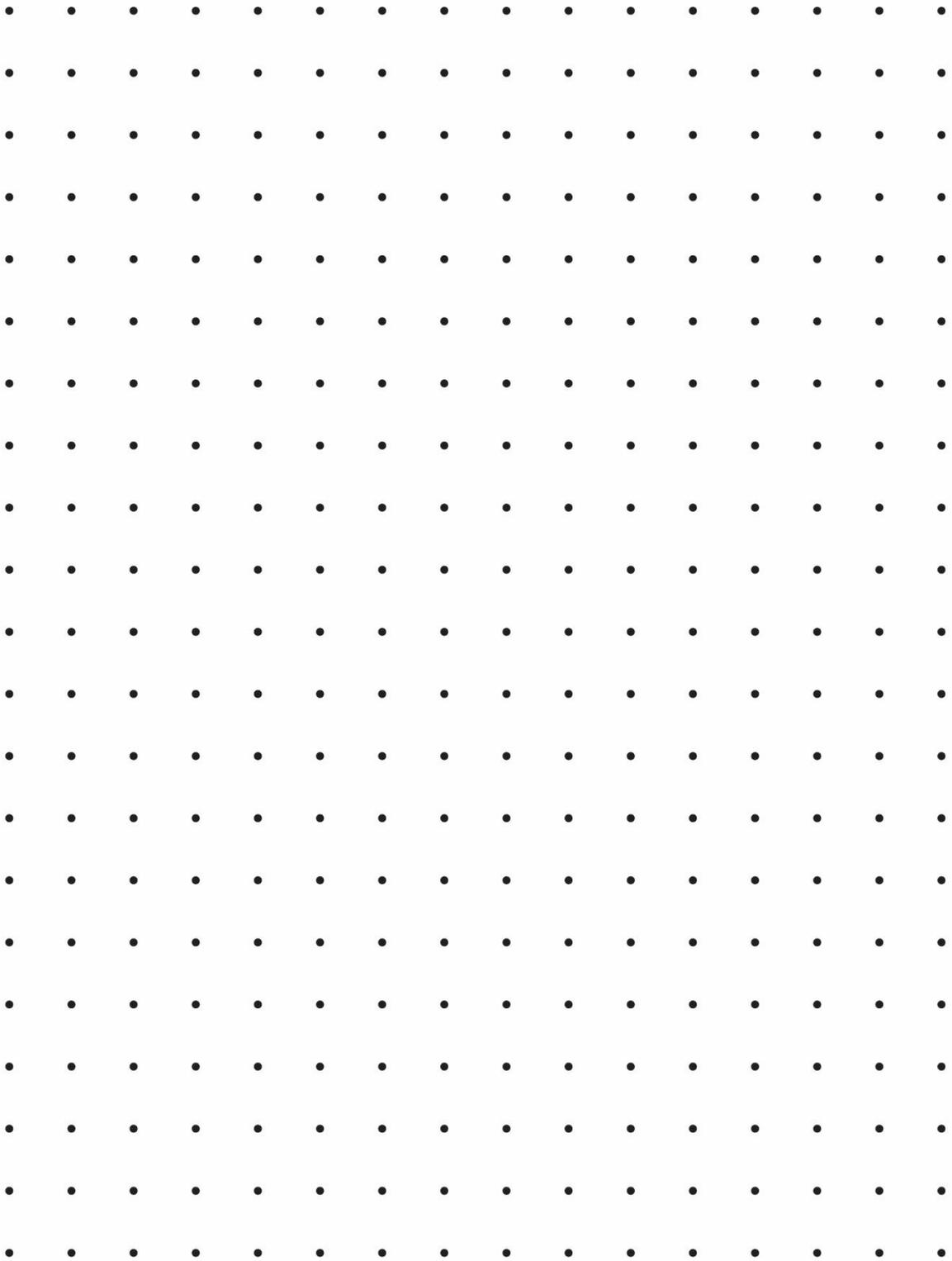
# Colour Tile Grid



Name \_\_\_\_\_ Date \_\_\_\_\_

**Math Mat  
Master 24**

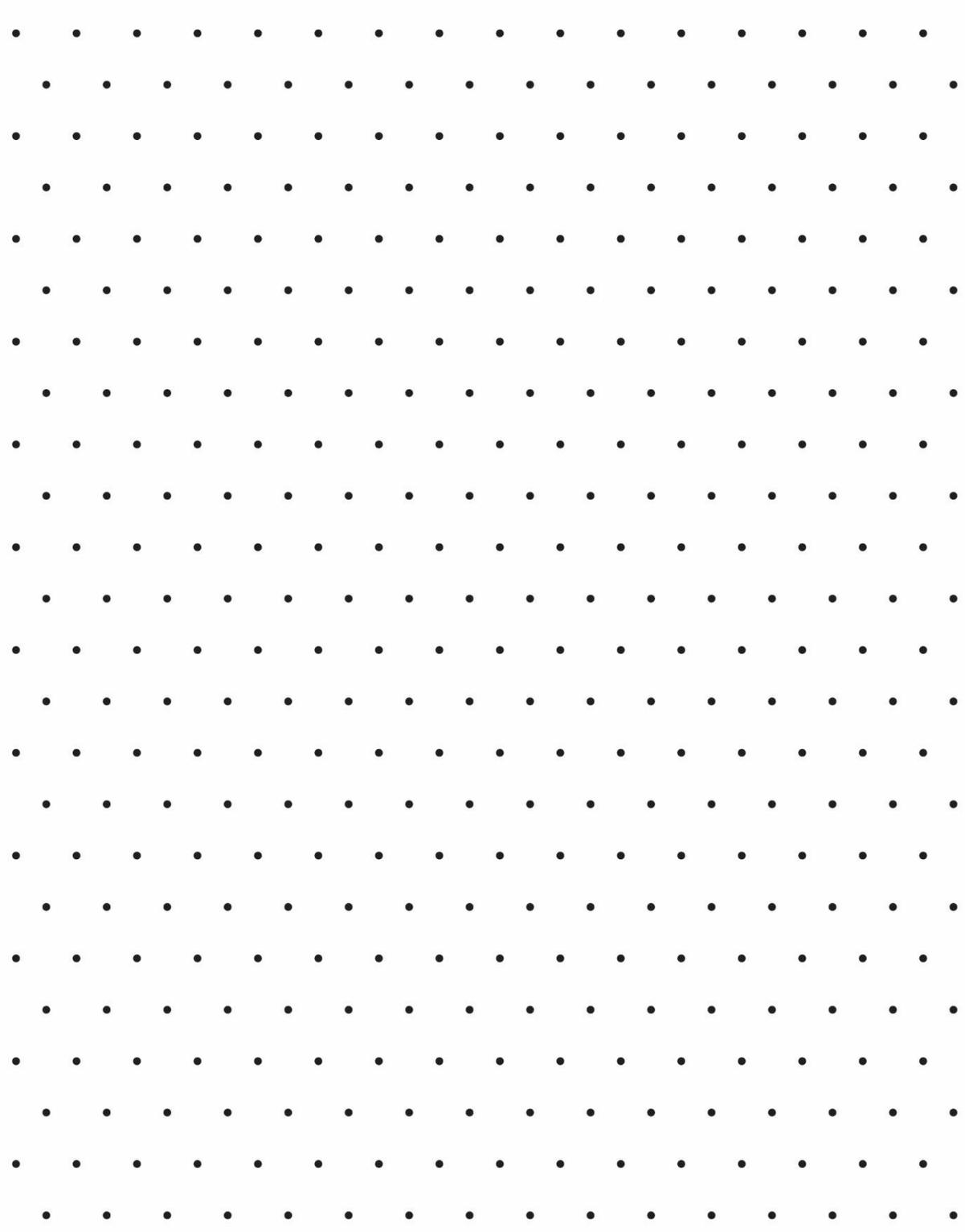
# Square Dot Paper



Name \_\_\_\_\_ Date \_\_\_\_\_

Math Mat  
Master 25

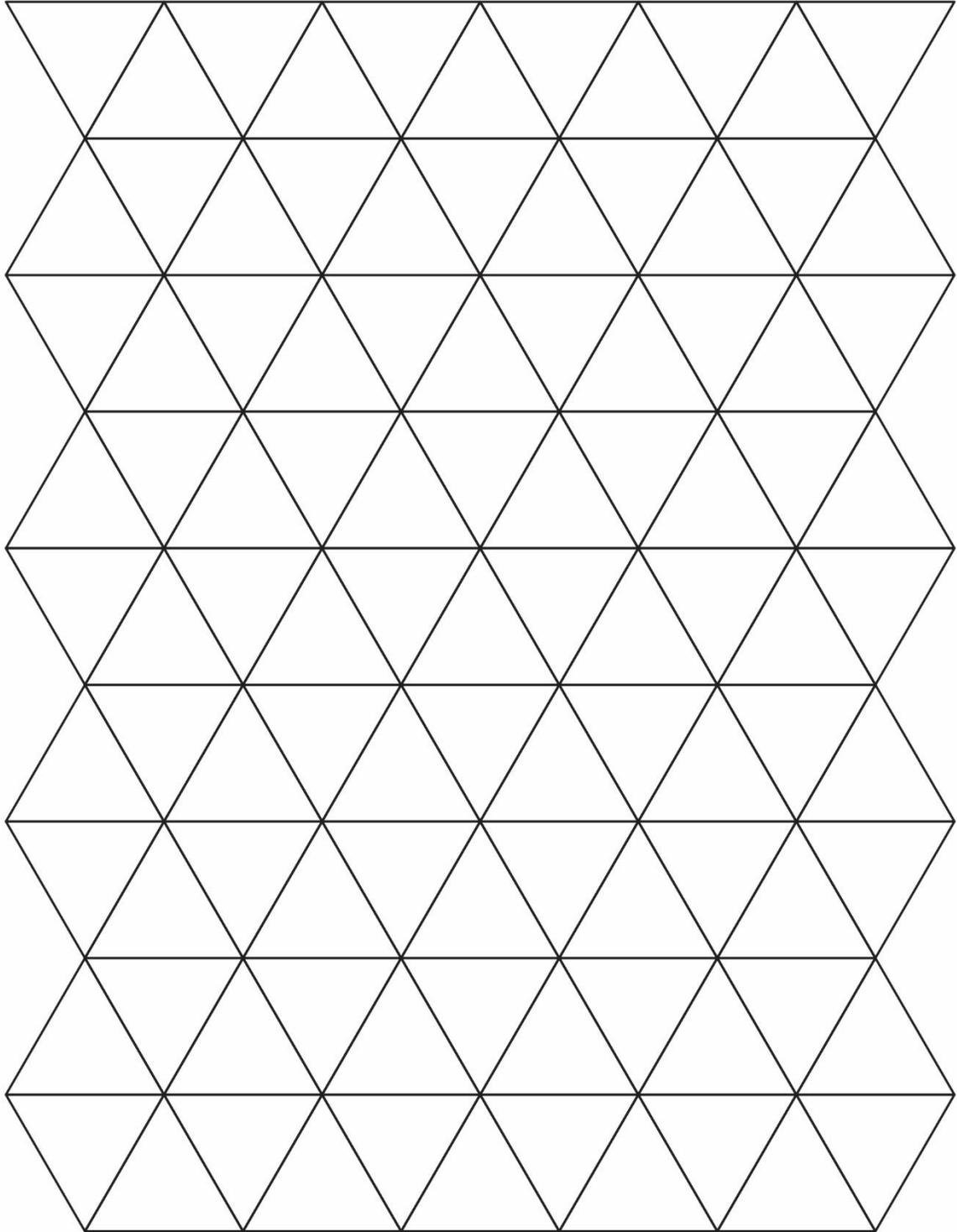
# Triangular Dot Paper



Name \_\_\_\_\_ Date \_\_\_\_\_

**Math Mat  
Master 26**

# Triangular Grid Paper

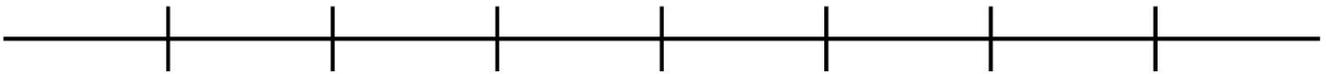


Name \_\_\_\_\_ Date \_\_\_\_\_

**Math Mat  
Master 27**

# Line Plot

**Title** \_\_\_\_\_

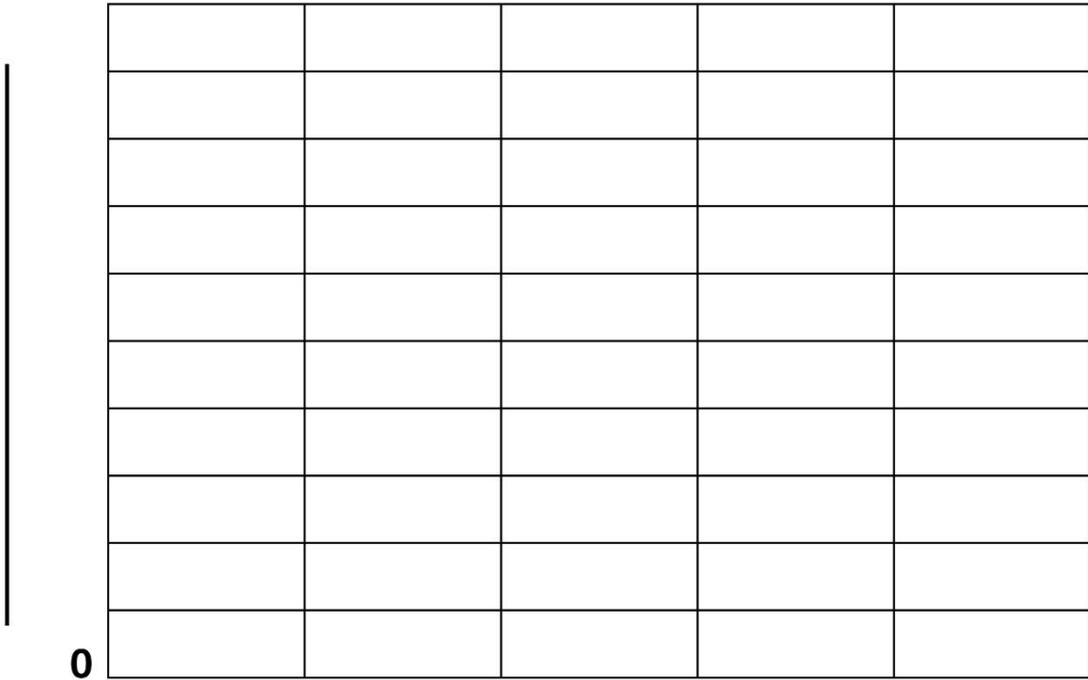


Name \_\_\_\_\_ Date \_\_\_\_\_

**Math Mat  
Master 28**

# Graphing Mat

**Title** \_\_\_\_\_

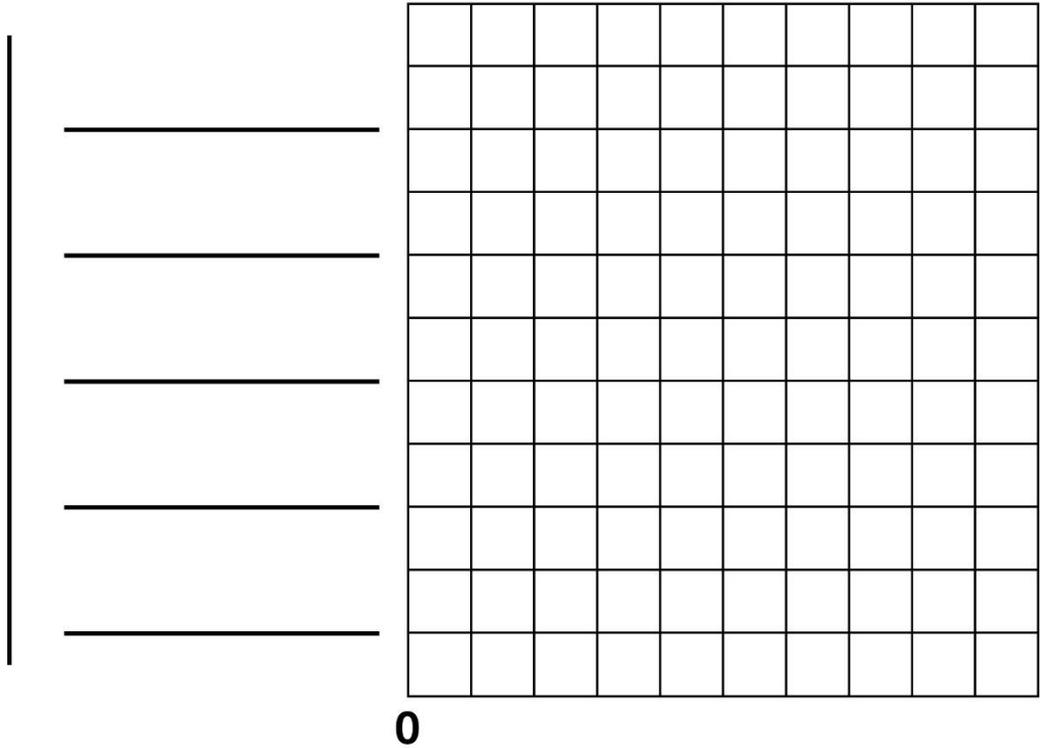


Name \_\_\_\_\_ Date \_\_\_\_\_

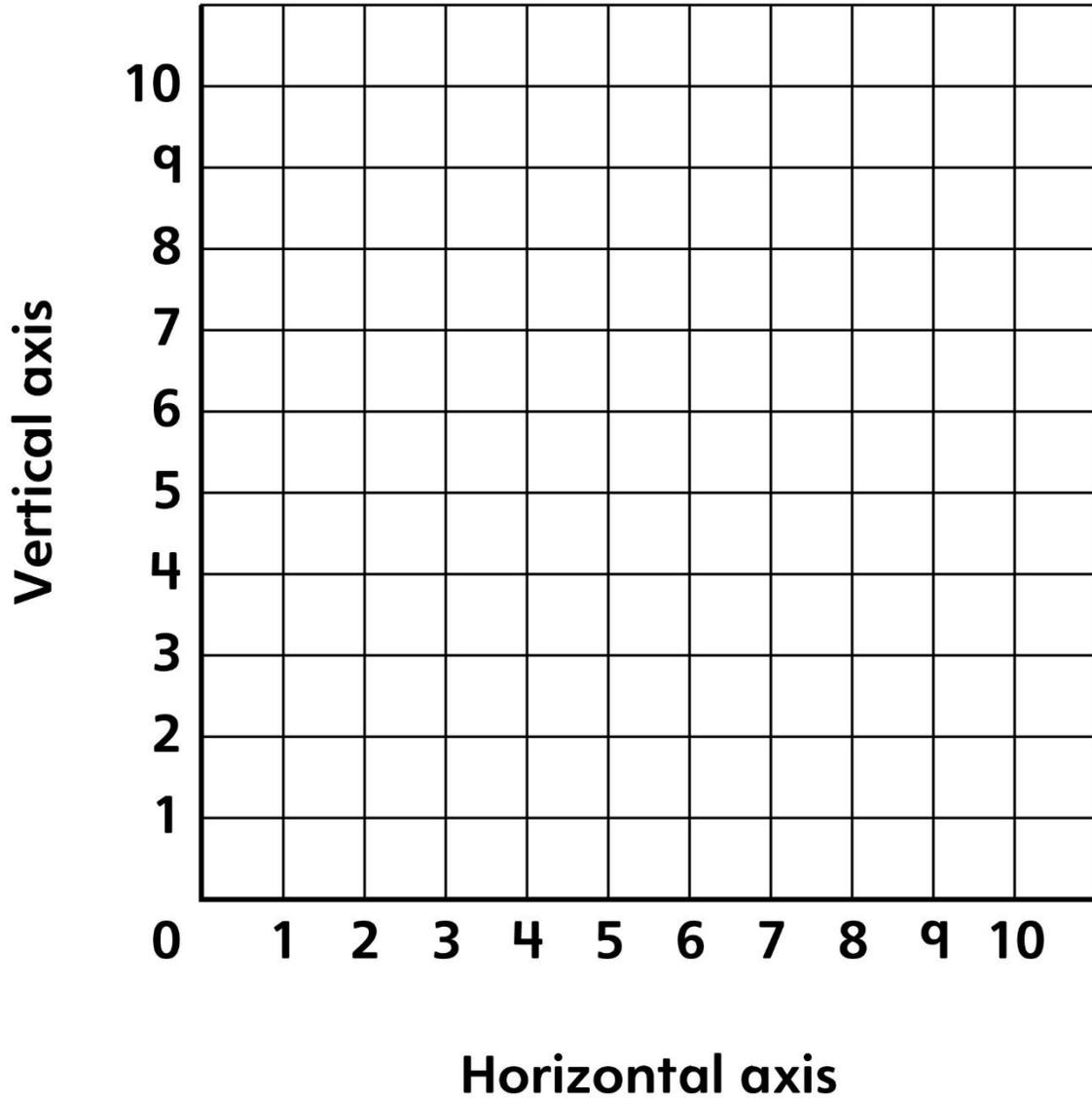
Math Mat  
Master 29

# Horizontal Graphing Mat

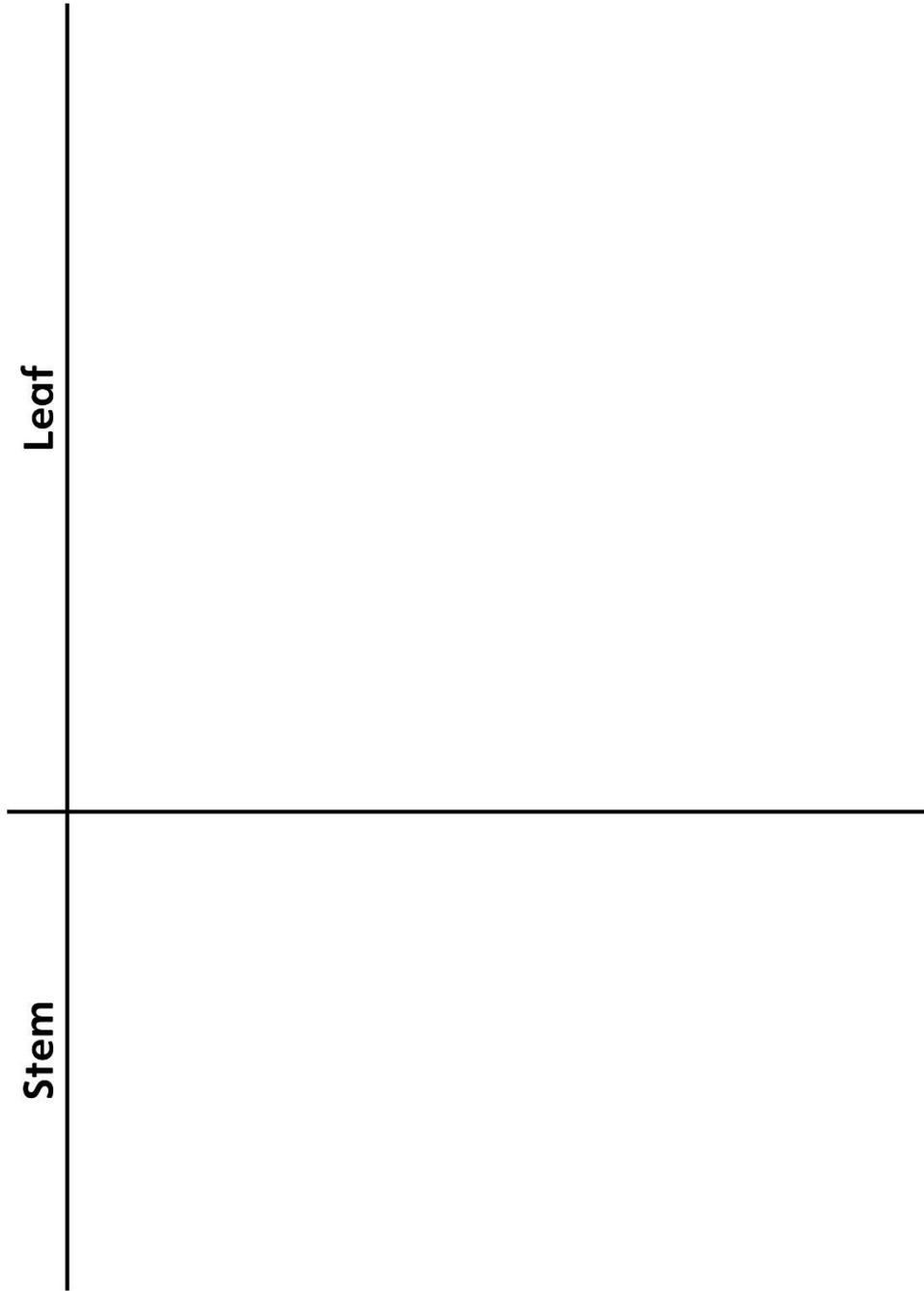
Title \_\_\_\_\_



# Coordinate Grid



# Stem-and-Leaf Plot



Name \_\_\_\_\_ Date \_\_\_\_\_

**Math Mat  
Master 32**

# Calendar

Saturday					
Friday					
Thursday					
Wednesday					
Tuesday					
Monday					
Sunday					

# Fraction Strips

1	
$\frac{1}{2}$	$\frac{1}{2}$
$\frac{1}{3}$	$\frac{1}{3}$
$\frac{1}{4}$	$\frac{1}{4}$
$\frac{1}{5}$	$\frac{1}{5}$
$\frac{1}{6}$	$\frac{1}{6}$
$\frac{1}{7}$	$\frac{1}{7}$
$\frac{1}{8}$	$\frac{1}{8}$
$\frac{1}{9}$	$\frac{1}{9}$
$\frac{1}{10}$	$\frac{1}{10}$

**Math Mat  
Master 34**

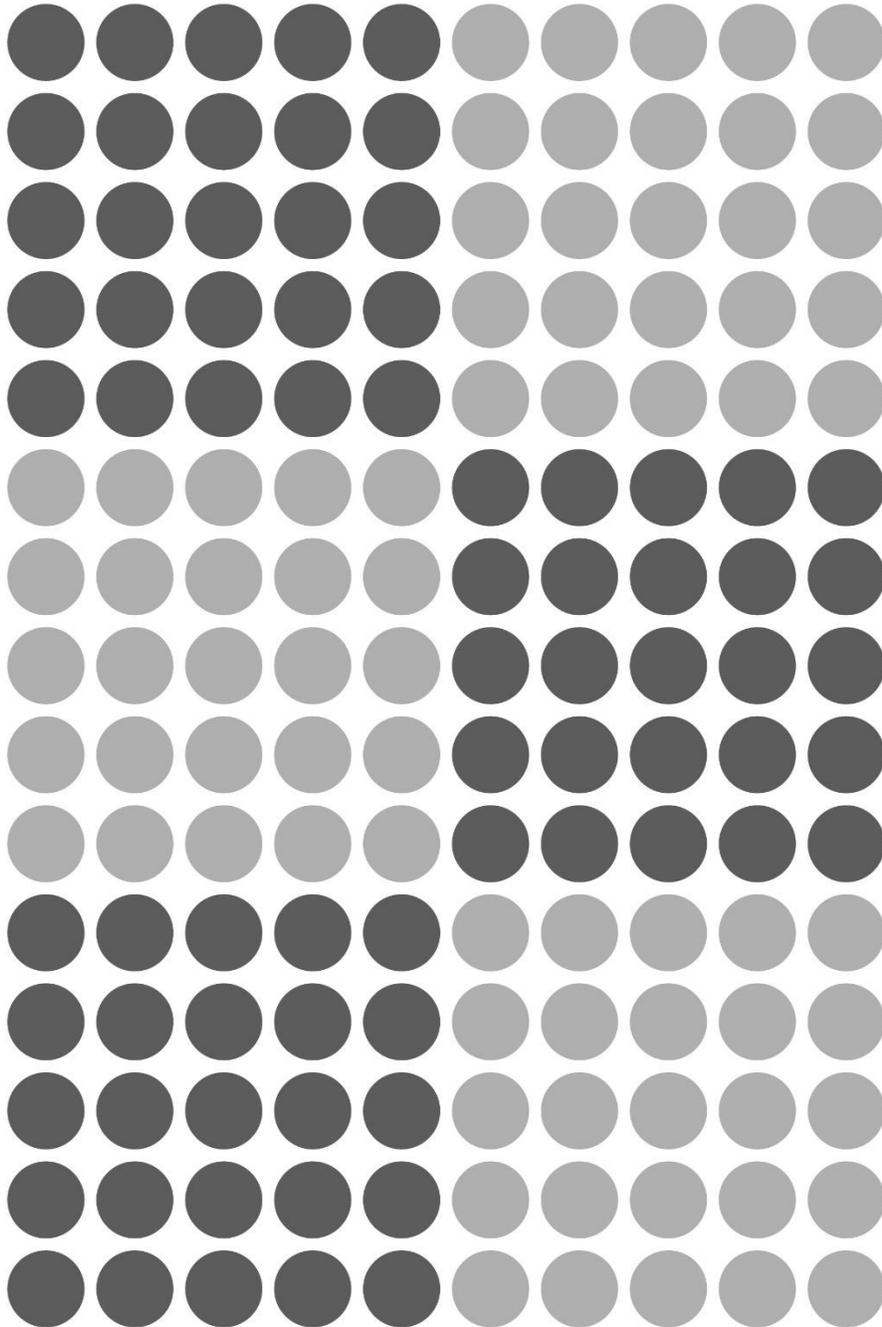
# Money



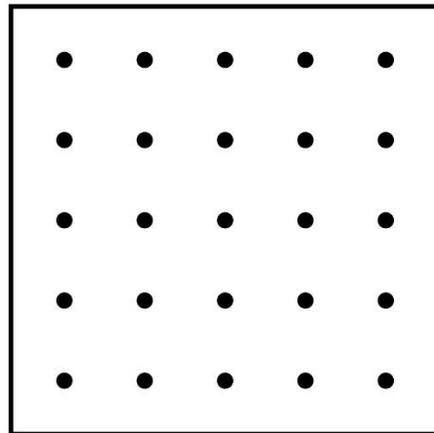
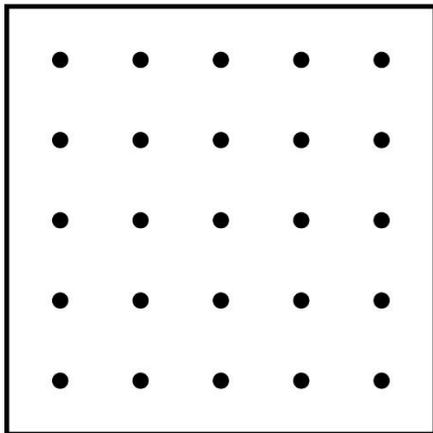
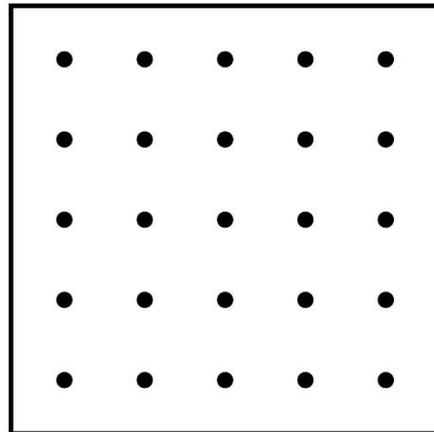
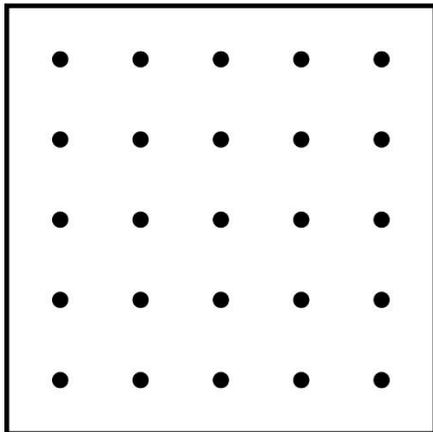
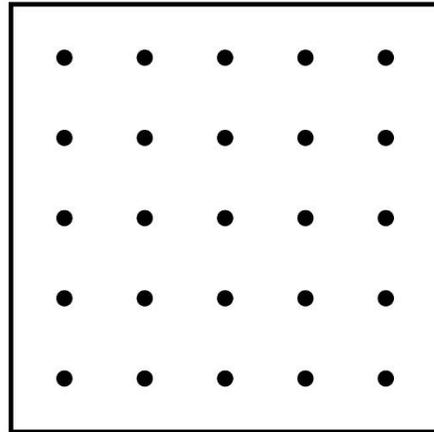
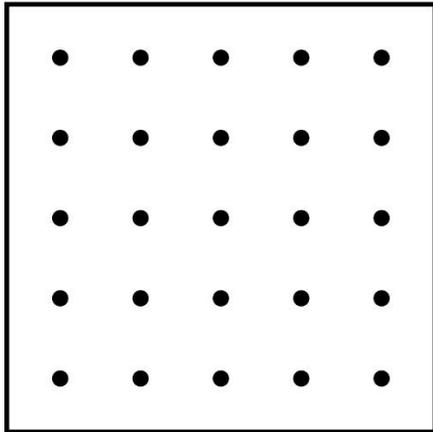
Amount: \_\_\_\_\_



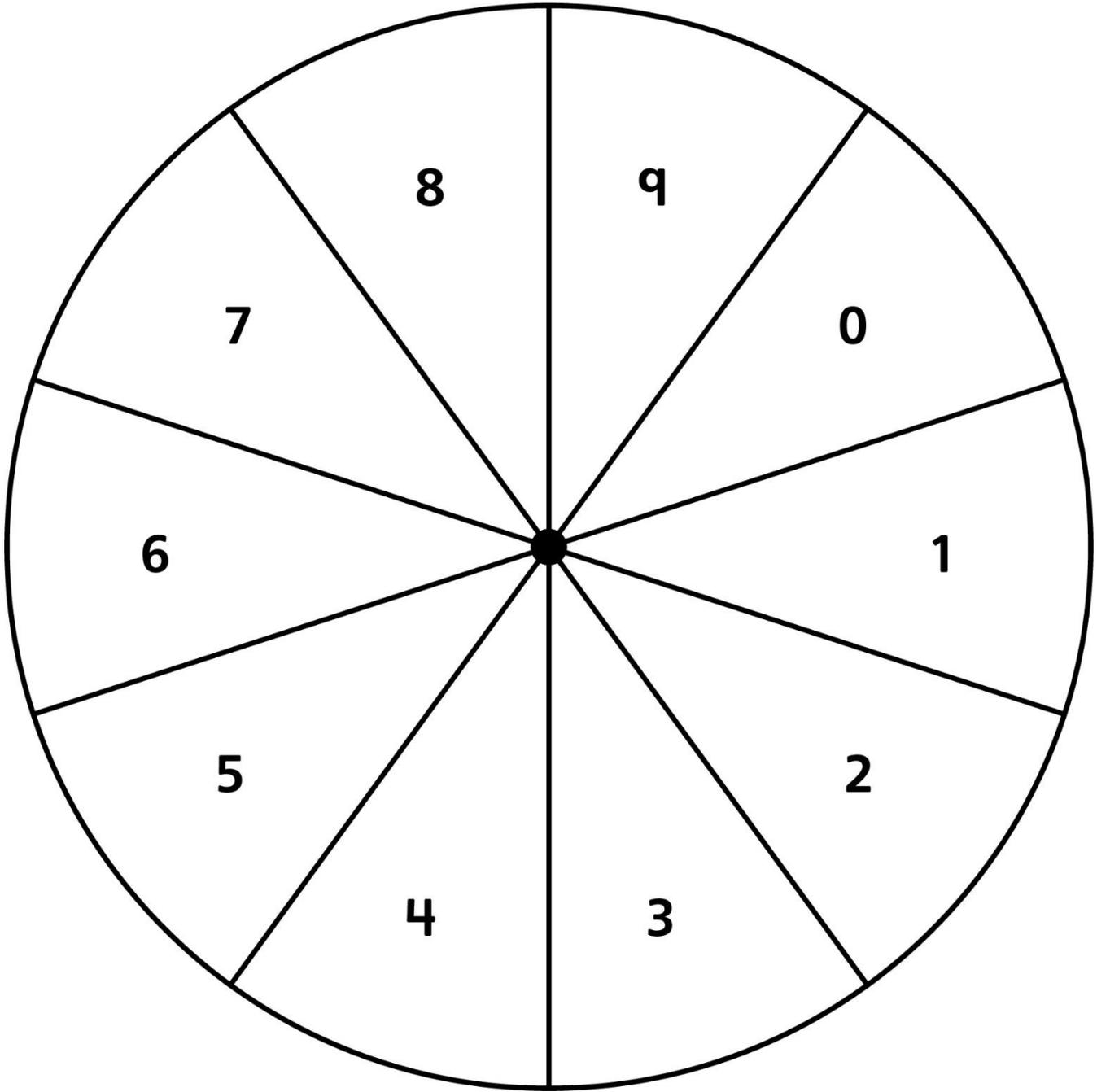
# Dot Array



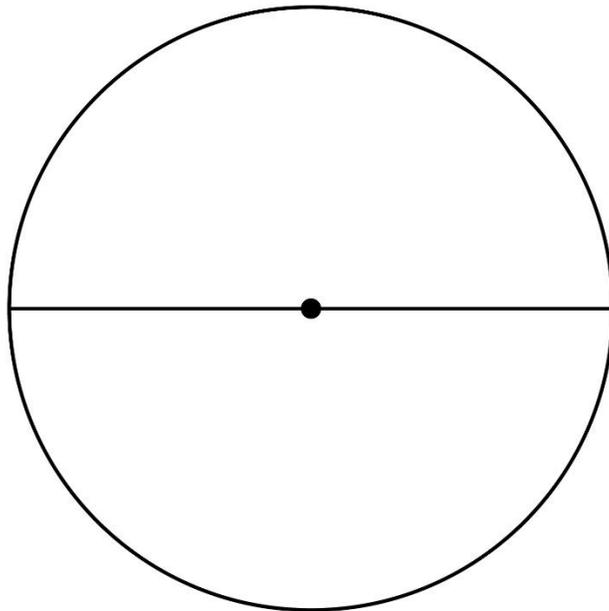
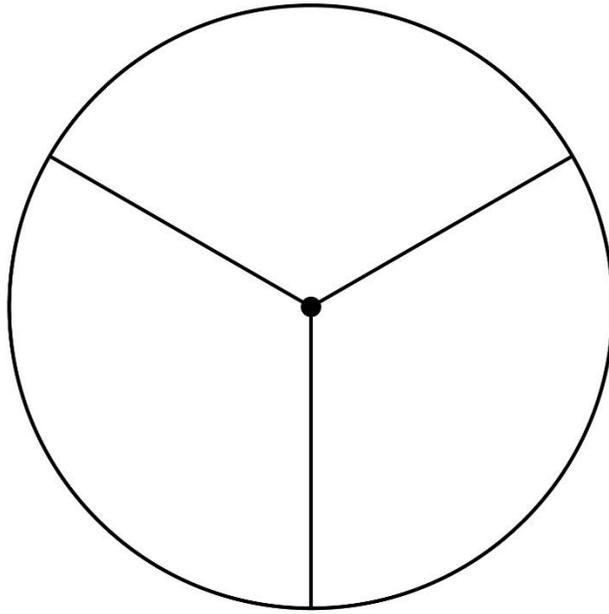
# Geoboards



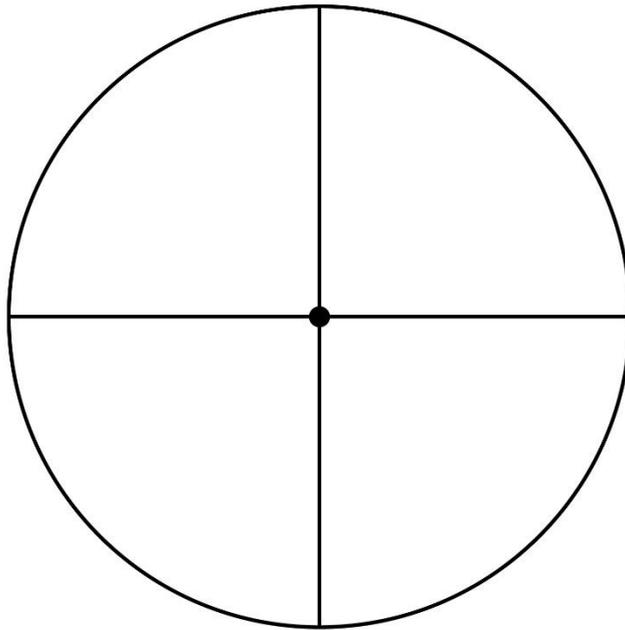
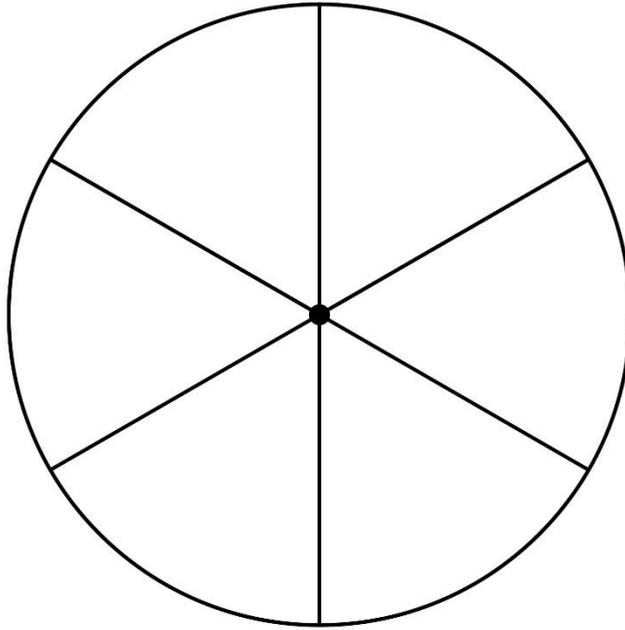
# Spinner



# Spinners



# Spinners



# Clocks

