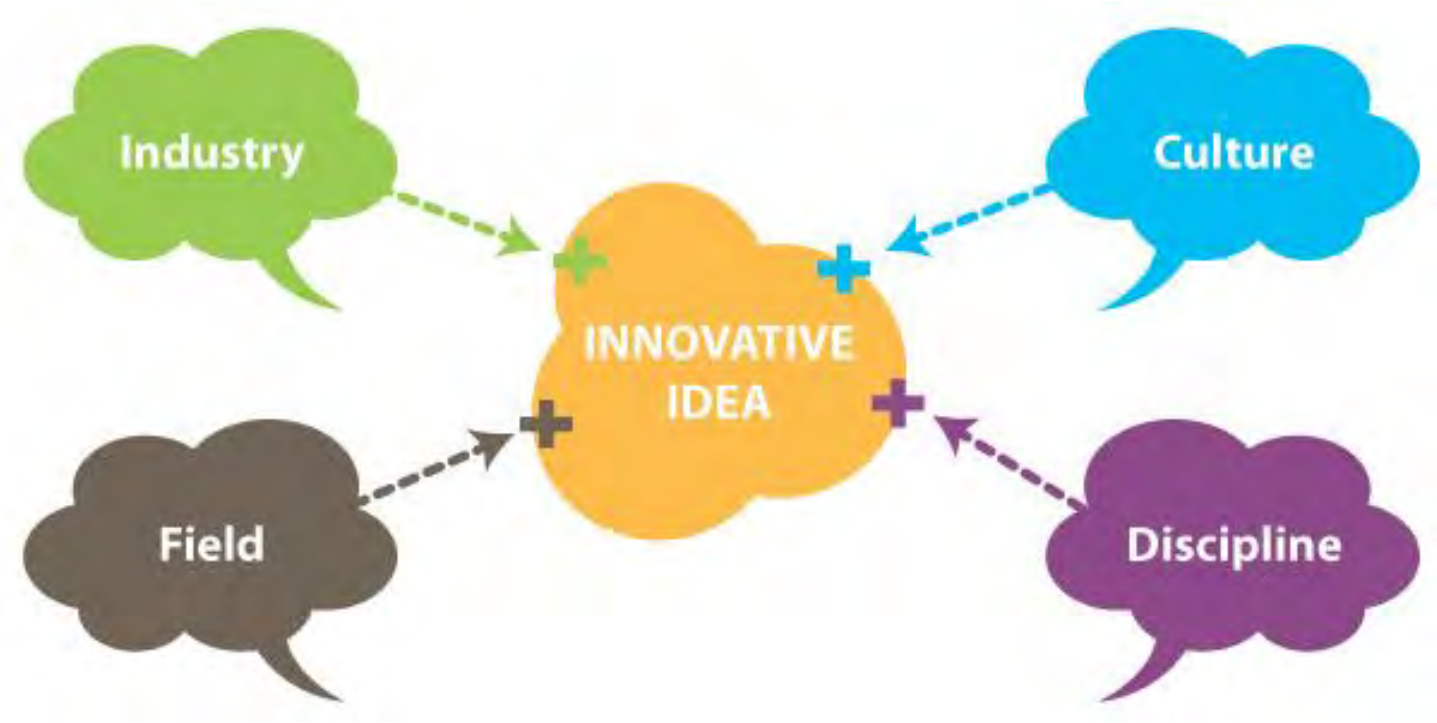
HITS

Historical Innovation Technology and Science



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Goals and Objectives

Goals:

1. To teach historical facts and reinforce communication skills through fun hands-on learning.
2. Improve students' cooperative learning skills.
3. To help students appreciate the importance of History and how it affects the "modern era."
4. Help students develop skills for university and future careers including:
    - Creativity and Innovation
    - Critical Thinking & Problem Solving
    - Communication
    - Collaboration
    - Information Literacy
    - Media Literacy
    - Information and Communications Technology (ICT) Literacy
    - Flexibility & Adaptability
    - Initiative & Self Direction
    - Social & Cross Cultural Skills
    - Productivity & Accountability
    - Leadership & Responsibility

Objectives:

1. Students will understand that there are many different types of professions involved in product development.
2. Students will understand that history has an impact on the present day technology that they appreciate and value.
3. Students will identify different significant inventors and inventions and why they are important.
4. Students will develop and use research skills to investigate and answer important historical milestones.
5. Students will use effective communication and presentation skills to conduct and present their findings.
6. Teachers: This is a great project to use at the beginning of the school year when students need to learn the importance of history for the modern era. Teachers may use all or parts of the project with their classes!

Standards

Language Arts
LA.8.1.7.3 - determine the main idea or essential message in grade-level or higher texts through inferring, paraphrasing, summarizing, and identifying relevant details

LA.8.1.7.5 - analyze a variety of text structures (e.g., comparison/contrast, cause/effect, chronological order, argument/support, lists) and text features (main headings with subheadings) and explain their impact on meaning in text

LA.8.1.7.4 - identify cause-and-effect relationships in text
LA.8.1.7.5 - analyze a variety of text structures (e.g., comparison/contrast, cause/effect, chronological order, argument/support, lists) and text features (main headings with subheadings) and explain their impact on meaning in text

LA.8.1.7.1 - use background knowledge of subject and related content areas, pre-reading strategies, graphic representations, and knowledge of text structure to make and confirm complex predictions of content, purpose, and organization of a reading selection

LA.8.1.7.3 - determine the main idea or essential message in grade-level or higher texts through inferring, paraphrasing, summarizing, and identifying relevant details

Social Studies
SS.1.A.2.In.a Recognize examples of people and events from other times in stories.

SS.1.A.2.In.d Identify a person from the past who showed bravery, honesty, or responsibility.

SS.1.A.2.Su.b Recognize items that did not exist long ago.

SS.K.A.1.In.a Sequence three events using a simple timeline, such as events in the school day and at home.

SS.K.A.1.In.b Examine primary sources, such as photographs or paintings of a famous person.

SS.K.A.1.Pa.a Recognize the next step in a sequenced activity.

SS.K.A.1.Su.b Examine a primary source, such as a photograph.

SS.K.A.2.In.a Recognize items from the present and the past, such as clothing and transportation.

SS.4.A.1.In.a Use primary and secondary resources to obtain information about important people and events from history.

SS.4.A.1.In.b Use print and electronic media to collect information about history.

SS.5.G.1.In.a Identify current and historical information using selected geographic tools, such as maps, globes, and satellite images.

SS.6.W.1.In.a Use a simple timeline to identify the sequence of historical events.

SS.6.W.1.In.b Identify terms for time periods, such as decade and century.

SS.6.W.1.In.c Describe information found in a primary and secondary source, such as artifacts, images, photos, sounds, and written documents.

SS.6.W.1.In.d Identify basic methods of historical inquiry and how history relates to geography, economics, and civics.

SS.6.W.1.In.e Identify the role of historians and recognize that interpretations of historians may differ.

SS.7.E.1.In.e Identify that profit and incentives motivate people and businesses to work harder.

SS.7.E.1.In.c Identify common examples of the concepts of supply and demand, choice, scarcity, and opportunity cost.

SS.8.A.1.In.e Identify the author and purpose of significant historical documents and distinguish between a primary and secondary historical source.

SS.8.A.1.In.f Identify similarities and differences in points of view of historical interpretations of key events.

SS.8.A.1.In.g Identify well-known historical events shown in art, writings, music, and artifacts.

SS.8.E.2.In.a Identify contributions of entrepreneurs, inventors, or other key individuals from diverse backgrounds in the development of the United States economy.

SS.8.E.2.Pa.a Recognize a contribution of a person to the economy.

SS.8.E.2.Pa.b Recognize that the government collects taxes.

SS.8.E.2.Pa.c Recognize a contribution of a person to the economy.

SS.912.A.1.In.a Identify the importance of the use of authentic sources and critical review by historians to write about events.

SS.912.A.1.In.b Identify the author and purpose of significant historical documents using primary and secondary sources.

SS.912.A.1.In.c Use a timeline to identify the sequence of historical data.

SS.912.A.1.In.d Interpret pictures, cartoons, graphs, artwork, artifacts, or writings to obtain information about a time period and events from the past.

SS.912.A.1.In.e Determine the accuracy of current events and Internet resources by comparing them to reliable sources.

SS.912.A.1.In.f Use a case study to identify social, political, legal, and economic relationships in history.

SS.912.G.6.In.b Identify, organize, and determine the importance of information about a specific place.

SS.912.G.6.In.d Use narratives about places and events to create graphic representations, such as maps,

tables, or graphs

SS.912.E.1.In.a Identify examples of factors of production, such as land, labor, and capital.

SS.912.E.1.In.c Identify differences in the major characteristics of the market, command, and mixed economic systems.

SS.912.E.1.In.d Describe how the interaction between supply and demand affects the price of a product.

SS.912.W.2.Su.o Recognize a way the modern economy developed.

SS.912.W.9.In.a Recognize selected major scientists, their important discoveries, and their impact on everyday life.

SS.912.W.9.In.b Recognize effects of post-World War II economic changes, such as medical and technological advances, increased consumption, and rise in expectations for standards of living.

SS.912.E.1.In.e Identify forms of business organization, such as sole proprietorship, partnership, and corporation.

SS.912.E.1.In.f Identify differences between a monopoly and pure competition market structure.

SS.912.E.1.In.g Identify factors that determine the price of a good or service, such as fixed and variable costs.

SS.912.E.1.In.h Identify characteristics of price and non-price competition, such as discounts and rebates, and quality and extra service.

SS.912.E.1.In.i Identify factors that determine the earnings of workers, such as minimum wage, the market value of the product, and worker productivity.

SS.912.E.2.In.c Describe contributions of entrepreneurs, inventors, and other key individuals from various gender, social, and ethnic backgrounds in the development of the United States.

SS.912.E.3.In.f Identify that economics involves the study of how people and countries make decisions about the use of scarce resources in the most efficient way.

SS.912.W.1.In.a Use a timeline to show the relationship of historical events.

SS.912.W.1.In.b Identify terms of time sequence, such as decade, century, and era.

SS.912.W.1.In.c Examine and describe information in primary and secondary sources, such as artifacts, images, and auditory and written sources.

SS.912.W.1.In.d Identify basic uses of historical inquiry and the relation to geography, economics, and civics.

SS.912.W .1.In.e Recognize differences in interpretations of historians about events.

TASK 1

Student Directions: *Define the word "Innovation" and write a sentence using the word.*

TASK 2

Student Directions: *Write INNOVATION vertically on a sheet. Write a corresponding word for each letter and a sentence for each word.*

EXAMPLE:

I INNOVATIVE	Apple is often considered as the world's most **innovative** company.
N NEPOTISM	When the CEO's daughter got an internship, it was attributed to **nepotism**, not her hard work.
N NATIVE	As a **native** English speaker, it is easy to communicate in Australia.
O ORIGINAL	For an idea to be considered innovative, it must also be **original.**
V VERTICAL	**Vertical** lines are used to create straight margins.
A ACCOMPLISH	Graduation is something every child should aspire to **accomplish.**
T TECHNOLOGY	**Technology** has an astronomical value to the majority of kids today.
I IDENTIFY	You must first **identify** your goals, then work toward accomplishing them.
O OBSTACLE	An **obstacle** should never stop you from pursuing your dreams.
N NAVIGATION	It would be impossible to take the boat out without a clear **navigation** system.

TASK 3

Technological Innovations

All of the everyday devices we use today would not be possible if it were not for the cumulative innovations from past men and women. Students will look back and research to see which major technological advancements took place along the way that paved the way for the modern day technology where it is today. Students will work in groups and select a different item.

Student Directions: *In the list below, select one of these modern day devices.*

1. *Hybrid Car*
2. *iPhone*
3. *Satellite*
4. *Laptop computer*
5. *Radio*
6. *Wireless Internet*
7. *Flat screen Television*
8. *Camera*
9. *iPad*

Imagine that you are explaining this technology to someone who has never heard of it. Using at the least 3 sources, create a timeline of events, highlighting at least 10 key milestones that led the technology to where it is today. You will then create a poster board which you will present to the class. Please keep in mind that you must answer the following questions in your presentation:

1) *Provide a detailed description of the technology you have chosen.*
2) *Why is this invention considered innovative?*
3) *What problem(s) did this technology solve?*
4) *What year and, if available, where did each of these milestones take place?*
5) *Who was responsible for each of these milestone inventions?*

SAMPLE PRESENTATION

- **Topic Selected: iPhone**

Background:

On January 9, 2007 Steve Jobs made one of the most memorable presentations of his life that forever changed consumer electronics. He announced that he would be introducing a wide-screen iPod with touch controls, a revolutionary mobile phone, and a breakthrough internet device. But it wasn't three products, it was one product: The iPhone.

iPhones are a line of smartphones designed and marketed by Apple Inc. It runs on Apple's IOS mobile operating system. The first iPhone was released on June 29, 2007, and the most recent iPhone, the iPhone 6 will be released on September 9, 2014.

The iPhone has a multi-touch screen and a virtual keyboard. The iPhone has Wi-Fi and can connect to many cellular networks. It can shoot video, take photos, play music, send and receive email, browse the web, send texts, GPS navigation, record notes, do mathematical calculations, and receive visual voicemail. It facilitated communication and convenience by combining several everyday items into one, sleek portable device. Through the use of the App Store, users can download other functions such as video games, editing software, social networking among others.

Timeline of Events:

1896- Guglielmo Marconi develops the first wireless telegraph system.
1927- The first commercial radio telephone service operated between Britain and the US.
1946- The first commercial mobile radiotelephone service is introduced in St. Louis.
1947- The transistor is invented by scientists John Bardeen, Walter Brattain and William Shockley who later share the Nobel Prize. The transistor replaces vacuum tubes, serving as the foundation for the development of modern electronics and makes possible the marriage of computers and communications. Engineers at Bell Labs develop the concept of cellular technology.
1964- The International Telecommunications Satellite Consortium (INTELSAT) is established. AT&T's Improved Mobile Telephone Service (IMTS) eliminates the need for push-to-talk operation and offers automatic dialing.
1983- Motorola introduces the DynaTAC mobile telephone unit, the first truly "mobile" radiotelephone. The phone, dubbed the "brick," had one hour of talk time and eight hours of standby.
1984- The Cellular Telecommunications Industry Association is founded in May.
1985- The FCC releases the ISM band for unlicensed use, paving the way for wireless local area networking.
1988- FCC's Auxiliary Cellular Services Order adopts technical flexibility rules for cellular radio without mandating specific standards, which promotes the introduction of advanced cellular technologies by the industry.
1989- The Motorola MicroTAC is introduced, the smallest and lightest phone available at the time, weighing 12.3 ounces.
1993- Congress adopts Omnibus Budget Reconciliation Act of 1993, which establishes national framework for wireless regulation and authorizes FCC to auction spectrum for the first time.
1993- The first smart phone (IBM's Simon) is released to the public and offers consumers a calendar, address book, calculator, email, faxing services and games. Internet Protocol version 4 (IPv4) established for reliable transmission over the Internet in conjunction with the Transport Control Protocol (TCP).
1995- Sprint Spectrum launches the first PCS system in the United States in Washington, D.C.
1998- Ericsson, IBM, Intel, Nokia, and Toshiba announce they will join to develop Bluetooth for wireless data exchange between handheld computers or cellular phones and stationary computers.
2002- Camera phones are first introduced in the U.S. market.
2007- iPhone launches, spurring dramatic handset innovation.
2008- iTunes Application Store (July) and Android Market (October) open.

TASK 4

Careers

An inventor is responsible for thinking up an idea. However, in order for that product to become a reality and a success in the marketplace, there are many professions or departments involved.

Student Directions: *Identify a technology and list 10 careers involved and what role they play in the product development. The careers can range from when it is just an idea, all the way through to seeing the project on the shelf.*

Example: iPhone

1. **Electrical and Computer Engineer**- Build the phone and wiring system for it to function.
2. **Marketing Department**- Must decide where/how to advertise it to effectively reach the population.
3. **Program Developer**-Build the code that the phone is based off of.
4. **Lawyer**- Create and enforce patents and copyrights.
5. **Product Designers-** Decide how to make the phone sleek, practical and attractive and continuously revamp it.
6. **Salesperson-** Once the phone is on the shelves, they maximize sales for the product by discussing with potential customers.
7. **Customer service representative-** If there are any issues with the phone, must have staff who can assist customers.
8. **Manufacturing-** Using an assembly line, must build and assemble identical phones systematically.
9. **Researcher/ Beta Tester-**Must research the product, feedback, try the new software, etc. before it goes to the general public.
10. **Event Manager-** There are several events leading up to the sale of the iPhone. They structure when to do it and who should be there to ensure maximum exposure.

TASK 5

Student Directions: *While each group is presenting, each student must on a separate piece answer the following questions:*

1. *Name of the invention?*
2. *Who invented?*
3. *Year invented?*
4. *Why was it significant?*
5. **Create two sample test questions and an answer key.*

*Teacher note: Select the best questions and compile them for the Bingo game in Task 6.

TASK 6

BINGO!

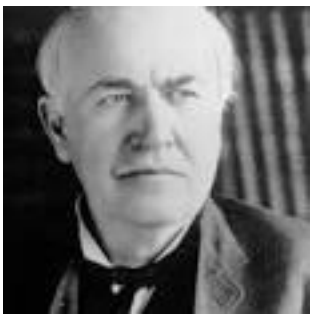
Teachers should create a bingo sheet using the questions compiled from Task 5. Typically, I select one student to read the clues and provide a Bingo sheet for each student in the class. The first student to complete a row, wins a prize. This assignment can also be used as a quiz prep.

SAMPLE BINGO SHEET – (Created using **http://www.freebingomaker.com/** / The website produces a class set A4 size - a different one for each student.)

KARL MARX	GEORGE STEPHENSON	JOSEPH LISTER	SAMUEL F.B. MORSE	ADAM SMITH
ALFRED NOBEL	ORVILLE AND WILBUR WRIGHT	JOHN WESLEY	JAMES WATT	GUGLIELMO MARCONI
INTERCHANGEABLE PARTS	RICHARD ARKWRIGHT	JETHRO TULL	ROBERT OWEN	JAMES HARGREAVES
UTILITARIANISM	HENRY BESSEMER	JEREMY BENTHAM	THOMAS MALTHUS	REVOLUTION
LOUIS PASTEUR	MICHAEL FARADAY	JOHN KAY	JEREMY BENTHAM	ELI WHITNEY

TASK 7

Student Directions: *Use the Internet to find and write at least four facts about the following people:*



Thomas Edison

Antonio Meucci

Guglielmo Marconi

Samuel Morse

Mabel Gardiner Hubbard

Nikola Tesla

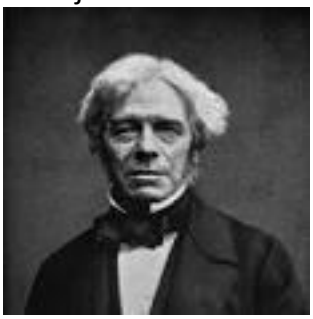
John Logie Baird

Alexander Fleming

Isaac Newton

Elisha Gray

Benjamin Franklin



Michael Faraday

James Watt

James Clerk Maxwell

Marie Curie

Henry Ford

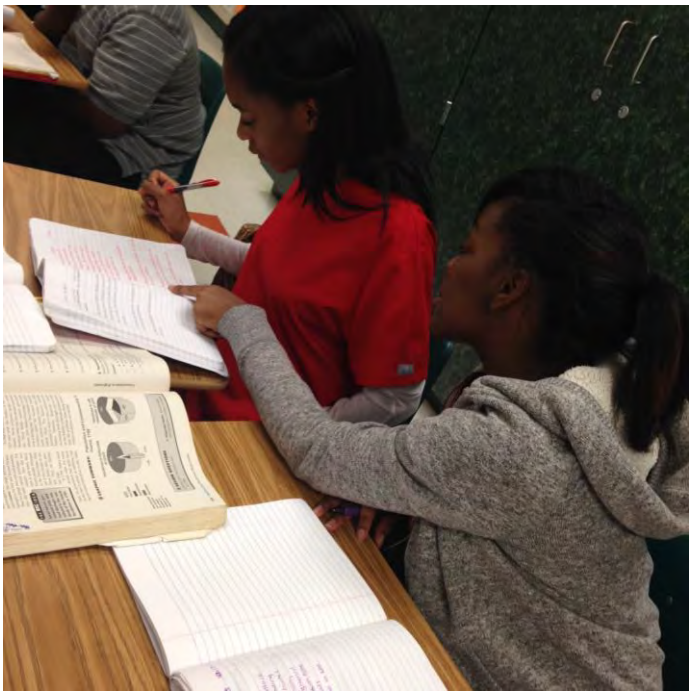
Alessandro Volta

Louis Pasteur

Thomas A. Watson

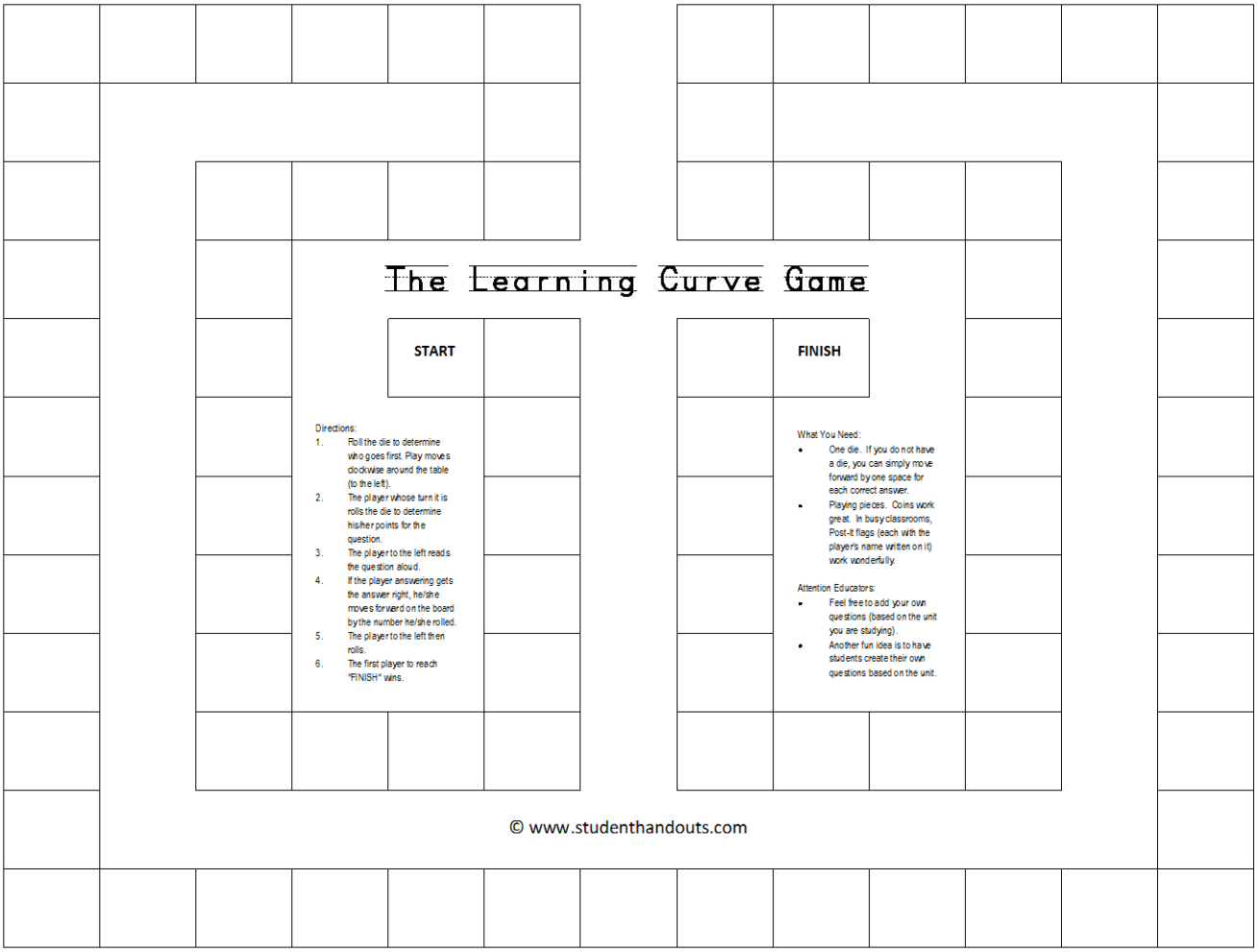
Andrew Carnegie

Teachers should access http://quizlet.com/48248307/important-inventors-and-scientists-flash-cards/ for review.



TASK 8 - THE INVENTORS' GAME

Students create questions for the game and are put in groups of 2-4.



Game sheet Retrieved From: http://Students' handouts

RULES FOR THE GAME

1. One student reads the questions.
2. Students take turns answering questions, or they can roll the die and the student with the highest number goes first.
3. If he/she answers correctly, he/she will roll the die the number of places shown on the die (for example, if the die shows six, they move six places).
4. The winner is the student who gets to "FINISH" first, and they will win a PRIZE or EXTRA CREDIT.

SAMPLE STUDENT QUESTIONS– THESE COULD BE CREATED AS HOMEWORK OR IN THE CLASSROOM. THE QUESTIONS COULD ALSO BE LAMINATED AND CUT TO PRODUCE GAME CARDS.

Who composed the electromagnetic theory of light and electromagnetic waves? Heinrich Rudolph Hertz	Who created braille? Louis Braille
Who created the printing press? Johannes Gutenberg	Who invented the necktie? Jesse Langsdorf
Who created dynamite? Alfred Noble	Who is responsible for the milling machine and cotton gin? Eli Whitney
What set of brothers created the airplane? The Wright brothers	Who made the Archimedes screw, a device used to raise the water level, explained the principle behind levers, Archimedes principle, accurate value of the 'pi', and many more? Archimedes
Who discovered gravity and also invented the reflecting telescope? Sir Isaac Newton	Who invented the X-Ray? Wilhelm Conrad Röntgen

Who created blue jeans? Levi Strauss	Who made the 1st pocket watch? Peter Heinlein
Who created the Band-Aid? Earle Dickson	Who invented adhesive tape? Richard G. Drew
Who invented the telephone? Alexander Graham Bell	Who made the bicycle, typewriter with keyboard, and wood saving cooker? Karl Friedrich von Drais

ANOTHER SET OF STUDENTS' SAMPLE QUESTIONS

Who composed the electromagnetic theory of light and electromagnetic waves? Heinrich Rudolph Hertz	Who created braille? Louis Braille
Who created the printing press? Johannes Gutenberg	Who made the necktie? Jesse Langsdorf
Who created dynamite? Alfred Noble	Who is responsible for the milling machine and the cotton gin? Eli Whitney
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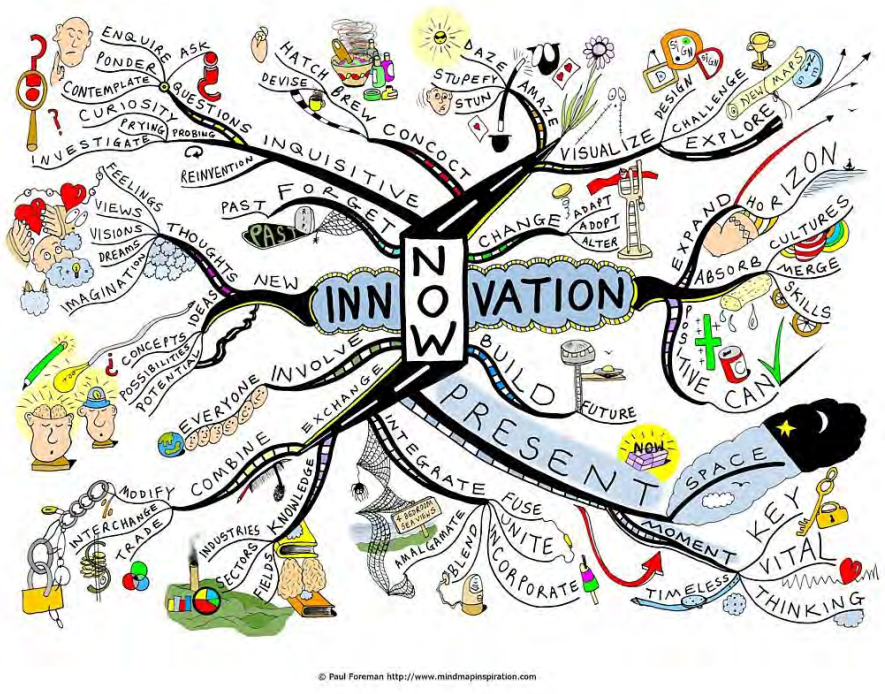
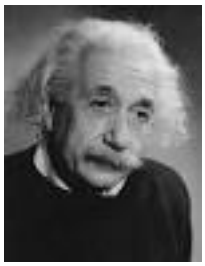
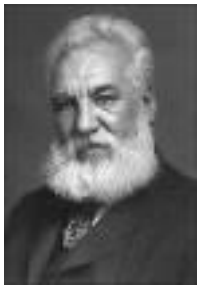
Who created blue jeans? Levi Strauss	Who made the pocket watch? Peter Heinlein
Who created the Band-Aid? Earle Dickson	Who made adhesive tape? Richard G. Drew
Who invented the telephone? Alexander Graham Bell	Who made the bicycle, typewriter with keyboard, and wood saving cooker? Karl Friedrich von Drais



TASK 9





Student Directions:

There have been quite a few famous inventors in the history of the United States. Inventions usually start out as small kernels of ideas in an inventor's brain and morph into working prototypes. Some of those then go on to change history. Take a look at the following list of inventors.

Retrieved From: http://invent.answers.com/famous-inventors/famous-white-inventors

Willis Carrier

Willis Carrier created an invention that makes it easy to sleep through long, hot, summer nights without drowning in your own sweat. The innovator is credited with inventing the first air conditioning. Carrier was an engineer and worked for a heating company. One of his assignments was to come up with a way to remove the humidity that was present in a printing shop, as it was causing ink to smear and run. Many had tried, but all had failed. But in 1915, Carrier solved the problem. He came up with a mechanical device that controlled humidity, allowing air to go through a filter and run over coolant containing coils. This solved the problem and ultimately allowed him to start his open company, called Carrier Engineering Corporation, which is still involved in the air conditioning business today.

Henry Ford

Henry Ford created the automated assembly line system, making it possible to produce more cars. Prior to his invention, workers had to make one car at a time, and he made it possible for them to build a piece at a time. Each worker or small group of workers would be responsible for one aspect of the car. This resulted in a more efficient process and the production of more cars. With the conveyor belt process in place, workers could complete a car in just over an hour and a half. It was Henry Ford's dream to make the automobile accessible and affordable for everyone.

Jonas Salk

Polio is a paralyzing and crippling virus that attacks the nervous system and can result in death. In the 1940s and mid-1950s, nearly 500,000 people contracted polio worldwide each year. Dr. Jonas Salk sought to find a cure or preventative measure for the virus. It took him approximately 5 years, but he came up with a serum he believed would prevent people from contracting polio. After testing it on himself and his family, the serum was proven successful. Dr. Salk did not feel that people should have to pay for the vaccine, so he decided not to patent it. Polio has not been completely eradicated, but Dr. Salk's solution might eliminate it one day.

To invent, you need a good imagination and a pile of junk, at least according to Thomas Edison. Where

would society be without the creative minds of inventors? Those who believe everything has already been invented have limited vision. Remember, just 10 years ago the iPhone didn't exist.

TASK 10

Student Directions: *Use the information from Task 8 to complete the chart below:*

INVENTORS			
NAME OF INVENTOR	**WHAT WAS INVENTED**	**THE PROBLEM THE INVENTION SOLVED**	**INTERESTING FACTS**

STUDENT WORK SAMPLE A

STUDENT WORK SAMPLE B

- Year of Invention: 1764
- 2 benefits of Invention:
  - It spun many threads at the same time.
  - It aided in hastening the process of spinning.

- Year of Invention: 1733
- 2 benefits of Invention:
  - It enabled weavers to work so fast that they soon outpaced spinners.
  - By using a flying shuttle, a single weaver could produce a wide piece of cloth.

- Year of Invention: 1793
- 2 benefits of Invention:
  - It separated seeds from raw cotton at a fast rate.
  - Cotton production increased exponentially.

- Year of Invention:
- 2 benefits of Invention:
  - It aided farmers and helped them move seeds properly.
  - It deposited seeds in rows rather than scattering them wastefully over the land.

STUDENT WORK SAMPLE C

TASK 11

Student Directions: *Match each scientist to his or her science contribution*

Name: _____

Scientist Match

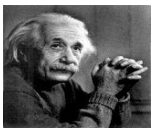
Directions: Match each Scientist to his or her science contribution.

Galileo Galilei
(1564-1642)

_____

Thomas Edison
(1791-1867)

_____

Albert Einstein
(1879-1955)

_____

Isaac Newton
(1642-1727)

_____

Marie Curie
(1867-1943)

_____

Niels Bohr
(1885-1962)

_____

Benjamin Franklin
(1706-1790)

_____

A. Developed the theory of universal gravitation; how the force that pulls two objects together depends on the mass of each object. Applied this theory to the planets' places in the universe.

B. Studied the structure of atoms and introduced the model that atoms have a positively charged nucleus surrounded by electrons that travel in circular orbits around the nucleus...similar to our solar system.

C. An inventor with over 1,000 patents, this scientist is responsible for many of the modern items we use every day, among which are the phonograph, the incandescent lightbulb, motion pictures, and the alkaline battery.

D. A politician and civic activist, this scientist and inventor is well-known for work with electricity and inventions such as the lightning rod, bifocals, and odometer.

E. Provided evidence for Copernicus' theory that the Sun is fixed in the center of our universe and the Earth and other planets revolve around the Sun.

F. A physicist and mathematical genius, this scientist is best known for the *theory of relativity* (all motion is relative) and the equation that proves such; $E=mc^2$.

G. The first person to be awarded two Nobel Prizes, this scientist discovered the elements Raduim and Polonium, and created the theory of radioactivity.

Graphics (C) http://www.crystalinks.com/scientists.html

Retrieved From: http://files.havefunteaching.com/free-worksheets/science/scientist-matching-worksheet.pU

SCIENTISTS MATCH ANSWER KEY

Answer Key

Galileo __E__

EDISON __C__

EINSTEIN__ F__

NEWTON __A___

CURIE __G___

BOHR __B___

TASK 12
Famous Women Inventors of the Modern Era

Students must refer to the website for information to complete the chart below.

Mary Anderson Anyone who's ever driven in a rain or snow storm can attest to the dire importance of windshield wipers. What a lot of people don't know is that windshield wipers were invented by a woman. Inventor Mary Anderson received a patent for her car-window cleaning device in 1903.

Barbara Askins Established by the IPO Education Foundation, the National Inventor of the Year Award was created in 1974, but it wasn't until five years later that an individual female inventor would take home the prize. That woman: Barbara Askins.

Patricia Billings Imagine a building material that is indestructible, fire-proof and non-toxic. Sounds like something you'd find in a work of science fiction, but actually it's a very-real invention called Geobond®, designed by female

inventor Patricia Billings.

Marion Donovan Born in Fort Wayne, Indiana in 1917, inventor Marion Donovan was instilled with an inventive spirit at a young age. She spent the greater part of her childhood hanging around the manufacturing plant run by her father and uncle, two men who combined to invent, among other things, an industrial lathe for grinding automobile gears and gun barrels.

Sally Fox In the modern world, there is an unfortunate tendency to value profit over intellect. People may know a practice is harmful, but continue to do it anyway because it produces an in-demand product. Fortunately, there are inventors who work persistently to develop more responsible solutions. Sally Fox is one such individual.

Bette Nesmith Graham As electric typewriters came into widespread use after World War II, Bette Nesmith Graham and countless other secretaries let out a collective groan. The new machines did make typing easier, but their carbon-film ribbons made it impossible to correct mistakes neatly with a pencil eraser. As a result of this predicament, Graham ended up inventing one of the most widely used office products of the 20th century.

Dr. Temple Grandin The thing that usually amazes people most about prolific woman inventor Dr. Temple Grandin is not all the great strides she has made to improve animal-handling devices, nor the fact that she earned a Ph.D. in animal science and became a world-renowned teacher and speaker. Instead, what usually amazes people most about Dr. Temple Grandin is that she accomplished all this while living with autism.

Ruth Handler Perhaps one of the most famous toys in American history, the Barbie doll, is a staple in the toy chests of little girls everywhere. Along with co-founding the renowned toy company Mattel, woman inventor Ruth Handler also designed the doll that would become an American cultural icon.

Dr. Grace Murray Hopper Grace Murray Hopper was a curious child. At the age of seven, she dismantled her alarm clock to figure out how it worked, but was unable to reassemble it. By the time her mother figured out what she had been up to, the young female inventor had gone through seven clocks in the house.

Mary Phelps Jacob Imagine putting on an excruciatingly tight vest stiffened with whalebones and steel rods that poke into your torso, holding your upper body in an unnatural, agonizing position. Does this sound like some kind of medieval torture device? Not quite. In the early part of the 20th century, women's undergarments were barbarous, awkward and very unhealthy for the wearer.

Margaret Knight For many women inventors in years past, the invention process was twice as difficult because, in addition to the hardships of inventing, they also faced the skepticism of a world that didn't believe women could create something of value. Fortunately, over the years, that perception has been blown out of the water by women inventors like Margaret E. Knight, who were willing to fight for the accolades and recognition they unquestionably deserved.

Stephanie Kwolek Stephanie Kwolek wanted to study medicine while growing up in New Kensington, Pennsylvania, and that desire persisted as she worked toward her B.A. in chemistry at Carnegie Mellon University. After finishing

her degree, however, Kwolek took a temporary research position with DuPont, where her work turned out to be so interesting that she decided to stay on - a decision that lead to her becoming one of the century's most famous women inventors.

Heddy Lamarr Although better known for her Silver Screen exploits, Austrian actress Heddy Lamarr (born Hedwig Eva Maria Kiesler) also became a pioneer in the field of wireless communications following her emigration to the United States. The international beauty icon, along with co-inventor George Anthiel, developed a "Secret Communications System" to help combat the Nazis in World War II.

Ann Moore As a Peace Corps nurse during the 1960s in Togo, West Africa, Ann Moore saw African mothers do something that she found very interesting: they carried their babies in fabric slings tied securely on their backs. Moore liked the closeness between babies and their mothers when carried in this way. This famous woman inventor observed how the babies seemed so calm because they felt secure and near to their mothers.

Lyda Newman African-American women played an integral part in the development of hair-care products in the late-nineteenth and early-twentieth centuries. While Madame C.J. Walker and Marjorie Joyner are two of the most famous women inventors in this respect, another inventor – Lyda Newman – also played an important role.

Patsy Sherman As inventor Patsy Sherman can attest, innovation is often triggered by an unexpected or seemingly trivial occurrence. Hired as a research chemist by 3M Company in 1952, Sherman became one of only a tiny handful of women in the field. She was assigned to work with chemicals, where she and her colleague, Sam Smith, were charged with developing a new kind of rubber for jet aircraft fuel lines.

Dr. Giuliana Tesoro Did you know that there was a woman inventor who obtained more than one hundred and twenty-five patents? Her name was Giuliana Tesoro, and she helped to make great strides in the field of fiber and textile chemistry.

Ruth Wakefield Chocolate chip cookies are a favorite treat for people of all ages, but without Ruth Wakefield, the world might never have tasted those sweet delights. Born in 1905, Wakefield grew up to be a dietician and food lecturer after graduating from the Framingham State Normal School Department of Household Arts in 1924.

Rachel Zimmerman In the mid-1980s, a twelve-year old girl developed an invention that greatly helped people who have difficulty communicating. Rachel Zimmerman of Ontario, Canada created a software program using Blissymbols: symbols that enable non-speaking people, such as those with severe physical disabilities like cerebral palsy, to communicate.

Retrieved From: http://www.women-inventors.com/Women-Inventors.asp

- http://www.women-inventors.com/Women-Inventors.asp
- http://www.ranker.com/list/history_s-most-under-appreciated-female-inventors/brooke-wilson
- http://www.internationalwomensday.com/article.asp?m=4&e=7#.VAubvVYQ7wI

Student Directions: *You may use the following resources to find the necessary information to complete the chart for at least 10 women who have contributed to historical innovations.*

FAMOUS WOMEN INVENTORS			
NAME	INVENTION	PROBLEM SOLVED BY THE INVENTION	INTERESTING FACTS

TASK 13

Student Directions: *Using information from Task 3 above to write a 5 paragraph essay predicting the future for your chosen technology. Explain how you envisage your chosen technology will change, improve or develop in the next ten years. Include a drawing or some other form of illustration to support your ideas.*

ADDITIONAL LESSON IDEAS FOR THE PROJECT

1. SELECT AN INVENTOR AND CREATE A CUBE WITH FACTS ABOUT AN INVENTOR USE http://www.readwritethink.org/files/resources/interactives/cube_creator/
2. PROVIDE LIST OF INVENTORS AND THEIR INVENTIONS
3. SCAVENGER HUNT
4. GUESS WHO QUESTIONS AND ANSWERS
5. BEFORE THE REVOLUTION VS AFTER THE INDUSTRIAL REVOLUTION
6. WHO DID IT? MATCH THE NAME TO THE INVENTION
7. DIARY THE LIFE OF A FARM WORKER VS DIARY OF THE LIFE OF A FACTORY WORKER ADVANTAGES AND DISADVANTAGES
8. CREATE A POSTER - INCLUDE A RUBRIC

Evaluation & Student Assessment

Oral presentations, questions, Bingo and games

TEAMWORK RUBRIC

Use http://www.teach-nology.com/web_tools/rubrics/teamwork/

It provides pre-made rubrics specifically designed for use with different student levels. These rubrics will make grading much easier. There are rubrics for assessing Behavior, Class Participation, Homework, Listening, Organization, Presentation, Problem Solving, Project, Research, and Teamwork.

Resource List

Book

Textbook: World History. Pearson Education, Inc. 2013, ISBN 13: 978-0-13-318724-3 Also available on BEEP

Websites

THESE ARE GREAT WORKSHEETS THAT RELATE TO THE TOPIC

- http://www.teach-nology.com/worksheets/science/invent/
- http://www.abcteach.com/directory/theme-units-inventors-inventions- 8842-2-
- http://www.schoolexpress.com/fws/cat.php?id=2592
- https://www.havefunteaching.com/worksheets/science-worksheets/scientists-worksheets
- http://www.hybridcars.com/history-of-hybrid-vehicles/
- http://www.women-inventors.com
- http://www.ranker.com/list/history_s-most-under-appreciated-female-inventors/brooke-wilson
- http://www.internationalwomensday.com/article.asp?m=4&e=7#.VAubvVYQ7wI
- http://invent.answers.com/famous-inventors/famous-inventor
- http://www.readwritethink.org/files/resources/interactives/cube_creator/
- http://www.wirelesshistoryfoundation.org/wireless-history-project/wireless-history-timeline
- http://inventors.about.com/od/astartinventors/a/Famous_Inventor.htm