The Castle Wall

Teacher's Guide

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Line Masters

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

To access these Mathology Little Book Line Masters, please log in at Pearson Places, www.pearsonplaces.com.au and select the Mathology Little Books icon. The Line Masters can be found in the 'Explore Resources' section.

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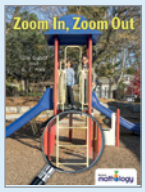
Pearson

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.

The Castle Wall engages children in conversations, investigations, and activities that help to develop their understanding of the big maths idea that "Shapes and solids can be explored and compared based on attributes."*

Big Idea: Many things in our world have attributes that can be measured and compared
(Compare length, mass, volume and capacity)

	KEY MATHS FOCUS	MATHS SKILLS	STRATEGIES	ADDITIONAL FOCUS
	Identify shapes Locate objects	Describe, name and create 2-D shapes Sort and re-sort 2-D shapes Relate 2-D shapes to 3-D objects Describe location of objects using positional language Follow and give directions Locate and describe location on a grid		Comparing quantities Comparing height
	**Explore, describe, and compare shapes and solids** **Create and describe 3-D structures**	**Recognise and describe shapes and solids using geometric attributes** **Make connections between shapes and solids and objects in the environment** **Follow directions to create structures**	**Describe and sort solids based on how they move** **Use understanding of attributes of solids when building** **Apply prior knowledge and experience when building and rebuilding**	**Count and compare quantity** **Compare measures** **Use positional language to describe location**
	Find and describe shapes and solids Explore and classify shapes and solids	Recognize 2-D shapes embedded in other images or objects and in the environment Analyse geometric attributes of 2-D shapes and 3-D solids	Classify and name 2-D shapes and 3-D solids based on attributes	Compare size and length
	Investigate and make 2-D shapes Find and classify 2-D shapes in 3-D objects	Name 2-D shapes and 3-D solids Classifies 2-D shapes and 3-D solids using geometric properties Identify 2-D shapes as part of 3-D objects Describe, construct and compare 2-D shapes with given attributes	Classify 2-D shapes based on shared attributes	Compare height Explore increasing/decreasing patterns

* This book can also be used to address the big idea "Objects can be located in space and looked at from different perspectives."

  ISBN 9780655701545

Describing and comparing shapes and solids

- The architect who designed the king's new home liked working with shapes. What shapes do you see in the castle? Let's trace that shape with our finger (in the air). What does that shape remind you of?

  Hold up a solid (e.g., cone, cube).

- Imagine that the king looks through his telescope and sees something that looks like (has the same shape as) this block. What might it be? Picture it in your mind and describe it to us. Who has a different idea?

WATCH FOR...

- Note the language children use to describe shapes. Are they using geometric and spatial language, and/or connecting the shapes to known objects (e.g., it looks like a can)?
- Can children think of and describe objects in the environment with a specific shape? With similar shapes?

Describing and comparing shapes and solids

- The king wants a moat to "circle the castle." Use your hands to show what the king means.

Creating and describing 3-D structures

- Look at the shapes glued to the top of the king's throne. If they weren't glued together, do you think they would stay in place? Why not?

You might present children with a cone and a sphere from your collection of solids so that they can test and check their predictions.

"We need a moat to circle the castle!
It must be wide.
It must be deep.
We need a moat to keep us safe,"
says the king.

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CONNECTING TO MEASUREMENT

Comparative Measures: Engage children in thinking about and comparing width and depth. Direct their attention to the king's description of the moat and ask: **If the king used his arms to show what he means by wide (deep), what would he do? Now stand and make yourself as wide as you can. Who do you think has the deepest pocket? How could we check?**

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Large Group Options

If you read ***The Castle Wall*** to a large group or whole class, you might project the book to facilitate reading aloud and better engage children in describing and comparing shapes and solids. These activities engage children in exploring, describing, and comparing solids, as well as offering opportunities to develop positional and directional language when describing location and orientation. Choose the activities that best address your children's developing geometric and spatial thinking.

HELP ME FIND IT

ENGAGE

Remind children that the builders in ***The Castle Wall*** use blocks (solids) of different shapes. Display a collection of solids. Over several days, examine and describe each one, and compare it to others. Say:

- **We are the builders and these are the blocks the king wants us to use. It's important to know as much as we can about them. Let's pass each block around the circle. When it gets to you, describe the shape of the block or tell something that has a similar shape.**

Chart children's observations and prompt comparisons. For example:

- **How is the (cube) the same as the (prism)? How is it different?**

WORK ON IT

Once children are familiar with the solids, play "Blocks Wanted." Display the collection of solids and provide partners with a copy of Blocks for the King (LM 4). Step into the role of the king's architect, and use descriptive words and gestures to describe one of the solids. Say:

- **Hurry! We need to finish the castle wall. We need a block that has a flat bottom (side); has one point or corner; and will leave the impression of a circle in the sand. This would be a good block for the top of a tower. Help me find it!**

Pairs point to the image on LM 4 that matches the description. Invite a volunteer to select this solid from the collection. Ask:

- **Why did you choose the cone? What other solids have a flat side? How is the shape of a side on the (cube) different from the flat side on the cone?**

SHARE AND REFLECT

Once the solid has been identified, pass it around. You might say:

- **Put your finger on the point or corner. Make a point with your hands. Use your finger to trace the round face (side). Make a circle with your hands. What do you think would happen if we tried to roll the cone? Let's find out.**

Add new observations or terms to the cone chart. Repeat often before asking pairs to play on their own. Children can take turns assuming the roles of architect and builder.

MATHS FOCUS: explore, describe, and compare attributes of solids

MATERIALS: a collection of geometric solids: sphere, cone, cube, cylinder, rectangular prism, pyramid; chart paper; Blocks for the King (LM 4)

Cone
- curved
- 1 point/corner
- 1 flat side
- flat side is round
- looks like an ice cream cone

WATCH FOR...

- Do children recognize solids based on the attributes described?
- Are children ready to assume the role of architect and describe solids?
- Listen to and accept the language children use, and continue to model the use of formal geometric terms. Frequent exposure will help children connect their language to these new terms.

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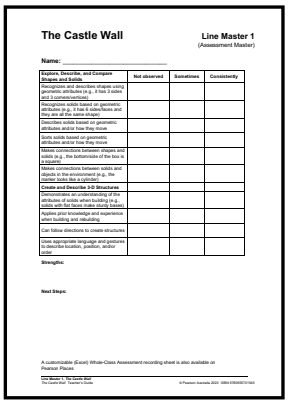

The Castle Wall — Line Master 1 (Assessment Master)

Name: _____

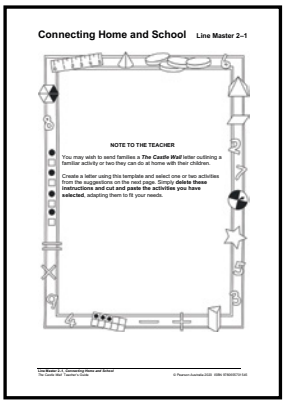
Explore, Describe, and Compare Shapes and Solids	Not observed	Sometimes	Consistently
Recognises and describes shapes using mathematical terms (e.g., it has 3 sides and 3 corners/vertices)			
Recognises solids based on geometric attributes (e.g., it has 6 sides/faces and they are all the same shape)			
Describes solids based on geometric attributes and/or how they move			
Sorts solids based on geometric attributes and/or how they move			
Makes connections between shapes and solids (e.g., the bottom/side of the box is a square)			
Makes connections between solids and objects in the environment (e.g., the marker looks like a cylinder)			
Create and Describe 3-D Structures			
Demonstrates an understanding of the attributes of solids when building (e.g., solids with flat faces make sturdy bases)			
Applies prior knowledge and experience when building and rebuilding			
Can follow directions to create structures			
Uses appropriate language and gestures to describe location, position, and/or order			

Strengths:

Next Steps:

A customizable (Excel) Whole-Class Assessment recording sheet is also available on Pearson Places

Line Master 1
Assessment Master

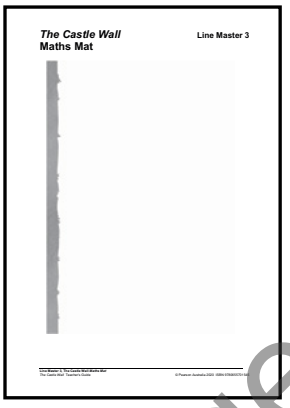

Connecting Home and School — Line Master 2–1

NOTE TO THE TEACHER

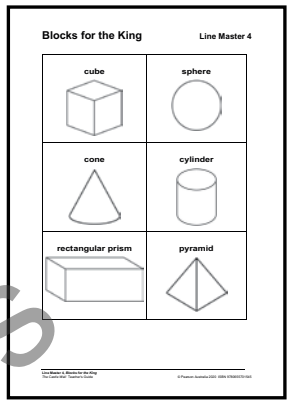
You may wish to send families a ***The Castle Wall*** letter outlining a familiar activity or two they can do at home with their children.

Create a letter using this template and select one or two activities from the suggestions on the next page. Simply **delete these instructions and cut and paste the activities you have selected**, adapting them to fit your needs.

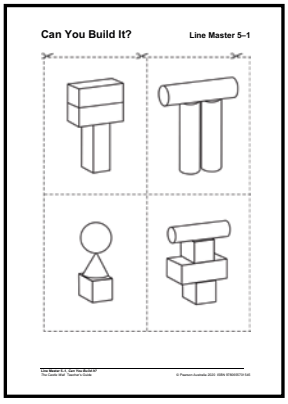
Line Master 2
Connecting Home and School Letter Template


The Castle Wall Maths Mat — Line Master 3

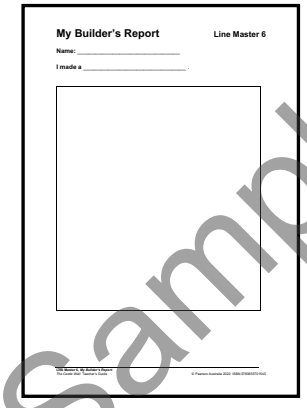
Line Master 3
The Castle Wall Maths Mat



Line Master 4
Blocks for the King


Can You Build It? — Line Master 5–1

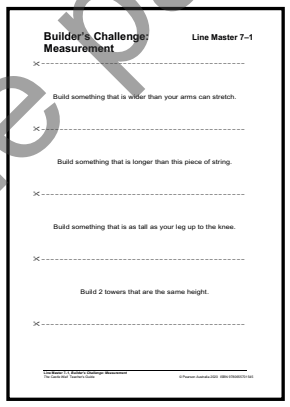
Line Master 5
Can You Build It?


My Builder's Report — Line Master 6

Name: _____

I made a _____.

Line Master 6
My Builder's Report


Builder's Challenge: Measurement — Line Master 7–1

Build something that is wider than your arms can stretch.

Build something that is longer than this piece of string.

Build something that is as tall as your leg up to the knee.

Build 2 towers that are the same height.

Line Master 7
Builder's Challenge

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