

Bird Expressions

Grade 1

Introduction to the Number Line

3 levels

Probing Questions

- What are you supposed to do in this puzzle?
- How do you know how many birds to select?
- What happens after you select your answer?

Stop the Animation

Double-click on the screen to have students practice using counting strategies. Pause the animation to show the birds selected (green) and the remaining birds (white) on the wire. Ask students to explain how many birds are selected, how many birds there are in total, and how many birds are not selected.

Classroom Connection

The visual model represents a number line. Have students create their own number line and use cubes to model their solutions to the puzzles.

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The number appears above the bird as you scroll across.

Level 1 shows ten birds on the line and Levels 2-3 show twenty birds.

Introduction to the Number Line - 1



Number Line Journey

Grade 1

Introduction to the Number Line

4 levels

Probing Questions

- How do you know which way to move on the number line?
- What happens when you click on the hand pointing to the right (left)?

Uncover the Thinking

How many times will you need to click on the hand pointing right (left)? How do you know?

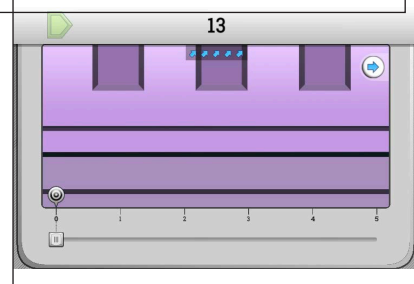
Classroom Connection

Ask students to create the entire number line and show the section where the number at the top would be included.

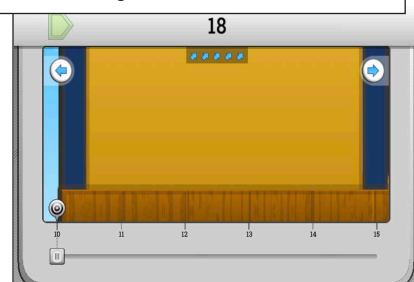
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In Levels 2 and 3, students must click the arrow to show larger numbers.



In Level 4, students must decide whether to move to the right or the left.



Introduction to the Number Line - 2



Number Line Trap

Grade 1

Introduction to the Number Line

3 levels

Probing Questions

- How did you determine where to place this number on the number line (if it's not labeled)?
- Why do you think some of the marks on the number line don't have numbers? What do they mean? (Levels 2 & 3)

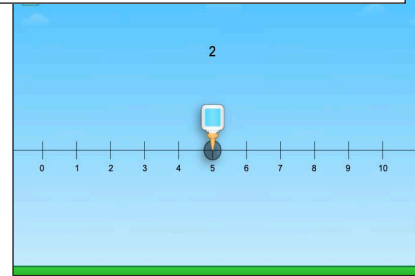
Supporting Struggling Students

Ask students to describe the points on the number line. What is shown? Not shown?

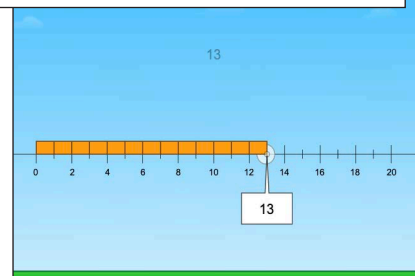
What Concepts Are Being Developed?

Every number on a number line does not have to be labeled. However, its position on the number line does not change. Discuss how far each number (point) is from the previous number (point).

Levels 1 and 2 go from 0-10. Level 1 has every whole number labeled. Level 3 goes from 0-20.



In Levels 2 and 3 only even numbers are labeled. All levels animate to the total number of blocks on the number line (no ten block).



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Introduction to the Number Line - 3



Number Line Zoom

Grade 1

Introduction to the Number Line

1 level

Probing Questions

- What do you notice?
- What happens when you click on the magnifying glass?
- How do you know which magnifying glass to click on?

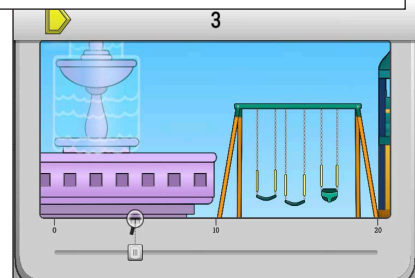
Stop the Animation

After students make their first selection and click the yellow button, ask what they notice about the number line now.

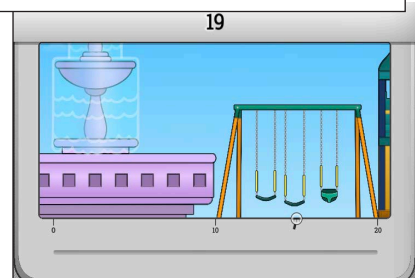
Emphasize the Connection

Ask students to compare the number in the sky to 10 and write the equation or inequality. Have the student connect the inequality to where the number in the sky goes on the number line.

Notice that these puzzles require two clicks.



Notice the number line zooms in and places all of the numbers on the selected section.



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Introduction to the Number Line - 4



Missing Tick Marks

Grade 1

Introduction to the Number Line

4 levels

Probing Questions

- How did you decide where to put the splotch on the number line?
- What happened after you selected the spot?
- How do you know this is the correct spot?

Supporting Struggling Students

Stop the action when the bars are on the number line and ask students what they notice. Where is the dot placed for that number? Point to another place on the number line and ask what number would be there.

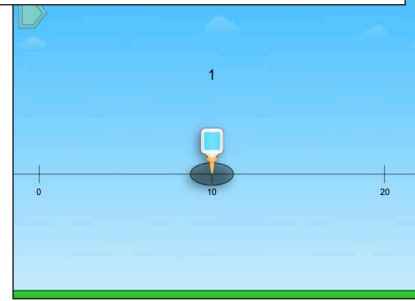
The Bigger Picture

Being able to estimate where the number will appear on the number line is an important part of developing a strong number sense.

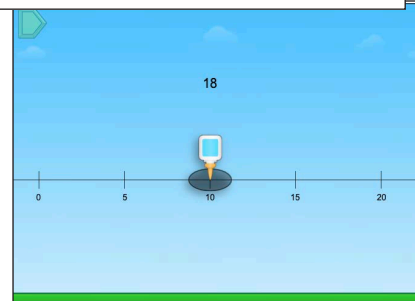
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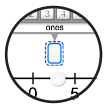
Level 1's number line is marked with 0, 5, 10.
Levels 3 and 4 are marked with 0, 10, 20.



In Level 2 the number line is marked with 0, 5, 10, 15, 20.



Introduction to the Number Line - 5



Missing Tick Marks Bubble Select

Grade 1

Introduction to the Number Line

4 levels

Probing Questions

- How did you determine what number to select?
- How does the new number on the line help you decide where to click?
- How does this level compare to the last level?

Supporting Struggling Students

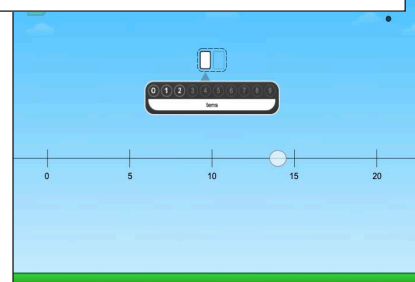
Ask students what numbers would be between 0 and 10, 10 and 15, etc. Have the student explain where each of these numbers would be on the number line.

What Concepts Are Being Developed?

The distance between two consecutive whole numbers on a number line is the same for all consecutive whole numbers.

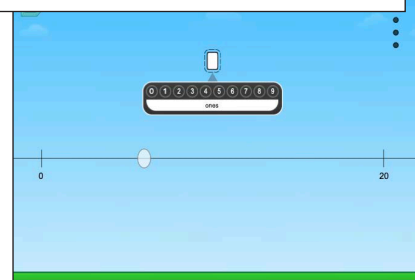
Level 1: 0, 5, 10 labeled, 3 attempts.

Level 2: 0, 5, 10, 15, 20 labeled, 3 attempts.



Level 3: 0, 10, 20 labeled, 5 attempts.

Level 4: 0, 20 labeled, 5 attempts.



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Introduction to the Number Line - 6