

HPISD CURRICULUM
(MATH, GRADE 8)

EST. NUMBER OF DAYS: 7

UNIT NAME	UNIT 9: PROPORTIONALITY WITH SIMILAR FIGURES	
Unit Overview	1. Students extend their understanding of proportionality to include transformations of similar figures and to examine relationships that are proportional and those that are not	
Generalizations/Enduring Understandings	2. Changes in dimensions affect linear and area measures of two-dimensional figures. 3. An algebraic representation can explain the effect of a given positive rational scale factor applied to 2D figures on a coordinate plane. 4. The ratio of corresponding sides of similar shape is proportional, including a shape and its dilation.	
Concepts	5. Dilations: Enlargements or reductions of a figure that preserves congruency of its angles by using scale factor. 6. Transformations: Translations, reflections, rotations as applied to 2D shapes on a coordinate plane using an algebraic representation	
Guiding/Essential Questions	7. How is a proportion similar and different to a ratio? 8. What kinds of problems can be solved using proportional relationships? 9. What are the characteristics of figures that are not proportional? 10. How do you describe the properties of dilations? How do multiplicative changes in dimensions affect linear and area measures of two-dimensional figures? 11. What are the characteristics of similar figures and how does this help find missing measurements such as side lengths or angle measures? 12. How do you describe the properties of orientation and congruence of transformations? 13. How can you describe the effect of transformation on coordinates using an algebraic representation?	
	Performance Levels	Learning Progression (***) Decision Point)
Learning Targets	LEVEL 4: <u>LEVEL 3:</u> LEVEL 2:	Students will represent, apply, and analyze proportionality as it applies to similar figures, dilations, and scale factor.
	LEVEL 4: <u>LEVEL 3:</u> LEVEL 2:	Students will explain the effect of translations on a coordinate plane using an algebraic representation.
Formative Assessments	<i>Title</i>	
Summative Assessments	<i>Title</i>	

TEKS		
TEKS	TEKS: Readiness Standards	TEKS: Supporting Standards
	<p>8.3C use and algebraic representation to explain the effect of a given positive rational scale factor applied to 2D figures on a coordinate plane with the origin as the center of dilation</p> <p>8.10C explain the effect of translations, reflections over the x- or y-axis, and rotations limited to 90, 180, 270, and 360 degrees as applied to 2D shapes on a coordinate plane using an algebraic representation</p>	<p>8.3A generalize that the ratio of corresponding sides of similar shapes are proportional, including a shape and its dilation</p> <p>8.3B compare and contrast the attributes of a shape and its dilation(s) on a coordinate plane</p> <p>8.10A generalize the properties of orientation and congruence of rotations, reflections, translations, and dilations of 2D shapes on a coordinate plane</p> <p>8.10B differentiate between transformations that preserve congruence and those that do not</p>
	TEKS Process Standards	
	<p>8.1(A) apply mathematics to problems arising in everyday life, society, and the workplace</p> <p>8.1(B) use a problem-solving model that incorporates analyzing given information, formulating a plan or strategy, determining a solution, justifying the solution, and evaluating the problem-solving process and the reasonableness of the solution</p> <p>8.1(C) select tools, including real objects, manipulatives, paper and pencil, and technology as appropriate, and techniques, including mental math, estimation, and number sense as appropriate, to solve problems</p> <p>8.1(D) communicate mathematical ideas, reasoning, and their implications using multiple representations, including symbols, diagrams, graphs, and language as appropriate</p> <p>8.1(E) create and use representations to organize, record, and communicate mathematical ideas</p> <p>8.1(F) analyze mathematical relationships to connect and communicate mathematical ideas</p> <p>8.1(G) display, explain, and justify mathematical ideas and arguments using precise mathematical language in written or oral communication</p>	
Processes and Skills	<p>Identify proportional relationships in real contexts.</p> <p>Determine and apply scale factor as it relates to dilations.</p> <p>Compare and contrast proportional relationships.</p> <p>Solve problems involving proportional relationships. Measure lengths and areas indirectly using proportional relationships.</p>	<p>A proportion is a relationship of equality between two ratios.</p> <p>In any proportion, the ratio of two quantities remains constant as the corresponding values of the quantities change.</p> <p>A dilation is an enlargement or reductions of a shape using a scale factor. Transformations can be translations, reflections, rotations or dilations.</p>
Topics	<p>Dilations</p> <p>Non-proportional relationships</p> <p>Proportions</p> <p>Proportions in context</p> <p>Rates</p>	

	Ratios Scale factor Similar figures
Language of Instruction	dilation enlargement multiplicative proportion similar proportional change reduction reflections rotation scale factor scale factor translation
State Assessment Connections	
National Assessment Connections	
Resources	