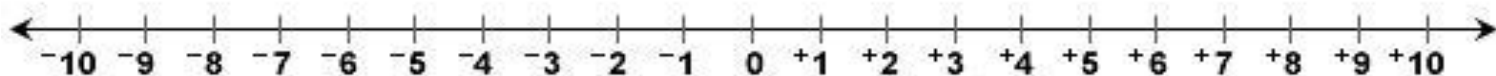


# COIN COUNTERS ACTIVITY

**Learning Target:** I will learn to model integer addition, using counters and a number line. I will also discover the algorithm for integer addition.

## **Game Instructions:**

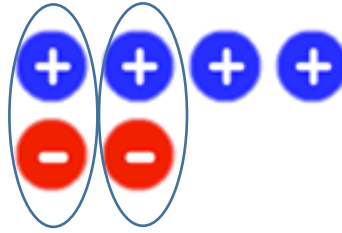
- Work in groups of 2-3.
- Your group should have 10 integer chips.
- Each player puts a marker (game piece) at zero. On your turn, shake the 10 integer chips in your hand and drop them on your desk (like dice). Each YELLOW means you move your marker one unit to the right; each RED means you move one unit to the left.
- Alternate turns.
- The first player to reach +10 or -10 (or go past) is the winner.



## **When complete, answer the following questions:**

- 1) If you were to represent the number of YELLOWS with an integer, would it be positive or negative?
- 2) If you were to represent the number of REDS with an integer, would it be positive or negative?
- 3) Did anyone's game piece ever end a turn in the same place it started the turn? Explain why.
- 4) With your group, find a way to quickly determine where to place your marker after a roll. Explain your algorithm.
- 5) **EXTENSION:** Did your marker ever end up an odd number of units away from where it was at the start of your turn? Explain.

“Integer chips,” or “counters,” can also be used to model integer addition. Below, the model shows the problem  $-2 + 4$



- 6) a. What do the 2 positives and 2 negatives represent?  
 b. If you tossed this combination, how would you move your marker on the number line?  
 c. Complete the equation:  $-2 + 4 = \underline{\hspace{2cm}}$

7) Model the following sums with + and – counters, and determine the sum.

<u>Problem</u>	<u>Model with + and – Counters</u>	<u>Sum</u>
<b>+1 + (-5)</b>		
<b>-2 + (+2)</b>		
<b>+6 + (-4)</b>		
<b>+3 + (-3)</b>		
<b>-5 + (-2)</b>		

- 8) When you add two negative numbers, is the sum positive or negative?
- 9) How can you quickly determine the sum of two negative numbers without using counters?
- 10) When adding a positive and a negative number, **when** is the sum...  
 a. Equal to zero? \_\_\_\_\_  
 b. Positive? \_\_\_\_\_  
 c. Negative? \_\_\_\_\_
- 11) How can you quickly determine the sum of a positive and a negative number without using counters?
- 12) Use the algorithms you came up with in # 10 and #12 to compute the following:  
 a.  $-17 + 25$       b.  $13 + (-7)$       c.  $-36 + (-19)$       d.  $-11 + 11$       e.  $-41 + 10$