

Unit 6 - Ethics and Technology

Content Area: **Unified Arts**
Course(s): **Tech Apps 8**
Time Period: **December**
Length: **15 days**
Status: **Published**

Unit Summary

Students will evaluate modern technologies for their impacts on society and environment and propose and prototype a solution.

Standards

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| SCI.MS-ETS1-1 | Define the criteria and constraints of a design problem with sufficient precision to ensure a successful solution, taking into account relevant scientific principles and potential impacts on people and the natural environment that may limit possible solutions. |
| SCI.MS-ETS1-2 | Evaluate competing design solutions using a systematic process to determine how well they meet the criteria and constraints of the problem. |
| SCI.MS-ETS1-4 | Develop a model to generate data for iterative testing and modification of a proposed object, tool, or process such that an optimal design can be achieved. |
| CAEP.9.2.8.B.3 | Evaluate communication, collaboration, and leadership skills that can be developed through school, home, work, and extracurricular activities for use in a career. |
| TECH.8.1.8.A.1 | Demonstrate knowledge of a real world problem using digital tools. |
| TECH.8.1.8.A.CS1 | Understand and use technology systems. |
| TECH.8.1.8.A.CS2 | Select and use applications effectively and productively. |
| TECH.8.1.8.B.CS1 | Apply existing knowledge to generate new ideas, products, or processes. |
| TECH.8.1.8.B.CS2 | Create original works as a means of personal or group expression. |
| TECH.8.1.8.F.CS1 | Identify and define authentic problems and significant questions for investigation. |
| TECH.8.1.8.F.CS2 | Plan and manage activities to develop a solution or complete a project. |
| TECH.8.1.8.F.CS3 | Collect and analyze data to identify solutions and/or make informed decisions. |
| TECH.8.1.8.F.CS4 | Use multiple processes and diverse perspectives to explore alternative. |
| TECH.8.2.8.C.3 | Evaluate the function, value, and aesthetics of a technological product or system, from the perspective of the user and the producer. |
| TECH.8.2.8.C.4 | Identify the steps in the design process that would be used to solve a designated problem. |
| TECH.8.2.8.C.8 | Develop a proposal for a chosen solution that include models (physical, graphical or mathematical) to communicate the solution to peers. |
| TECH.8.2.8.C.5b | Create a technical sketch of a product with materials and measurements labeled. |
| TECH.8.2.8.D.1 | Design and create a product that addresses a real world problem using a design process under specific constraints. |

Student Learning Objectives

- Students will learn the design process to develop a learning tool for 8th grade math geometry standards.
- Students will learn how to develop a prototype of their learning tool on paper with measurements labeled.

- Students will learn how to incorporate feedback from peers in the redesign of their prototype.
- Students will learn how to design their solution in a CAD tool, and upload it for printing.

Essential Questions

- How are new technologies impacting our world?
- How do we identify and solve problems effectively?
- In what ways do you personally prefer learning new things?

Enduring Understandings

- Students will understand that technology systems can be used to create, invent, and design products.
- Students will understand that planning and reflecting are essential skills in the design & development process.
- Students will understand that getting input from your target audience/consumer throughout the product development lifecycle is important in building a successful product.
- Students will understand that knowing how a tool, such as a CAD tool, works is essential to being able to use it to design and innovate products.
- Students will understand that simulation and modeling can aid in the process of learning.

Application

- Students will be able to independently use their learning...

Skills

Students will be skilled at:

- Working with a partner to empathize with their needs and identify/define a mathematics learning challenge such as the Pythagorean Theorem.
- Designing a prototype on paper complete with measurements and get feedback from their partner.
- Creating a precise CAD drawing and follow the procedure for uploading it to the 3D printer.
- Choosing a path to follow for learning the CAD tool and facilitate their own learning through specific challenges.