

Instructional Recipe

How Have Inventors & Scientists Made a Difference in People's Lives?

Fifth Grade, Social Studies, Science & Language Arts

Step 1 – Ask

Objectives: Students will describe and evaluate the contributions of various scientists and inventors and explain which inventions and discoveries have had the greatest impact on people's lives.

Introduction: Display selected inventions on a timeline. To build interest, you may want to remove the dates and have students predict when the items were invented. To locate dates of inventions, visit Compton's Encyclopedia and click the Timelines link (Technology).- http://school.eb.com/timelines-ebi/eb_us_nn.html



"Robots World Premiere." Online Photograph. EBSCO Image Collection. 8 Oct. 2008
<http://search.ebscohost.com/login.aspx?direct=true&db=imh&AN=imh234346&site=srck5-live>

Ask:

- ★ What are some important inventions?
- ★ What are some important scientific discoveries?
- ★ How have inventors and scientists had an impact on people's lives?
- ★ Why should _____ (insert inventor/scientist) be inducted into our classroom Science/Invention Hall of Fame?

Vocabulary:

- ★ scientist
- ★ discovery
- ★ inventor
- ★ invention

Social Studies TEKS:

(5.24) **Science, technology, and society.** (A) describe the contributions of famous inventors and scientists such as Neil Armstrong, John J. Audubon, Benjamin Banneker, Clarence Birdseye, George Washington Carver, Thomas Edison, and Carl Sagan; and (C) explain how scientific discoveries and technological innovations in the fields of medicine, communication, and transportation have benefited individuals and society in the United States

Science TEKS

(5.3) **Scientific processes.** (D) connect grade-level appropriate science concepts with the history of science, science careers, and contributions of scientists.

English/Language Arts TEKS:

(23) **Research/Research Plan.**

(B) generate a research plan for gathering relevant information about the major research question.

(24) **Research/Gathering Sources.**

(A) follow the research plan to collect data from a range of print and electronic resources (e.g., reference texts, periodicals, web pages, online sources) and data from experts; (C) record data, utilizing available technology (e.g., word processors) in order to see the relationships between ideas, and convert graphic/visual data (e.g., charts, diagrams, timelines) into written notes; (D) identify the source of notes (e.g., author, title, page number) and record bibliographic information concerning those sources according to a standard format; and (E) differentiate between paraphrasing and plagiarism and identify the importance of citing valid and reliable sources.

(25) **Research/Synthesizing**

Information. Students clarify research questions and evaluate and synthesize collected information. Students are expected to: (A) refine the major research question, if necessary, guided by the answers to a secondary set of questions; and (B) evaluate the relevance, validity, and reliability of sources for the research.

Step 2 – Investigate

Students may search for the name of an inventor or the name of an invention. They may also browse the K-12 Databases to find important inventions.

K-12 Databases Resources:

EBSCO Kids Search

- ★ Search using the *Detailed Search* function. Use Boolean logic: inventor OR scientist. Filter results by *Biographies*.

Encyclopaedia Britannica Online School Edition

- ★ Browse— *Science—Scientist*, or
- ★ Search using Boolean logic: inventor OR scientist.

Additional Websites:

Inventor of the Week Archives - <http://web.mit.edu/invent/i-archive.html>

Books:

- Girls Think of Everything: Stories of Ingenious Inventions by Women* by Catherine Thimmesh
- So You Want to Be an Inventor* by Judith St. George



Step 3 – Create

Students will take notes on three inventors and/or scientists, noting each person's inventions and the impact of those inventions on society.

Inventor/ Scientist	Invention(s)/ Discovery	Impact on Society
Which inventor/scientist do you believe should be inducted into our classroom Hall of Fame?		
Why?		

(26) **Research/Organizing and Presenting Ideas.** Students organize and present their ideas and information according to the purpose of the research and their audience. Students are expected to synthesize the research into a written or an oral presentation that: (A) compiles important information from multiple sources; (B) develops a topic sentence, summarizes findings, and uses evidence to support conclusions; (C) presents the findings in a consistent format; and

(28) **Listening and Speaking/Speaking.** Students speak clearly and to the point, using the conventions of language. Students continue to apply earlier standards with greater complexity. Students are expected to give organized presentations employing eye contact, speaking rate, volume, enunciation, natural gestures, and conventions of language to communicate ideas effectively.

Technology Application TEKS:

- (4) **Information acquisition.**
 (A) apply appropriate electronic search strategies in the acquisition of information including keyword and Boolean search strategies.
 (5) **Information acquisition.** (A) acquire information including text, audio, video, and graphics.
 (7) **Solving Problems.**
 (A) Use software programs with audio, video, and graphics to enhance learning experiences
 (B) Use appropriate software to express ideas and solve problems including the use of word processing, graphics, databases, spreadsheets, simulations, and multimedia
 (11) **Communication.**
 (A) Publish information in a variety of media including, but not limited to, printed copy, monitor display, Internet documents, and video

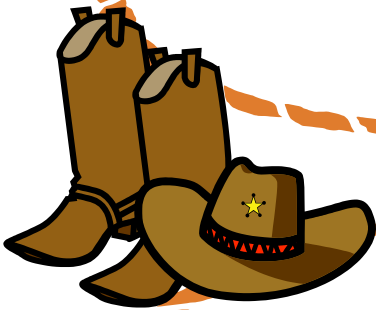
Step 4 – Discuss

- ★ Scientist/Inventor Hall of Fame- Students will create a poster for a Hall of Fame. Students will describe the contributions of the scientist/inventor and evaluate how their discoveries/inventions have benefited people.
- ★ Persuasive speech- Students will give a short speech explaining to their classmates why the inventor/scientist should be inducted into the Hall of Fame.

Technology Links –


Instead of creating posters, students could use PowerPoint to create several slides describing the accomplishments of the scientist/inventor.

Students could use a word processor to type a persuasive letter explaining why the scientist/inventor should be inducted in to the Hall of Fame.



Step 5 – Reflect

Allow students to present their projects to the rest of the class. Use the following suggested rubric to assess the students' work. Make sure that the students are familiar with the rubric *before* they begin creating their project. They should refer to the rubric repeatedly to monitor their progress in creating their project.

 Technology Link: You can also create your own rubric with your students at <http://rubistar.4teachers.org/index.php>.

Rubric Scientist/Inventor Hall of Fame Poster

CATEGORY	4	3	2	1
Use of Class Time	Used time well during each class period. Focused on getting the project done. Never distracted others.	Used time well during each class period. Usually focused on getting the project done and never distracted others.	Used some of the time well during each class period. There was some focus on getting the project done but occasionally distracted others.	Did not use class time to focus on the project OR often distracted others.
Graphics - Clarity	Graphics are all in focus and the content easily viewed and identified from 6 ft. away.	Most graphics are in focus and the content easily viewed and identified from 6 ft. away.	Most graphics are in focus and the content is easily viewed and identified from 4 ft. away.	Many graphics are not clear or are too small.
Required Elements	The poster includes all required elements as well as additional information.	All required elements are included on the poster.	All but 1 of the required elements are included on the poster.	Several required elements were missing.
Content - Accuracy	At least 7 accurate facts are displayed on the poster.	5-6 accurate facts are displayed on the poster.	3-4 accurate facts are displayed on the poster.	Less than 3 accurate facts are displayed on the poster.
Attractiveness	The poster is exceptionally attractive in terms of design, layout, and neatness.	The poster is attractive in terms of design, layout and neatness.	The poster is acceptably attractive though it may be a bit messy.	The poster is distractingly messy or very poorly designed. It is not attractive

**Rubric
Scientist/Inventor Hall of Fame
Oral Presentation**

CATEGORY	4	3	2	1
Preparedness	Student is completely prepared and has obviously rehearsed.	Student seems mostly prepared but might have needed a couple more rehearsals.	The student is somewhat prepared, but it is clear that rehearsal was lacking.	Student does not seem at all prepared to present.
Speaks Clearly	Speaks clearly and distinctly all (100-95%) the time, and mispronounces no words.	Speaks clearly and distinctly all (100-95%) the time, but mispronounces one word.	Speaks clearly and distinctly most (94-85%) of the time. Mispronounces no more than one word.	Often mumbles or can not be understood OR mispronounces more than one word.
Content	Shows a full understanding of the topic.	Shows a good understanding of the topic.	Shows a good understanding of parts of the topic.	Does not seem to understand the topic very well.
Volume	Volume is loud enough to be heard by all audience members throughout the presentation.	Volume is loud enough to be heard by all audience members at least 90% of the time.	Volume is loud enough to be heard by all audience members at least 80% of the time.	Volume often too soft to be heard by all audience members.
Stays on Topic	Stays on topic all (100%) of the time.	Stays on topic most (99-90%) of the time.	Stays on topic some (89%-75%) of the time.	It was hard to tell what the topic was.