

Engineering Design Level 2



Description

The Engineering Design Level 2 curriculum includes hands-on and virtual design elements. Students use the Gears Totally Trebuchet kit and SOLIDWORKS software to design and create functioning trebuchets.

Skills

- Focuses on the development of academic knowledge, employability skills, and technical skills. As students progress through the curriculum, the classroom instructor uses a detailed rubric to subjectively evaluate the student's skill and proficiency.

Objectives

- Create a sketch in SOLIDWORKS.
- Change the material properties of a part in SOLIDWORKS.
- Dimension drawings in 2-D.
- Locate and describe points on an x, y-axis grid using Cartesian coordinates.
- Calculate the perimeter and area of basic geometric shapes.
- Build an inclined plane to demonstrate how gravity affects speed and velocity.

Activities

- Lesson 1 Level 1 Review Part I
- Lesson 2 Level 1 Review Part II
- Lesson 3 Right Triangles and Coordinates
- Lesson 4 Calculating Angles
- Lesson 5 Perimeter and Area of Basic Shapes
- Lesson 6 Perimeter, Area, and Volume of Compound Shapes
- Lesson 7 Speed, Velocity, and Acceleration
- Lesson 8 Mass, Gravity, Weight, and Density
- Lesson 9 Work, Potential Energy, and Kinetic Energy
- Lesson 10 Trebuchet Construction
- Lesson 11 Engineering Models
- Lesson 12 Design Parameters
- Lesson 13 Design Problem
- Lesson 14 Trebuchet Mechanics I
- Lesson 15 Trebuchet Mechanics II
- Lesson 16 Engineering Design
- Lesson 17 Analyzing the Trebuchet I
- Lesson 18 Analyzing the Trebuchet II
- Lesson 19 Trebuchet Games
- Lesson 20 Challenge and Review

Standards

DEPCO courseware is developed from the Manufacturing Skill Standards Council (MSSC) and the National Skill Standards Board (NSSB). Close correlation with these standards will provide students with the skills and knowledge necessary for success in the workplace.

Module Includes:

Training Manuals, Instructor's Manual, Installation CD, GEARS Trebuchet Kit, SOLIDWORKS Software Package, Headphones

Requirements

Computer required and sold separately

Curriculum Specifications

Engineering Design Level 1 is the prerequisite.