

Lesson Properties

Course: Principles of Applied Engineering

Unit: Advanced 3D Modeling, Physical Print

Teacher: Rick Ortiz

Start Date:

August 23, 2017

Completion Target:

October 20, 2017

STAGE 1 – Instructional Target

Learning Objectives / Goals

- Ss will apply learned 3D Modeling fundamentals to model complex parts from technical drawings as reference.
- Ss will understand how to read technical drawings.
- Ss will apply learning to translate dimensional and spatial information to from technical drawings in a 3D modeling environment.
- Ss will apply learned concepts to design and print their own model.

Standards Addressed

§130.402.c.3.C, 3.D, 3.E, 6.B, 6.D, 10.A, 10.B, 10.C, 10.D, 10.E, 10.F, 10.G, 10.H, 10.A

Cross-Curricular Connections

§111.14.c.4.D (Geometry)

STAGE 2 – Assessment

Performance Tasks

- Ss will solve real-world problems by implementing engineering design principles to develop a working model.
- Ss will apply learned concepts using AutoDesk Inventor to complete complex models based on technical drawings and submit to instructor for evaluation.
- Ss will research real-world problems and develop efficient solutions using a 3D modeling environment.

Secondary Evidence

- T will conduct informal observation and document findings in Observation Checklist.
- Ss will print their completed designs using a 3D printer.
- **Extension:** Ss can compete in 3D CAD competitive event through TSA.

STAGE 3 – Lesson Delivery

Instructional Strategies

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

Instructional Materials

Student Workstation, AutoDesk Inventor 2017, 3D Modeling Manual, MakerBot 3D Printer, Filament

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.