

Unit 1 Introduction to Technology

Content Area: **Applied Technology**

Course(s):

Time Period: **Marking Period 1**

Length: **5 days**

Status: **Published**

Summary

Introduction:

In this unit students are provided with an overview of the definition of technology, its history, its various areas, and the ways that this discipline affects their lives. Students will make connections to what is covered in the classroom and what they experience in their daily lives, as well as the many ways that technology has developed and changed over time. At its culmination, students will have the opportunity to work through the Engineering Design Process documenting the steps taken as they work to solve a design problem.

Revision Date: July 2021

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| CS.6-8.8.2.8.ED.2 | Identify the steps in the design process that could be used to solve a problem. |
| CS.6-8.8.2.8.ED.3 | Develop a proposal for a solution to a real-world problem that includes a model (e.g., physical prototype, graphical/technical sketch). |
| CS.6-8.8.2.8.ED.6 | Analyze how trade-offs can impact the design of a product. |
| CS.6-8.8.2.8.ETW.2 | Analyze the impact of modifying resources in a product or system (e.g., materials, energy, information, time, tools, people, capital). |
| LA.SL.6.1.C | Pose and respond to specific questions with elaboration and detail by making comments that contribute to the topic, text, or issue under discussion. |
| WRK.9.2.8.CAP.1 | Identify offerings such as high school and county career and technical school courses, apprenticeships, military programs, and dual enrollment courses that support career or occupational areas of interest. |
| TECH.K-12.1.1.d | understand the fundamental concepts of technology operations, demonstrate the ability to choose, use and troubleshoot current technologies and are able to transfer their knowledge to explore emerging technologies. |
| TECH.K-12.1.4.a | know and use a deliberate design process for generating ideas, testing theories, creating innovative artifacts or solving authentic problems. |
| TECH.K-12.1.4.b | select and use digital tools to plan and manage a design process that considers design constraints and calculated risks. |
| TECH.K-12.1.4.c | develop, test and refine prototypes as part of a cyclical design process. |
| TECH.K-12.1.4.d | exhibit a tolerance for ambiguity, perseverance and the capacity to work with open-ended problems. |

Essential Questions/Enduring Understandings

Essential Questions:

What makes something a technology?

How does technology impact our lives?

Enduring Understandings:

Technology is constantly changing to meet our wants and needs.

Technology has both positive and negative effects on our lives, planet and environment.

Objectives

Students will know that technology is defined as the human quest for solutions.

Students will know that something need not be digital or electronic to be considered a technology.

Students will know that technology changes based on our wants and needs.

Students will know that there are different areas of technology.

Students will be skilled at identifying technologies present in our world.

Learning Plan

Definition of Technology: Teacher will use Smart Board or similar presentation method to share Google Slides and brief video: “Is a Chair a Technology?” Google Slides presentation should include the definition of technology, which the teacher will read aloud and explain, checking for understanding through questioning and discussion. Following the presentation, students will be able to complete a Google Form in which they will identify technologies present in the classroom, homes, school, restaurants, and in athletics. Each technology and the problem it solves/need that it meets will be explained by students on form.

Areas of Technology: Teacher will use Smart Board or similar presentation method to share Google Slides that show images pertaining to the 6 areas of technology. Students will be asked to brainstorm individually to see if they can identify each. Teacher will then guide students through the presentation to discuss the areas and what each area covers as students fill in table shared on Google Doc. Teacher will guide discussion about specific technologies in each category and careers.

Technology Alphabet Challenge: After reviewing the first two lessons, teacher will present students with the Technology Alphabet

Challenge. This challenge will ask students to brainstorm and identify a minimum of 26 technologies: one for each letter of the alphabet. Students will work individually to complete a table on a shared Google Doc.

Introduction to the Engineering Design Process: Teacher will use Smart Board or similar presentation method to share Google Slides that will compare Scientific Method to the Engineering Design Process. Teacher will ask students to identify similarities and differences. Teacher will use presentation software to guide students through the various steps and what is to be done to complete each, emphasizing the importance of iteration and the cyclical nature of the process. As teacher explains each step, students will fill in blanks on shared Google Slide.

Using the Engineering Design Process: Working individually or in small groups, students will complete a short design challenge to see how the Engineering Design Process is used to solve problems. The design challenge can be a hands-on building experience or one that is done through a written explanation of what they would do to complete each step of the process. Some ideas for challenges may include: spaghetti tower, newsprint golf tee, paper bridge, or Gizmos activity (Trebuchet or Crumple Zones).

Assessment

Formative Assessments:

Google Forms

Guided notes

Engineering Notebook completion

Benchmark Assessments:

Google Forms

Guided Notes

Design Challenge Prototype

Summative Assessment:

Unit Quiz

Design Challenge Documentation

Alternative Assessments:

Checklist

Discussion

Materials

Guided note packets/Google Docs (teacher developed)

Technology (student & teacher laptops, SmartBoard, document camera)

Google Slides/PowerPoints

Worksheets/notes

YouTube links

Safety Equipment

Meter stick

ruler

Newspaper

Spaghetti

Masking Tape

duct tape

Golf balls

Pennies

Gizmos

Integrated Accommodation and Modifications, Spec Ed Students, ELL, At-Risk, G&T, 504's

See attached document:

<https://docs.google.com/spreadsheets/d/1pzkODxxGOSxESwthnE0jQW8hVfMaZ9ygEBg5QsKBcDA/edit?usp=sharing>