Integers (means "whole" in Latin)

Looks like

-4 | 168 | 76 | -13 | -25 | 0 — Whole Numbers

→ all whole numbers {1, 2, 3, ...} and the negative (opposite) of all whol numbers {-1, -2, -3, ...}

Real World Use of Integers

Elevation

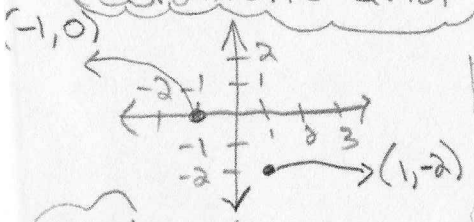
- above sea level 200ft
- sea level 0 feet
- below sea level (-100ft)

Money

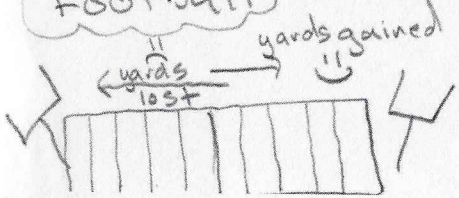
I have $2,000. ☺ (in the black)

I owe $2,000. ☹ (in the red)

Coordinate Grid

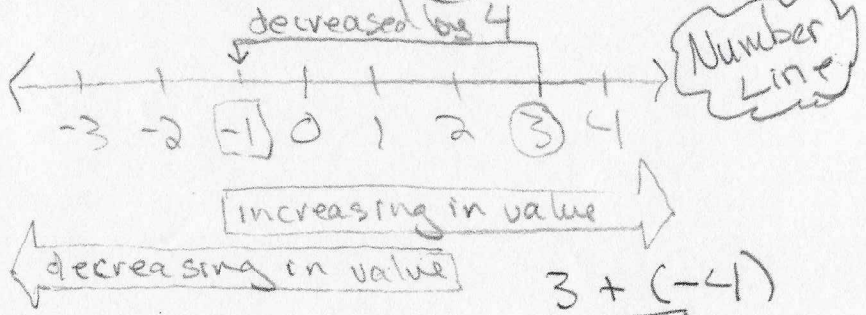


Football



Adding Integers

Number Line



Tiles

6 + (-2) = 4

5 + (-7) = -2

2 + (-2) = 0

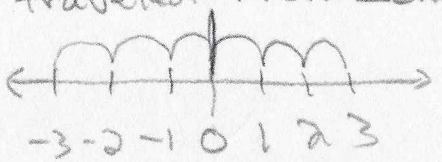
5 + (-5) = 0

Absolute Value

|3| = 3 = |-3|

absolute value bars

- the distance traveled from ZERO



Inquiry Integers

We know...	We want to know.

Standards and Mathematical Practices

- We will explain and demonstrate addition of integers by using symbols, visuals, words and real life contexts and demonstrate perseverance while using a variety of strategies.
- We will model understanding of the addition of integers using tools such as algebra tiles, counters, visuals and number lines.

AIM4S³ ™ 7th Grade Hillsboro, OR

UNIT PLANNING TOOL

Unit INTEGERS

CCSSM: Number Systems 1.a-d

a. describe situations in which opposite quantities combine to make 0

b. understand $p+q$ as a # located a distance $|q|$ from p, in the positive or negative direction

c. understand subtraction of rational numbers as adding the additive inverse, $p-q=p+(-q)$

d. apply properties of operations as strategies to add and subtract rational numbers

Essential Question(s): What models can be used to show addition and subtraction of positive and negative rational numbers?

What strategies are most useful in helping develop algorithms for adding and subtracting positive and negative rational numbers?

What real life situations combine to make zero?

How can models be used to prove that opposites combine to zero?

Pre and Post Assessments

metacognition boxes (see handout)

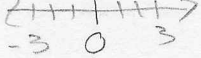
CPM Unit test

CPM Checkpoint 6

Key Concepts

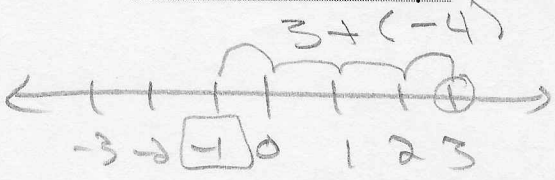
$|3|$ $|-3|$ absolute value

(whole numbers and their opposites)



integers $\{\ldots,-3,-2,-1,0,1,2,3,\ldots\}$

Visual Models of Concepts



increase in value

decrease in value

Algorithms/Diagrams

$|-3|=3$

$|3|=3$

$4+(-3)$

$+ + + +$

$- - -$

1

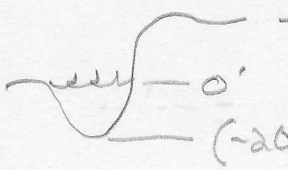
$2+(-2)$

0

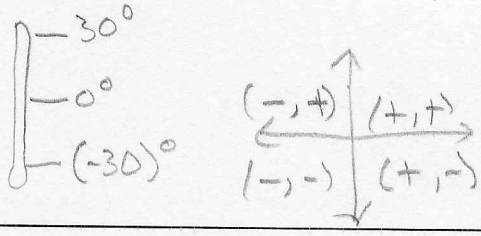
$5+(-5)$

0

Connections (Real World Applications)



$ in the black (+) in the red (-)



football - gain or loss of yardage

AIM4S³ ™

Language Functions/Structures

Compare and Contrast

Positive integers are _____ compared to negative integers.

Explain

Positive integers _____ in value.

Negative integers _____ in value.

Vocabulary

additive inverse
positive
negative
absolute value
rational
integer
increasing in value
decreasing in value
opposites

Focus and Motivation

Video

BrainPop.com
(Adding & Subtracting integers)

Study Jams
(Integers)
What is an integer?
PBS Math Club

Activity

Tile Game

Literature

Less than Zero
by Stuart Murphy

FYI