Unit 4/Week 1

Title: So You Want to Be an Inventor?

Suggested Time: 5 days (45 minutes per day)

Common Core ELA Standards: RI.4.1, RI.4.2, RI.4.3, RI.4.7; W.4.2, W.4.4, W.4.7, W.4.8, W.4.9; SL.4.2; L.4.1, L.4.2, L.4.5

Teacher Instructions

*Refer to the Introduction for further details.*

**Before Teaching**

1. Read the Big Ideas and Key Understandings and the Synopsis. Please do **not** read this to the students. This is a description for teachers, about the big ideas and key understanding that students should take away **after** completing this task.

Big Ideas and Key Understandings

In order to be an inventor, you must take risks and try out many solutions to a problem even if it means experiencing failure.

Inventions make our lives easier but they are not easy to create.

Synopsis

This informational text details traits and characteristics that different inventors throughout history have demonstrated and how those traits helped them reach their goals.

1. Read entire main selection text, keeping in mind the Big Ideas and Key Understandings.
2. Re-read the main selection text while noting the stopping points for the Text Dependent Questions and teaching Vocabulary.

**During Teaching**

1. Students read the entire main selection text independently.
2. Teacher reads the main selection text aloud with students following along. (Depending on how complex the text is and the amount of support needed by students, the teacher may choose to reverse the order of steps 1 and 2.)
3. Students and teacher re-read the text while stopping to respond to and discuss the questions and returning to the text. A variety of methods can be used to structure the reading and discussion (i.e.: whole class discussion, think-pair-share, independent written response, group work, etc.)

Text Dependent Questions

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| **Text-dependent Questions** | **Evidence-based Answers** |
| What inventions did Benjamin Franklin invent?  | Swim paddle, kick paddles, Franklin stove, lightning rod, fireplace damper, library stepstool, odometer and bifocal glasses. |
| Why did Cyrus McCormick invent the mechanical reaper?  | He was tired of reaping, or collecting the wheat, on his family’s farm with a hand scythe because it took a long time. The mechanical reaper shortened the work to only a few hours what previously took an entire day. |
| The author writes, “An inventor must be as stubborn as a bulldog.” What does the author mean by the phrase, “stubborn as a bulldog”? Use evidence from the text to support your answer  | The author is saying that it may take time to reach your goals and you can’t give up. The text states that Charles Goodyear spent ten years working to make rubber usable and Thomas Edison spent over a year looking for a filament that would glow without burning. |
| What inventions were created as a result of Henry Ford’s invention of mass production and the moving assembly line?  | Henry Ford perfected mass production and the assembly line so that his automobiles could be made faster. Other inventions connected to the automobile include: Mary Anderson invented windshield wipers, Garrett Morgan the traffic light, Elmer Wavering invented the car radio, and Allen Breed the airbag. |
| The author writes, ”Keep a sharp eye on your inventions-copycats are out there!” What does the author mean by this? | The author means that someone may try to copy or even steal your invention. For instance, Joseph Henry invented a telegraph system in the 1830s, but in 1844 Samuel Morse made it even better. Thus, Samuel Morse was given credit for inventing the telegraph even though it was originally Henry’s idea. |
| What does the author mean by the phrase, “barriers to be broken”? | There will always be new things to invent because there are always problems that need to be solved in the world. |
| Using the text, name three materials Thomas Edison used to create filament. Which material finally worked to create the filament? | Thomas Edison tried platinum, nickel, gold, silver, fish line, cotton thread, coconut hair, human hair, wood shaving, and cork. He finally found that carbonized bamboo would work. |
| How did Johannes Gutenberg’s invention of the printing press affect people learning to read? | Before the printing press it took a year to write a book by hand. With the printing press, books could be printed in a day, which meant more books were created. Thus, people decided to learn to read because books were more available. |
| Alfred Nobel created dynamite. Why did Nobel have to move his experiments outside?  | Nobel’s experiments were dangerous because he was working with explosives. Nobel was ordered to move his work outside after five people were killed in an explosion. |
| Why did Elijah McCoy invent a lubricator that oiled pistons, gears, and bearings on a train? | Previously, in order to oil the pistons’ gears and bearings on a train the train must be stopped. Elijah McCoy’s invention of lubrication allowed this process to be done while the train was still running, thus saving time. |
| What is the main idea of the text? Find specific details from the text to support your claim.  | Sample response: Anyone can be an inventor if they are willing to tackle a problem and invent something to solve the problem. A president can be an inventor. For example, Thomas Jefferson invented a two faced clock which could be seen from both inside and outside. Josephine Cochran, a woman, invented the washing machine when she was tired of washing dishes by hand. Although it took ten years, Charles Goodyear invented ways to make rubber useful such as the tire. (Responses may vary) |

Vocabulary

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|  | **KEY WORDS ESSENTIAL TO UNDERSTANDING** | **WORDS WORTH KNOWING** General teaching suggestions are provided in the Introduction  |
| **TEACHER PROVIDES DEFINITION** not enough contextual clues provided in the text | hoaxerbarriersquest | fireplace dampertreatingfilamentmass productionquestmedical miracles |
| **STUDENTS FIGURE OUT THE MEANING**sufficient context clues are provided in the text | whirlingstubborn as a bulldogmocked | tinkerreapingchuggedtrampledforgedbargetelegraph |

Culminating Task

* Re-Read, Think, Discuss, Write
* In the text, the author gives the trait of inventors. Pick two of the traits. Using specific evidence from the text, summarize why those traits are important.

Answer: Two traits that an inventor may have are stubbornness and perseverance. Robert Goddard, who invented the liquid fuel rocket, persevered even though reporters from newspapers laughed at him and called him “Moon Man.” He showed perseverance because he refused to give up. It would have been easy for him to give up because everyone was making fun of him, but he wouldn’t give in to their ridicule. Charles Goodyear was as “stubborn as a bulldog” when he spent ten years and all his money trying to make rubber usable. The author used this simile to describe him because he refused to give up, just like Robert Goddard. He also showed that he was stubborn because he spent so long working on making rubber usable and used all of his money to do so. This showed that he was stubborn because it would have been easy for him to give up and not spend that much time and effort on his invention. (Responses will vary.)

Additional Tasks

* *Select one inventor from the main selection and do additional research on this person using the Internet. Create a PowerPoint for to present to the class which includes the name of the inventor, invention(s) he/she created that are mentioned in the text and that you researched, why he/she created these inventions, and what challenges or other information learned regarding this particular inventor. In addition to this, you will turn in the notes you took and a list of sources.*

Answer: Answers will vary.