

The Great Dogsled Race

Teacher's Guide



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Line Masters

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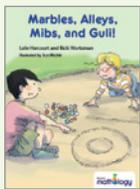
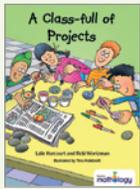
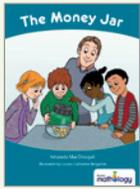
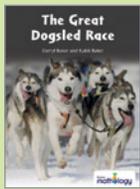
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Mathology Little Books

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.

The Great Dogsled Race 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 (Addition and Subtraction concepts and strategies)

TITLE	KEY MATHS FOCUS	MATHS SKILLS	STRATEGIES	ADDITIONAL FOCUS
	Add/subtract 2-digit numbers Solve equal grouping/sharing problems	Create and solve addition and subtraction problems Use appropriate symbols to express addition and subtraction Add and subtract fluently with quantities to 20 Create and solve equal grouping and sharing problems	Estimate Skip count Mental addition and subtraction strategies Repeated addition Arrays Grouping into sets Sharing groups equally	Compare distance Identify 2-D shapes Features of triangles
	Add/subtract to 100 Compare/order numbers	Model and symbolise addition and subtraction Develop complements of 100 Write, read and compose numbers to 100 with 2-digit numbers as 10s and 1s Determines 10 (other multiples of 10) more/less than a given number	Estimate Skip count Grouping Place value Use mental and personal addition and subtraction strategies	Identify units of time
	Add/subtract to 100 Compose/decompose based on units of 10	Model and symbolise addition and subtraction problems to 100 Develop efficient mental strategies to solve equations with multi-digit numbers Write, read, compose, and decompose 2-digit numbers as units of 10 and leftover 1s	Splitting Determine 10 more/less without counting. Use properties of addition and subtraction Use known sums and differences Repeated addition	Increasing and decreasing patterns Data displays Days of the week
	Add/subtract to 100 Compare/order numbers	Extend known sums and differences to solve other equations Model and symbolize addition and subtraction Compare quantities to 100 Order three or more quantities Find how many more/less one quantity is compared to another	Use friendly numbers Make 10 Develop mental maths and personal strategies Estimate sums and differences	Describe and continue patterns Measuring in kms Organising information Interpreting charts Creating graphs

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

Adding and subtracting to 100

- If Darryl has a total of 10 dogs and another racer has the same number of dogs, how many dogs do they have altogether? (20)
- Suppose there are 2 more racers and double the 20 dogs. How many dogs are there now? (40)
How do you know?



Darryl has many things to think about before the race. He will have 8 dogs pulling his sled, but Darryl will take 10 dogs in case some dogs need to drop out of the race.

If the temperature is very cold, the dogs may need booties on their paws. Some dogs may need a coat. Darryl must make sure he has enough booties and coats for all his dogs.

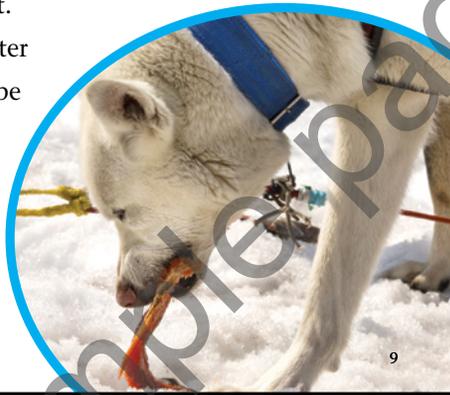
WATCH FOR...

- Does the child double the numbers using mental maths strategies, or does he/she need to use manipulatives (e.g., hundred chart, number line, counters) to find the totals?
- Does the child double the numbers in one step, or does he/she require multiple steps to solve the problems?

Day	Food (in kilograms)	Water (in litres)
End of Day 1	26	8
End of Day 2	35	12
End of Day 3	31	14
End of Day 4	28	10
End of Day 5		
End of Day 6		
End of Day 7		

In cold weather, dogs need to eat more food. Darryl must keep a careful record of how much food has been eaten so he doesn't run out.

Dogs also need more water during a race. Water must be melted from ice and snow using the cooker. Darryl has to make sure his dogs get plenty of water.



Comparing and ordering numbers

- On what day did the dogs eat the least amount of food? (*Day 1*)
On what day did they drink the least amount of water? (*Day 1*)
- On the day that the dogs ate the greatest amount of food, did they also drink the greatest amount of water? (*no, they ate the most food on Day 2 and drank the most water on Day 3*)

WATCH FOR...

- Does the child identify the greatest and least numbers?

Large Group Options

If you read *The Great Dogsled Race* to a large group or whole class, you might project the book to facilitate reading aloud and better engage children in adding and subtracting, and comparing. These activities engage children in exploring and communicating their understanding of numbers to 100; choose the activities that best address your children's learning needs.

MODELLING ADDITION

ENGAGE

Display the blog at the top of page 14 of *The Great Dogsled Race*. Ask:

- **Look at the blog and see what you notice. About how many caribou do you think the animal lovers saw in 2 days? Do you estimate that they saw more than or fewer than 40 caribou?** (*more than; answers may vary*)
- **How many did they actually see? (43) Share your ideas with your elbow partner.**

Based on prior discussions, offer tools for children to use for their explanations. For example:

- Base Ten Blocks can be used to model 27 and 16 on a place value mat.
- Mark 27 on a Hundred Chart (LM 4). Count up 10 and over 6.
- Display a number line marked in multiples of 10 (from 0 to 100). Mark 27, count up 10, and then up 6.

Model using any, or all, of the above tools depending on classroom discussion to ensure that children have a concrete understanding of how to use tools to model addition.

WORK ON IT

Children can continue to solve and model addition problems. Offer the tools used earlier (or other tools children may request, such as abacuses, maths racks, and Rekenreks). Invite children to record their thinking on Modelling Addition (LM 5).

Present an addition problem based on data from the blog entry at the top of page 14 of *The Great Dogsled Race*. Alternatively, invite children to use this data to co-create a problem. For example:

- **How many ptarmigan were seen altogether on Day 1 and Day 2? (93)**
- **How many caribou and ptarmigan (caribou and seals) were seen on Day 2? (caribou and ptarmigan: 70; caribou and seals: 28)**
- **How many animals were seen altogether on Day 1 (2)? (Day 1: 66; Day 2: 84)**

SHARE AND REFLECT

Meet to share solutions and prompt reflection by asking questions such as:

- **What tools did you use? Share your reasoning.**
- **What is another way you can add the same numbers?**
- **How can you check to make sure your solutions are correct?**

MATHS FOCUS: estimate sums; model addition; record addition number sentences

MATERIALS: *The Great Dogsled Race*, p. 14; tools for modelling, such as Base Ten Blocks, place value mats, Hundred Chart (LM 4), number lines, abacuses, maths racks, Rekenreks; Modelling Addition (LM 5)

I estimate they saw 50 caribou because $30 + 20 = 50$.

WATCH FOR...

- Can the child add 2-digit numbers independently?
- Is the child able to choose appropriate tools and explain why he/she chose them?
- Does the child offer reasonable estimates based on an understanding of number relationships?

DIFFERENTIATE: Some children may be able to add 2-digit numbers independently. Others might prefer to start by adding smaller numbers (e.g., 12 polar bears + 2 seals).

