

Lesson Properties

Course: Principles of Applied Engineering

Unit: Introduction to 3D Modeling (CAD)

Teacher: Rick Ortiz

Start Date:

August 30, 2017

Completion Target:

September 22, 2017

STAGE 1 – Instructional Target

Learning Objectives / Goals

- Ss will define 3D modeling features: chamfer, fillet, round, hole, scale, extrude, mirror, pattern, etc.
- Ss will understand and apply 3D modeling techniques: revolve, extrude, mirror, 2D pattern, 3D pattern.
- Students will understand how to constrain geometry in 2 and 3 dimensions.

Standards Addressed

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

Cross-Curricular Connections

§111.14.c.4.D (Geometry)

STAGE 2 – Assessment

Performance Tasks

- Ss will complete various assessment activities in AutoDesk Inventor 2017 to practice and master individual CAD modeling skills.
- Ss will complete industry-standard modeling exercises using Autodesk Inventor and submit for evaluation by T.
- Ss will apply learned concepts to design successively more complex 3D models.

Secondary Evidence

- T will conduct informal observation and document findings in Observation Checklist.
- Ss will graduate to create their own model for 3D printing in the following unit, 'Advanced 3D Modeling'.
- **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

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.