

Where's the Acorn?

Standard

Numbers and Operations—Understand numbers, ways of representing numbers, relationships among numbers, and number systems.

Objective

Students will explore integers less than zero by using visuals to move up and down the number line.

Anticipatory Set

Using the **Find the Acorn 1 reproducible (page 41)** as a guide, draw a large tree on a sheet of butcher paper. The tree should extend an equal distance up to the limbs as it does down to the roots. Draw a vertical number line on the tree so zero is at ground level, 10 is near the top of the tree, and -10 is at the bottom of the roots.

Call students' attention to the tree. Tell them to picture it in their minds, with a squirrel running up and down the trunk. Now tell them to imagine that a huge storm blew the tree down on its side. (Reposition the tree so that it is lying on its side, with positive integers to the right and negative integers to the left.)

Purpose

Tell students that they will try to help the squirrel find acorns it has hidden in different places up and down the tree.

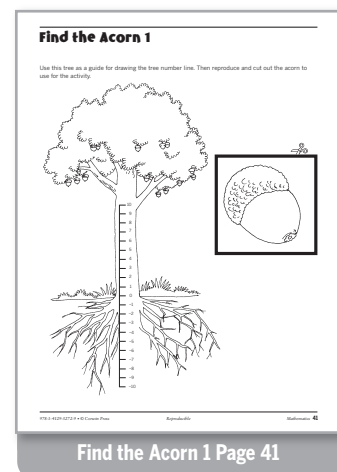
Input

Explain the difference between positive and negative numbers. Point out 0 in the center of the tree trunk, with numbers continuing on either side. Numbers to the right of 0 on the tree are called *positive numbers*. Numbers to the left of 0 are called *negative numbers*.

Explain that negative numbers have a subtraction sign in front to remind us that they are less than 0 . Point to several negative numbers as examples. Negative numbers continue in the same order as positive numbers but in the opposite direction.

Modeling

In this activity, students will visualize numbers on the number line. When you ask a question, they will visualize the answer. When you say *buddy check*, students whisper the answer to a partner. When partners both agree on the answer, they write it down. You will then call on



“Metaphors can help students establish meaning for new learning.”

volunteers to place an acorn on the number tree where they think it is located. Model a couple of examples for students.

Model the following: *Start on 7, and go left seven places. Picture the number tree and the answer in your head. (Allow thinking time.) Now, buddy check! (Allow time for students to confer with partners.) You should put the acorn here on 0. (Place the acorn on 0.) The answer is 0, because seven places to the left of 7 is 0.*

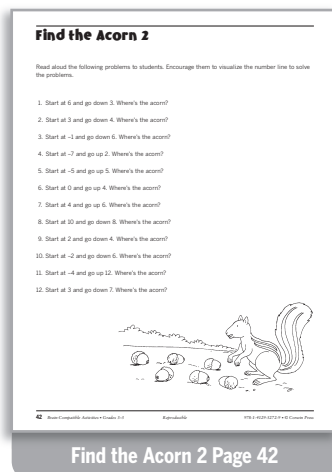
Model another example: *Start on 7 again, but this time move nine places to the left. Think of your answer. (Allow thinking time.) Now, buddy check! (Allow time for students to confer with partners.) This time, the acorn should be on -2, because nine places to the left of 7 is -2. (Place the acorn on -2.)*

Check for Understanding

Allow students to confirm that they understand each step of the instructions. Ask volunteers to repeat the steps back to you, or have them show “thumbs up” or “thumbs down” to demonstrate they understand how to proceed.

Guided Practice

Divide the class into groups of two or three students. Read aloud the problems from the **Find the Acorn 2 reproducible (page 42)**. Remember to allow plenty of time for students to confer with their partners. Call on random student pairs to share their answers and place an acorn in the correct spot on the tree.



Find the Acorn 2

Read aloud the following problems to students. Encourage them to visualize the number line to solve the problems.

1. Start at 6 and go down 3. Where's the acorn?
2. Start at 3 and go down 4. Where's the acorn?
3. Start at -1 and go down 6. Where's the acorn?
4. Start at -7 and go up 2. Where's the acorn?
5. Start at -5 and go up 5. Where's the acorn?
6. Start at 0 and go up 4. Where's the acorn?
7. Start at 4 and go up 6. Where's the acorn?
8. Start at 10 and go down 8. Where's the acorn?
9. Start at 2 and go down 4. Where's the acorn?
10. Start at -2 and go down 6. Where's the acorn?
11. Start at -4 and go up 12. Where's the acorn?
12. Start at 3 and go down 7. Where's the acorn?

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Closure

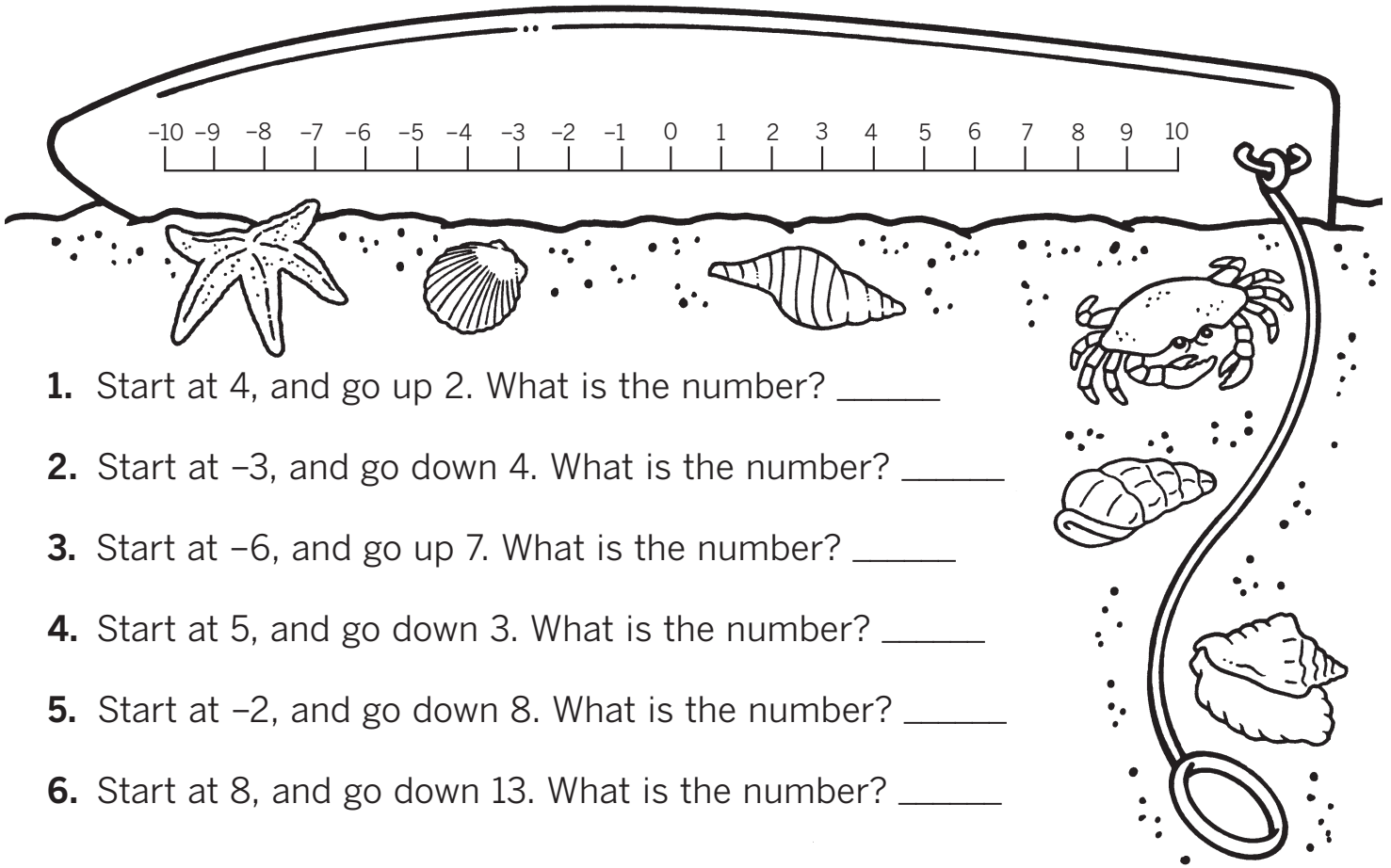
Guide a discussion about positive and negative numbers. Ask students how the tree image helped them remember which numbers go up and which numbers go down. Have students answer the following question in their math journals: *What is another way you can remember that positive numbers go up and negative numbers go down?*

Independent Practice

Have students complete the **Surfing the Number Line reproducible (page 43)** for homework. Remind them that they are using a number line instead of a number tree. Encourage them to think of the tree or another visual to help answer the questions.

Surfing the Number Line

Directions: Use the number line to help you find the answers.



1. Start at 4, and go up 2. What is the number? _____
2. Start at -3, and go down 4. What is the number? _____
3. Start at -6, and go up 7. What is the number? _____
4. Start at 5, and go down 3. What is the number? _____
5. Start at -2, and go down 8. What is the number? _____
6. Start at 8, and go down 13. What is the number? _____

Directions: Use the number line to help you find the answers. Start each new line with the previous answer.

7. Start with 0, and go up 2. What is the number? _____
8. Start with _____, and go down 4. What is the number? _____
9. Start with _____, and go down 3. What is the number? _____
10. Start with _____, and go up 8. What is the number? _____
11. Start with _____, and go up 5. What is the number? _____
12. Start with _____, and go down 8. The number should be 0!

