Right or Left: Adding and Subtracting Integers

Description: Students add and subtract integers using animations on a number line and understand that subtracting an integer is the same as adding its opposite.

Technology Strength: This dynamic model helps students visualize integer addition and subtraction. The animation of integer subtraction gives students a way of understanding how the signs of the operands come into play.

Objectives: Understand how to add and subtract integers on a number line; realize that subtracting an integer is the same as adding its opposite, or its additive inverse; recognize that the absolute value of a number is its distance from zero and that the absolute value is always a positive value

Prerequisites: Understanding that integers are the set of whole numbers and their opposites

Suggested Grade Level: 6 to 8

Sketchpad Level: Beginning

Suggested Duration: 60 minutes. To complete this activity in a shorter period, do the Summarize portion at the beginning of the next day.

Suggested Classroom Setting: Whole Class, Student Pairs. This activity, designed for use by student pairs, can be easily modified for whole-class use.

Preparation: Review the Activity Notes. Preview the student sketch. Work through the steps on the worksheet and make a copy of the worksheet for each student.

Materials: None

Student Worksheet(s): Right or Left?

Student Sketch: Right or Left.gsp

Presentation Sketch: None

Vocabulary: Integer, positive, negative, opposite, additive inverse, absolute value
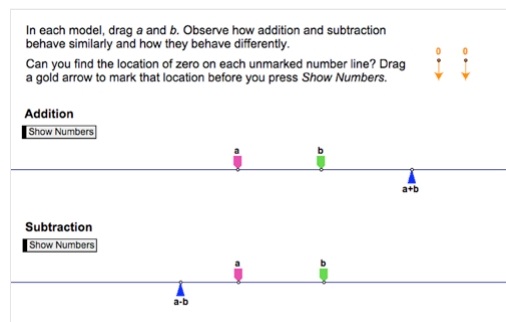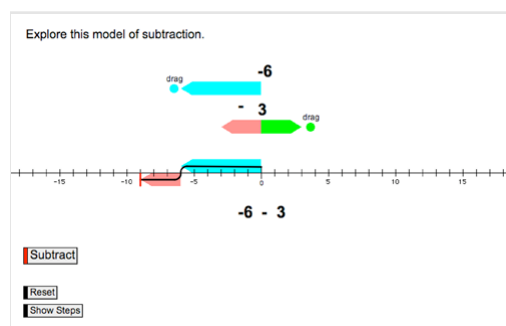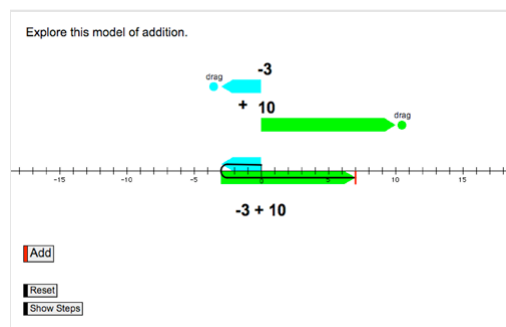
Sketchpad Version: GSP5

Using the Sketch:

On page "Addition," students use the model to explore integer addition. By dragging the sliders, students can set up problems to investigate the addition of two positive integers, two negative integers, and problems with a positive and a negative integer, as shown in the first illustration. The first arrow represents the first integer, the second arrow represents the second integer, and the end of the second arrow indicates the sum. Arrows that represent positive integers point to the right. Arrows that represent negative integers point to the left.

On page "Subtraction," students use the model to investigate integer subtraction. Students set up problems for subtracting two positive integers, two negative integers, and problems with a positive and a negative integer, as shown in the second illustration. The model shows the arrow representing the second integer being flipped and then added on to the first arrow. This reinforces the idea that to subtract an integer, you add its opposite.

In the Explore More, students can explore the behavior of addition and subtraction on a number line, as shown in the third illustration. They are challenged to determine the location of zero on a number line with the numbers hidden.

Sketch Tips:
Sketch Tips show skills needed in this activity, and the step at which the skill is first used.

Sketch Tip	Tip Sheet or Tip Video
Step 1: Change to a different page using page tabs	Moving Between Pages
Step 2: Select, deselect, and drag objects with the **Arrow** tool	Using the Arrow Tool