

Problem Question: What can we build/create for our community to provide a better outdoor recreation opportunity for all ages.

PLTW Intro to Engineering Design

Sketch, Measure, Scale

Standards

- Content Standard 4.0: Engineering Documentation
 - 4.1.1 Develop design ideas using freehand sketching
 - 4.1.3 Create pictorial and multi-view sketches
- Performance Standard 4.4: Technical Drawings
 - 4.4.2 Produce drawings from sketches
 - 4.4.5 Construct drawings utilizing metric and customary (i.e., SAE and Imperial) measurement systems.

Objective & Blooms Taxonomy Level

Students will be able to create technical sketches using isometrics, orthographic projections with dimensions, and plan views for a product.

Materials

- Isometric Paper
- Graph Paper
- Measuring Devices
- Drawing Equipment
- Internet Access
- PowerPoint Software
- Other Resources

Procedures

Introduction to New Materials

1. Technical sketching
2. Standard linear measurement
3. Scale drawings
4. Teamwork

Direct Instruction

1. Demonstrate isometric and orthographic sketching
2. Assist students with scaling drawings
3. Instruct on standard measure to 1/16"

Guided Practice

1. Isometric sketching
2. Orthographic sketching (3 views)
3. Standard measurement
4. Scale drawings
5. Teamwork (collaboration)

Independent Practice

1. Sketching and Measurement

Extension

Students will use Google Map to overlay sketches onto the city map or area map to and present their idea to the class.

Assessment

- Formative assessment
- Peer assessment

Homework
None
Accommodations & Modifications
As per 504 and IEPs
Reflection