

ELG 7.5: Draw construct, and describe geometrical figures and describe the relationships between them.

Vertical Progression:

5 th Grade	<p>5.G.B Classify two-dimensional figures into categories based on their properties.</p> <ul style="list-style-type: none"> ○ 5.G.B.3 Understand that attributes belonging to a category of two-dimensional figures also belong to all subcategories of that category. For example, all rectangles have four right angles and squares are rectangles, so all squares have four right angles. ○ 5.G.B.4 Classify two-dimensional figures in a hierarchy based on properties.
6 th Grade	<p>ELG 6.8 Solve real-world and mathematical problems involving area, surface area, and volume.</p> <ul style="list-style-type: none"> ○ 6.G.A.3 Draw polygons in the coordinate plane given coordinates for the vertices; use coordinates to find the length of a side joining points with the same first coordinate or the same second coordinate. Apply these techniques in the context of solving real-world and mathematical problems. ○ 6.G.A.4 Represent three-dimensional figures using nets made up of rectangles and triangles, and use the nets to find the surface area of these figures. Apply these techniques in the context of solving real-world and mathematical problems.
7 th Grade	<p>ELG 7.5 Draw construct, and describe geometrical figures and describe the relationships between them.</p> <ul style="list-style-type: none"> ○ 7.G.A.1 Solve problems involving scale drawings of geometric figures, including computing actual lengths and areas from a scale drawing and reproducing a scale drawing at a different scale. ○ 7.G.A.2 Draw (freehand, with ruler and protractor, and with technology) geometric shapes with given conditions. Focus on constructing triangles from three measures of angles or sides, noticing when the conditions determine a unique triangle, more than one triangle, or no triangle. ○ 7.G.A.3 Describe the two-dimensional figures that result from slicing three-dimensional figures, as in plane sections of right rectangular prisms and right rectangular pyramids.
8 th Grade	<p>ELG 8.7 Understand congruence and similarity using physical models, transparencies, or geometry software.</p> <ul style="list-style-type: none"> ○ 8.G.A.5 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 <p>ELG 8.8 Analyze and solve linear equations and pairs of simultaneous linear equations.</p> <ul style="list-style-type: none"> ○ 8.G.B.6 Explain a proof of the Pythagorean Theorem and its converse. ○ 8.G.B.7 Apply the Pythagorean Theorem to determine unknown side lengths in right triangles in real-world and mathematical problems in two and three dimensions. ○ 8.G.B.8 Apply the Pythagorean Theorem to find the distance between two points in a coordinate system.

Students will demonstrate command of the ELG by:

- Solving problems involving scale drawings.
- Finding actual lengths and area from a scale drawing.
- Reproducing a scale drawing using a different scale.
- Constructing triangles from three measures of angles and sides, showing when they form 2 triangles, one triangle, or no triangles.
- Describing the two-dimensional figures that can be made from slicing right rectangular prisms or pyramids with a plane.

ELG 7.5: Draw construct, and describe geometrical figures and describe the relationships between them.

Vocabulary:

- plane sections
- right rectangular prism
- right rectangular pyramid
- scale
- scale drawings
- three dimensional
- two-dimensional
- unique triangle

Sample Instructional/Assessment Tasks:

1) Standard(s): 7.G.A.1

Source: <https://www.illustrativemathematics.org/content-standards/7/G/A/1/tasks/107>

Item Prompt:

Mariko has an 80:1 scale-drawing of the floor plan of her house. On the floor plan, the dimensions of her rectangular living

room are $1\frac{7}{8}$ inches by $2\frac{1}{2}$ inches.

What is the area of her real living room in square feet?

Correct answer(s)

$208\frac{1}{3}$ square feet

2) Standard(s): 7.G.A.3

Source: PARCC Seventh Grade Practice EOY Test

Item Prompt:

Misha has a cube and a right-square pyramid that are made of clay. She places both clay figures on a flat surface.

Select each box in the table that identifies the two-dimensional-plane sections that **could** result from a vertical or horizontal slice through each clay figure.

Clay Figure	Cube	Right-Square Pyramid
Triangle	<input type="checkbox"/>	<input type="checkbox"/>
Square	<input type="checkbox"/>	<input type="checkbox"/>
Rectangle That is Not a Square	<input type="checkbox"/>	<input type="checkbox"/>

Correct Answer(s)

Clay Figure	Cube	Right-Square Pyramid
Triangle	<input type="checkbox"/>	X
Square	X	X
Rectangle That is Not a Square	X	<input type="checkbox"/>