

Unit 1: Introduction to Inventing Invention Convention

~20 Classes

Rev. September 2023

Essential Questions

- What is an invention?
- Who is an inventor?

Enduring Understandings with Unit Goals

EU 1: Inventions are an original device or process created to solve problems and make our lives easier.

- Inventions can be categorized by identifying similarities and differences.
- Inventions are all around us in our daily lives.

EU 2: The invention process is iterative and cyclical.

- Inventors use journals and logs to record their thinking and designs.

Standards

Common Core State Standards

- **CCSS.ELA-LITERACY.CCRA.W.2:** Write informative/explanatory texts to examine and convey complex ideas and information clearly and accurately through the effective selection, organization, and analysis of content.
- **CCSS.ELA-LITERACY.CCRA.W.4:** Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience
- **CCSS.ELA-LITERACY.CCRA.SL.1:** Prepare for and participate effectively in a range of conversations and collaborations with diverse partners, building on others' ideas and expressing their own clearly and persuasively.
- **CCSS.ELA-LITERACY.W.8.4:** Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.
- **CCSS.MATH.PRACTICE.MP1:** Make sense of problems and persevere in solving them.
- **CCSS.ELA-LITERACY.W.6-8.9:** Draw evidence from literary or informational texts to support analysis, reflection, and research.
- **CCSS.ELA-LITERACY.CCRA.R.10:** Read and comprehend complex literary and informational texts independently and proficiently.

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- **CCSS.ELA-LITERACY.RL.6-8.1:** Cite textual evidence to support analysis of what the text says explicitly as well as inferences drawn from the text.

Next Generation Science Standards

- **MS-ETS1-1 Engineering Design** 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.
- **NGSS.SEP.1:** Asking questions and defining problems
- **NGSS.SEP.8:** Obtaining, evaluating, and communicating information

ISAAC Vision of the Graduate Competencies

Competency 1: Write effectively for a variety of purposes.

Competency 2: Speak to diverse audiences in an accountable manner.

Competency 3: Develop the behaviors needed to interact and contribute with others on a team.

Competency 4: Analyze and solve problems independently and collaboratively.

Competency 5: Be responsible, creative, and empathetic members of the community.

Unit Content Overview

- What is an Invention?
- Top 10 Inventions that changed the world
- Innovation Mash-up
- Scientific Induction
- Speed Round Inventing
- Inventor Spotlight
- Science Fiction Inventions
- Introduction to the Log Book

Daily Learning Objectives with Do Now Activities

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Students will be able to...

- Define 'invention'.
 - What is an invention?
- Identify and categorize inventions within the school setting. Develop a logical argument for what makes something an invention.
 - What makes something an invention?
- All students will be able to research inventions that have shaped the world and determine which are the most important.**
 - Write down a list of 5 inventions you use everyday and you can't imagine living without.
- All students will be able to persevere in solving the puzzle and list strategies to overcome frustration.
 - Write and describe one (1) situation in the past that has made you frustrated. What is one (1) strategy that you used to overcome that frustration?
- Work collaboratively to design a new product. Think critically about what problem their product solves.**
 - What products appear to combine two (2) or more products into one (1) product?
- Identify similarities and differences of the characteristics of famous inventors.
 - What are three characteristics of an inventor? Why did you pick those characteristics?
- All students will be able to identify inventions that are imagined but not currently invented.**
 - Ask students if they have read science fiction books or seen a science fiction movie that had crazy inventions. List some of these books and the crazy inventions on the board.
- All students will be able to read on their own age appropriate science fiction books and write information from the book.**
 - What do you think the invention from the science fiction book would look like in real life?
- All students will be able to describe the process of completing their Invention Logs for their specific inventions.
 - Why do you think inventors use logs to write down their ideas? How will keeping a log help you in the invention process?

Instructional Strategies/Differentiated Instruction

- Daily Warm Up Activities
- Lecture slides with note-taking
- Accountable Talk
- Graphic Organizers
- Flexible grouping

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- Exit slips
- Graphic Organizers
- Creating authentic connections for students
- Rephrasing and restatement of information and concepts
- Student use of headphones
- Independent reading
- Outlining of text
- Determining central ideas, paraphrasing
- Laboratory Experiences

Assessments

FORMATIVE ASSESSMENTS:

- Invention definition
- Top invention presentation
- Innovation Mash-up worksheet
- Scientific induction reflection
- Inventor spotlight worksheet and reflection
- Do Nows
- Science fiction invention worksheet and reflection

SUMMATIVE ASSESSMENTS:

- Log Books
- EU Quizzes
- Unit Task
- Unit Test

Unit Task

Unit Task Name: Sale Pitch Project

Description: Develop 5 ideas of inventions you would like to sell (EU 1). How can these inventions help solve a problem going on in the world today? Create a presentation selling your products (EU 2).

Unit Resources

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- Chromebook
- Internet Access
- PowerPoint
- Invention Logs for each student
- Connecticut Invention Convention Website