Unit 3: Create your own invention

Content Area: **Gifted and Talented**
Course(s): **Gifted and Talented**
Time Period: **Week 24**
Length: **16 Weeks**
Status: **Published**

Unit Overview

Now that students have learned about different inventions over time, the purpose of inventions, and the creation of important inventions, they will create their own inventions to address a perceived problem. Students will develop an idea, design the invention, create the invention, and market the invention.

Standards

SCI.3-4.5.1.4.B.2	Measure, gather, evaluate, and share evidence using tools and technologies.
SCI.3-4.5.1.4.B.3	Formulate explanations from evidence.
SCI.3-4.5.1.4.C.2	Revise predictions or explanations on the basis of learning new information.
SCI.3-4.5.1.4.D.2	Work collaboratively to pose, refine, and evaluate questions, investigations, models, and theories.
TEC.3-4.8.2.4.B.2	Design an alternative use for an existing product.
TEC.3-4.8.2.4.E.1	Work in collaboration with peers to produce and publish a report that explains how technology is or was successfully or unsuccessfully used to address a local or global problem.
TEC.3-4.8.2.4.G.3	Evaluate the function, value, and esthetics of a technological product, system or environment from the perspective of the user and the producer.
WORK.K-4.9.1.4.A.1	Recognize a problem and brainstorm ways to solve the problem individually or collaboratively.
WORK.K-4.9.1.4.A.2	Evaluate available resources that can assist in solving problems.
WORK.K-4.9.1.4.A.3	Determine when the use of technology is appropriate to solve problems.
WORK.K-4.9.1.4.A.5	Apply critical thinking and problem-solving skills in classroom and family settings.
WORK.K-4.9.1.4.B.1	Participate in brainstorming sessions to seek information, ideas, and strategies that foster creative thinking.
WORK.K-4.9.1.4.C.1	Practice collaborative skills in groups, and explain how these skills assist in completing tasks in different settings (at home, in school, and during play).

Essential Questions

- How do inventions change the way one lives?
- Why is technology constantly changing?
- How do inventions solve problems?
- Why do people buy some inventions but not others?

Application of Knowledge and Skills...

Students will know that...

- Inventions and technology allow for further technological advancement.
- Inventions change the way people are able to live.
- Inventions have a specific purpose and function.
- There are multiple ways to solve a problem.

Students will be able to...

- Design a marketing campaign promoting an invention.
- Generate an invention prototype with a detailed explanation of how it works.
- Identify different problems or tasks that need solutions.
- Investigate solutions to various problems.

Assessments

- Sell your Idea Summative: Personal Project Students create a sales pitch for their invention detailing how the invention works, how it solves the problem, and why it is the best solution. Students may do this in writing, as a computer presentation, or in commercial format.
- Create an Invention Formative: Personal Project Students create a vision or prototype for one of the problem solutions. Students should be detailed in the resources the invention uses and how the invention works.
- How do you fix it? Formative: Suggested Instructional/Assessment Strategies Working in small groups, students focus their attention on one or two of the problems identified to get to the core of the problem so they can begin to identify solutions to the problems.
- What do you need an invention for? Diagnostic: Self Assessment Brainstorm problems the students can identify within the school, the home, or the community. Students may also brainstorm systems that need improvement.

Activities

- Brainstorm problems that are fixable within the classroom, school, community, or household.
- Individually or in small groups, have students break down the problems they identified. What would be needed to solve the problem? What could be created to provide this solution?
- Generate an invention prototype.
- Create a sales pitch for the invention highlighting what the invention does, how it solves the problem, and why it is the best solution for the problem.

Activities to Differentiate Instruction

- Invention prototypes may be as simple as a detailed drawing of the invention or as complex as a working model of the invention.
- Students may work individually or in small groups.
- Provide sample problems as needed. Problems may be as simple as "students lose classroom time when they need to go turn out the lights to switch activities" or "the main office needs a way to collect mail from the classrooms".

Integrated/Cross-Disciplinary Instruction

- Art: Students generate a detailed drawing with labels.
- Engineering: Students build an invention prototype or recommend appropriate materials for constructing an invention.

Resources