

Grade 8 Standards Parent Resource

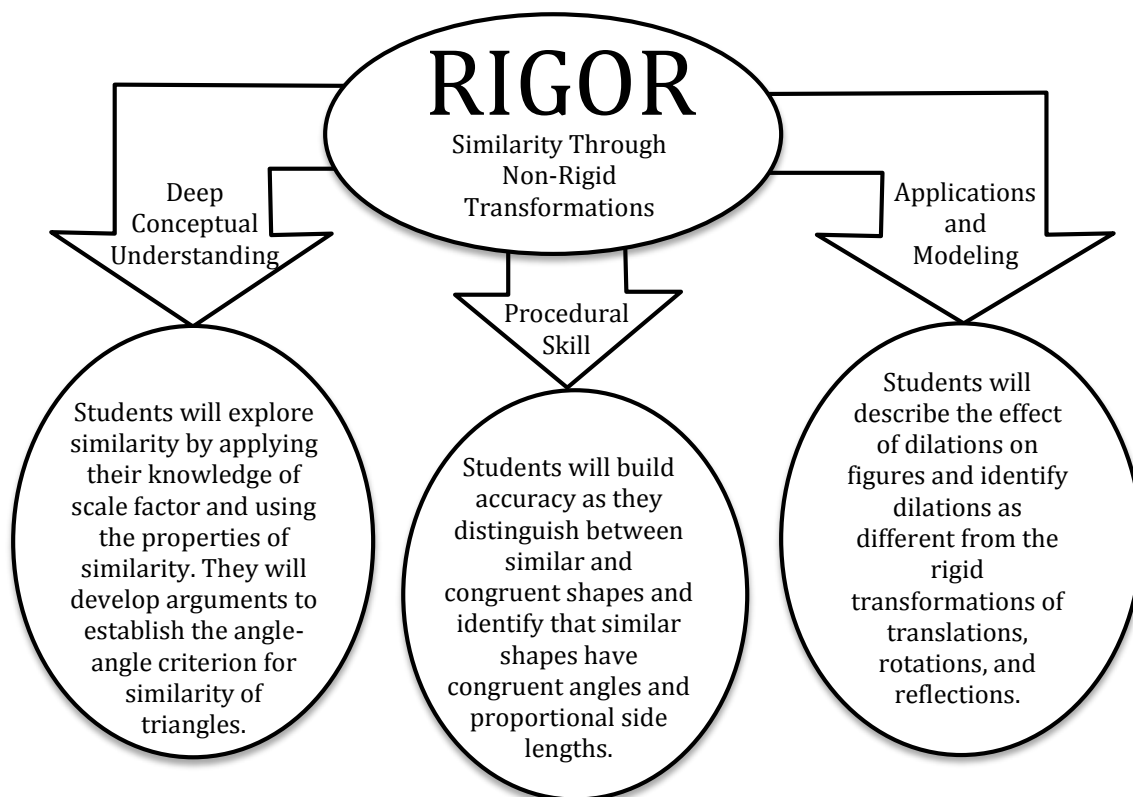
Unit #7: Transformations and Geometric Measurement

Unit 7 includes 3 topics of study, listed below. This resource is for Topic 2.

<i>Topic # 1</i>	Topic # 2	<i>Topic # 3</i>
<i>Congruence Through Rigid Transformations</i>	Similarity Through Non-Rigid Transformations	<i>Volumes of Cones, Cylinders, and Spheres</i>

	Learning Goals by Common Core State Standard
Topic	<i>Students will be able to...</i>
Similarity Through Non-Rigid Transformations	<ul style="list-style-type: none"> Describe the effect of dilations, translations, rotations, and reflections on two-dimensional figures using coordinates. Understand that a two-dimensional figure is similar to another if the second can be obtained from the first by a sequence of rotations, reflections, translations, and dilations; given two similar two-dimensional figures, describe a sequence that exhibits the similarity between them. Use informal arguments to establish facts about the angle sum and exterior angle of triangles, about the angles created when parallel lines are cut by a transversal, and the angle-angle criterion for similarity of triangles. <i>For example, arrange three copies of the same triangle so that the sum of the three angles appears to form a line, and give an argument in terms of transversals why this is so.</i> <p style="text-align: center;"><i>Instructional videos in the hyperlinks above are meant to support C2.0 content, but may use vocabulary or strategies not emphasized by MCPS.</i></p>

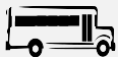
The Common Core State Standards require a balance of three fundamental components that result in rigorous mathematics acquisition: deep conceptual understanding, procedural skill, and mathematical applications and modeling.



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Unit #7: Transformations and Geometric Measurement Topic #2: Similarity Through Non-Rigid Transformations

Learning Experiences by Common Core State Standard



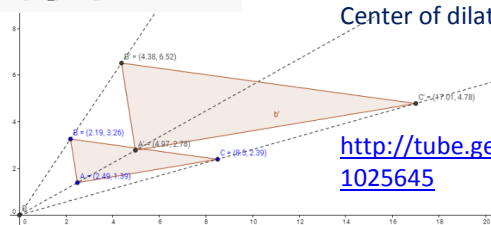
In school, your child will...



At home, your child can...

Topic #2: Similarity Through Non-Rigid Transformations

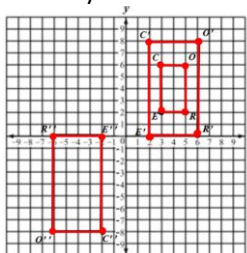
- Describe the effect of dilations, translations, rotations, and reflections on two-dimensional figures using coordinates.



Scale factor: 2
Center of dilation: the origin

<http://tube.geogebra.org/m/1025645>

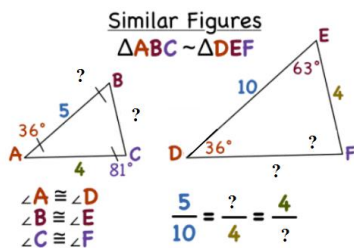
- Understand that a two-dimensional figure is similar to another if the second can be obtained from the first by a sequence of rotations, reflections, translations, and dilations; given two similar two-dimensional figures, describe a sequence that exhibits the similarity between them.



How many transformation have been performed on the figure?

How do you know which figures are congruent? Similar?

- Use informal arguments to establish facts about the angle-angle criterion for similarity of triangles.



$\angle A \cong \angle D$
 $\angle B \cong \angle E$
 $\angle C \cong \angle F$

$$\frac{5}{10} = \frac{?}{4} = \frac{4}{?}$$

from Virtualnerd.com

- Visit the CK12 PLIX (Play Learn Interact Xplore):
 - [Indirect Measurement: Treehouse Height](#): Use similar triangles to find the height of one object in relationship to another.
To access the PLIX, you will need to create a free user account.
- Examine how transformations appear in dance. The online video, [Grand Square](#), showcases two dances that were developed hundreds of years apart.
- Watch as the National Museum of Mathematics uses an image of a visitor to create a "[Human Tree](#)" using dilations. This video focuses on how similar figures can create dilations and extends student learning to explore how exponents can be used in an equation to express the proportional relationship in fractals.

Additional Resources

- [LearnZillion: Calculate the Scale Factor of a Dilation](#) (video tutorial)
- [LearnZillion: Solve word problems by doing dilations](#) (video tutorial)
- [Khan Academy: Drawing the Image of a Dilation Example](#) (video tutorial)
- [LearnZillion: Prove two figures are similar after a dilation](#) (video tutorial)
- [Virtual Nerd: Corresponding Parts of Similar Figures](#) (video tutorial)
- [Mangahigh.com - Transtar](#) (online game)
- [Mangahigh.com - Similar Shapes](#) (online practice)
- [Grade 8 Standards Unit 7 Topic 2 Similarity Through Non-Rigid Transformations](#) (flexbook)

Additional Practice links support C2.0 content, but may use vocabulary or strategies not emphasized by MCPS.