

## Standards for Mathematical Practice

[MP.1.](#) Make sense of problems and persevere in solving them.  
[MP.2.](#) Reason abstractly and quantitatively.  
[MP.3.](#) Construct viable arguments and critique the reasoning of others.  
[MP.4.](#) Model with mathematics.

[MP.5.](#) Use appropriate tools strategically.  
[MP.6.](#) Attend to precision.  
[MP.7.](#) Look for and make use of structure.  
[MP.8.](#) Look for and express regularity in repeated reasoning.

Standard	Clarifications
<p><b>KY.7.G.1</b> 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.</p> <p><i>Alternate Assessment Target: Limit to computing actual lengths and areas from scaled drawings.</i></p>	<p>Emphasis is on being able to convert values from one given measurement to another based on a given scale factor. For example, 1 inch on the scale drawing equals how many feet in real life based on the scale factor given. Students reproduce a given drawing based on a scale factor.</p> <p><i>Alternate Assessment Clarification: NA</i></p>
Connections to Math Practices	Coherence/Foundational Understandings
<p><b>MP.1</b> Make sense of problems and persevere in solving them.          (Make sense of math*)          Students make sense of the scale drawing.</p> <p><b>MP.5</b> Use appropriate tools strategically. (Use tools to make sense of math*)          Students have opportunities to reflect on the appropriateness of a tool for a particular task.</p> <p><b>MP.6</b> Attend to precision. (Communicate precisely.)*  <b>Key Vocabulary:</b> scale, scale factor, area, scale drawing, length, units of measure</p> <p>Click here to see more about what teachers and students do to build the math practices: <a href="#">Engaging the Math Practices and Question Stems</a></p>	<p><b>Pre-requisite Skills</b></p> <ul style="list-style-type: none"> <li>• Calculating area</li> <li>• Decomposing composite figures into familiar shapes</li> <li>• Ratio -within the scale 1 inch to 5 feet</li> </ul> <p>Coherence <a href="#">KY.6.G.1</a>→<a href="#">KY.7.G.1</a>→<a href="#">KY.8.EE.6</a></p> <p><a href="#">Kentucky Academic Standards for Mathematics</a></p>

\*Clarification to the [math practices by Robert Kaplinsky](#).

**Instructional Considerations****Possible Areas of Difficulties/Misconceptions**

- Initially, students may struggle with moving from a concrete understanding of a real-world situation to a miniature version.
- Have students locate familiar spaces on a scale drawing and compare it with familiar space within the school.
- Using graph paper will cut down on measurement errors.
- Areas that have composite shapes (eg. rectangle with two hemispheres as in a running track) may be difficult for students to see the shapes embedded within the composite shape.
- Have students color code the shapes into shapes they are familiar with to calculate area and lengths. Students have difficulty with using precise language when identifying units of measure (area is measured in square units (eg.  $\text{ft}^2$ ) while lengths are in linear measure (eg. ft)
- Color coding the lengths vs area of figures.

**Suggested Tools/Visual Aids -**

- [KY Alternate Assessment Resource Guide](#) (General terms pps 6-11 ; Math terms pps 22-26)
- Measuring actual spaces eg. classroom or library to make connection between scale drawing and real world.space
- Graph paper
- Rulers, tape measures
- White boards (with grid) color markers