Fantastic Journeys

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.

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.

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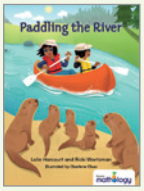
Pearson

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.

Fantastic Journeys engages children in conversations, investigations, and activities that help to develop their understanding of the big maths idea that "Numbers are related 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
	Compare quantities to 10 Count sets to 10 • Connect number names and quantities to 10	1-1 Correspondence Subitize Stable order Cardinality Compare quantities to determine more, less or the same	Touch and count Count on Determine 1 more/ less	Recognise circles, squares and rectangles Use positional language to describe location
	Count and compare sets to 10 • Connect number names and quantities to 10 Compose and decompose to 10	Name, match and write number names to quantities Compare quantities to determine more, less or the same Subitize	Describe 6 and 10 as two parts	Describe patterns
	Count, compare and order to 20 • Connect number names and quantities to 20 Compose and decompose to 20	Recall, name, match and write number names to quantities Cardinality Subitize Determine how many more/less Identify parts of a whole in different ways	Touch and count Count to compare Estimate quantities Compare quantities by matching or counting	Compare length Use positional language to describe location Collect data with tallies
	Compare quantities to 100 Estimate and count to 100	Estimate and count in different ways Determine how many more/less	Use benchmarks to estimate Skip Count Doubles Use equal groupings	Estimate and compare measures Explore duration of time
	Estimate quantities to 1000 Compare/order quantities to 1000	Explain estimates Determine greatest and least	Skip Count Use base 10 blocks Use benchmarks Grouping to estimate	Estimate and compare linear measurements (cm, m, km)

* This book can also be used to address the big idea that "Quantities and numbers can be grouped by units or split into units."

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Estimating quantities to 1000

- Let's focus on the question in **Amazing and True!** Estimate how many times you think you can flap your arms in 1 minute. What is your estimate? *(estimates will vary)*
- Let's find out! Stand and find enough space to spread your arms. When I say "Start," flap your arms and count silently to yourself. What did you find out? How many times did you flap your arms? How does your estimate compare to your count?

Monarch Butterflies Migrate

Monarch butterflies cannot survive Canada's cold winters. In the fall, most monarch butterflies migrate south to Mexico. Others spend the winter in California, United States.

A monarch butterfly, shown actual size

AMAZING and True!

Monarch butterflies flap their wings from 300 to 720 times per minute. About how many times do you think you can flap your arms in 1 minute? Take a minute to find out and compare!

4

CONNECTING TO MEASUREMENT

Linear Measurement: Discuss how the monarch butterfly is shown actual size, and focus on the wingspan measurement of 10 centimetres. Point out that 10 centimetres is the exact measurement for this particular monarch butterfly, but not every monarch butterfly will have exactly the same wingspan measurement. Invite children to suggest a part of their own bodies that they estimate has a measurement of about 10 centimetres (e.g., the length or span of a hand).

Calendars: Discuss different seasons and and how the names for these and the extremes of temperature vary between countries. What season is 'Fall' in Australia? When it is Spring here, what season may it be on the other side of the world?

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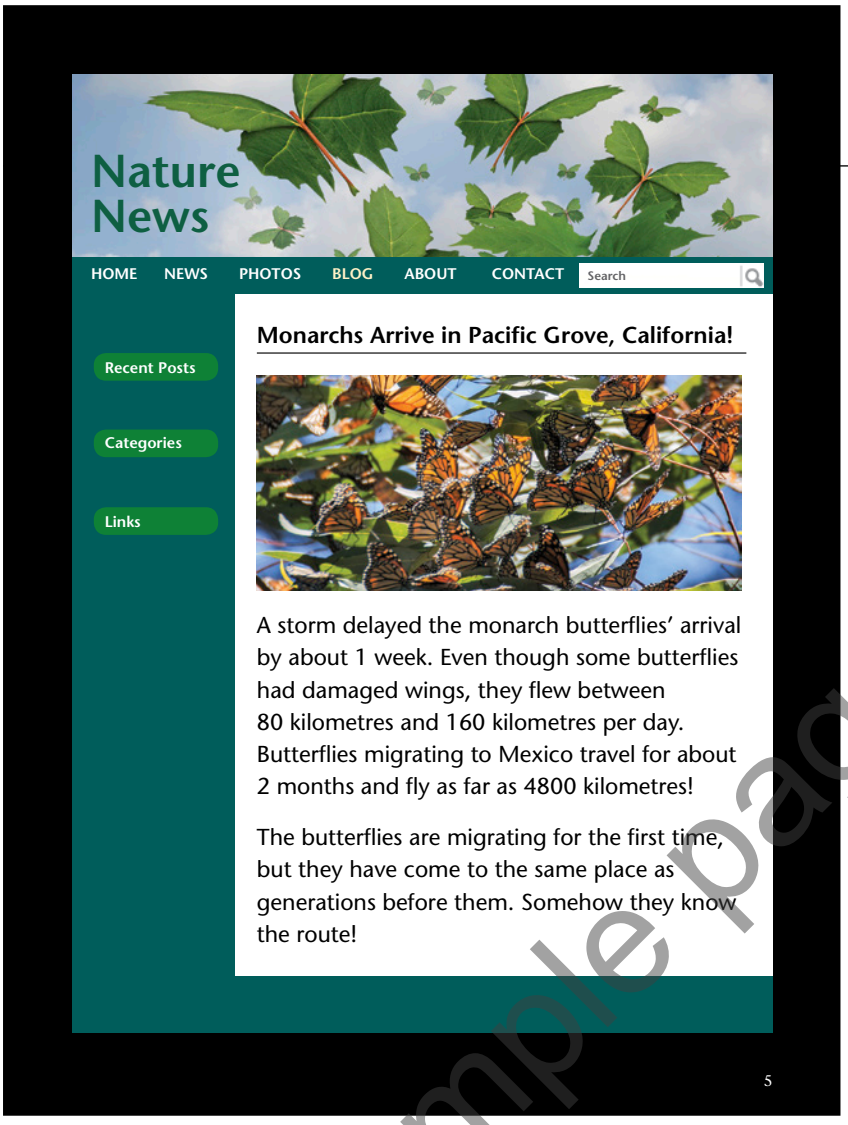


Comparing and ordering numbers

- What numbers can you find in the blog posting? *(1, 80, 160, 2, 4800; children might include the page number, 5)*

List all numbers offered by the children, and then ask:

- How can we list these numbers in order from least to greatest? *(1, 2, 80, 160, 4800)* What is the range of these numbers? *(1 to 4800)*
- Suppose some scientists tag a butterfly and find that it flew 147 kilometres in 1 day. Does that make sense from what we read? *(yes, because 147 is in the range of 80 and 160)*

WATCH FOR...

- When ordering the numbers from the blog, does the child read the numbers correctly? If not, record other 2-digit, 3-digit, and 4-digit numbers and model correct ways to read them, paying special attention to use of the word *and,* which is often incorrectly included.
- Can the child identify a number (e.g., 147) as falling between the identified range of numbers?

Large Group Options

If you read ***Fantastic Journeys*** to a large group or whole class, you might project the book to facilitate reading aloud and better engage children in counting and comparing. These activities engage children in estimating and describing quantity as well as comparing and ordering numbers to 1000; choose the activities that best address your children's learning needs.

MAKING ESTIMATION POSTERS

ENGAGE

Project any of the pictures of migration in ***Fantastic Journeys*** (pages 6–7, 10–11, 14–15, 18–19, and 22–23). Invite children to estimate and describe the number of animals in the picture. Ask:

- **(20 butterflies) are circled. How many more groups of (20) do you think we can circle?** *(estimates will vary)*

Record and tally the responses. Then, invite volunteers to circle groups of (20) on the picture. Explain that they do not need to circle exactly (20), but should make them as close as they can. Count the groups and ask:

- **What did we find out?** *(there are about 15 groups of 20)*
- **How does knowing the number of groups of (20) help us make a closer estimate of the number of (butterflies)?** *(can count the groups of 20; know 5 × 20 is 100)*
- **Do you think we will count more than (200)? More than (400)?**

Count the groups together to arrive at a consensus of a closer estimate of the number. Consider repeating with another migration picture.

WORK ON IT

Provide pairs or individuals with a large sheet of paper and materials for creating many copies of small, repeating images, such as stickers, bingo dabbers, stencils, or cut-out shapes. Tell children that they are to create posters that their classmates can use to practise estimating. Say:

- **Your poster must show a lot of the same thing, such as lots of stars in the night sky. Count as you make them, and write the number on the back of your poster when you've finished. Then, draw an outline around a group of 10, 20, 25, or 50 to help the estimator.**

SHARE AND REFLECT

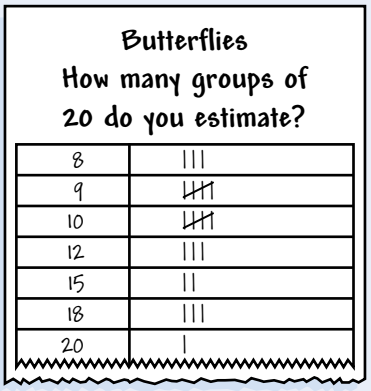
Invite children to display their posters. Initiate estimations by asking:

- **(Amiee), how many (stars) are in your outline?**
- **(Amiee) has outlined (25 stars). Look carefully at her poster, and estimate how many stars there are in all. Who has a different estimate? Do you think there are more than (100)?**

Have the child who created the poster reveal the actual number. Continue as long as time and interest permit. Present posters daily so that all of them can be discussed.

MATHS FOCUS: estimate quantities to 1000; compare and order quantities to 1000

MATERIALS: ***Fantastic Journeys,*** pp. 6–7, 10–11, 14–15, 18–19, and 22–23; large sheets of paper; access to materials for making repeated images, such as stickers, bingo dabbers, stencils, or cut-outs of shapes



WATCH FOR...

- Does the child offer reasonable estimates?
- What personal strategies does the child use (e.g., benchmark groupings, skip-counting)?

DIFFERENTIATE: Assign different numbers for posters. Making groups of 10 and working with a total number less than 100 is a good start for some, while others may be ready to make groups of 20 (25) and work with a greater total.

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Line Masters

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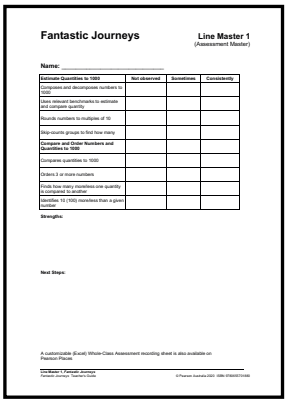

Fantastic Journeys Line Master 1 (Assessment Master)

Name: _____

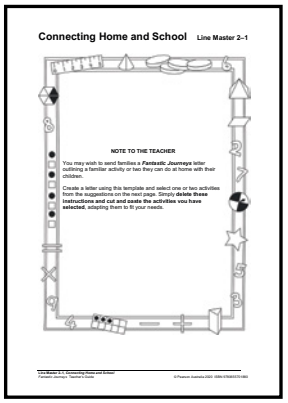
Estimate Quantities to 1000	Not observed	Sometimes	Consistently
Composes and decomposes numbers to 1000			
Uses relevant benchmarks to estimate and compare quantity			
Rounds numbers to multiples of 10			
Skip-counts groups to find how many			
Compare and Order Numbers and Quantities to 1000			
Compares quantities to 1000			
Orders 3 or more numbers			
Finds how many more/less one quantity is compared to another			
Identifies 10 (100) more/less than a given number			

Strengths:

Next Steps:

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

Line Master 1
Assessment Master

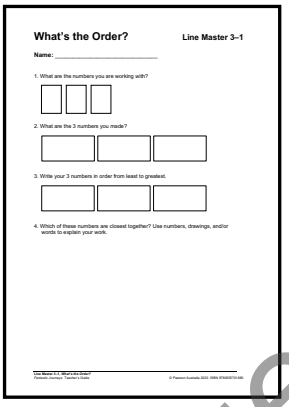

Connecting Home and School Line Master 2–1

NOTE TO THE TEACHER

You may wish to send families a ***Fantastic Journeys*** 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


What's the Order? Line Master 3–1

Name: _____

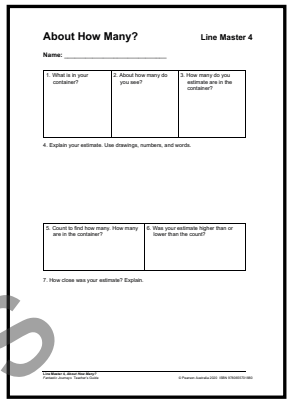
1. What are the numbers you are working with?

2. What are the 3 numbers you made?

3. Write your 3 numbers in order from least to greatest.

4. Which of these numbers are closest together? Use numbers, drawings, and/or words to explain your work.

Line Master 3
What's the Order?


About How Many? Line Master 4

Name: _____

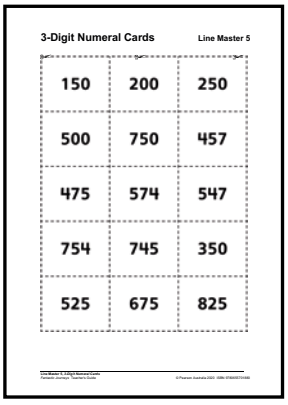
1. What is in your container?	2. About how many do you see?	3. How many do you estimate are in the container?

4. Explain your estimate. Use drawings, numbers, and words.

5. Count to find how many. How many are in the container?	6. Was your estimate higher than or lower than the count?

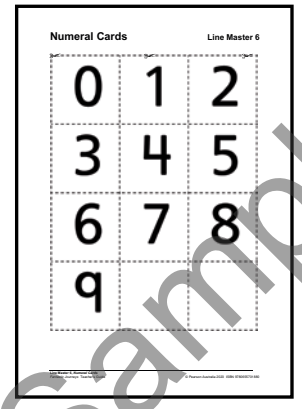
7. How close was your estimate? Explain.

Line Master 4
About How Many?


3-Digit Numeral Cards Line Master 5

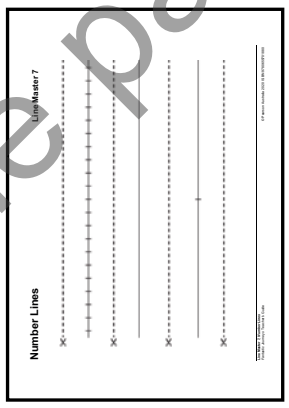
150	200	250
500	750	457
475	574	547
754	745	350
525	675	825

Line Master 5
3-Digit Numeral Cards


Numeral Cards Line Master 6

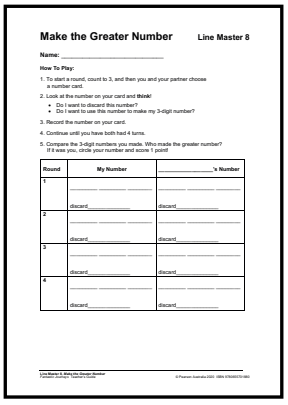
0	1	2
3	4	5
6	7	8
9		

Line Master 6
Numeral Cards


Line Master 7

Number Lines

Line Master 7
Number Lines


Make the Greater Number Line Master 8

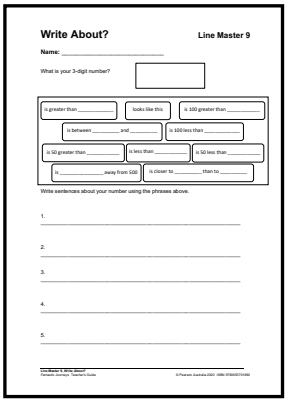
Name: _____

How To Play:

1. To start a round, count to 3, and then you and your partner choose a number card.
2. Look at the number on your card and **think!**
   - Do I want to discard this number?
   - Do I want to use this number to make my 3-digit number?
3. Record the number on your card.
4. Continue until you have both had 4 turns.
5. Compare the 3-digit numbers you made. Who made the greater number? If it was you, circle your number and score 1 point!

Round	My Number	_____'s Number
1	_____ _____ _____ discard_____	_____ _____ _____ discard_____
2	_____ _____ _____ discard_____	_____ _____ _____ discard_____
3	_____ _____ _____ discard_____	_____ _____ _____ discard_____
4	_____ _____ _____ discard_____	_____ _____ _____ discard_____

Line Master 8
Make the Greater Number


Write About? Line Master 9

Name: _____

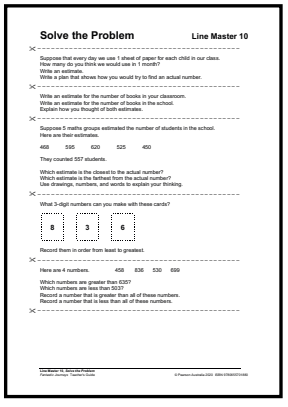
What is your 3-digit number?

is greater than _____	looks like this	is 100 greater than _____
is between _____ and _____		is 100 less than _____
is 50 greater than _____	is less than _____	is 50 less than _____
is _____ away from 500	is closer to _____ than to _____	

Write sentences about your number using the phrases above.

1. _____
2. _____
3. _____
4. _____
5. _____

Line Master 9
Write About?


Solve the Problem Line Master 10

Suppose that every day we use 1 sheet of paper for each child in our class.
How many do you think we would use in 1 month?
Write an estimate.
Write a plan that shows how you would try to find an actual number.

Write an estimate for the number of books in your classroom.
Write an estimate for the number of books in the school.
Explain how you thought of both estimates.

Suppose 5 maths groups estimated the number of students in the school.
Here are their estimates.

468 595 620 525 450

They counted 557 students.

Which estimate is the closest to the actual number?
Which estimate is the farthest from the actual number?
Use drawings, numbers, and words to explain your thinking.

What 3-digit numbers can you make with these cards?

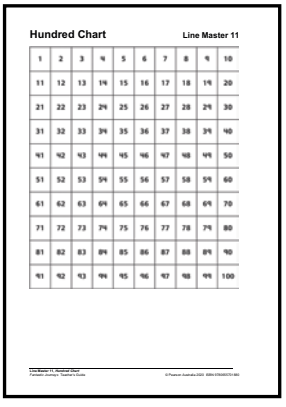
8 3 6

Record them in order from least to greatest.

Here are 4 numbers. 458 836 530 699

Which numbers are greater than 625?
Which numbers are less than 503?
Record a number that is greater than all of these numbers.
Record a number that is less than all of these numbers.

Line Master 10
Solve the Problem


Hundred Chart Line Master 11

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

Line Master 11
Hundred Chart

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