Electric Invention Research

Fifth Grade
Activity: 5
Time: 5 Class Periods

General Description
Students will work in partners to research an invention that uses electricity. The partner groups will prepare a report, advertisement, and a 3-D model of their invention. Students will share their information with the class by giving short oral presentations.

Objectives
Students will create a report, advertisement, and a small replica of an electric invention and present their information to the class.

Arizona State Standards
SC05 S1C1 PO3 Locate information (e.g., book, article, website) related to an investigation
SC05 S1C4 PO1 Communicate verbally or in writing the results of an inquiry
SC05 S1C4 PO3 Communicate with other groups or individuals to compare the results of a common investigation
SC05 S2C1 PO1 Identify how diverse people and/or cultures, past and present, have made important contributions to scientific innovations (e.g., Percy Lavon Julian [scientist], supports Strand 4; Niels Bohr [scientist], supports Strand 5; Edwin Hubble [scientist], support Strand 6)
SS05 S1C1 PO2 Construct timelines of the historical era being studied (e.g., presidents/ world leaders, key events, people)

R05 S3C1 PO5 Locate appropriate print and electronic reference sources (e.g., encyclopedia, atlas, almanac, dictionary, thesaurus, periodical, textbooks, CD-ROM, website) for a specific purpose

W05 S3C6 PO1 Paraphrase information from a variety of sources (e.g., Internet, reference materials)

Teacher Information
Electricity and the resulting technologies associated with electricity have changed the daily lives of people drastically in the past 250 years.

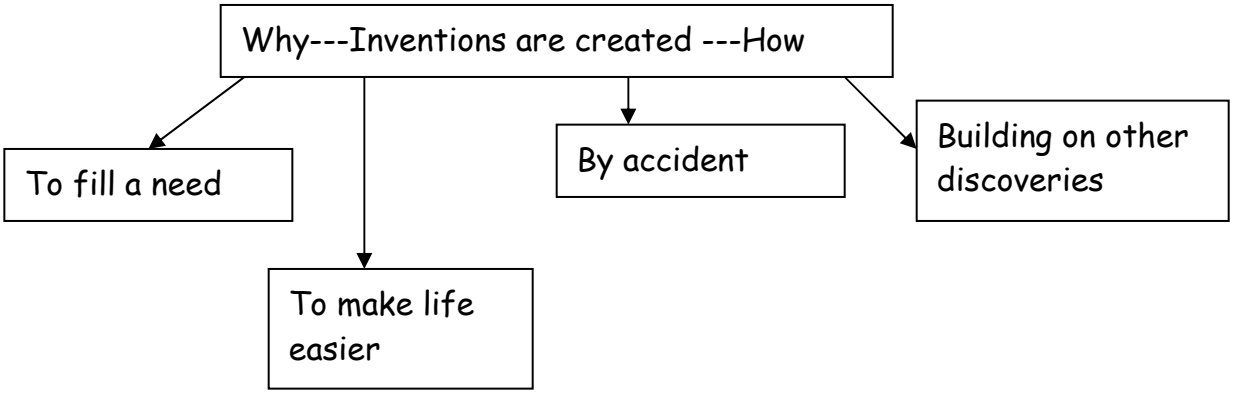
Materials
Information books
Encyclopedias
Invention almanacs
Colored pencils/markers
White paper
Tape/glue
Construction paper

Materials for the models:

Cardboard
Paper towel rolls
Boxes
Wooden popsicle sticks
Toothpicks
Paper clips
Models of an advertisement and a brochure
Activity Cards 5-5a, 5-5b, 5-5c

Procedures/Exploration

1. Develop a class definition of the word "invention". Put the definition on the board or on butcher paper where the students can refer the class is satisfied with the term.
2. Discuss some of the reasons inventions are created (how and why). Write the word "invention" on the board and create a web of reasons around the word. For example:



3. Tell students they are going to research an invention that uses electricity. Hand out the Invention Project information sheet (Activity Card 5-5a) and go over the details with the students. (This sheet can also be used as a grading rubric during the presentations). Discuss elements of a good advertising and provide examples.
4. Have students choose a partner or assign partners.
5. Have students choose an invention from the list of Electric Inventions to Research (Activity Card 5-5b) or assign inventions or have students draw an invention from a hat. Each partner group should do a different invention to provide the most information for the class. Depending on the students' research skills and the amount of information available, it may be useful to provide folders of photocopied information and photos from the resources for each invention.
6. Discuss available materials, projected time to complete the project, and partner behavior expectations.
7. Allow students to begin the project. Each successive class period should begin with time for project questions and a review of partner behavior expectations. At the conclusion of each class period, discuss positive and negative observations of class researching techniques.

8. Before beginning the presentations, discuss elements of a good presentation. Also discuss appropriate audience behavior. Each presentation will be evaluated by the audience using the Student Evaluation Cards (Activity Card 5-5c). These cards should be given to the teacher and presenters for review after the presentations.

Invention Project

Fifth Grade
Activity: 5
Activity Card: 5-5a

Date: _____ Names: _____

Invention: _____ _____

Points Earned: _____ _____

You and your partner have been assigned an invention to research. You will have at least three class periods to prepare a report, advertisement, and a 3-D model. You will be graded on creativity, neatness, and accuracy of information. You will also share the information you learned with the class by giving a short oral presentation. The information for the report and advertisement should be interesting and fun, as well as factual. You should be careful not to copy information straight from books for your report. The requirements and how each part will be graded as described below. Have fun and try to make your presentation interesting.

Requirements

Possible Points:_____	**Report:** the report should first describe your invention (what it is, when it was invented, etc.) The rest of the report should include information about the inventor or other interesting related facts. The report should be at least one to two pages.	**Points Earned:** _____
Possible Points:_____	**Advertisement:** This should be a newspaper, magazine, billboard, or other type of ad. The information should be short and to the point. You may want to think of a slogan, poem, or jingle to help sell your invention. Put the ad on apiece of typing paper or poster board and make it colorful.	**Points Earned:** _____
Possible Points:_____	**Model of invention:** This should be a small replica of the invention. It can be made of scrap materials such as string, construction paper, small boxes, button, popsicle sticks, clay cotton balls, toothpicks, etc. It must be 3-D	**Points Earned:** _____
Possible Points:_____	**Research techniques:** I will be looking for and expecting good partner behavior and researching techniques.	**Points Earned:** _____
Possible Points:_____	**Presentation:** The presentation will include reading your report or describing your invention and typing to sell your invention to us. Describe our ad and model. The presentation should be 3-5 minutes long.	**Points Earned:** _____

Electric Inventions to Research

Fifth Grade
Activity: 5
Activity Card: 5-5b

Student's Name: **Date:**

Telegraph - 1837 - Samuel Morse
Telephone - 1876 - Alexander Graham Bell
Microphone - 1878 - David Edward Hughes
Light bulb - 1879 - Thomas Edison
Streetcar - 1880 -
Iron - 1882 - Henry W. Seely
Elevator - 1889 - Otis Brothers and Company
Tape recorder - 1900 - Valdemar Poulsen
Kitchen range - 1906 - General Electric
Washing machine - 1907 -
Neon light - 1911 - George Claude
Home refrigerator - 1913 -
Phonograph - 1925 - J.P. Maxfield and H.C. Harrison
Toaster - 1926 - Charles Strite
Television - 1929 - Vladimir K. Zworykin
Typewriter - 1935 - International Business Machines Corporation
FM radio - 1935 - Edwin H. Armstrong
Computer - 1945 - J.G. Brainerd, J.P. Eckert, H.H. Goldstine, John Mauchly, and Sperry Corp.
Microwave oven - 1947 - Percy Spencer
Videotape recorder - 1956 - Ampex Corporation
Photocopier - 1959 - Chester Carlson and Xerox Corporation
Calculator- 1971 - Texas Instruments

Student Evaluation Card

Fifth Grade
Activity: 5
Activity Card: 5-5c

Student Evaluation Card (Make comments for each part below.) Name of invention: Who invented it and when: One thing I learned from the presentation: One positive comment for presenters: Overall Presentation Rating: _____ 1 = incomplete model, ad lacks color, report is poorly written, presentation is boring 2 = some parts are well done but other parts are poorly done, presentation is okay 3 = good model, ad, report, and presentation but lacks excellence in all areas 4 = quality model, colorful and creative ad, report is well done, presentation is lively	Student Evaluation Card (Make comments for each part below.) Name of invention: Who invented it and when: One thing I learned from the presentation: One positive comment for presenters: Overall Presentation Rating: _____ 1 = incomplete model, ad lacks color, report is poorly written, presentation is boring 2 = some parts are well done but other parts are poorly done, presentation is okay 3 = good model, ad, report, and presentation but lacks excellence in all areas 4 = quality model, colorful and creative ad, report is well done, presentation is lively
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