

# Cats and Kittens!

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](http://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](mailto: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.

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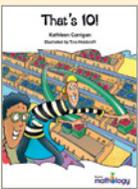
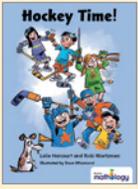
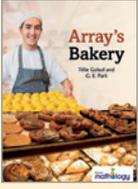
# Mathology Little Books

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.

*Cats and Kittens!* engages children in conversations, investigations, and activities that help to develop their understanding of the big maths idea that “Quantities and numbers can be added and subtracted to determine how many or how much.” \*

## Big Idea: Quantities and numbers can be grouped by units or split into units

(Skip counting, place value, fractions and decimals)

TITLE	KEY MATHS FOCUS	MATHS SKILLS	STRATEGIES	ADDITIONAL FOCUS
	Add and subtract to 10 Compose and decompose 10	Connect addition and subtraction Use +, -, = to symbolize addition and subtraction Identify parts of a whole Model and describe different ways to make numbers Model add-on and take-from 10	Subitize Ten frames Count on and back 1-1 matching	Positional language Increasing/decreasing patterns
	Add and subtract to 20 Compose and Decompose to 20	Model add-to and take-from situations to 20 Use +, -, = to symbolize parts-whole and addition and subtraction Compose and decompose 2-digit numbers	Model Count 3 times Count on and back 1-1 matching	Make graphs from simple responses Order numerals
	Add and subtract to 20 Compare quantities to 20	Model add-to and take-from to 20 Use +, -, = to symbolize parts-whole and addition and subtraction Determine how many more/less	Know 1 or 2 more and 1 or 2 less Compare quantities to 20 by matching or counting	Collect data Describe appropriate events for times of the day Use positional language to describe location
	Add and subtract to 20 Develop addition and subtraction strategies	Connect addition and subtraction Use +, -, = to symbolize addition and subtraction Identify parts of a whole	Count on and back 1-1 matching	Count by 5s Develop financial literacy Recognise 3D shapes Use tallies
	Solve addition/subtraction problems Solve equal grouping/sharing problems	Estimate sums and differences Model and symbolize repeated addition Create and describe equal groups of objects Model and solve equal grouping and sharing problems	Arrays Equal grouping Skip count Repeated addition Estimate Share groups equally Use number sentences	Equality Model and write time Features of 3D objects

\* This book can also be used to address the big idea “Numbers are related in many ways.”



Early in the day, a lady arrives.  
 She just moved to our town.  
 She asks to adopt a couple of kittens.  
 I say, "What about these 2 cute ones?"  
 Now there are...

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### Comparing quantity

- Let's read the Cat Fact. How many whiskers do cats have? (24) What do you notice about the number on each side? (e.g., are equal; 12 on each side)

### Solving addition and subtraction problems

- We know there are 20 cats and kittens, and we know that 2 kittens are adopted. How many cats and kittens are left at the shelter? (18)
- How did you figure out 18? (e.g., counted back by 2; know 20 less 2 is 18; counted all but 2)

#### WATCH FOR...

- Does the child count each cat or kitten once and only once, arriving at an accurate count (one-to-one correspondence, knowing the final count represents all objects in the group, cardinality)?
- Does the child recognize that the whole remains constant (20 cats and kittens in all) even when different parts are counted; for example, on and off climbers, tails up or not (conservation of number, part-whole)?
- What strategy does the child use to figure out 2 less? Does the child count back, understand number relationships (e.g., know 2 is less than 20), or need a visual tool such as a number line?

## Comparing quantity

- Now there are 3 cats and 15 kittens. How many is that? (18)  
How can we be sure? (e.g., count on 3 from 15 to 18; use a number line; use ten-frames)
- How many less than 20 is that? (2 less; 20 less 2 is 18)

## Solving addition and subtraction problems

- Now there are 18 cats and kittens, and a friend comes to adopt 1 kitten. How many cats and kittens will be left at the shelter? (17)
- How did you figure out 17? (e.g., counted back by 1; know 18 less 1 is 17; counted all but 1)
- What adding (subtracting) story can you tell?



**Cat Fact**  
Most kittens open their eyes 7 to 10 days after they are born.

3 cats and 15 kittens.  
That is still lots and lots of cats and kittens.  
I do love taking care of cats and kittens!

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# Large Group Options

If you read *Cats and Kittens!* 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 exploring and communicating their understanding of numbers to 20 as they solve addition and subtraction problems, and compare quantities; choose the activities that best address your children’s learning needs.

## 20 CATS AND KITTENS

### ENGAGE

Draw attention to pages 2–3 of *Cats and Kittens!* and ask:

- **How many cats and kittens are there?** (3 and 17 kittens; 20)

Invite a volunteer to display 3 and 17 on the Maths Mat (inside back cover of the book or LM 3), using 2 colours of counters. Record  $3 + 17 = 20$  to represent cats and kittens. Discuss how “=” means “the same as,” and which number refers to kittens and which to cats. Show how  $17 + 3 = 20$  also tells how many kittens and cats. Record  $3 + 17 = 17 + 3$ . Discuss how both recordings represent the same display of 3 and 17 and both equal 20.

- **There are 20 cats and kittens. 9 are kittens. How many are cats?** Children can talk with their elbow partners before the group discussion. **What do you think? If 9 are kittens, how many are cats? (11) Do we all agree? How could we convince someone that there are 11 cats?**

Demonstrate and record  $9 + 11 = 20$ . Then reverse the number sentence to  $11 + 9$  to show that  $9 + 11 = 11 + 9$ .

### WORK ON IT

Provide maths mats, 2 colours of counters, and the Double Ten-Frame Recording Sheet (LM 4). Present a similar problem for children to solve in pairs or independently. Select or have children choose the number of cats, and prompt them to find the number of kittens needed to make a total of 20 cats and kittens.

- **There are 20 cats and kittens. (8) are cats. How many are kittens?**

### SHARE AND REFLECT

Meet and prompt reflection by asking questions such as:

- **How many kittens do you think there are? (12) Who would like to convince us that there are 12 kittens? Are there any questions about what (Sagar) said? What is another way we can prove there are 12 kittens when there are 8 cats?**
- **Let’s try another problem together. Suppose there are 6 cats. How many kittens are there?**

Track shared thinking using numbers or by modelling with maths mats.

**MATHS FOCUS:** model addition and subtraction; use + and = symbols; compose to 20 with 2 parts

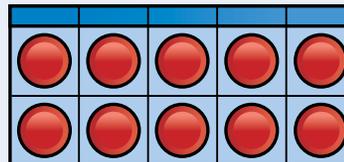
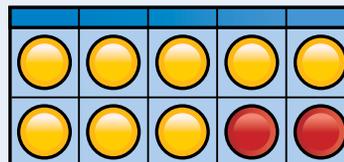
**MATERIALS:** *Cats and Kittens!* pp. 2–3; Maths Mat (inside back cover of the book or LM 3); counters in 2 distinguishable colours or two-sided counters; Double Ten-Frame Recording Sheet (LM 4); Rekenreks (optional)

20 cats and kittens

$$3 + 17 = 17 + 3$$

$$9 + 11 = 11 + 9$$

$$8 + 12 = 12 + 8$$



### WATCH FOR...

- What strategy do children use to find the unknown part? Are they counting on/back, using the maths mats as tools to show their thinking?
- Do children use number sentences in a way that reflects their thinking?

# Line Masters

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**Cats and Kittens! Line Master 1 (Assessment Master)**

Name: \_\_\_\_\_

Line Master 1 to 20	Not done!	Reviewed	Completed
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			
16			
17			
18			
19			
20			

Next Steps: \_\_\_\_\_

**Line Master 1**  
Assessment Master

**Connecting Home and School Line Master 2-1**

**NOTE TO THE TEACHER**

You may wish to send families a **Cats and Kittens!** letter outlining a home activity or how they can do at-home with their children.

Circle a letter using the template and send one or two activities from the suggestions in the next page. **Copy** these instructions and cut and paste the activities you have selected, allowing them to fit your needs.

**Line Master 2**  
Connecting Home and School  
Letter Template

**Cats and Kittens! Maths Mat Line Master 3**

Name: \_\_\_\_\_

**Line Master 3**  
Cats and Kittens! Maths Mat

**Double Ten-Frame Recording Sheet Line Master 4**

Name: \_\_\_\_\_

**Line Master 4**  
Double Ten-Frame Recording  
Sheet

**Rolling Number Sentences Line Master 5**

Name: \_\_\_\_\_

Round	My Numbers	My Number Sentences	My Score
1			
2			
3			
4			
5			

**Line Master 5**  
Rolling Number Sentences

**Numeral Cards (1–20) Line Master 6-1**

**Line Master 6**  
Numerals Cards (1–20)

**Hundred Chart Line Master 7**

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 7**  
Hundred Chart

**To 20 and Back Line Master 8**

**You Need**  
20 counters

**How to Play**

- Decide who will go first. If you go first, add 1, 2, or 3 counters to the mat.
- On your turn, add 1, 2, or 3 more counters to the mat.
- The player who adds the last counter scores 1 point.
- On your turn, remove 1, 2, or 3 counters.
- The player who removes the last counter scores 1 point.
- Start again, but with the other person going first.

**Line Master 8**  
To 20 and Back

**Target Numbers Line Master 9**

Name: \_\_\_\_\_

My target number is \_\_\_\_\_.

My number sentences are: \_\_\_\_\_

**Line Master 9**  
Target Numbers

**Sentence Frames Line Master 10-1**

\_\_\_\_\_ is less than \_\_\_\_\_.

\_\_\_\_\_ is more than \_\_\_\_\_.

1 more than \_\_\_\_\_ is \_\_\_\_\_.

1 less than \_\_\_\_\_ is \_\_\_\_\_.

**Line Master 10**  
Sentence Frames

**My Solution IS! Line Master 11-1**

Name: \_\_\_\_\_

Cats and kittens are playing.  
There are 4 cats and 8 kittens.  
How many cats and kittens are there?  
Show your thinking in pictures, numbers, and words.

Cats and kittens are playing.  
There are more cats than kittens.  
How many cats and kittens are there?  
Show your thinking in pictures, numbers, and words.

**Line Master 11**  
My Solution IS!