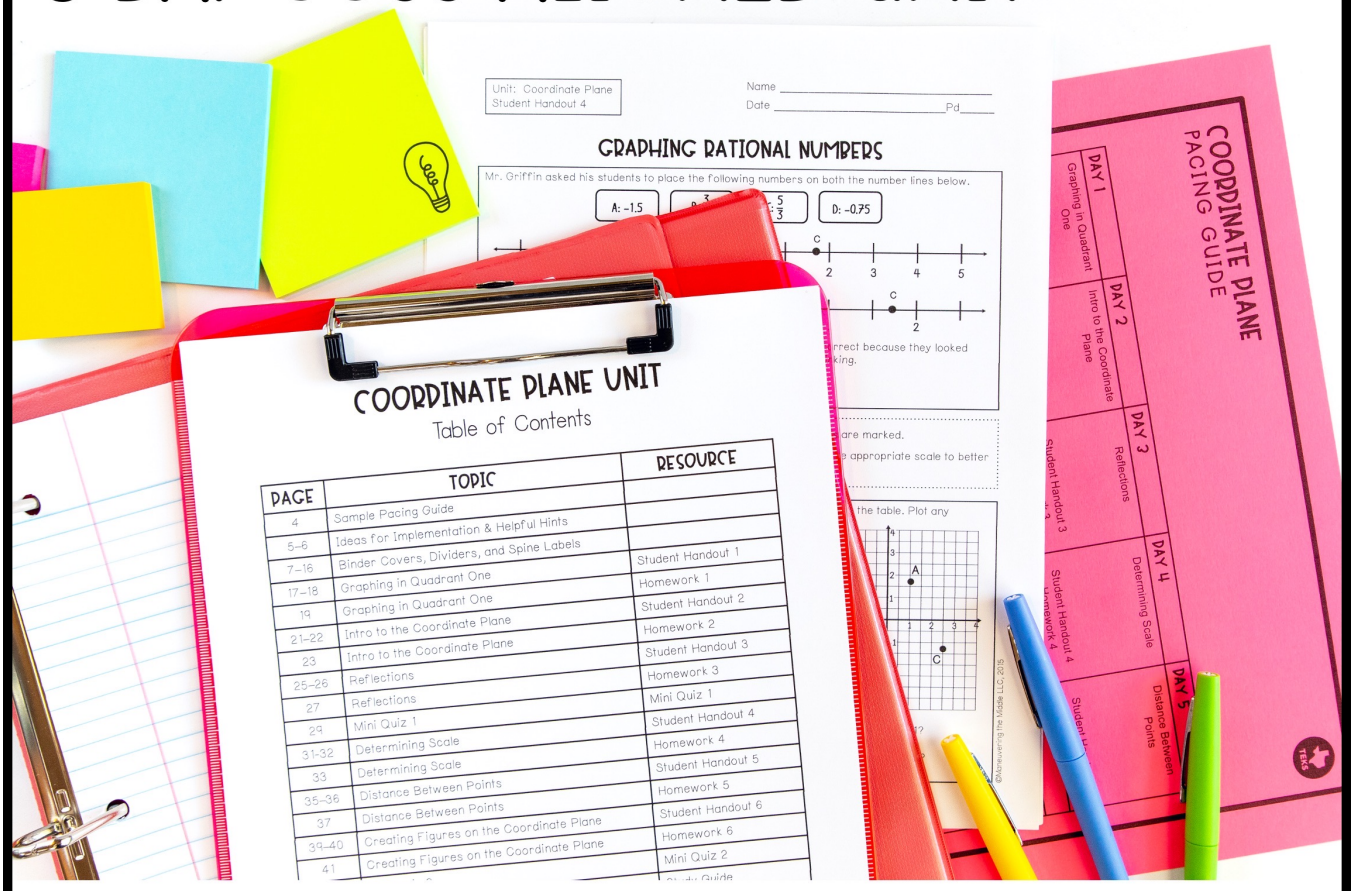
learning focus:

- ✓ locate and plot ordered pairs on the coordinate plane
- ✓ reflect points on the coordinate plane
- ✓ find distance between points and create figures on the coordinate plane

COORDINATE PLANE UNIT

6th GRADE

8 DAY CCSS-ALIGNED UNIT



A MANEUVERING THE MIDDLE ® RESOURCE

COORDINATE PLANE

6th GRADE

an 8 day CCSS-aligned unit

CCSS: 6.NS.6, 6.NS.6a, 6.NS.6b, 6.NS.6c, 6.NS.8

ready-to-go, scaffolded student materials

COORDINATE PLANE UNIT

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student friendly + real-world application

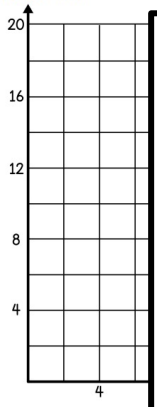
interactive practice

Unit: Coordinate Plane
Homework 1

Name _____
Date _____ Pd_____

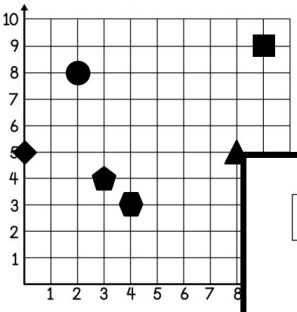
GRAPHING IN QUADRANT ONE

Mr. Avery forms a picture in the first quadrant of the coordinate plane. Help him determine where the points should go based on the requirements. Start with the point given on the graph and connect the lines as you go in order. Draw a line to connect your last point back to the original point on the graph. Some points already have a location, so list a possible requirement that would result in that location.



POINT	RE
1	The x-coordinate is in the mid… the x-axis
2	
3	The x-coordinate is neither a … coordinate is half of 28
4	
5	The x-coordinate is the sum o… y-coordinate is 4 more than t…
6	
7	The x-coordinate is twice the … y-coordinate is the y-coordina…

3. Use the coordinate plane on the left to list the ordered pair of each shape in the table.



	ORDERED PAIR
CIRCLE	
TRIANGLE	
SQUARE	

a. Describe the difference between th…

b. Yvette is asked to plot the point (7, … correctly? Justify your thinking.

4. Use the table on the left to graph ea…

	ORDERED PAIR
CIRCLE	(4, 18)
TRIANGLE	(5, 8)
SQUARE	(7, 0)
HEART	(18, 12)
STAR	(13, 7)
TRAPEZOID	(10, 16)
RHOMBUS	(8, 5)

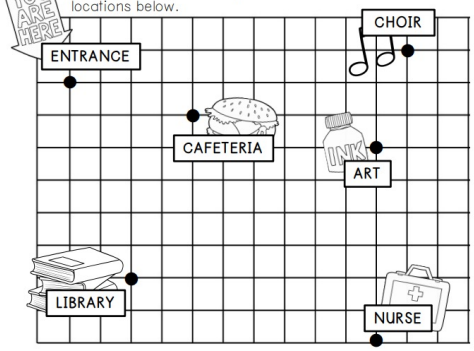
Summarize today's lesson:

Unit: Coordinate Plane
Student Handout 1

Name _____
Date _____ Pd_____

GRAPHING IN QUADRANT ONE

The students at Northside Middle School are creating a map around the school for incoming 6th graders. Use the map below to describe how students should travel between the locations below.



a. From the art room to the nurse

b. From the school entrance to the library

c. If a student leaves the cafeteria and travels two units up and seven units to the right, where will the student be?

ORDERED PAIRS

- An ordered pair describes an exact _____ on the coordinate plane.
  - **x-coordinate:** the _____ number in an ordered pair and indicates movement parallel to the _____, or horizontally.
  - **y-coordinate:** the _____ number in an ordered pair and indicates movement parallel to the _____, or vertically.
- When graphing ordered pairs, always begin at the origin, _____.

Describe the process that you would take to graph the ordered pairs below.

1. The ordered pair (8, 4) means that to plot the point, you will begin at _____ and then move _____ and _____.

2. You begin at the origin and travel 5 units to the right and then up 3 units. You will be at what ordered pair?

scaffolded concepts

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streamline your planning process with unit overviews

COORDINATE PLANE
OVERVIEW

CCSS

STANDARDS

6.NS.6 Understand a rational number as a point on the number line. Extend number line diagrams and coordinate axes familiar from previous grades to represent points on the line and in the plane with negative number coordinates.

6.NS.6a Recognize opposite signs of numbers as indicating locations on opposite sides of the number line; recognize that the opposite of the opposite of a number is the number itself.

6.NS.6b Understand signs of numbers in ordered pairs as indicating locations in quadrants of the coordinate plane, and recognize that when two ordered pairs differ only by signs, the locations of the points are related by reflections across one or both axes.

6.NS.6c Find and position integers and other rational numbers on a horizontal or vertical number line diagram; find and position pairs of integers and other rational numbers on a coordinate plane.

6.NS.8 Solve real-world and mathematical problems by graphing points in all four quadrants of the coordinate plane. Include use of coordinates and absolute value to find distances between points with the same first coordinate or the same second coordinate.

BIG IDEAS

- The coordinate plane is an i
- The coordinate plane is use

ESSENTIAL QUESTION

- How does a reflection acros
- What pattern do you notice
- How would a point with the

✓ key vocabulary

✓ vertical alignment

sample pacing calendar

COORDINATE PLANE
PACING GUIDE

CCSS

DAY 1	DAY 2	DAY 3	DAY 4	DAY 5
Graphing in Quadrant One Student Handout 1 Homework 1	Graphing on the Coordinate Plane Student Handout 2 Homework 2	Reflections	Graphing Rational Numbers	Distance Between Points
DAY 6	**DAY 7**			
Creating Figures on the Coordinate Plane Student Handout 6 Homework 6 Mini-Quiz 2	Coordinate Plane Unit Study Guide Unit Study Guide			

COORDINATE PLANE
OVERVIEW

CCSS

TOPIC	TEACHING TIPS
The Coordinate Plane	• This will be students' first experience with all four quadrants of the coordinate plane. Students are now putting both the vertical number line and the horizontal number line together to form a coordinate plane. • Consider pulling up Google Maps or Google Earth and putting in intersections of streets near you. Ask students to explain why this is important and how it applies to the coordinate plane. • If you have a large space outside, use masking tape to mark off a basic coordinate plane. Ask students to place various objects at specific ordered pairs. • Note: A strategy for helping students remember is to draw the letter "C" on the coordinate plane 
Absolute Value and Reflections	• Students must be confident in their placement of the x- and y-axis in this lesson. The most common mistake is reflecting over the incorrect axis. • The biggest takeaway is that students should be able to observe the change in the x- and y-values when reflected over each axis.
Determining Scale	• Project a picture that has been zoomed in. Then, ask students to guess the picture. After much discussion, zoom the photo out and reveal the photo. Explain that the coordinate plane can also be "zoomed in". Show a coordinate plane where each line does not represent 1 and help students to make connections as to the scale of the axis. • Note: It might be a good idea to use one color to show reflections over x and another color over y.
Distance Between Points	• Go back to the Google Maps example and ask students to provide directions from one well known location to another (simple is best). Ask students to then take these skills and transfer them to the coordinate plane. Students can practice "giving directions" to a partner and then checking to see if they followed them correctly. • Consider projecting a simple map on top of a coordinate plane, if possible.

teaching ideas

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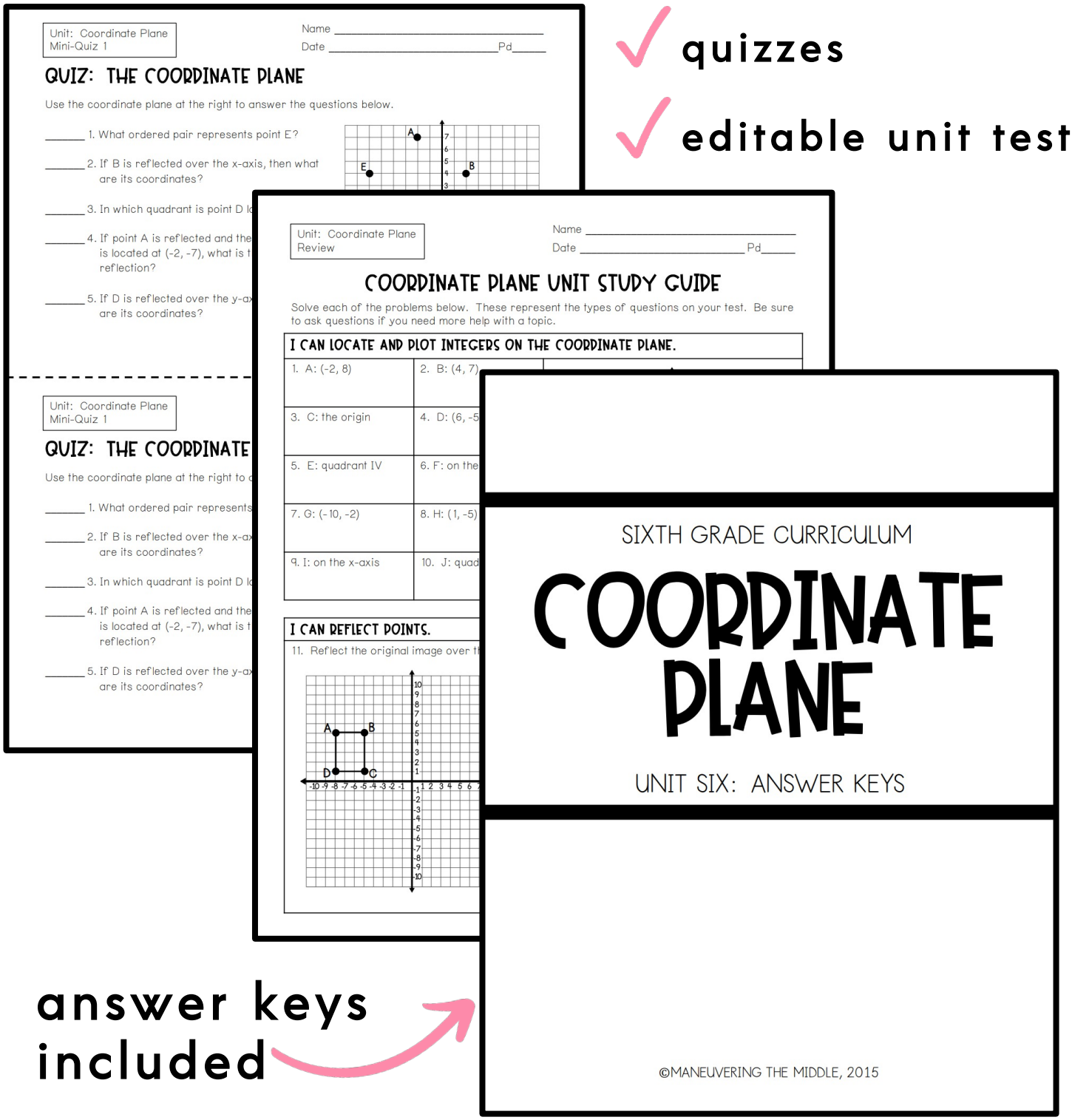
unit study guide + assessments



✓ quizzes

✓ editable unit test

answer keys included

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