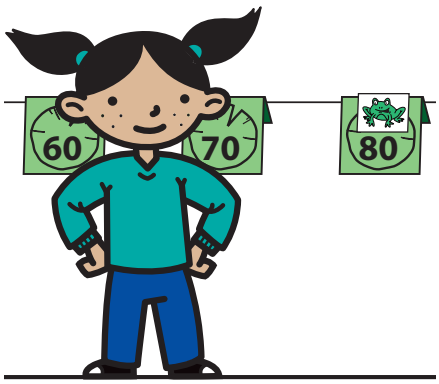
Bridges in Mathematics Grade 1

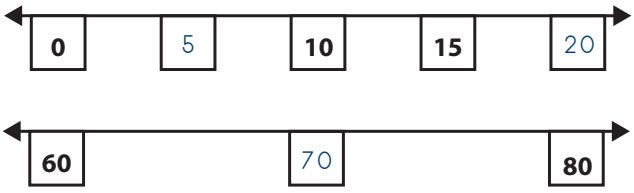
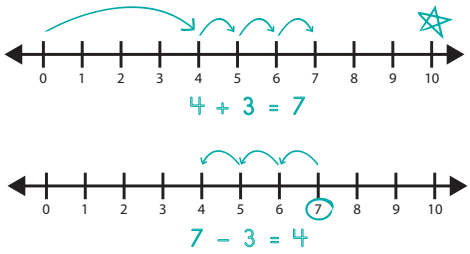
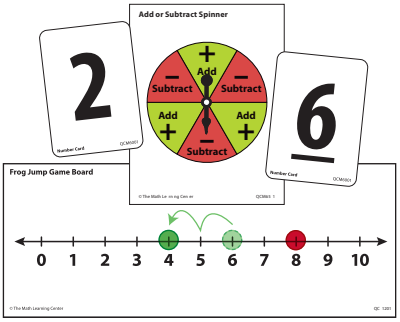
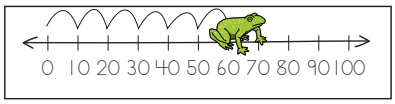
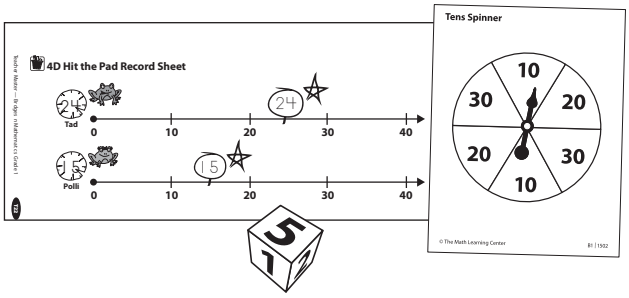
Unit 4: Leapfrogs on the Number Line

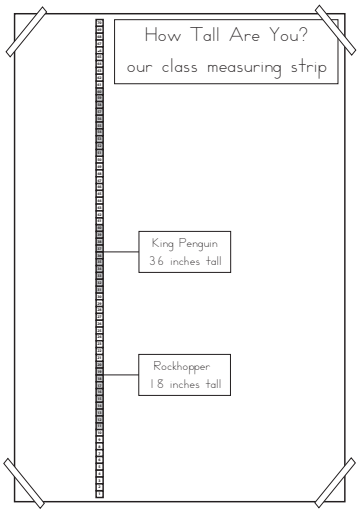
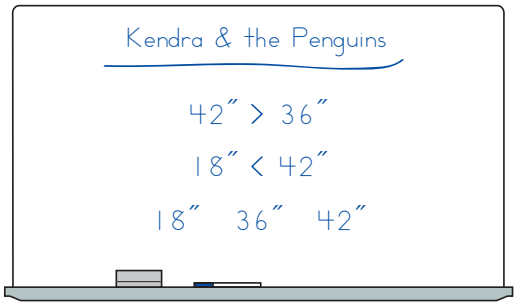
In this unit your child will:

- Locate, identify and order numbers to 120 on a number line
- Count forward and backward by 1s, 5s and 10s
- Add, subtract, and solve word problems using a number line
- Measure, order, and compare height in inches



Your child will solve problems like those shown below. Keep this sheet for reference when you're helping with homework.

PROBLEM	COMMENTS
What number goes in the empty box?  	Students locate, identify, and place numbers on a number line. They determine the number that goes in the empty box by thinking about the order and the space (interval) between numbers on the line. In the first example, students will likely notice the numbers are counting by 5s and use this to correctly place 5 and 20 in the empty boxes. In the second example, students may think about what number is halfway between 60 and 80, or they may count by 10s, arriving at 70 as the unknown number.
Solve each problem. Show your work on the number line.  Draw two cards from the deck, spin the spinner, and use them to make a problem. Tell a story to match your problem. *"I got a 6 and a 2, and the spinner landed on the subtract sign so my problem is 6 – 2.* *"My frog was sitting on the 6 rock playing with his friends. He saw a fly go by, so he jumped back 2 rocks to get it, and now he's on the 4 rock."*  	In this unit, students help frogs hop forward and backward on a number line. They tell stories about the frogs' actions and record addition and subtraction equations to match. They play many games that provide practice and a context for telling math stories. At first students count one by one on the number line, but they soon begin to count 1s, 10s, and multiples of 10 more efficiently.  40 + 20 = 60 Toward the end of the unit, students combine jumps of 1, 5, and 10 to move forward and occasionally backward along the number line as they try to land on the specific number. 

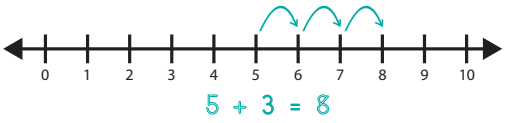
PROBLEM	COMMENTS
A king penguin is 36 inches tall. A rockhopper penguin is 18 inches tall. How much taller is the king penguin? *"I started at 18 and took 2 hops from 18 to 20. Then I took a jump of 10 from 20 to 30. Then it's just 6 more to 36."* *"The king penguin is 18 inches taller."* 	In the context of a pretend trip to Antarctica, students get their heights measured for snowsuits and graph the results. They make a measuring strip marked in inches and use this strip to order, compare, and find differences between their height and the heights of two penguins. Students use the strip to solve problems like the one to the left by calculating the spaces between two numbers. (Note that on the strip, the groups of 10 inches alternate gray and white to help students count by 10s and use multiples of 10 (10, 20, 30) as landmarks. 

FREQUENTLY ASKED QUESTIONS ABOUT UNIT 4

Q: Why is the number line used to teach adding and subtracting?

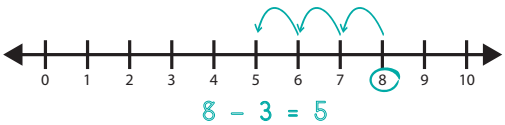
A: Number lines help students see similarities, differences, and important relationships between numbers. Each number on the line indicates its distance, or how many intervals it is, from 0.

Students can count the intervals (spaces) between numbers to calculate. To add 5 + 3, a student might start at 5 and move 3 intervals to the right to determine the sum, 8.



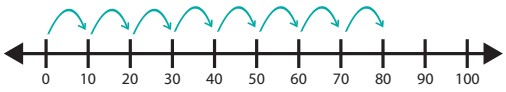
5 + 3 = 8

To subtract 8 – 3, a student might start at 8 and move 3 intervals to the left to arrive at 5. In this way, students can think of adding and subtracting as a process of moving from one number to another.

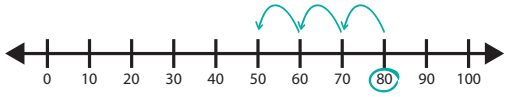


8 – 3 = 5

The number line provides a good visual image of skip-counting patterns and encourages students to count by 10s. They can think of adding 10 (and multiples of 10) as jumps of 10 forward and subtracting 10 (and multiples of 10) as jumps of 10 backward.



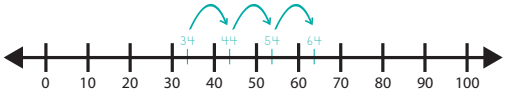
50 + 30 = 80



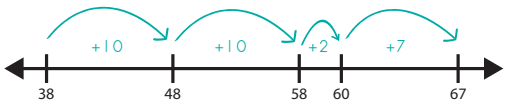
80 – 30 = 50

Once students become good at adding or subtracting 10 to any number, they usually generalize this skill to problems such as 34 + 30 by seeing it as 34 + 10 +10 + 10 or 34 … 44, 54, 64.

Later, students will use combination jumps of 1s, 5s, and 10s to solve more complex problems:



34 + 30 = 64



38 + 29 = 67