Gallery Tour

Teacher's Guide

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Line Masters

This Teacher's Guide includes access to modifiable and PDF line masters.

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Mathology Little Books

This series recognizes that children's understanding of maths concepts develops over time, and so the series allows you to choose the book that best matches a child's or group's level of mathematical understanding. The books engage children at just the right level in a wide range of mathematical ideas, thinking, and activities in a variety of real-world and imaginary contexts.

Gallery Tour engages children in conversations, investigations, and activities that help to develop their understanding of the big maths idea that "Shapes and solids can be transformed in many ways."*

Big Idea: Numbers are related in many ways
(Compare, order and count. Read, write and model numbers)

TITLE	KEY MATHS FOCUS	MATHS SKILLS	STRATEGIES	ADDITIONAL FOCUS
	Transform and describe shapes Describe and compare shapes	Identify congruent shapes Describe how to make shapes congruent Identify symmetrical shapes and designs Construct and/or complete symmetrical shapes and designs Describe location, position, and/or orientation of shapes Compose and complete composite shapes	Move and manipulate shapes to check for congruency (slide, flip, turn)	Identify symmetry in the environment Add and subtract to 20 Duration of 1 min, 10 min, days Use positional language to describe location Sorting and resorting Explore Area
	**Describe and compare transformations** **Identify, describe, and compare 2-D shapes**	**Identify 2-D shapes that have symmetry** **Identify lines of symmetry** **Construct and complete 2-D symmetrical designs** **Describe and perform transformations (slides, flips, turns)**	**Find 2-D shapes within an image** **Use knowledge of 2-D and 3-D shape properties**	**Collect and organise data** **Identify angles** **Compare numbers** **Estimate quantity** **Estimate measurements: perimeter, area length** **Select units: kg, g, m, cm**

* This book can also be used to address the big idea that "Shapes and solids can be explored and compared based on attributes."

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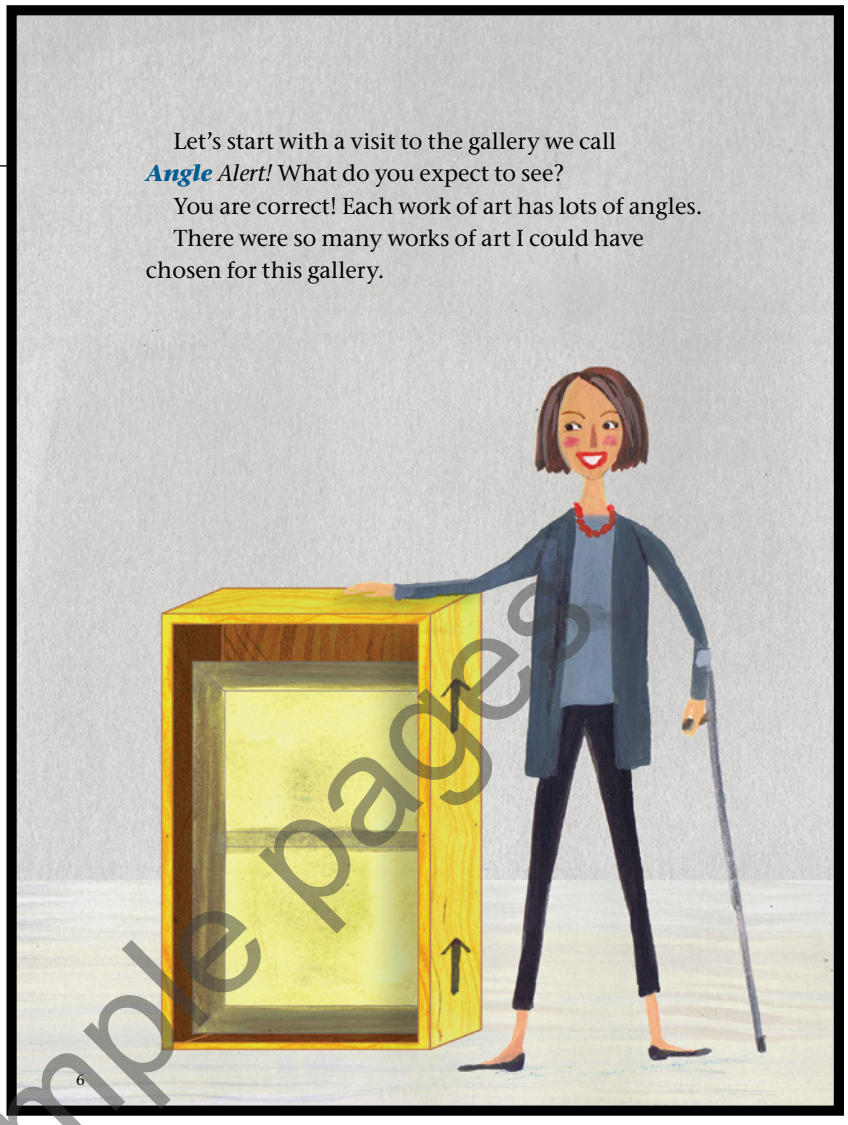
Identifying and describing shapes

- This first gallery is called the *Angle Alert! Gallery*. What is an angle? Draw one in the air.
- Close your eyes and visualize a (square). How many inside angles do you see? *(4)* Is it possible to visualize a (square) with a different number of angles? *(no)* Why do you think so?
- Now visualize a (triangle). How many angles now? *(3)* Is it possible to visualize a (triangle) with a different number of angles? Why?



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I chose this to be the first painting you see when you walk into the *Angle Alert! Gallery*. I think it is a good place to start. What do you think?

Nina Shirokova (born 1934)
Textile Design, 1973
Gouache on paper

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Identifying and describing shapes

- Do you agree that this work of art is a good one for the *Angle Alert! Gallery*? Why or why not?
- What shape did the artist seem to use the most to create her work of art? *(triangles)* How are the triangles similar? *(have 3 sides; have 3 vertices)* Different from each other? *(e.g., different sizes; different colours or designs; different lengths of sides; different sizes of angles; different orientations)*
- Right angles are angles that are like those at the corners of a square. (Model a right angle if needed.) Do any of the triangles have right angles? Do any of the triangles have angles that are greater than right angles? *(yes, some of the darkest ones)*

WATCH FOR...

- Do children realize that the number of angles in a given shape remains constant no matter the size and orientation (e.g., that all triangles have 3 angles)?
- When describing and comparing triangles, is the child able to discern that their angles, lengths of sides, and orientations can be different?

Large Group Options

If you read ***Gallery Tour*** to a large group or whole class, you might project the book to facilitate reading aloud and better engage children in appreciating how shapes combine to form works of art. These activities engage children in exploring and communicating their understanding of properties of 2-D shapes, and of how 2-D shapes can be combined and transformed to create artwork that could belong in one of the galleries; choose the activities that best address your children's learning needs.

ANGLE ALERT

ENGAGE

Draw attention to a work of art from the *Angle Alert! Gallery* (e.g., pages 7–9) in ***Gallery Tour***. Review or introduce attributes, properties, and terms you want children to focus on as you describe a shape. For example, say:

- **I see a shape in *Woman Fixin' Quilt* with 4 sides that are different lengths. It has 4 angles: 2 of the angles look like the corners of a square—we call these right angles. 1 angle is bigger than a right angle (1 is an obtuse angle), and 1 angle is smaller than a right angle (1 is an acute angle). Who can find and trace the shape I described?**

Together, consider if the identified shape has all the attributes described. Repeat with another shape in the same or different image. Volunteers might take on the role of describing shapes.

WORK ON IT

Children will create unique works of art by overlapping triangles to create other shapes. First, invite them to draw a horizontal line segment mid-page, leaving space at both ends, and then label the endpoints (A, B). They then add a dot anywhere above the line segment, and draw line segments to join that dot to the endpoints. Ask them to describe the shape. *(various types of triangles)* Invite children to add another dot and join that dot to the labelled endpoints. (See example in the margin.) Continue:

- **Add more dots. Join each dot to the endpoints of your original line segment. Dots can be above or below that line.**

Encourage children to continue creating shapes until they are pleased with their artwork. They then erase the labels on the endpoints. Invite children to decorate the interiors of the shapes using colour, patterns, and designs.

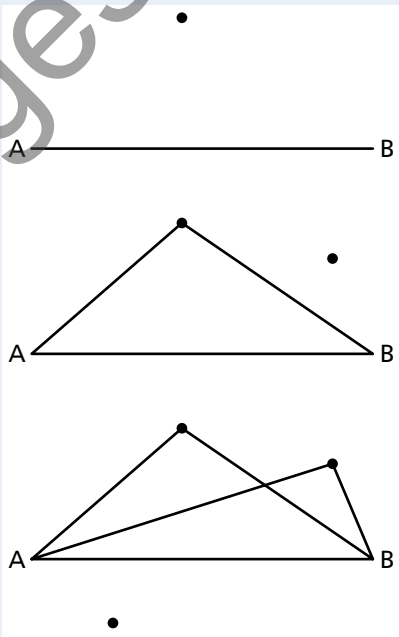
SHARE AND REFLECT

Discuss completed work, focusing attention on polygons and angles. Ask:

- **What shapes can you find in (Ray's) design? What types of triangles (quadrilaterals) do you see? How are the (triangles) the same? How are they different? Can you find a (pentagon)?**
- **Where can you find right angles? Angles that are larger (smaller)?**
- **Choose one design. Now, describe it so that we can identify it!**

MATHS FOCUS: create, identify, and compare 2-D shapes

MATERIALS: ***Gallery Tour,*** pp. 7–9; drawing and writing materials; rulers



WATCH FOR...

- Do children identify and name various 2-D shapes in their work?
- Are children able to recognize different angles?
- Are children able to recognize and describe the properties of triangles and other shapes?

DIFFERENTIATE: Guide tentative children to use a specific number and placement of dots. Challenge interested children to find, count, and list the shapes in their work.

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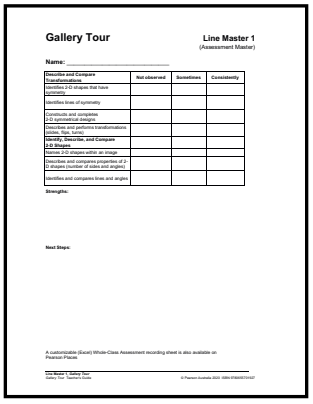
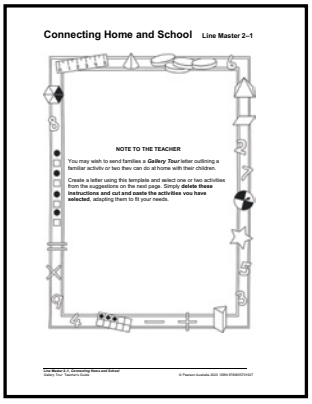
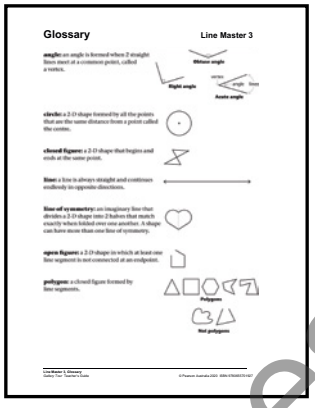


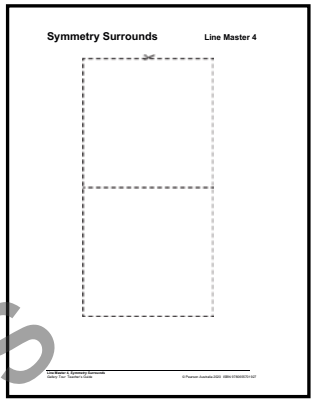
Line Master 1
Assessment Master



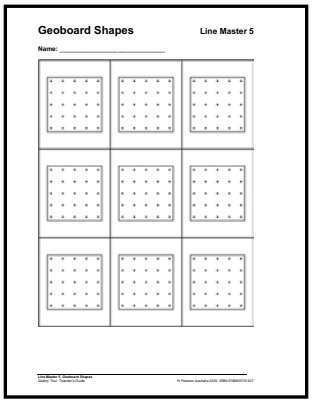
Line Master 2
Connecting Home and School Letter Template



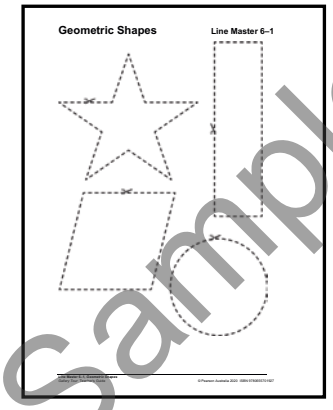
Line Master 3
Gallery Tour Glossary



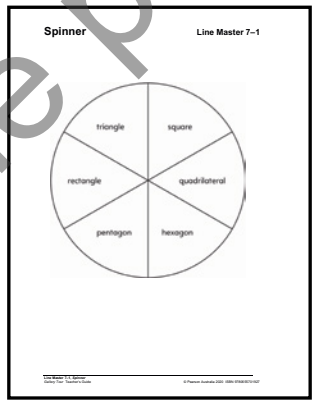
Line Master 4
Symmetry Surrounds



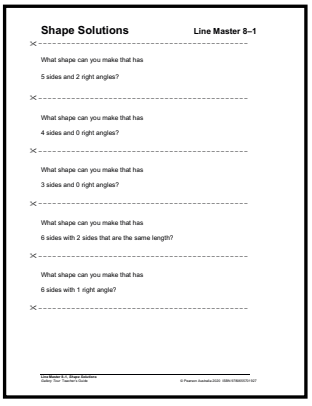
Line Master 5
Geoboard Shapes



Line Master 6
Geometric Shapes



Line Master 7
Spinner



Line Master 8
Shape Solutions