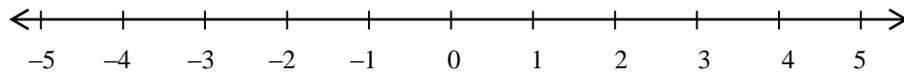


## Adding Integers using Colored Chips

The **integers** are the positive and negative whole numbers. They are often used to describe, or to quantify, opposites.

- A business may report a profit or a loss, where the profit is a positive number and the loss is a negative number.
- A quarterback may have a net rushing yardage of  $-8$  yd.
- A checking account may have a positive balance or a negative balance.
- An electron has a negative charge, a proton a positive charge.
- Temperatures below  $0^\circ$  are reported as negative temperatures.

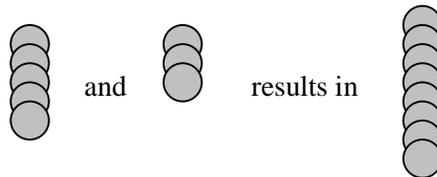
In mathematics, numbers to the right of zero on the number line are positive integers (also called the counting numbers) and the numbers to the left of zero are negative. Integers are sometimes called **signed numbers** because they may have a positive or negative sign.



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### Part 1 – Making Zero

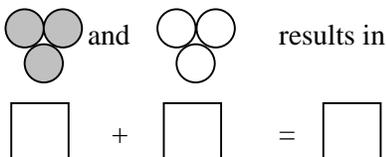
The gray chips will represent positive numbers and the white chips will represent negative numbers. To represent the addition  $5 + 3$ , **combine** a pile of 5 gray chips with a pile of 3 gray chips which results in a pile of 8 gray chips. Note that we are thinking about addition by imagining the combining of quantities. For example:



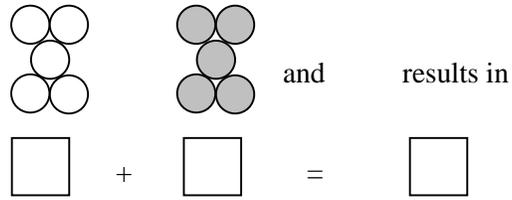
One way to express the addition and the result is by the following:

$$5 + 3 = 8$$

**The goal of this first activity is to find ways to make zero. Express the following display of chips using a number sentence, such as  $5 + 3 = 8$ .**

1. 

2.



3. Write an explanation for how to "make zero" with chips.

4. Give an example of how to make zero when considering a thermometer which is measuring the outside temperature.

5. Give an example of how to make zero when considering a checking account balance.