

# Ground Zero

**Strand:** Number and Number Sense  
**Topic:** Investigating integers  
**Primary SOL:** 6.3 The student will  
 a) identify and represent integers;

**Materials**

- Index cards or card stock
- Number line clearly denoting zero (for display)
- Rational Number Flowchart (attached)

**Vocabulary**

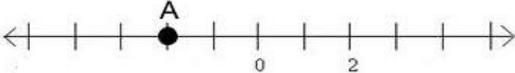
*integer, natural number, negative integer, positive integer, rational number, whole number, zero*

Many students struggle to classify numbers in later grades because the classifications are taught in isolation. Although the flow chart in this lesson does not address irrational numbers, it allows students to see the origin of integers. Exposing students to this concept will help them visualize the multiple classifications of real numbers.

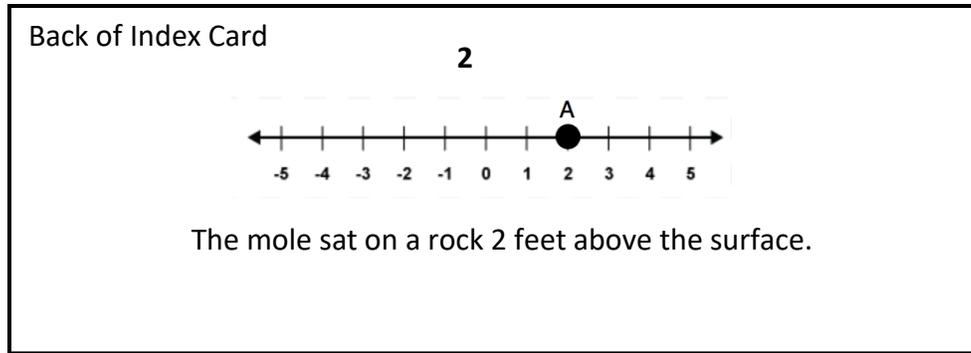
1. Begin the lesson by discussing the “different types of numbers.” Explain to students that numbers are classified by several different names, just as we are classified as animals, mammals, omnivores, or humans.
2. Display a large copy of the Rational Number Flowchart. Give students an example of each type of number based on the flowchart and work with them to create other examples that would fit in each category.
3. Have students develop a definition of *integers*: the set of whole numbers, their opposites (negatives), and zero.
4. Once students have worked to develop the definition of integers, create an index card example of an integer with students. Place the index card on a number line, and create a practical situation for it. Write the opposite of the number used on the back of the index card. For example:

Front of Index Card

-2



The mole dug a hole 2 feet below the surface.



5. After working with students to create an example, distribute an index card or squares cut out of card stock to have students create their own examples. Also, assign integers to students. You might decide to only give students negative numbers, whole numbers, or a mixture of both, but make sure students are responsible for figuring out the opposite. This means that students should not be given two numbers. Once students have received their integer, have them create an index card similar to the one created as a class where they need to put the integer on the front of the card, show it on a number line, and write a practical situation that could represent the integer. They will then do the opposite number on the other side of the index card.
6. After students have completed their integer cards, the teacher can have the students place them on a large number line in numerical order based on whichever side the students want to display (positive or negative integer side of the card). Choose a select few of the cards that represent differing practical situations and lead a discussion with students about why negative and positive integers are needed in the real world.

### Assessment

- **Questions**
  - What are some examples of integers in the real world?
  - What does it mean to be an opposite number?
- **Journal/Writing Prompts**
  - In your own words, describe the meaning of an integer and give practical situations of integers in the real world.
  - Explain why integers are necessary.
- **Other Assessments**
  - Create an exit ticket in which students must create a number line and practical situation for a different integer than what was used in the classroom activity.
  - Give students a number and have them give the teacher the opposite and explain different situations both numbers would be used.

### Extensions and Connections (for all students)

- Give students a set of numbers that include different rational numbers. Have them create a slideshow that includes: the number's rational number category, a number line with the number located on it, and a real-life situation the number could represent.

- Give students a drawing of a mountain connected to an ocean. On the mountain scene, have them draw different objects (e.g., a fish, a bird, a person skiing). For each object, they add to the situation, have them put a good integer estimate based on sea level.

**Strategies for Differentiation**

- Include a presentation with visuals.
- Create an example for the index card.
- Preteach important vocabulary to students, as needed.
- Make vocabulary cards.
- Assign students peer partners for collaboration during activities.

**Note: The following pages are intended for classroom use for students as a visual aid to learning.**

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## Rational Number Flowchart

