

Brandon Valley School District

District Learning Plan

April 13-17, 2020

Grade 5 Science



Brandon Valley School District Distance Learning Plan

LESSON/UNIT: Inventors/Scientists

SUBJECT/GRADE: 5th Grade Science

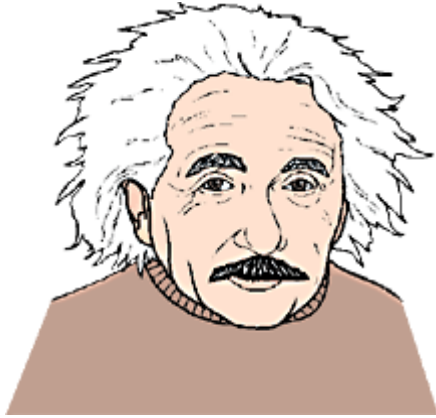
DATES: April 13-17

<p>What do students need to do?</p> <p>Link to important video message</p> <p>Link to BV instructional video for week of April 13-17, 2020</p>	<p>This week we are going to learn about inventors and scientists!</p> <ul style="list-style-type: none"> Monday: No School Tuesday: Inventor Graphic Organizer <ol style="list-style-type: none"> Choose ONE inventor or scientist to research! It can be one of them attached: Albert Einstein, Galileo Galilei, or Sir Isaac Newton, or you can choose any inventor or scientist to research on the internet. Complete the Inventor Graphic Organizer with information from your reading or research. Wednesday: Complete the Famous Inventor or Scientist Research Project Thursday-Friday: What's Your Invention? <p>*You will be creating a new, never before seen invention that will make your life, or a family member's life, easier or more convenient.</p>
<p>What do students need to bring back to school?</p>	<p>Please return your:</p> <ol style="list-style-type: none"> Famous Inventor or Scientist Research Project the invention you created in the "What's Your Invention?" project.
<p>What standards do the lessons cover?</p>	<ul style="list-style-type: none"> 3-5-ETS1-1 :Define a simple design problem reflecting a need or a want that includes specified criteria for success and constraints on materials, time, or cost
<p>What materials do students need? What extra resources can students use?</p>	<ul style="list-style-type: none"> You will need the following handouts: Inventor Graphic Organizer, one of the inventor examples or a computer to research an inventor, Famous Inventor or Scientist Research Project handout, and What's Your Invention handout.
<p>What can students do if they finish early?</p>	<p>Inventor websites to check out:</p> <ul style="list-style-type: none"> https://www.ducksters.com/biography/scientists/scientists_and_inventors.php https://kids.kiddle.co/Inventor <p>Inventor Videos:</p> <ul style="list-style-type: none"> https://www.youtube.com/watch?v=dYDJ3IDrfyY https://www.youtube.com/watch?v=75okexRzWMk https://www.youtube.com/watch?v=FV7Tb-F70vQ&t=57s
<p>Who can we contact if we have questions?</p>	<p>Brandon Valley Intermediate School</p> <p>Principal- Mr. Skibsted- Nick.Skibsted@k12.sd.us</p> <p>Assistant Principal- Mr. Pearson- Rick.Pearson@k12.sd.us</p> <p>Science Teachers:</p> <p>Mrs. Sershen- gina.sershen@k12.sd.us (red team)</p> <p>Mr. Stroh- nick.stroh@k12.sd.us (white team)</p> <p>Mr. Metzger- tyson.metzger@k12.sd.us (blue team)</p> <p>Mr. Wiese- alex.wiese@k12.sd.us (silver team)</p>
<p>Notes: Have a great day!</p>	

Instructional materials are posted below (if applicable)

Brandon Valley School District

ALBERT EINSTEIN



Perhaps one of the most famous scientists of all time, Einstein is known as “the greatest genius of the 20th century.” That is quite a title! What did he accomplish to achieve this world-famous status?

Born in Germany in 1879, Albert Einstein’s family moved around a lot when he was a child.

In 1896, he trained as a teacher in physics and mathematics, at the Swiss Federal Polytechnic School in Zurich. However, he was unable to find work as a teacher, so he went to work at the Swiss Patent Office. In the year 1905, he completed his doctor’s degree. While working at the patent office, he produced a lot of his most remarkable work. He went on to hold many distinguished titles, including Professor Extraordinary at Zurich, Professor of Theoretical Physics at Prague, and Director of the Kaiser Wilhelm Physical Institute. He was a professor in the University of Berlin, as well as a Professor of Theoretical Physics at Princeton.

In 1921 he won the Nobel Prize in Physics for his discovery of the photoelectric effect. This was a complicated hypothesis which was later confirmed, indicating that light can consist of particles, and that the energy of any light particle is proportional to the frequency of the radiation.

Have you ever wondered, “Why is the sky blue? Einstein wrote a complicated equation which answered this question. The sky is blue on a clear day because molecules in the air scatter blue light from the sun more than they scatter red light.

Einstein immigrated to the United States in 1940. He made many important discoveries, and like Newton, he studied optics and matter. His most famous formula is $E=mc^2$, indicating that mass and energy are equivalent and interchangeable properties – this is the Special Theory of Relativity. While Einstein did not invent the atomic bomb, it is widely agreed that his theories laid the foundation for its invention.

Albert Einstein died in 1955 after giving much of his life to the world of science.

Galileo Galilei

Galileo Galilei (1564-1642) was an Italian scientist. Using precise measurements, he created the law of falling bodies. He made a telescope, which he used to study lunar craters. He discovered four moons in the sky around Jupiter. This made him the first scientist to use a telescope to make important astronomical discoveries.

It was the year 1609, and Galileo has just heard of the invention of the telescope in Holland. With only a few details, he was able to build his own – which was vastly superior! He had heard of a new theory, known as the sun-centered (or heliocentric) theory, which was proposed by Nicholas Copernicus. Using his new tool, he agreed that the planets were in orbit around the sun. At the time, it was widely believed that planets, the sun, and the moon all circled around Earth.



Galileo was a university professor, and was required to teach the beliefs of the time rather than this new sun-centered theory. When it was heard that he was telling his students about this new theory, he was sentenced to life in prison by the church. However, since he was quite aged by this point, it was agreed that he could live out his sentence on house arrest.

Galileo is well respected within the science community, largely because of his excellent scientific techniques. Many believe that his methods opened the door for future scientists. His technique sounds quite simple to us: First, he analyzed a problem using common-sense and everyday experiences. Then, he analyzed the problem using mathematical techniques. Sir Isaac Newton (who was born the year Galileo died) used Galileo's "Law of Inertia" as the basis for his "First Law of Motion."

Galileo became blind at the age of 72. Many believed that this was a result of looking at the sun, however now it is agreed that his blindness was caused by cataracts and glaucoma. He died in the year 1642.



Sir Isaac Newton

Sir Isaac Newton (1643-1727) was one of the greatest minds of all time. He was an astronomer, a mathematician, an alchemist, and a physicist. He created many laws that are still used today. Sir Isaac Newton taught the world many things about how the universe works.

Isaac was born in 1643 in Lincolnshire, England. As a young boy, Isaac went to a school called The Kings. He went on to Trinity College in Cambridge. Here, he developed something we know today as "calculus." Calculus is defined as "the study of how things change," and is a mathematical process.

Newton was involved in the study of optics – he showed how a prism can reflect light and change white light into multicoloured light. He showed how a second prism and lens could change that coloured light back into white light. This important discovery led him to the creation of a refracting telescope, which is now known as a "Newtonian telescope."

Perhaps most of important of all though, was Newton's laws. He had three laws. Here they are:

1. Unless something is pushed or pulled, it will continue in a straight line or stay stopped. This is called inertia.
2. Pushing or pulling something affects how it will react.
3. If something is pushed or pulled it will push or pull in the opposite way.

When Newton wrote these laws, he developed the theory of gravity. Using an apple, he calculated an equation for what happened when he dropped it. He then applied this same principle to the universe: particularly, that the same equation he used for the apple, also applied to the Moon, and to Earth. He proved that the planets in our solar system are held in place by gravity.

Newton held the position of Chair of Mathematics at Cambridge for 33 years.

Inventor/Scientist Graphic Organizer

*As you read about or research your inventor/scientist, complete this graphic organizer. Remember, you can use one of the attached handouts on scientists and inventors, or you can research any inventor or scientist that you find interesting!

Name of my inventor or scientist:

Give three facts about their life:

What are two important things that they have done?

List three words that describe your person:

Why should kids learn about this person?

What is your favorite thing they discovered?

Famous Scientist/Inventor Research Project

*Use your graphic organizer (from Tuesday) and your research to complete the project below.

1. Fold a piece of paper into 4 sections.
2. Label each section as follows:
 - a. **My Inventor/Scientist**
 - b. **Life**
 - c. **Inventions/Discoveries**
 - d. **Impact on Science**
3. In each section fill in the following information:
 - A. **My Inventor/Scientist (box 1):** Write the name of your inventor or scientist, list the dates they are/were alive, and draw and color a picture of your scientist.
 - B. **Life (box 2):** List at least 3 facts about their life, such as where they are born, schooling, facts about their family, etc.
 - C. **Inventions/Discoveries (box 3):** List several discoveries or inventions they have had, and give facts about each.
 - D. **How he/she impacted science (box 4):** Describe in detail how the scientist changed the world/science.



What's your invention?



*You have been busy researching inventor and scientists. Now it is your turn to do some inventing! We have been spending a lot of time at home lately. You will be creating a new, never before seen invention that will make your life, or a family member's life, easier or more convenient. Some examples of past inventions that do that are the toaster and remote control. Use your imagination and be creative! You will be creating your invention on a separate sheet of paper.

Directions:

1. Come up with name of your invention and put it at the top of the page.
2. Draw a detailed picture of your invention. Label the parts of the invention also.
3. Color your invention and make it look neat and interesting.
4. Write a paragraph explaining how your invention helps to make your life, or a family member's life, easier and more convenient.