

# Combining Integers

## Summary

This lesson utilizes various activities to explore the concept of Combining Integers (often referred to as Adding & Subtracting integers). It incorporates multiple activities including:

- Hands-on Manipulatives
- Virtual Manipulatives
- Number Line Integer Operations
- Real World Applications with Integers
- Writing/Literacy
- Math Games
- Classroom/Homework Worksheets
- Formal Assessments

Each of these activities is designed to enhance the student understanding of basic integer operations.

## Main Core Tie

Mathematics Grade 6

[Strand: THE NUMBER SYSTEM \(6.NS\) Standard 6.NS.5](#)

## Time Frame

4 class periods of 45 minutes each

## Life Skills

Thinking & Reasoning, Communication

## Materials

Activity 1:

- Colored overhead "chips" (2 different colors to be used to represent different color beans)
- Red Beans (approx. 25 per student)
- White Beans (approx. 25 per student)
- Ziploc Bags (to store beans)

Activity 2:

- Ziploc Bags (to store game materials)
- Blank Dice - labeled with 3 sides negative & 3 sides positive (one per game)

## Background for Teachers

This is an introductory unit designed to teach the addition & subtraction of integers through the concept of "combining terms."

These activities have been designed in a way to build conceptual understanding through hands on experience and real world applications.

## Student Prior Knowledge

- Absolute Value
- Opposites
- Real Number Line

## Intended Learning Outcomes

Develop positive attitudes toward mathematics, including the confidence, creativity, enjoyment, and perseverance that come from achievement.

Become proficient problem-solvers by posing appropriate questions, selecting appropriate methods, employing a variety of strategies, and exploring alternative approaches.

Think logically, using inductive reasoning to formulate reasonable conjectures and using deductive reasoning for justification, formally or informally.

Cooperatively and independently explore mathematics, using inquiry and technological skills.

Make connections between mathematical ideas, between mathematics and other disciplines, and to life.

Communicate mathematics through writing, modeling, and visualizing, using precise mathematical language and symbolic notation.

## Instructional Procedures

### Activity 1: Combining Integers Using Beans

This lesson incorporates the use of different colored beans as a manipulative to teach combining (adding & subtracting) integers.

- Combining positive integers

- Combining negative integers

- Combining positives & negatives

Each section includes samples incorporating manipulatives (beans) as well as representational drawings.

The lesson concludes with a discussion to aid the recognition of patterns discovered in this lesson.

There are 4 assignment worksheets that can be used in class or as homework depending on the needs of each specific class. Typically we would spend a few days doing practice worksheets and examples in class in order to enhance student understanding of the concepts.

### Activity 2: Integer Problems in a Real World Context

This lesson requires students to write real world problems, such as those involving temperature, money, and change in elevation.

Example:

$$(-3)+(-4)$$

Real World Situation: I owe my mom three dollars and my dad four dollars. I owe a total of seven dollars.

Answer: -7

Lesson consists of student handout with examples.

### Activity 3: Online Game using Virtual Manipulatives: Circle Zero

This challenging game requires students to access Virtual Manipulatives online. Once there, students play a game called Circle Zero. The goal of this game is to put three integers inside of a circle so that they add to 0. We would utilize this game as an extra challenge activity for students to try at home or during class when they finish an assignment early. [Click here](#) to play Circle Zero!

Lesson consists of game template for students to record games they win.

### Activity 4: Number Line Game: Beyond 10

During this game, students move game pieces along a number line, competing to be the first one to cross over positive 10. This game is intended to reinforce the following concepts:

- Adding and subtracting integers

- Opposites

- Absolute Value

## Math Vocabulary

Lesson includes templates to play the game, student game recording worksheet, and a follow-up worksheet for drawing conclusions.

### Assessment Plan

Classroom and/or homework worksheets

Quiz

### Authors

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