



## Topic D:

## Ratios of Scale Drawings

## 7.RP.A.2b, 7.G.A.1

<b>Focus Standard:</b>	7.RP.A.2b	Recognize and represent proportional relationships between quantities. b. Identify the constant of proportionality (unit rate) in tables, graphs, equations, diagrams, and verbal descriptions of proportional relationships.
	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.
<b>Instructional Days:</b>	7	
	<b>Lesson 16:</b>	Relating Scale Drawings to Ratios and Rates (E) <sup>1</sup>
	<b>Lesson 17:</b>	The Unit Rate as the Scale Factor (P)
	<b>Lesson 18:</b>	Computing Actual Lengths from a Scale Drawing (P)
	<b>Lesson 19:</b>	Computing Actual Areas from a Scale Drawing (P)
	<b>Lesson 20:</b>	An Exercise in Creating a Scale Drawing (E)
	<b>Lessons 21–22:</b>	An Exercise in Changing Scales (E)

In the first lesson of Topic D, students are introduced to scale drawings; they determine if the drawing is a reduction or enlargement of a two-dimensional picture. Pairs of figures are presented for students to match corresponding points. In Lesson 17, students learn the term *scale factor* and recognize it as the constant of proportionality. With a given scale factor, students make scale drawings of pictures or diagrams. In Lessons 18 and 19, students compute the actual dimensions of objects shown in pictures given the scale factor. They recognize that areas scale by the square of the scale factor that relates lengths. In the final lessons, students engage in their own scale factor projects—first, to produce a scale drawing of the top-view of a furnished room or building, and second, given one scale drawing, to produce new scale drawing using a different scale factor.

<sup>1</sup> Lesson Structure Key: **P**-Problem Set Less, **M**-Modeling Cycle Lesson, **E**-Exploration Lesson, **S**-Socratic Lesson