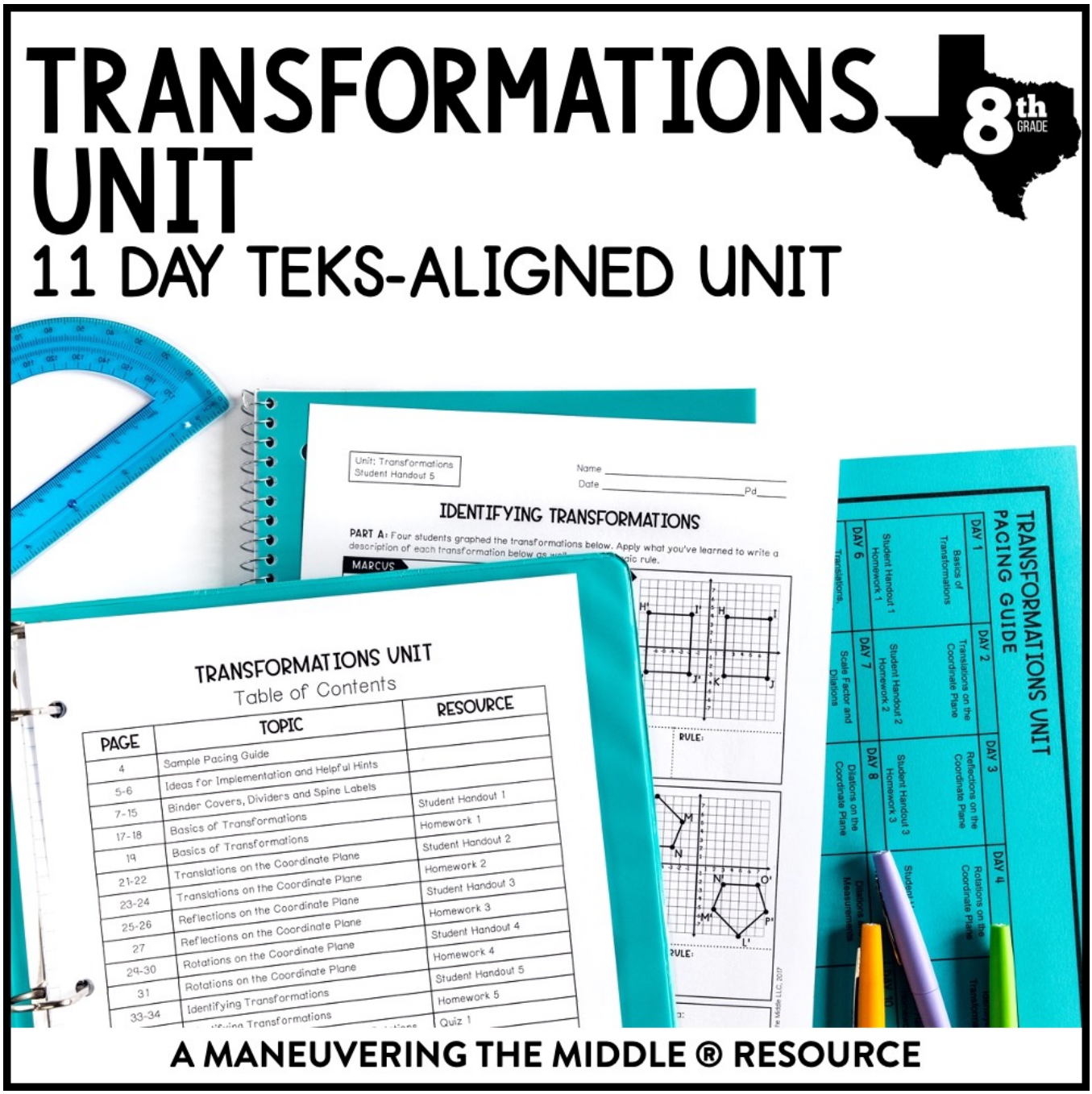
learning focus:

- ✓ generalize the properties of orientation and congruence of transformations
- ✓ use algebraic representations to explain the effect of transformations
- ✓ describe the effect of dilations on linear and area measurements



TRANSFORMATIONS

an 11 day TEKS-aligned unit

TEKS: 8.3A, 8.3B, 8.3C, 8.10A, 8.10B, 8.10C, 8.10D

ready-to-go, scaffolded student materials

TRANSFORMATIONS UNIT

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A MANEUVERING THE MIDDLE® RESOURCE

TRANSFORMATIONS

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TEKS: 8.3A, 8.3B, 8.3C, 8.10A, 8.10B, 8.10C, 8.10D

student friendly + real-world application

interactive practice

Unit: Transformations
Homework 1

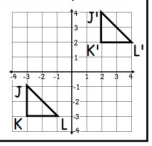
Name _____
Date _____ Pd____

BASICS OF TRANSFORMATIONS

Students were asked to create true statements about transformations. Circle the names of the students who correctly completed the task. Then, unscramble the underlined letters of the circled names to answer the riddle at the bottom.

LAVERNA

Triangle JKL was translated from quadrant I to III.



ALFONSO

AUTUMN

WILLA

The vertices of the original figure in a transformation are labeled with prime notations.

KATHYRN

A dilation will always preserve both the orientation of a figure and the orientation of the vertices.

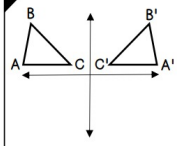
HOW DID TH

CONGRUENCE & ORIENTATION

- Congruence refers to whether the pre-image and image have the same _____ and _____.
- Orientation of the _____ refers to whether the pre-image and image are facing the same direction on the coordinate plane.
- Orientation of the _____ refers to the order in which the vertices are labeled, clockwise or counterclockwise.

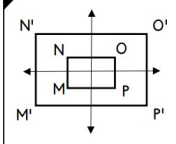
In 1-4, label the type of transformation between the pre-image and image and

1



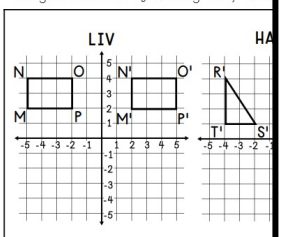
Transforma
Congruence
Orientation:
- Figure
- Vertices

3



Transforma
Congruence
Orientation:
- Figure
- Vertices

Liv and Hassan graphed the transform the given criteria by writing "Liv," "Has



Unit: Transformations
Student Handout 1

Name _____
Date _____ Pd____

BASICS OF TRANSFORMATIONS

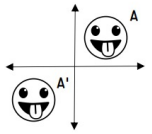
To transform a shape or figure means to _____ it. In general, we can change the size, location and direction that a figure is facing.

PRE-IMAGE AND IMAGE

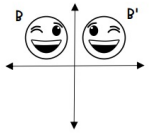
- The figure before a transformation is called the _____-_____, or the original figure. After a transformation, the new figure is called the _____.
- If the pre-image were labeled A, the image would then be labeled A', pronounced "A _____".

The table below gives an overview of the different types of transformations. Label the pre-image and the image in each example and list any keywords for the transformation.

TYPES OF TRANSFORMATIONS



KEYWORDS:



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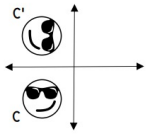
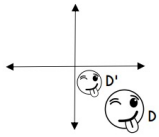


KEYWORDS:



KEYWORDS:

Where do you see transformations in the real world? List some examples below.

Translations:	Reflections:	Rotations:	Dilations:

scaffolded concepts

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streamline your planning process with unit overviews

TRANSFORMATIONS OVERVIEW

READINESS STANDARDS

8.3C Use an algebraic representation to explain the effect of a given positive rational scale factor applied to two-dimensional figures on a coordinate plane with the origin as the center of dilation.

8.10C Explain the effect of translations, reflections over the x- or y-axis, and rotations limited to 90°, 180°, 270° and 360° as applied to two-dimensional shapes on a coordinate plane using an algebraic representation.

SUPPORTING STANDARDS

8.3A Generalize that the ratio of corresponding sides of similar shapes are proportional, including a shape and its dilation.

8.3B Compare and contrast the attributes of a shape and its dilation(s) on a coordinate plane.

8.10A Generalize the properties of orientation and congruence of rotations, reflections, translations, and dilations of two-dimensional shapes on a coordinate plane.

8.10B Differentiate between transformations that preserve congruence and those that do not.

8.10D Model the effect on linear and area measurements of dilated two-dimensional shapes.

BIG IDEAS

- Two-dimensional figures ca
  the figure's coordinates, orie
- Transformations can be rep
  preserving others.

ESSENTIAL QUESTIO

- Where do you see the variou
- What are some key things to
- What is the difference betwe
- How will the scale factor us

✓ key vocabulary

✓ vertical alignment

sample pacing calendar

TRANSFORMATIONS UNIT PACING GUIDE

DAY 1	DAY 2	DAY 3	DAY 4	DAY 5
Basics of Transformations Student Handout 1 Homework 1	Translations on the Coordinate Plane Student Handout 2 Homework 2	Reflections on the Coordinate Plane Student Handout 3	Rotations on the Coordinate Plane Student Handout 4	Identifying Transformations Student Handout 5
DAY 6	**DAY 7**			
Translations, Reflections and Rotations Quiz Quiz 1	Scale Factor and Dilations Student Handout 6 Homework 6			
DAY 11				
Transformations Unit Test Test				

TRANSFORMATIONS UNIT OVERVIEW

TOPIC	TEACHING TIPS
Basics of Transformations	• Visit www.teachertube.com and search "Geometry Transformations Video" for a quick, simple video that introduces all 4 transformations through different real-world examples.
Translations	• Help students remember it's a slide by underlining the "sl" in translation. • Remind students that since the x-axis runs from left to right, translations to the left or right will affect the x-value. Similarly, since the y-axis runs up and down, translations up or down will affect the y-value.
Reflections	• Help students remember it's a flip by underlining the "fl" in reflection. • Since a common error is reflecting over the wrong axis, I like to have students highlight the line of reflection.
Rotations	• When determining the coordinates for a figure that will be rotated, I try to simplify the rotation "rules" by having students remember/do the following: 1. The x and y values **only** switch places when rotating 90° or 270° 2. Determine which quadrant the image will be in to determine the signs of your x and y values. (For example, a point on an image in Quadrant IV must have a positive x and negative y value.)
Dilations	• Remind students that they can determine the scale factor used in a dilation by setting up a ratio of the corresponding side lengths, but also by the corresponding values in the coordinates of the image and pre-image, depending on which is easier.
All Transformations	• Visit http://www.mangahigh.com/games/transtar for a game reviewing all transformations. Some of the reflections are over lines other than the x and y-axis, but it is still great practice and explains examples if students are unable to complete a round successfully. (Must have Adobe Flash Player to play.)

teaching ideas

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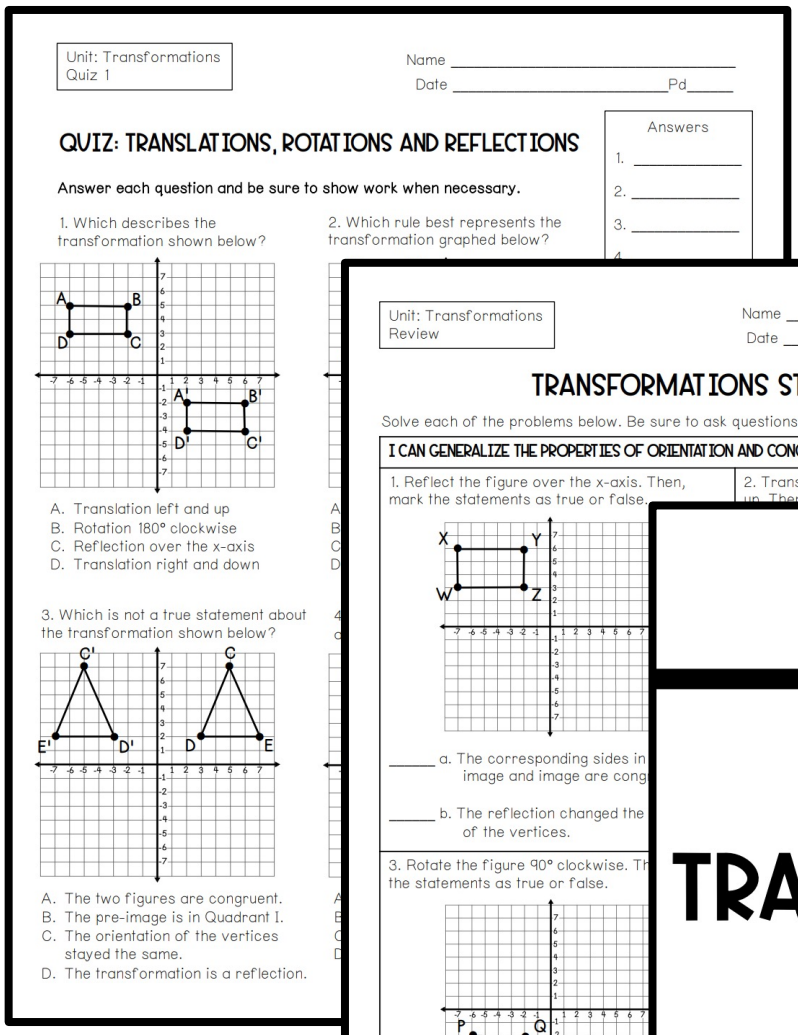
unit study guide + assessments



Unit: Transformations
Quiz 1

Name _____
Date _____ Pd____

QUIZ: TRANSLATIONS, ROTATIONS AND REFLECTIONS

Answer each question and be sure to show work when necessary.

Answers
1. _____
2. _____
3. _____

1. Which describes the transformation shown below?

A. Translation left and up
B. Rotation 180° clockwise
C. Reflection over the x-axis
D. Translation right and down

2. Which rule best represents the transformation graphed below?

3. Which is not a true statement about the transformation shown below?

A. The two figures are congruent.
B. The pre-image is in Quadrant I.
C. The orientation of the vertices stayed the same.
D. The transformation is a reflection.

Unit: Transformations
Review

Name _____
Date _____ Pd____

TRANSFORMATIONS STUDY GUIDE

Solve each of the problems below. Be sure to ask questions if you need more help with a topic.

I CAN GENERALIZE THE PROPERTIES OF ORIENTATION AND CONGRUENCE OF TRANSFORMATIONS. 8.10AB

1. Reflect the figure over the x-axis. Then, mark the statements as true or false.

_____ a. The corresponding sides in image and image are cong

_____ b. The reflection changed the of the vertices.

2. Translate the figure 8 units left and 2 units up. Then, mark the statements as true or false.

3. Rotate the figure 90° clockwise. Th the statements as true or false.

_____ a. The orientation of the figur change.

_____ b. The corresponding angle m the pre-image and image are

EIGHTH GRADE CURRICULUM

TRANSFORMATIONS

UNIT SIX: ANSWER KEY

- ✓ quizzes
- ✓ editable unit test

answer keys included

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