

## Lesson Properties

**Course:** Principles of Applied Engineering

**Unit:** Structural Engineering Physical Build

**Teacher:** Rick Ortiz

**Start Date:**

**January 4, 2018**

**Completion Target:**

**January 31, 2018**

## STAGE 1 – Instructional Target

### Learning Objectives / Goals

- Ss will understand the fundamentals of scale and how it applies to real-world engineering projects.
- Ss will understand how to build physical models based on computer-generated blueprints.
- Ss will apply learned concepts from previous unit to create working prototypes of their designs.
- Ss will apply lab / shop safety principles to safely utilize shop tools to complete their physical models.

### Standards Addressed

§130.402.c. 1.B, 1.C, 1.D, 5.A, 6.C, 6.D, 9.D

### Cross-Curricular Connections

§112.39.c.4.D, 4.E (Physics, Free Body Diagrams)

## STAGE 2 – Assessment

### Performance Tasks

- Ss will complete Scale Lab.
- Ss will utilize prior knowledge of engineering design and evaluation to select a final design from 2-3 proposed designs.
- Ss will physically build the selected design following computer-generated blueprints.

### Secondary Evidence

- T will conduct informal observation and document findings in Observation Checklist.
- T and Ss will complete destructive testing on their finished prototypes using an official structures testing instrument.

## STAGE 3 – Lesson Delivery

### Instructional Strategies

Direct Instruction, Modeling, Self-Paced Assignments, Virtual Learning Environment, Blended Learning

### Instructional Materials

WhiteBox Learning System, Student Workstations, Internet Connectivity, Balsa Wood Strips, General Shop Tools,

### Differentiated Instruction Supports

- Provide accommodations/ modifications to Ss in accordance with IEP/ (SpEd.)
- Front-load instructional materials on virtual learning platform. (LEP)
- Provide online translation tools as needed. (LEP)
- Provide visual aids, graphic organizers, etc. as needed.