ORIGO

STEPPING STONES

Core Focus

- Connecting addition and subtraction facts, and using a variety of strategies to solve subtraction problems
- Reading and writing time on the half-hour with digital and analog clocks

Addition and Subtraction

- Students use stories to formalize the relationship between addition and subtraction by focusing on **part-part-total** and using known information in the story to decide whether to use addition or subtraction to find the unknown number.

8.1   **Identifying the Parts and Total**

Look at this picture.

What addition story could you say about the picture?
Which number is the **total** in your story?
Which numbers are **parts** of the total?

What subtraction story could you say about the picture?
Which number is the **total** in your story?
Which numbers are **parts** of the total?

In this lesson, students identify the parts and the total in addition and subtraction situations.

- The most powerful subtraction strategy is **think addition**. When the total and one part are known in a typical subtraction situation, changing the problem to addition may make it easier to solve.
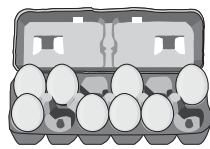
$$8 + \underline{} = 12$$

- Students work with **unknown addend** stories, which are different to **take away** subtraction. For take away, we start with the total and one part is removed: "I have $11. I spent $8. How much money do I have left?"

- Unknown addend stories suggest beginning with the part we know and figuring out what must be added to reach the total. E.g. "I have $8. I want to buy a game costing $11. How much more money do I need?"

- Students practice using think addition strategies to subtract (e.g. *see* 12 − 9, *think* 9 + 3 = 12, so 12 − 9 = 3). These **think addition models** illustrate the related facts in a fact family.
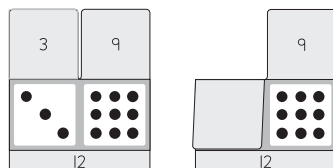

Ideas for Home

- Talk about everyday subtraction situations using the language of addition.

- In the store: "The book costs $6, you have $4, how much more do you need to save to buy the book?"

- While travelling: "We are traveling 10 miles to grandpa's house, we have travelled 2, how many more miles to go?"

- In the kitchen: "I am making a pie that needs 5 apples. I only have 2, how many more do I need to buy?"

- Practice **make-ten** to figure out the unknown part. "If there are 15 parking spots and 8 are filled, how many more cars can park in the lot?" (8 add 2 more make 10, and then 5 more make 15, so there is room for 7 cars.)

Glossary

▸ **Think addition** models support understanding of how fact families relate to finding the unknown addend.

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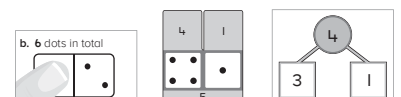
- Students use **count-on** and **count-back** strategies to solve problems with an unknown part and represent their thinking using addition or subtraction sentences. The number track makes the strategy visible.

- In this story, a chipmunk has 9 acorns and eats 2.

> I would start at 9 and jump back 2.
> 9 take away 2 is 7 so there would be 7 acorns left.

-2

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |

Two is farther from nine. Count-back 2, starting at 9, is likely to be more accurate than count-on 7, starting at 2.

Imagine the chipmunk had **9** acorns and ate **6** of them.

How could you use a number track to figure out the number of acorns it had left?

> I would start at 6 and jump on to 9.
> 6 add 3 is 9 so there would be 3 acorns left.

+3

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |

Six is closer to nine. Count-on 3, starting at 6, is likely to be more accurate than count-back 6, starting at 9.

Time

- Learning to tell time can be challenging for young students. For instance, on an analog clock, the hour hand does not point directly to any number when the time is "half past" so children must learn that it is always "half past" the smaller hour.

Where would the minute hand point if it went halfway around?

When the minute hand is pointing at 6, it is **half past** an hour.

When the minute hand shows us a half-past time, what does the hour hand show us?

What time is this clock showing? How do you know?

At "Half past 2" the hour hand is between the 2 and the 3.

- Although we rarely use this expression in our everyday language, students learn to say "half past" when the minute hand points to the 6 on an analog clock. "Half past" helps students visualize an hour as one whole (revolution) and 30 minutes as half.

8.12   Relating Analog and Digital Time

What different ways can you say the time shown on this clock?

Half past three.

Three thirty.

In this lesson, students match on-the-hour and half-past times shown on analog and digital clocks.

Ideas for Home

- Count out dry beans for a total number under 20. Hide one part of the total in one hand and show your child what is in the other hand. Say, "I have 18 all together, there are 11 in this hand. How many are hidden?" If your child is still having trouble with the facts that make 10, use 10 as the total.

- Experience and opportunity are essential to your child learning to read, write, and make sense of time. Call attention to times, with an emphasis on relating to the hour and half-hour (e.g. "We'll leave for the movie at 5:30. When the big hand moves from where it is now down to the 6 it will be 5:30, or half past 5." or "The bus will come at 2:30. See how my watch says 2:28? So in just 2 more minutes (2:29, 2:30) the bus will be here."