

Standards

- Understand and use U.S. customary and metric measurements. Idaho Grade 9 Mathematics
 - Apply the concepts of rates, ratios, and proportions. Idaho Grade 9 Mathematics
 - Apply dimensional analysis. Idaho Grade 9 Mathematics
 - Apply appropriate techniques and tools to determine measurements. Idaho Grade 9 Mathematics
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Search & Add Standards

Objective & Essential Question

Students will be able to sketch 3-D objects, one of which is real life, showing multi-perspective views, labeling key segments with accurate measure and determining the scale to which the object was drawn.

Materials

Worksheet
Orthographic paper
Rulers

21st Century Skills

- Communication
- Collaboration
- Critical Thinking
- Creativity

Procedures

Introduction to new material

1. Orthographic paper sketches (cube, prism, cylinder)
2. Multi-view perspective (front, top, right)
3. Scale drawing (ratio, proportion)

Direct Instruction

1. Demonstrate how to draw a triangle, rectangle, cube, triangular prism, cylinder using orthographic paper
2. Demonstrate how to draw front, top and right views of real life object
3. Review measurement to 1/16-inch
4. Review conversions between customary units of inch, foot, yard
5. Review ratio, proportion

Guided Practice

1. Students mimic demonstrated drawings and multi-views using orthographic paper and ruler
2. Students use ruler to determine and label measurement to nearest 1/16th-inch in inches
3. Students determine scale

Independent Practice

1. Students complete worksheet on measurement (measure given lines, convert between units).
2. Students create a 3-D design of a real life object with front, top and right views, labeling units and determining scale ratio.

Extension

1. Students envision their drawing of a real life object and determine measurement in either feet or yards assuming the object is enlarged to a given scale.

Assessment

Packet of work is shared with class. Feedback given.

Homework

Finish worksheet and sketches as needed for due date.