learning focus:

- ✓ find and interpret slope and rate of change
- ✓ write equations for proportional and non-proportional situations
- ✓ create multiple representations of a linear relationship

LINEAR RELATIONSHIPS

8th GRADE

a 9 day CCSS-aligned unit
CCSS: 8.EE.5, 8.EE.6, 8.F.4

ready-to-go, scaffolded student materials

LINEAR RELATIONSHIPS UNIT

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A MANEUVERING THE MIDDLE® RESOURCE

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student friendly + real-world application

multiple representations

Unit: Linear Relationships
Student Handout 3

Name _____
Date _____ Pd____

SLOPE-INTERCEPT FORM: PART I

Xander has biked 2 miles so far this week and plans to bike an average of 6 miles each day over the next several days. Xander wrote the equation and created the graph to represent x, the number of days and y, the total number of miles traveled on his bike.

y = 6x + 2

a. Find the slope of the graph. Where do ... Xander's equation?

b. What value does the graph touch on the ... see this value in Xander's equation?

Xander's equation is written in slope-inter...

SLOPE-INTERCEPT FORM

- Slope-intercept for... one way to write th... _____ relat...
- The y-intercept of ... where the line ... x = ____.

In 1-3, use the given information to write ...

1. slope = -9, y-intercept = 2

y = ____ x + ____

2. m = 4

4. Complete the table below by recording ... equation's graph.

	y = x – 5
SLOPE (m)	
Y-INT (b)	
GRAPH	

For each graph below, record the slope, y-intercept, and equation in slope-intercept form.

5.

m: ____ b: ____

equation: _____

6.

7.

8.

m: ____ b: ____

equation: _____

9.

11. Matt is going to create a graph of t... false and correct any false statements.

____ a. Matt's graph will cross the y-a...

____ b. Matt's graph will increase fro...

12. Circle the name of any student who... represent the graphed line shown at th...

JAVIER: y = -3x - 2

KARI: y = 2...

Summarize today's lesson:

Unit: Linear Relationships
Homework 3

Name _____
Date _____ Pd____

SLOPE-INTERCEPT FORM: PART I

Apply your knowledge of slope-intercept form to answer the questions below.

1. Harper is going to create a graph of the equation y = -0.5x + 12. Which of the following will be true about the graph?

a. The graph will contain the origin.
b. The graph will increase from left to right.
c. The graph will cross the x-axis at (12, 0).
d. The graph will have a slope of -0.5.

2. Khari graphed the line below. Which equation could represent Khari's graph?

a. y = -2x – 3
b. y = 3x + 4
c. y = -4x + 3
d. y = -2x – 5

For each graph below, record the slope, y-intercept, and equation in slope-intercept form.

3.

m: ____ b: ____

equation: _____

4.

m: ____ b: ____

equation: _____

5.

m: ____ b: ____

equation: _____

6. Li wrote the equation below to represent the graph shown. Explain her errors and correct the equation.

$y = \frac{1}{2}x - 3$

7. For a and b, write an equation in slope-intercept form that meets the given criteria.

a. A negative slope and passes through the origin

b. Slopes upward from left to right and has a y-intercept below the x-axis.

8. Mr. Brown asked his students to write an equation that represents a line with a positive slope and a negative y-intercept. Circle the name of any student who correctly completed the task.

EZRA	AALIYAH	JACOBY	PENNY
y = -5x + 2.5	y = 4x - 7	y = -3x - 11	$y = \frac{4}{5}x - 20$

error analysis

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streamline your planning process with unit overviews

LINEAR RELATIONSHIPS
OVERVIEW

CCSS

STANDARDS

8.EE.5 Graph proportional relationships, interpreting the unit rate as the slope of the graph. Compare two different proportional relationships represented in different ways.

8.EE.6 Use similar triangles to explain why the slope m is the same between any two distinct points on a non-vertical line in the coordinate plane; derive the equation y = mx for a line through the origin and the equation y = mx + b for a line intercepting the vertical axis at b.

8.F.4 Construct a function to model a linear relationship between two quantities. Determine the rate of change and initial value of the function from a description of a relationship or from two (x, y) values, including reading these from a table or from a graph. Interpret the rate of change and initial value of a linear function in terms of the situation it models, and in terms of its graph or a table of values.

BIG IDEAS

- Slope of linear relationshi
linear graph is the same b
- The rate of change and ini
representations (graphs, t
- Linear relationships can b
characteristics.

ESSENTIAL QUESTI

- How can the slope of a line
- What makes a situation pro
- How can rate of change be f

✓ key vocabulary

✓ vertical alignment

sample pacing calendar

LINEAR RELATIONSHIPS UNIT
PACING GUIDE

CCSS

DAY 1	DAY 2	DAY 3	DAY 4	DAY 5
Slope and Rate of Change Student Handout 1 Homework 1	The Slope Formula Student Handout 2 Homework 2	Slope-Intercept Form: Part I	Slope-Intercept Form: Part II	Slope and Slope-Intercept Form Quiz
DAY 6	**DAY 7**			
Graphing Linear Equations Student Handout 5 Homework 5	Multiple Representations Student Handout 6 Homework 6			
NOTES				

LINEAR RELATIONSHIPS UNIT
OVERVIEW

CCSS

TOPIC	TEACHING TIPS
Slope and Rate of Change	• Have students draw the side view of a steep ramp and the side view of a ramp that isn't very steep. Allow students to discuss what makes one ramp steeper than the other and emphasize the differences in the vertical change over the horizontal change.
Proportional and Non-Proportional Relationships	• An easy question students can ask to see if a situation is proportional is, "As one quantity doubles, does the other quantity double?". If the answer is yes, the relationship is proportional.
Slope-Intercept Form	• Search "Linear Equations" on www.Flocabulary.com for a related video. • To help students remember "b" is the y-intercept, use alliteration to say that "b" represents "begin".
Equations and Graphs	• Search "Graphing Lines" on www.brainpop.com for an interactive tool where students can manipulate the slope and the y-intercept of an equation to see how it will affect the graph of the equation.

teaching ideas

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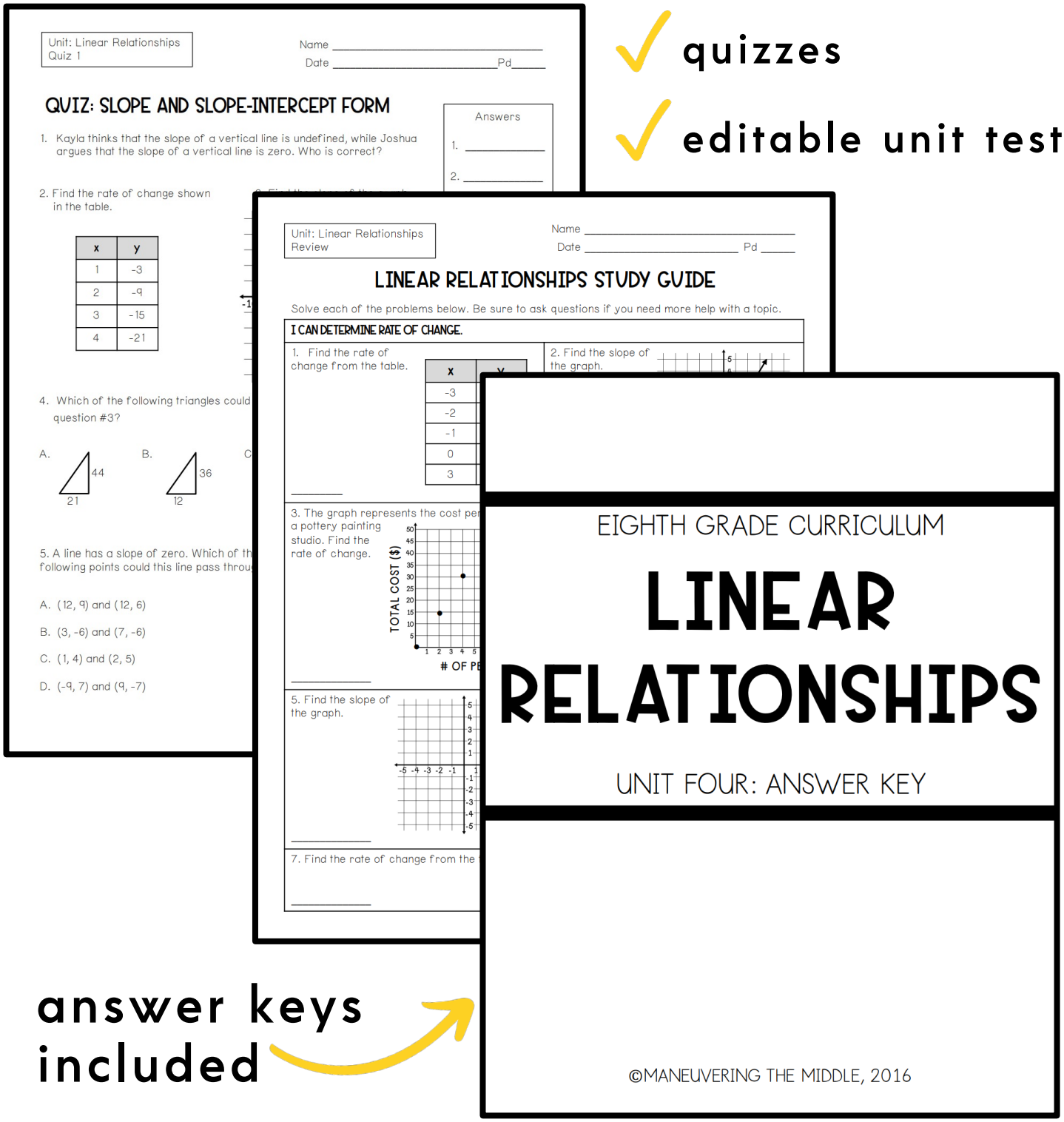
unit study guide + assessments



✓ quizzes

✓ editable unit test

answer keys included

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