

Appendix F – Scope & Sequence

3-D Printing: Vehicle Engineering

(Three-week activity)

Requires fifteen to nineteen 45-minute class periods.

Note: Time required will vary with the number of 3-D printers available. This scope and sequence is based on using one 3-D printer for a class of 25 students.

Teacher

1 Class

- Introduce the unit using the Day 1 Presentation – Engineering Design.
- Lead a discussion on the engineering design process and the challenge.

Students

- View the presentation.
- Participate in the discussion on the engineering design process and the challenge.

Teacher

1 Class

- Introduce Rapid Prototyping using the Day 2 Presentation – Prototyping.
- Show the 3-D Printing video.
- Break students into five teams. Hand out *Engineering Notebooks* and *Competition Catalogs* to each student team.

Students

- View the presentation.
- View the video.

Teacher

2 Classes

- Have students work on preliminary concepts for the design challenge.
- Check on student progress and answer questions students might have as they work through their design ideas.

Students

- Record ideas, notes, and sketches in their *Engineering Notebooks*.
- Students complete the Design Matrix section of the notebook.

Teacher

1 Class

- Go through the Day 5 Presentation – *Experimental Design*.

Students

- View the presentation.