

PRE-TEACHING AND WARM-UP ACTIVITIES



Foundational Concepts

The Lesson 1 Warm-Up Activities pre-teach or review foundational concepts that will support students' learning in Unit 1 lessons. Some students will just require a simple review of concepts; other students will require more intensive teaching. It is also possible that some concepts may already be mastered by your students, allowing you to skip a warm-up activity.

For students whose numeracy skills are still emerging and who do not master all objectives in Lesson 1, we suggest you move on to Lesson 2. While teaching Lessons 2–10, you will have numerous opportunities and teachable moments for embedding emerging numeracy within the lesson. Taking advantage of these opportunities encourages students to continue to practice their emerging numeracy skills while also having access to high school–level standards.

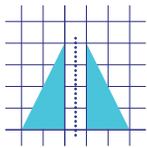
Skills and Concepts to Review

- A coordinate plane has an x -axis and a y -axis.
- The x -axis and y -axis on a coordinate plane have positive and negative numbers (in this unit from 1 to 10).
- The x -axis runs horizontally.
- The y -axis runs vertically.
- Quadrants on a coordinate plane and have different values (Quadrant I $[+, +]$; Quadrant II $[-, +]$; Quadrant III $[-, -]$; Quadrant IV $[+, -]$).
- Coordinate pairs tell an exact location on a coordinate plane.
- The x -coordinate is always written first in an ordered pair of coordinates.
- A slide of a shape is to move it without turning it or flipping it.
- A flip of a shape means to turn it over.
- A turn of a shape means to rotate it around a point.
- A turn can be clockwise or counterclockwise.

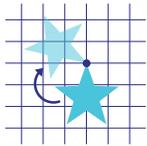
Unit Vocabulary

Key Terms to Introduce

The following are key terms that will be used throughout this unit. At the end of this pre-teaching lesson, conduct a vocabulary activity using a constant time-delay procedure to help students review these terms.

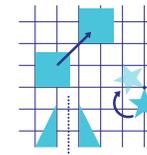


reflection: a flip of a shape to create a mirror image

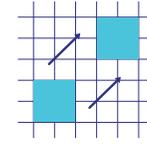


rotation: a circular movement around a point

transformation: changing a shape using a turn, flip, or slide



translation: a slide of a shape horizontally, vertically, or diagonally



Foundational Vocabulary to Review (if needed)

The following vocabulary terms will come up in the unit's lessons. If students don't know these foundational terms yet, you may wish to review them using the Warm-Up Activities and/or before teaching each lesson. A handy source of definitions of math concepts with accompanying illustrations and sometimes animations is available at www.mathisfun.com/definitions



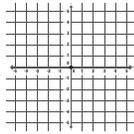
clockwise: moving in the direction of the hands on a clock



flip: to turn something over



slide: to move a shape without turning it or flipping it



coordinate plane: a plane containing an x -axis and a y -axis



horizontal: going side to side, like the horizon



turn: to rotate around a point

(x, y)

coordinates (x, y) : pairs of numbers that tell an exact position



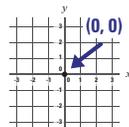
negative number: a number less than zero



vertical: going up and down



counterclockwise: moving in the opposite direction of the hands on a clock



origin point: the point where the x -axis and the y -axis meet $(0, 0)$



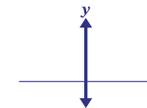
x -axis: a line on a graph that runs horizontally (left to right)



diagonal: a line segment that goes from one corner to another, but is not an edge



positive number: a number greater than zero



y -axis: a line on a graph that runs vertically (up and down)



WARM-UP ACTIVITY 1

Objectives

- Identify a coordinate plane
- Identify the parts of a coordinate plane

Materials

Supplied

- Vocabulary card: *coordinate plane*
- Coordinate Plane poster
- 30 counting cubes
- *Access Geometry* Student Workbook (p. 3)

Lesson Preparation

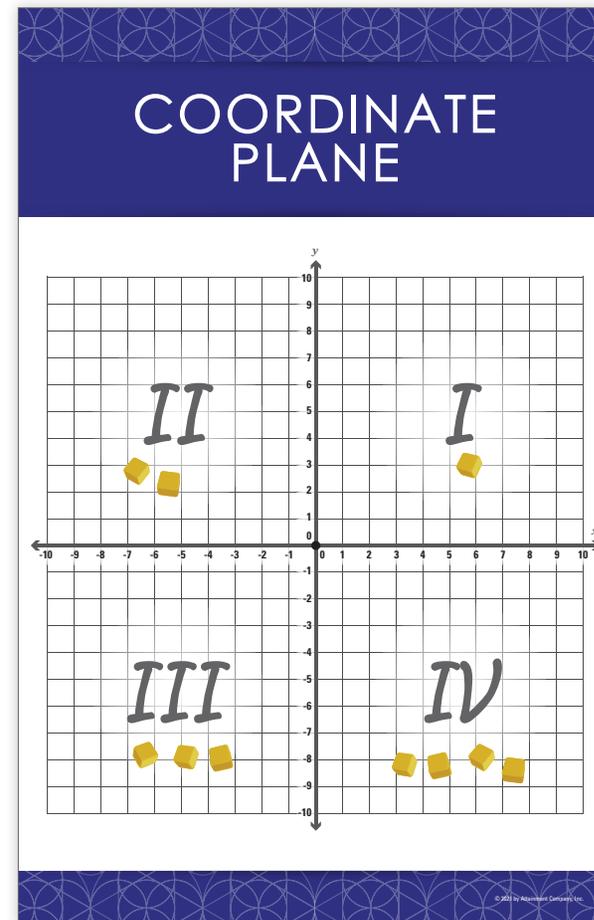
1. Place the Coordinate Plane poster on a table or where students can complete this activity.
2. Place counting cubes on the table.

NOTE: *Quadrants are numbered in a counterclockwise fashion, with Quadrant I starting in the upper-right section of the coordinate plane.*

Task

1. Hold up the Vocabulary card for *coordinate plane*. Say, **This is a Vocabulary card for *coordinate plane*. Say “coordinate plane” with me.**
2. Point to the Coordinate Plane poster and say, **This is a large coordinate plane. It has two axes: an x -axis and a y -axis.** Point to the x -axis. **An axis is a reference line. The x -axis is the horizontal number line that goes from side to side. It goes horizontally like the horizon. Look. The numbers to the right of 0 are positive numbers. The numbers to the left of 0 are negative numbers. Your turn. Open your Student Workbook to page 3 and find the x -axis on the coordinate plane.** Check to make sure students are pointing to the x -axis.
3. **The y -axis is the vertical number line that goes up and down.** Point to the y -axis. **Look, the numbers above 0 are positive, and the numbers below 0 are negative. Your turn. Find the y -axis on your coordinate plane.** Check to make sure students are pointing to the y -axis.
4. **The center of the coordinate plane, where the two axes cross, is called the *origin point*. The coordinates — the ordered pair — for the origin point is $(0, 0)$ because the two lines meet at 0 and 0. Point to the origin point. Your turn. Find the origin point on your coordinate plane.** Check to make sure students are pointing to the origin point.

5. The coordinate plane is divided into four quadrants, four sections, by the x -axis and the y -axis. Watch me. This is **Quadrant I**. Write *Quadrant I* on the Coordinate Plane poster. Your turn. Touch **Quadrant I** on your coordinate plane. Now take one cube from the table and place it in **Quadrant I**. Check to make sure students have found Quadrant I.
6. Repeat for the other quadrants. **This is Quadrant II**. Write *Quadrant II* on the Coordinate Plane poster. Your turn. Touch **Quadrant II** on your coordinate plane. Place two cubes in the quadrant to show **Quadrant II**. Check to make sure students are pointing to Quadrant II. Repeat for Quadrants III and IV.
- Great. Let's name the quadrants altogether again. Notice I wrote the quadrant numbers going counterclockwise. Let's go! Name the quadrants with me. Point to each quadrant as you name it. Say, **Quadrant I, Quadrant II, Quadrant III, and Quadrant IV**.
7. We will learn lots more about coordinate planes in this unit. Let's review the concepts we've covered so far. Have students point to each item in their Student Workbook (p. 3) as you name it. Observe each student to be sure each is pointing as you name the following: the coordinate plane, the x -axis, the y -axis, the origin point, Quadrant I, Quadrant II, Quadrant III, Quadrant IV.



WARM-UP ACTIVITY 2

Objective

- Identify that a coordinate plane has an x -axis and a y -axis

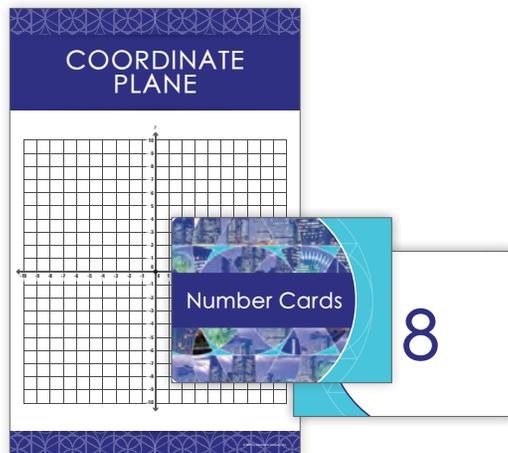
Materials

Supplied

- Vocabulary cards: x -axis, y -axis
- Coordinate Plane poster
- 30 counting cubes
- Number Cards: 0–10

Lesson Preparation

1. Place the Coordinate Plane poster on a table where students can complete this activity.
2. Place the Number Cards (positive numbers only) and counting cubes in front of the students.



Task

1. Review the vocabulary words x -axis and y -axis and show the Vocabulary cards for each. Say, **Let's talk a little more about the axes on the coordinate plane. An x -axis is the horizontal reference line drawn on a coordinate plane.** As you are saying this, make sure you move your hands across the horizontal line on the Coordinate Plane poster to help students visualize what *horizontal* means. Say, **Horizontal lines go left to right, like the horizon.** Then say, **The y -axis is the vertical reference line on a coordinate plane. It goes up and down.** As you are saying this, make sure you move your hands up and down the vertical line on the Coordinate Plane poster to help students visualize what *vertical* means.
2. Use the  **Model-Lead-Test** procedure to teach the x -axis (see p. 41).
3. Use the  **Model-Lead-Test** procedure to teach the y -axis (see p. 41).
4. Place the x -axis and y -axis Vocabulary cards face down on the table. Mix them up them so students don't know which is which. Have each student take a turn choosing a Vocabulary card and a Number Card and place a counting cube on the Coordinate Plane poster. Continue to shuffle cards and have students practice until they are accurate in finding the number on the x -axis and y -axis.

MODEL Choose a Number Card. Then show students how to place a counting cube correctly on the x -axis or line at the number indicated on the card. Say, **This is the x -axis. It goes from left to right, like the horizon.**

LEAD Have a student choose a card. Then as a group, together place the counting cube on the x -axis at the number indicated. **Say this with me, "This is the x -axis. It goes horizontally from left to right, like the horizon."**

TEST Test each student by having him or her independently draw a card and place it on the x -axis at the appropriate number. Remind students to say, **"This is the x -axis. It goes horizontally from left to right, like the horizon."**

MODEL Choose a Number Card. Show students how to place a counting cube correctly on the y -axis at the number indicated on the card. Say, **This is the y -axis. It goes vertically up and down.**

LEAD Have a student choose a card. Then as a group, together place the counting cube on the y -axis at the number indicated. **Say this with me, "This is the y -axis. It goes vertically up and down."**

TEST Test each student by having him or her independently draw a card and place it on the y -axis at the appropriate number. Remind students to say, **"This is the y -axis. It goes vertically up and down."**

WARM-UP ACTIVITY 3

Objectives

- Identify positive numbers on the axes of a coordinate plane
- Identify negative numbers on the axes of a coordinate plane

Materials

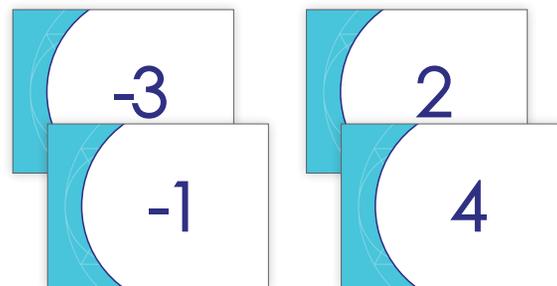
Supplied

- Coordinate Plane poster
- Number Cards: -10–10

Lesson Preparation

1. Place the Coordinate Plane poster on a table.

 For students who may need more concrete representation, create two large number lines for placement on the floor. Have the number lines start at -10 and end at +10, but have one extend vertically and one horizontally. Tape the number lines to the floor.



Task

1. Hold up the Vocabulary cards for *positive number* and *negative number*. Review the meaning of positive and negative numbers. Say, **A positive number is “a number greater than zero.” A negative number is “a number less than zero.”**
2. Point to the negative symbol on the Vocabulary card. Remind students, **You can tell the difference between a positive and negative number by the minus sign.** Draw comparisons to this line as being similar to a subtraction symbol or minus sign. Use hand motions to show that negative numbers go to the left and positive numbers go to the right on a horizontal number line. Then talk about a vertical number line and that the positive numbers go up and the negative numbers go down.
3. Start with the x -axis number line on the Coordinate Plane poster for this step and use the  **Model-Lead-Test** procedure to teach positive and negative numbers (see p. 43).
4. Using the  **Model-Lead-Test** procedure, repeat with the y -axis number line on the Coordinate Plane poster. First show students how the y -axis number line is vertical and different from the horizontal number line (see p. 43).

MODEL Take a Number Card and place it on the positive side of the x -axis on the Coordinate Plane poster. Either sort the cards on each side of the x -axis or match the numerals on the card to the x -axis. While placing a positive Number Card, say, **Positive numbers go to the right.** While placing a negative Number Card, say, **Negative numbers go to the left.**

LEAD Shuffle the cards and have students join you in placing them. While placing a positive Number Card, say, **Together with me, say, "Positive numbers go to the right."** While placing a negative Number Card, have students say with you, **"Negative numbers go to the left."**

TEST Test each student by having him or her independently place Number Cards on the positive side of the x -axis. Say, **Your turn to the place the Number Cards.** Remind students to say, **"Positive numbers go to the right"** or **"Negative numbers go to the left"** for each card they place.

MODEL Take a Number Card and place it on the positive side of the y -axis on the Coordinate Plane poster. While placing a positive Number Card, say, **Positive numbers go up.** While placing a negative Number Card, say, **Negative numbers go down.**

LEAD Shuffle the cards and have students join you in placing the cards. While placing a positive Number Card, have students say with you, **"Positive numbers go up."** While placing a negative Number Card, have students say with you, **"Negative numbers go down."**

TEST Test each student by having him or her independently place Number Cards on either the positive side or the negative side of the y -axis. Say, **Your turn to the place the Number Cards.** Remind students to say, **"Positive numbers go up"** or **"Negative numbers go down"** for each card they place.