

Graph It!

Teacher's Guide



Carole Fullerton and Sharon Jeroski

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.

If the icon doesn't appear or if you are new to Pearson Places, please contact our digital helpdesk at help@pearson.com.au and we will set up a teacher account for you.

Once you have your Pearson Places account details you can record them below for reference.

Log-in Name _____

Password _____

You can use these log-in details to access all your Pearson Places titles.

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.

Graph It! engages children in conversations, investigations, and activities that help to develop their understanding of the big maths idea that “Collecting and displaying data can help us predict and interpret situations.”

Big Idea: Collecting and displaying data can help us predict and interpret situations (Data and Graphing)

TITLE	KEY MATHS FOCUS	MATHS SKILLS	STRATEGIES	ADDITIONAL FOCUS
	Collect and interpret data Sort a collection	Display data on a graph Interpret graphs Identify similarities and differences Sort and re-sort a collection	Pose a question to initiate data collection Predict based on displayed data Identify a sorting rule	Comparing quantities to 20 Use positional language to describe location
	Interpret concrete graphs and picture graphs Build concrete graphs and picture graphs	Collect and organize concrete data Use collected and displayed data to answer questions Use real objects and pictures to make graphs Read and interpret simple graphs Compare sets of objects to determine more/less	Compare perceptually Match and count	Construct number sentences to 20 Simple equations
	Build pictographs Interpret pictographs	Collect data by determining categories in advance Create simple pictographs Read and interpret information from data displays	Choose an appropriate method to collect and organize data	Estimate how many in a group (to 100) Make groups Make 2-D shapes with a given number of vertices
	Collect, organize and display data in graphs Read and ask questions about graphs	Collect data by determining categories Conduct a survey Construct and label pictographs and bar graphs Display data collected in more than one way and describe the differences Interpret displays Pose and answer questions about data collected and displayed	Choose a method to record collected data Use tally marks Formulate questions that can be addressed through observation	Identify 2-D shapes using geometrical attributes Create addition and subtraction story problems Make doubles



“How could we find out what I’ll need for next year’s class?” Ms. Lightbody asks. “Can you help me by sorting the things we have? Show me what you find in the form of a graph!”

Who will sort the cars? Who will sort the books?

“I need to know what we have more of and what we have less of,” says Ms. Lightbody.

3

Interpreting concrete graphs

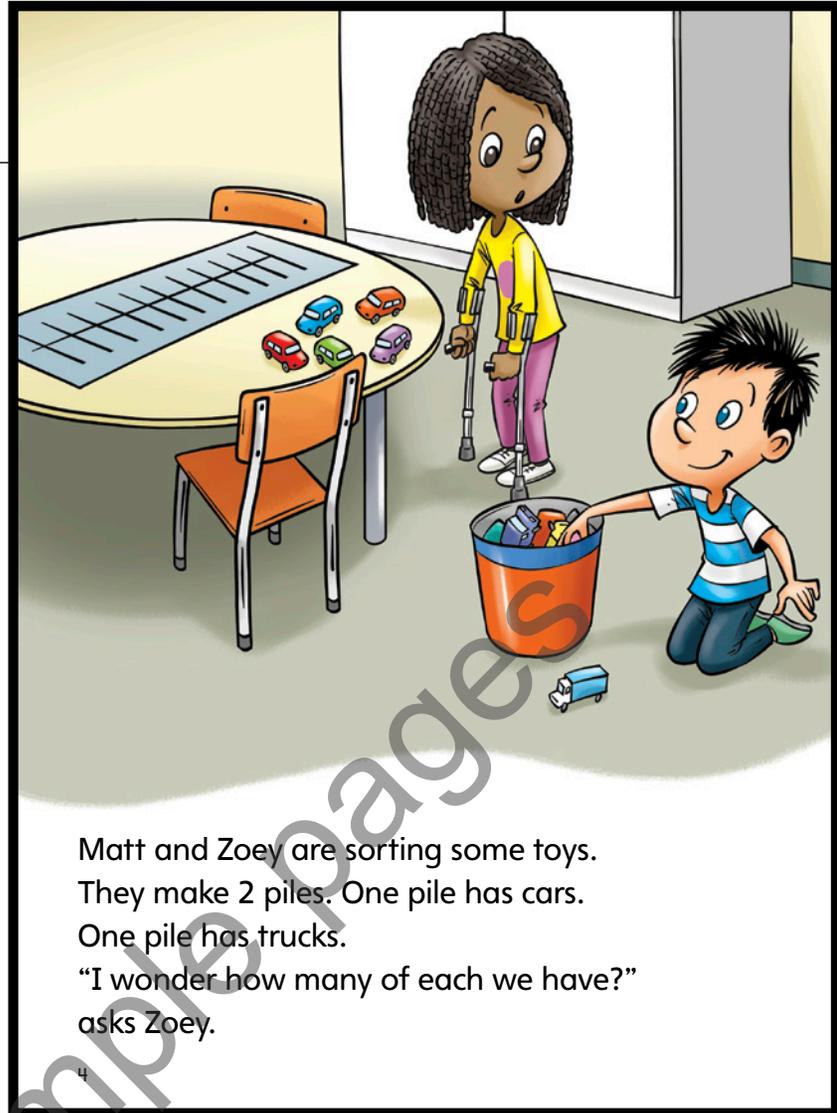
- How could Ms. Lightbody and the children find out what they have more of and what they have less of? (e.g., *sort them; count; put them in lines*)
- What would make it easier to tell? (e.g., *record in a graph; use a ten-frame*)

WATCH FOR...

- Does the child determine categories for grouping the objects?
- Does the child group the objects into categories?

Building concrete graphs

- What sorting categories are the children using? (*cars and trucks*)
- How many objects are they putting in each space? (*1*)
- What did Matt and Zoey do to make a graph?
- How did Matt and Zoey make a graph?
- What did Matt and Zoey find out?



CONNECTING TO NUMBER

Number Sentences: **Ask:** What number sentences could you write about the cars and trucks on page 5? (e.g., $8 + 5 = 13$; $13 - 5 = 8$) Can you think of more number sentences?

Large Group Options

If you read *Graph It!* to a large group or whole class, you might project the book to facilitate reading aloud and better engage children in counting, comparing, and describing data. These activities engage children in exploring and communicating their understanding of building and interpreting concrete graphs; choose the activities that best address your children's learning needs.

BUILDING HUMAN GRAPHS—OUR FAVOURITE THINGS

ENGAGE

Draw attention to page 9 of *Graph It!* and ask:

- **What do you notice about the graph?** (e.g., *there are more small books than big books; some are stories and others are information books*)

Explain that in a classroom library, it's a good idea to have lots of different kinds of books so everyone has something interesting to read.

Ask: **What do you think our class members like best? Stories or information books? How could we figure it out?**

WORK ON IT

Create a sign labelled "Story Books" and another labelled "Information Books." Have children indicate their favourite by standing behind the sign that matches their preference. Consider having children sit in a line, knee to knee or feet to feet, across from their counterpart in the second line. Ask children what they notice. When they point out that one line is longer/shorter than the other, ask:

- **How do you know?** (*I counted*)
- **Who might be interested in this information?** (e.g., *the teacher; the teacher-librarian*)
- **What other questions could we ask about the books?**

Accept all responses and record on chart paper. Have children choose a question, make a prediction about the results, and then line up behind the sign for their answer, counting and comparing the number of responses. Consider photographing the results and posting them for children to see.

SHARE AND REFLECT

Meet and prompt reflection by asking questions such as:

- **What did you learn about our class's favourite things from the graphs we made?**
- **What surprised you the most?**
- **Do you think it would work out the same if we asked another class to make a graph with our questions? Why?**
- **How is using people in a graph like using blocks or counters? How is it different?**

MATHS FOCUS: using displayed data to answer questions

MATERIALS: *Graph It!*, pp. 8–9; sign-making materials; chart paper

WATCH FOR...

- Do children recognize that objects (their bodies) must be spaced evenly to create a graph?
- Does the child use collected data to answer questions?
- Does the child compare sets of objects (people) to identify more/less/the same?

Line Masters

To access the 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.

If the icon doesn't appear or if you are new to Pearson Places, please contact our digital helpdesk at help@pearson.com.au.

Graph It! Line Master 1 (Assessment Master)

Name: _____

Student Complete Graph and Picture	Not Observed	Observed	Completed
Read and re-read, understand, predict and colour graph			
Use mathematical and problem-solving skills to create graphs			
Communicate about graphs to family and friends			
Describe how many resources			
Read Complete Graph and Picture			
Communicate and compare data			
Use the blocks and picture to make graphs			

Examples: _____

Next Steps: _____

A copyrightable (Event) Whole-Class Assessment recording sheet is also available on Pearson Places. © Pearson Australia 2020 ISBN 9780655701637

Line Master 1
Assessment Master

Connecting Home and School Line Master 2-1

NOTE TO THE TEACHER

- You may wish to send families a Graph It! letter outlining a familiar activity or how they can do at home with their children.
- Create a letter using the template and select one or two activities.
- Give the instructions on the red card. **Scissors needed here.**
- Instructions and cut and paste the activities you have selected, adapting them to fit your needs.

© Pearson Australia 2020 ISBN 9780655701637

Line Master 2
Connecting Home and School Letter Template

Graph It! Maths Mat Line Master 3

© Pearson Australia 2020 ISBN 9780655701637

Line Master 3
Graph It! Maths Mat

Blank Graphing Mat Line Master 4

© Pearson Australia 2020 ISBN 9780655701637

Line Master 4
Blank Graphing Mat

3-Column Graphing Mat Line Master 5

© Pearson Australia 2020 ISBN 9780655701637

Line Master 5
3-Column Graphing Mat

Ten-Frame Line Master 6

© Pearson Australia 2020 ISBN 9780655701637

Line Master 6
Ten-Frame

Graphing Problems Line Master 7

Sam made a graph. He used 8 yellow blocks and 6 blue blocks. There he had 3 yellow blocks.

What does the graph look like now?
Use your graphing grid to show your idea.

Tary made a graph. She used 9 yellow blocks and 5 blue blocks. There she had 4 blocks.

What could the graph look like now?
How many blocks does she have now?
Use your graphing grid to show your idea.

Bo made a graph. He used 5 yellow blocks and 3 blue blocks. He had some more and now he has 12 blocks in all.

What could the graph look like now?
Use your graphing grid to show your idea.

Jordan has 17 apples. Some are green and some are red. He has almost the same number of green apples as red apples.

How many green apples could he have?
How many red apples?
How many ways can you find?
Use your graphing grid to show your idea.

Marcos has some cars. Some are red and some are blue. He has 3 more blue cars than red cars.

How many cars could Marcos have?
Use your graphing grid to show your idea.

© Pearson Australia 2020 ISBN 9780655701637

Line Master 7
Graphing Problems