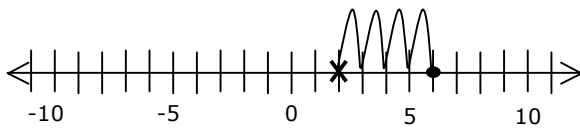# Adding Integers

You may want to start with teaching the number line model (using I Do → We Do → You Do) and <u>then</u> teach the tile spacer model (again using I Do → We Do → You Do). Make sure to show students how to record the problems in their notebook.
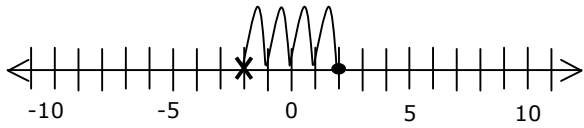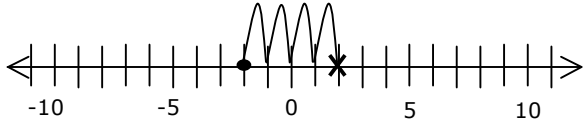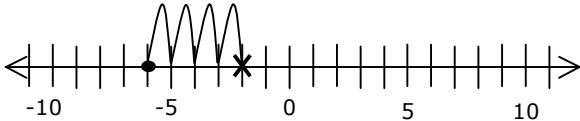
<u>Introduction</u>
Teach students what a *zero pair* is.
- Use movement: one step to the left, one step to the right, you're back where you started.
- Elevator: one floor up, one floor down, back where you started.
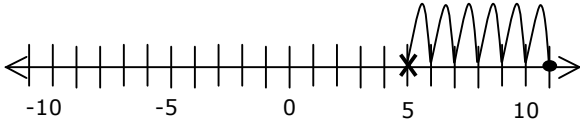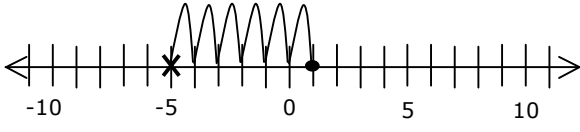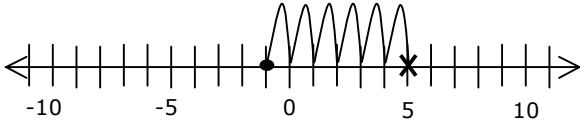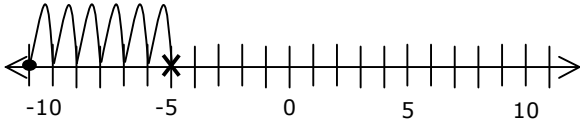- End by showing students on a number line as well as with tile spacers.

<u>Direct Instruction (I do)</u>

Expression	Number line model	Tile spacer model
2 + 4	Draw a number line from -10 to 10. *Where am I starting?* [2] *What's my operation?* [addition] *In which direction should I go?* [right] *How many?* [4] *Where do I end up?* [6] 	*I am starting with 2 positives, so I will draw my 2 positives.* + + *Am I adding or subtracting?* [Adding] *Adding positives or negatives?* [Positives] *How many?* [4] + + + + + + *Do I have any zero pairs?* [No] *How many positives do I have?* [6]

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(-2) + 4	Draw a number line from -10 to 10. *Where am I starting?* [-2] *What's my operation?* [addition] *In which direction should I go?* [right] *How many?* [4] *Where do I end up?* [2]	I am starting with 2 negatives, so I will draw my 2 negatives. – – *Am I adding or subtracting?* [Adding] *Adding positives or negatives?* [Positives] *How many?* [4] – – + + + + *Do I have any zero pairs?* [Yes] *How many?* [2] (−/+)(−/+) + + *What do you have left over?* [2 positives]
2 + (-4)	Draw a number line from -10 to 10. *Where am I starting?* [2] *What's my operation?* [addition] *In which direction should I go when I add?* [right] *But I'm adding the opposite of 4. What happens?* [I go in the opposite direction] *In which direction should I now go?* [left] *How many?* [4] *Where do I end up?* [-2]	I am starting with 2 positives, so I will draw my 2 positives. + + *Am I adding or subtracting?* [Adding] *Adding positives or negatives?* [Negatives] *How many?* [4] + + – – – – *Do I have any zero pairs?* [Yes] *How many?* [2] (+/−)(+/−) – – *What do you have left over?* [2 negatives]

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(-2) + (-4)	Draw a number line from -10 to 10. *Where am I starting?* [-2] *What's my operation?* [addition] *In which direction should I go when I add?* [right] *But I'm adding the opposite of 4. What happens?* [I go in the opposite direction] *In which direction should I now go?* [left] *How many?* [4] *Where do I end up?* [-6] 	*I am starting with 2 negatives, so I will draw my 2 negatives.* – – *Am I adding or subtracting?* [Adding] *Adding positives or negatives?* [Negatives] *How many?* [4] – – – – – – *Do I have any zero pairs?* [No] *How many negatives do I have?* [6]

Guided Practice (We do)

Expression	Number line model	Tile spacer model
5 + 6		+ + + + + + + + + +
(-5) + 6		+
5 + (-6)		–
(-5) + (-6)		– – – – – – – – – – –

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You try

Expression	Number line model	Tile spacer model
3 + 7		+ + + + + + + + +
(-3) + 7		+ + + +
3 + (-7)		– – – –
(-3) + (-7)		– – – – – – – – – –

Using these methods, students may discover some "rules" on their own for adding integers. Encourage them to prove why the rule will always work. (For example: If the signs are the same, add the numbers and keep the sign; If the signs are different, subtract the numbers and keep the sign of what you have the most of.)
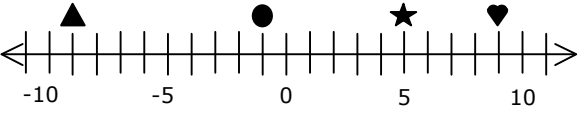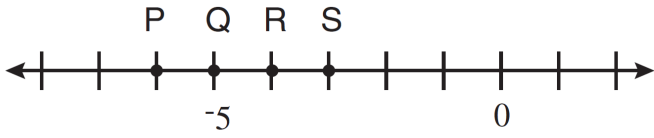
Independent Practice

-10 + 4
4 + (-6)
-8 + (-8)
12 + (-4)
-1 + (-3)
-6 + 3 + (-7)
4 + (-6) + 5

Warm-Up: Adding Integers

Name: _____   Date: _____

CST	Review

CST

-10   -5   0   5   10

♥ + ● = _____

Review

P   Q   R   S
-5   0

Which letter on the number line *best* identifies the location of $^-6$?

A   P

B   Q

C   R

D   S

Current	Other

Current

The temperature at noon in Chicago was 10°F. At dawn, it was 13° colder. What was the temperature at dawn? Draw a thermometer to show the change in temperature.

Other

Marisol is counting by 3s. If she starts counting at $^-30$, what two numbers are missing below?

$$^-30, {}^-27, {}^-24, {}^-21, \_\_\_, \_\_\_, {}^-12$$

A $^-18, {}^-15$

B $^-19, {}^-17$

C $^-20, {}^-13$

D $^-22, {}^-23$