



Module 10

Core Focus


- Subtraction: Counting on and counting back and decomposing a number to bridge to ten, and writing related addition and subtraction facts
- Geometry: 3D objects

Subtraction


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

10.7 Subtraction: Counting on and back


Step In This chipmunk has 9 acorns.
Imagine it eats 2 acorns.
How many acorns will it have left?



How can you use this number track to figure out the answer?




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



Counting back two from nine on the number track lands on seven, which is the number of acorns the squirrel has left.


- Students then extend count-on and count-back strategies to two-digit numbers.

10.8 Subtraction: Decomposing a number to bridge ten


Step In Imagine you have 7 pennies.  12 cents

How much more money do you need to buy this toy?
How could you use a number track to figure it out?

I would start at 7 and jump on to 10.
Then I would jump on from 10 to 12.
3 add 2 is 5, so I would need 5 cents.



I would start at 12 and jump back to 10.
Then I would jump back from 10 to 7.
2 add 3 is 5, so I would need 5 cents.

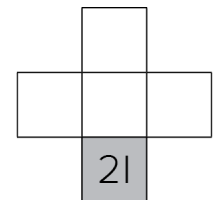


In these lessons, students use a number track to help them jump on or back 1, 2, or 3 from any two-digit number.

Ideas for Home

- Count out 20 or fewer beans or pennies. Hide one part of the total in one hand and show your child what is in your 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.
- Practice *tic-tac-ten* (see below). Draw a tic-tac-toe hash and write a two-digit number in one of the squares. Take turns filling in each box, using the place-value patterns of the hundred chart. Explain why the number goes there (e.g. "12 - 1 is 11, 11 + 1 is 12").

Glossary



- This *tic-tac-ten* frame is a piece of a hundred chart, with 1 and 11 vertically, and 10, 11, 12 horizontally.

- Discovering these base-10 place-value rules using a hundred chart and concrete objects in Grades 1 and 2 sets the foundation for transitioning to using and mastering the vertical addition and subtraction algorithms in Grades 3 and 4.

10.3 Subtraction: Writing related equations (multiples of ten)

Step In How could you figure out $50 - 20$?

I can use my basic subtraction facts.
5 tens take 2 tens is 3 tens.
3 tens is the same value as 30.

I count back in jumps of 10.
50 take 10 is 40... 40 take 10 is 30.

What are two subtraction equations that involve 30 and 70?
What story would match?

I could write $70 - 30 = 40$ and $70 - 40 = 30$.
Bella had 70 cents and gave 30 cents to Paul.
Now she has 40 cents left.

In this lesson, students use base-10 blocks or a hundred chart to subtract multiples of ten.

Geometry

- In Grade 1, students continue to identify, sort, analyze, and make 3D objects. These 3D objects may have flat surfaces (sides of a box) or curved surfaces (a ball), or perhaps some of each (the ends and the sides of a can).

10.12 3D objects: Creating objects

Step In Look at this building.

Which 3D objects can you see?

Think about the buildings in your neighborhood. Which 3D objects can you see in those buildings?

Think about blocks you have used at home or at school. Which blocks do you use the most? Why?

In this lesson, students identify 3D objects in real-life situations.

- Children’s spatial reasoning develops when they have lots of experiences with analyzing, copying, and building specific shapes with blocks.

Step Up I. Count how many of each object has been used to make each stack. The objects may be different sizes. Write the number of each object below.

a.

	_____	_____	_____	_____	_____

b.

_____	_____	_____	_____	_____	

In this lesson, students explore composite 3D objects; 2 or more 3D shapes put together.

Ideas for Home

- Help develop spatial visualization skills by talking about shapes in the kitchen: “How are the shapes of a cereal box and a box of macaroni and cheese the same, and how are they different?” Compare a soup can to a drinking glass, or a juice box to a milk carton.
- Play *I spy*. When we look at the flat faces of 3D objects, what 2D shapes can we see? Some 3D objects have triangular faces, while others have squares or non-square rectangles for faces, or some of each: “I spy with my little eye a triangle face.”