Unit 2: The Human Designed World

Content Area: **Technology**
Course(s):
Time Period: **September**
Length: **1 week**
Status: **Published**

Enduring Understandings

- Technology is the product of human innovation and the human designed world.
- Technology has strong connections to all subject areas.
- Technology is often the solution to a problem.
- Technology has social, economical and environmental impacts.

Essential Questions

- What are raw materials?
- How and why have products evolved with time?
- What is innovation?
- How does the development of technology impact the present and future?
- How are ideas converted into products, systems or environments?
- What are patents?
- How can you protect your designs?

Content

Skills

- Students will be able to describe the progression of technology.
- Students will be able to communicate social, economical and environmental impacts of a product, system or environment.
- Students will be able to explain benefits and limitations of patents.

Suggested Activities:

- Reverse engineer a product.
- New uses for products.
- Compare and contrast the similarities and differences between things made in nature and things that are man-made.
- Compose a list of the 7 areas of the design world and explain each of them.
- Categorize the 8 resources of technology.

Resources

1. PC or Laptops with internet access, able to run Adobe Illustrator (or similar program) and the various 3D printer software platforms.

2. Laser Printer allows for printing capabilities from classroom computers.

3. TinkerCAD (or other equivalent solid modeling program). TinkerCAD is a free, web-based 3D modelling application which allows users to create objects utilizing constructive solid geometry applications.

4. 3D Printers allow students to realize their designs by producing physical objects from their three-dimensional digital models.

5. Adobe Illustrator & Photoshop are industry recognized graphic art software programs. Adobe presently offers a creative cloud suite for education.

6. Vacuum forming machine is a simplified version of thermoforming. In this process, a sheet of plastic is heated then stretched over a preformed mold. The plastic is then shaped into the shape of the mold. This machine allows for exciting project based learning opportunities in the Manufacturing and Production unit.

7. Drill press and bandsaw are presently located in the Technology Workshop, the machines are fixed and utilized only with teacher supervision and proper safety testing accomplished.

8. Consumable Materials such as bass and balsa wood, foam, hot glue, project kits, aluminum foil, wax paper, balloons, fishing line, cups and other materials are needed to support project based learning. Suggested projects include building a model architectural structure, room or facility, bridge, tower, aircraft and more.

9. Personal protection equipment such as safety goggles and gloves are required when students are at risk of injuring themselves while creating projects or utilizing tools and/or machinery.

10. Hand Tools various hand tools such as easy cutters, coping saws, craft knives, hot glue guns and hot wire cutting machine will be utilized within the classroom. Safety precautions and training will be taken and provided at all times.

Standards

TECH.8.1.8.A.1	Demonstrate knowledge of a real world problem using digital tools.
TECH.8.2.8.B.2	Identify the desired and undesired consequences from the use of a product or system.
TECH.8.2.8.B.5	Identify new technologies resulting from the demands, values, and interests of individuals, businesses, industries and societies.
TECH.8.2.8.C.1	Explain how different teams/groups can contribute to the overall design of a product.
TECH.8.2.8.D.3	Build a prototype that meets a STEM-based design challenge using science, engineering, and math principles that validate a solution.