8th Grade Unit 1 Information
Transformations, Congruence, & Similarity

CRCT Domain & Weight:  Geometry  17%

Flip Book - Geometry

Overview of Unit 1

Prerequisites: Unit 1

Unit Length: Approximately 23 days

Checklist for Unit 1

Study Guide for Unit 1

Study Guide KEY for Unit 1

Calculators may be used in this unit, but students must know how to compute answers without calculators as well as with.

Click on the links below for resources by Concept:

Concept One: Rotations, Reflections, and Translations

Concept Two: Exhibiting Congruence of Figures Through Transformations

Concept Three: Dilations in the Coordinate Plane

Concept Four: Scale Factor, Length Ratios, and Area Ratios

Concept Five: Angle Sum in Triangles & Parallel Lines cut by Transversals
## Concept One: Rotations, Reflections, Translations

<table>
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<th>Standard(s) &amp; Essential Questions</th>
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| MGSE8.G.1 Verify experimentally the congruence properties of rotations, reflections, and translations: lines are taken to lines and line segments to line segments of the same length; angles are taken to angles of the same measure; parallel lines are taken to parallel lines. | - Angle of rotation  
- Reflection  
- Reflection line  
- Rotation  
- Transformation  
- Translation | Activator – “Gangnam Style”  
https://www.youtube.com/watch?v=NKtJd1hkl9k  
- Eureka Math (2014 Common Core) License  
Concept One ~ TE | SE |
| | | - CCGPS Frameworks: Introduction into Reflections, Translations, and Rotations | |
| | | - Glencoe CCGPS Math Text (McGraw-Hill, 2013) - Translations - p. 453-454; 455(omit #3); 456; 457(omit #5 & 6); 458-460 | |
| | | - Translation Practice Worksheet | |
| | | - Differentiated Translations:  
Use p. 460 18-20 Formative Assessment  
  - Support/On Target SE | TE  
  - Extend | |
| | | - Glencoe CCGPS Math Text (McGraw-Hill, 2013) - Reflections - p. 461-462; 463(omit #3); 464(only #1 & 3); 465-467(omit #17); 468-472(assess) | |
| | | - Reflection Practice Worksheet | |
| | | - Differentiated Reflections:  
  - Extend Reflections  
  - Support/OnTarget Reflections | |

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TCSS ~ Transformations, Congruence, & Similarity

### Concept One: Rotations, Reflections, Translations

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<tr>
<td></td>
<td></td>
<td>- Glencoe CCGPS Math Text (McGraw-Hill, 2013) - <strong>Rotations</strong> - p. 475-478; 479(omit #3 &amp; 5); 480-482( omit # 6 &amp; 12)</td>
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<td>- <strong>Cha Cha Transformations</strong></td>
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# TCSS ~ Transformations, Congruence, & Similarity

## Concept Two: Exhibiting Congruence of Figures Through Transformations

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</table>
| **MGSE8.G.2** Understand that a two-dimensional figure is congruent to another if the second can be obtained from the first by a sequence of rotations, reflections, and translations; given two congruent figures, describe a sequence that exhibits the congruence between them. | • similar figures  
• corresponding sides  
• corresponding angles  
• congruent figures | • Glencoe CCGPS Math Text (McGraw-Hill, 2013) p. 509 – 528  
• Rotation Practice Worksheet  
• Differentiation Opportunity:  
  o [Shell FAL:Represent Transformations](#)  
• Differentiated Rotations:  
  o Support [SE | TE](#)  
• Multiple Transformations Worksheet  
  o May be done in pairs or individually  
• Problem Solving Translations [SE | TE](#) | **MGSE.8.G.2**

**EQ:** What information is necessary before I can conclude two figures are congruent?
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<td>MGSE8.G.3</td>
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<tr>
<td>Describe the effect of dilations, translations, rotations and reflections on two-dimensional figures using coordinates.</td>
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<td>EQ: What is a dilation and how does this transformation affect a figure in the coordinate plane?</td>
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<tr>
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<td>Dilation</td>
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<td>Activator – “Honey I Shrunk the Kids” <a href="#">video</a></td>
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<td></td>
<td>Eureka Math (2014 Common Core) License</td>
<td>Concept Three ~ <a href="#">TE</a></td>
<td><a href="#">SE</a></td>
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<tr>
<td></td>
<td>Differentiated Dilations:</td>
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<td></td>
<td>- Support Dilations <a href="#">SE</a></td>
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<td><a href="#">TE</a></td>
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<td>- Extend Dilations <a href="#">SE</a></td>
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<td><a href="#">TE</a></td>
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<td>Station Activity Book ~ Transformations</td>
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<td></td>
<td>Dilations Worksheet</td>
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<td></td>
<td>CCGPS Frameworks: Coordinating Reflections <a href="#">SE</a></td>
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<td><a href="#">TE</a></td>
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<tr>
<td></td>
<td>CCGPS Frameworks: Coordinating Translations <a href="#">SE</a></td>
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<td><a href="#">TE</a></td>
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[MGSE.8.G.3](#)
# TCSS ~ Transformations, Congruence, & Similarity

## Concept 4: Scale Factor, Length Ratios, and Area Ratios

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<th>Assessment Examples</th>
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<tr>
<td>MGSE8.G.4</td>
<td>scale Factor</td>
<td>▪ Eureka Math (2014 Common Core) <a href="#">License</a> Concept Four ~ TE</td>
<td>MGSE.8.G.4</td>
</tr>
<tr>
<td></td>
<td>similar figures</td>
<td>▪ Glencoe CCGPS Math Text (McGraw-Hill, 2013) p. 537-544</td>
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<tr>
<td></td>
<td>corresponding sides</td>
<td>▪ Glencoe CCGPS Math Text (McGraw-Hill, 2013) p. 545-552 (Notice it references dilations to prove similarity or asks us to determine how it was transformed. They should not spend a lot of time doing random similar figures. They should be tied to dilations &amp; transformations.)</td>
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<td></td>
<td>corresponding angles</td>
<td>▪ CCGPS Frameworks: Changing Shapes SE Changing Shapes TE</td>
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<td></td>
<td>▪ Glencoe CCGPS Math Text (McGraw-Hill, 2013) p. 553-560 (Approach these from the view of what they’ve learned about dilated figures.)</td>
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**EQ:** In what ways can I represent the relationships that exist between similar figures using the scale factors, length ratios, & and area ratios?
## Concept Five: Angle Sum in Triangles & Parallel Lines cut by Transversals

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<tr>
<td><strong>MGSE8.G.5</strong> 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. For example, arrange three copies of the same triangle so that the three angles appear to form a line, and give an argument in terms of transversals why this is so.</td>
<td>Alternate Exterior Angles</td>
<td>Eureka Math (2014 Common Core) <a href="#">License</a> Concept Five ~ TE</td>
<td><strong>MGSE.8.G.5</strong></td>
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<tr>
<td></td>
<td>Linear pair</td>
<td><strong>Using Equations to Solve for Angle Relationships</strong></td>
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<td>Same-Side Interior Angles</td>
<td><strong>Station Activities Grade 8 ~ Angles</strong></td>
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<td></td>
<td>Same-Side Exterior Angles</td>
<td><strong>Station Activities Grade 8 ~ Transversals</strong></td>
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<td>Transversal</td>
<td>Coach GPS Book Lesson 8</td>
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<td><strong>Angle Activity</strong></td>
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<td>CCGPS Frameworks: Similar Triangles SE</td>
<td>TE</td>
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<td><strong>Equations to Find Angle Measurement</strong></td>
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<td><strong>GIFTED</strong>: Glencoe CCGPS Math Text (McGraw-Hill, 2013) p. 397-404</td>
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<td><strong>Transversals &amp; Sticky Notes</strong></td>
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<td><strong>Tessellation Project</strong></td>
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EQ: When I draw a transversal through parallel lines, what are the special angle and segment relationships that occur?

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