



TEXAS PERFORMANCE STANDARDS PROJECT

Grade 4 Social Studies/Science Unit

Innovation Celebration

This guide links the *Innovation Celebration* unit to the Texas Essential Knowledge and Skills (TEKS) for fourth graders. *Innovation Celebration* is an interdisciplinary social studies and science unit that allows students to investigate the process of innovative thinking by examining the reasons that society calls for certain inventions during certain times. *Innovation Celebration* also leads students to practice skills in the other subject areas of English language arts and mathematics. For example, students use deductive reasoning and logic from the Mathematics TEKS, and they also use writing and research skills from the English Language Arts TEKS. The following document includes the applicable TEKS and the details of the *Innovation Celebration* unit. The asterisks indicate that those TEKS are testable on the Texas Assessment of Knowledge and Skills (TAKS). The final section of this document presents the applicable Texas College Readiness Standards adopted by the Texas Higher Education Coordinating Board (THECB) on January 24, 2008.

Texas Essential Knowledge and Skills

This unit may address the following TEKS:

English Language Arts:

- 4.1 Reads grade-level text with fluency and comprehension
- 4.2 Understands new vocabulary and uses it when reading and writing
- 4.9 Reads independently for sustained periods of time and produce evidence of their reading
- 4.10 Analyzes, makes inferences, and draws conclusions about the author's purpose in cultural, historical, and contemporary contexts and provides evidence from the text to support their understanding
- 4.11 Analyzes, makes inferences, and draws conclusions about expository text and provides evidence from text to support their understanding
- 4.14 Uses comprehension skills to analyze how words, images, graphics, and sounds work together in various forms to impact meaning
- 4.18 Writes expository and procedural or work-related texts to communicate ideas and information to specific audiences for specific purposes
- 4.20 Understands the function of and uses the conventions of academic language when speaking and writing
- 4.21 Writes legibly and uses appropriate capitalization and punctuation conventions in their compositions
- 4.22 Spells correctly

- 4.23 Asks open-ended research questions and develops a plan for answering them
- 4.24 Determines, locates, and explores the full range of relevant sources addressing a research question and systematically record the information they gather
- 4.25 Clarifies research questions and evaluates and synthesizes collected information
- 4.26 Organizes and presents their ideas and information according to the purpose of the research and their audience
- 4.27 Uses comprehension skills to listen attentively to others in formal and informal settings
- 4.28 Speaks clearly and to the point, using the conventions of language
- 4.29 Works productively with others in teams

Mathematics:

- 4.7 Uses organizational structures to analyze and describe patterns and relationships* (Testable on the Grade 4 Mathematics TAKS, Objective 2)
- 4.8 Identifies and describes lines, shapes, and solids using formal geometric language* (Testable on the Grade 4 Mathematics TAKS, Objective 3)
- 4.12 Applies measurement concepts* (Testable on the Grade 4 Mathematics TAKS, Objective 4)
- 4.13 Solves problems by collecting, organizing, displaying, and interpreting sets of data* (Testable on the Grade 4 Mathematics TAKS, Objective 5)
- 4.14 Solves problems connected to everyday experiences and activities in and outside of school* (Testable on the Grade 4 Mathematics TAKS, Objective 6)
- 4.15 Communicates about mathematics, using informal language* (Testable on the Grade 4 Mathematics TAKS, Objective 6)
- 4.16 Uses logical reasoning to make sense of his or her world
- 5.2 Uses fractions in problem-solving situations* (Testable on the Grade 5 Mathematics TAKS, Objective 1)
- 5.5 Makes generalizations based on observed patterns and relationships* (Testable on the Grade 5 Mathematics TAKS, Objective 2)
- 5.6 Describes relationships mathematically* (Testable on the Grade 5 Mathematics TAKS, Objective 2)
- 5.12 Describes and predicts the results of a probability experiment* (Testable on the Grade 5 Mathematics TAKS, Objective 5)
- 5.13 Solves problems by collecting, organizing, displaying, and interpreting sets of data* (Testable on the Grade 5 Mathematics TAKS, Objective 5)

Science:

- 4.1 Conducts field and laboratory investigations, following home and school safety procedures and environmentally appropriate and ethical practices* (Testable on the Grade 4 Science TAKS, Objective 1)
- 4.2 Uses scientific inquiry methods during field and laboratory investigations* (Testable on the Grade 4 Science TAKS, Objective 1)
- 4.3 Uses critical thinking and scientific problem solving to make informed decisions* (Testable on the Grade 4 Science TAKS, Objective 1)
- 4.4 Knows how to use a variety of tools and methods to conduct science inquiry* (Testable on the Grade 4 Science TAKS, Objective 1)
- 4.5 Knows that complex systems may not work if some parts are removed
- 4.10 Knows that certain past events affect present and future events* (Testable on the Grade 4 Science TAKS, Objective 4)

Depending on students' inventions, additional Science TEKS may be addressed, including:

- 6.6 Knows that there is a relationship between force and motion
- 6.7 Knows that substances have physical and chemical properties

- 6.8 Knows that complex interactions occur between matter and energy
- 6.9 Knows that obtaining, transforming, and distributing energy affects the environment

Social Studies:

- 4.5 Understands important issues, events, and individuals of the 20th century in Texas
- 4.9 Understands how people adapt to and modify their environment
- 4.22 Applies critical-thinking skills to organize and use information acquired from a variety of sources including electronic technology
- 4.23 Communicates in written, oral, and visual forms
- 4.24 Uses problem-solving and decision-making skills, working independently and with others, in a variety of settings
- 5.4 Understands political, economic, and social changes that occurred in the United States during the 19th century
- 5.5 Understands important issues, events, and individuals of the 20th century in the United States
- 5.13 Understands the impact of supply and demand on consumers and producers in a free enterprise system

Description of Unit

Students will gain an understanding of the process of innovation. **An innovation is something new that can be tangible (like an invention) or intangible (like an idea).** Students will develop an understanding of contributions individuals have made to society and appreciation of the impact of these contributions over time. By studying and “interacting” with famous inventors, scientists, thinkers, and philosophers, students will celebrate the spirit of innovation. They will also learn scientific and historical research and development processes. Students will find that the following elements are essential to innovation: a persistent and curious individual, a need or wish for the innovation, research processes, and a creative idea.

Goals

Students will meet these goals in their explorations:

- Develop the essential skills of logical thinking, creative problem solving, intellectual risk taking, and communication
- Make connections across disciplines
- Identify a need
- Create an original idea or object that satisfies a need or addresses a problem
- Investigate whether or not the innovation already exists
- Test the innovation, make modifications, and draw conclusions
- Keep records and document progress
- Relate scientific methods to real life, including ethics
- Identify criteria for an innovation and tell how the innovation meets them
- Generalize about innovators and the creative process

Phase I. Learning Experiences

1. Use the song at <http://www.school-house-rock.com/Moth.html> to introduce historical inventions. You may also wish to use these websites:
 - http://www.kidinfo.com/American_History/Inventors_Inventions.html
 - <http://www.time.com/time/2003/inventions/list.html>

Students will derive the definitions of innovation, innovator, inventor, and invention. You might choose to have students work in groups to share ideas about their definitions. If possible, identify

pertinent websites for students to access as resources during the unit—you may wish to work the technology specialist. Look for virtual tours, mentorships, oral interviews, and museums.

2. In a large group, choose an actual innovation from the chart (see Attachment #1—Key Innovations of the Twentieth Century) and discuss key innovations that preceded the invention or innovation and the results of the invention or innovation (see Attachment #2— Before and After).

Some resources that might be helpful are:

- Platt, Richard. *Smithsonian Visual Timeline of Inventions*. New York: Dorling Kindersley, 1994.
- Caney, Steven. *Steven Caney's Invention Book*. New York: Workman Publishing, 1985.

3. In small groups or individually, students will develop an understanding and appreciation of the contribution of innovations by researching an innovator (see Attachment #3—Innovators, for some ideas) and one of his/her innovations. Ask the following questions.
 - Why was there a need for the innovation? What problems did it solve? Did it create any new problems?
 - Did the innovator hold any patents or copyrights on the innovation?
 - How did the innovator communicate his/her ideas to others?
 - What had happened in the past that enabled the innovator to come up with new ideas/designs/objects? What happened afterwards as a result of the innovator's work?
 - What else was going on in the world at the time of the innovation?
 - If the innovation still exists, how has the invention changed over time?

Record the major world happenings and events of the innovator's life; Attachment #4—Innovator's Timeline.

4. Combine all of the individual timelines into one class timeline. In categories such as agriculture, education, communication, technology, or transportation, note ways that significant innovations changed knowledge in a related field of study. Which innovations were not accepted at the time of their creation? Why were they not accepted? When did society accept the innovations?

Phase II. Independent Research

A. Research process

1. Before creating an invention or innovation, students will take a survey to determine what they need or would like to see invented. Another option is for students to survey their classmates or members of other classes. Each student will use the Invention Idea Survey (Attachment #5) to help them gather their thoughts and develop their ideas.
2. Each student will complete The Innovator's Journal (Attachment #6).
 - Entry #1. Each student defines a problem and hypothesizes possible solutions.
 - Entry #2. The student then researches whether other ideas or products have been developed that solve the problem. If he/she finds that something already exists to solve the problem, how can what already exists be improved?
 - Entry #3. The student builds prototypes or fully explains ideas in order to formalize his/her solutions. Include drawings of prototypes or detailed plans.
 - Entry #4. Each student tests the prototype or idea and records the results of the tests. He/she should answer questions such as:
 - If the invention is tested 20 times, how many times did it work?
 - What were other people's reactions?

- What works? What doesn't work?
- What could improve the innovation? What revisions are necessary?

Then the student makes revisions and retests.

- **Entry #5.** Each student develops a plan for communicating about the innovation. Brainstorm names for the innovation, logos, slogans, packaging ideas, sales price. Develop an advertising campaign or communication plan aimed at a likely consumer for your innovation. Present an advertisement or proposal to the class.

B. The product

Each student completes either the design brief on his/her own invention (Attachment #7) or the innovation description (Attachment #8).

C. Communication

Each student presents to the class an advertisement for his/her invention or a formal proposal for an innovation.

The class may hold an Innovation Celebration in which each student demonstrates his/her invention/innovation to others in the school or community.

D. Submission

- The cover sheet
- Attachment #6—Innovator's Journal with five entries
- Attachment #7 or #8—Invention Design Brief or Innovation Description
- Videotape or audiotape of advertisement or proposal, including the Q&A session

THECB College Readiness Standards

This unit may address the following THECB College Readiness Standards:

English Language Arts:

- I.A.2 Generates ideas and gathers information relevant to the topic and purpose, keeping careful records of outside sources
- I.A.3 Evaluates relevance, quality, sufficiency, and depth of preliminary ideas and information, organizes material generated, and formulate thesis
- II.A.1 Uses effective reading strategies to determine a written work's purpose and intended audience
- II.A.2 Uses text features and graphics to form an overview of informational texts and to determine where to locate information
- II.A.3 Identifies explicit and implicit textual information including main ideas and author's purpose
- II.A.4 Draws and supports complex inferences from text to summarize, draw conclusions, and distinguishes facts from simple assertions and opinions
- II.A.8 Compares and analyzes how generic features are used across texts
- II.A.9 Identifies and analyzes the audience, purpose, and message of an informational or persuasive text.
- II.B.1 Identifies new words and concepts acquired through study of their relationships to other words and concepts
- III.A.1 Understands how style and content of spoken language varies in different contexts and influences the listener's understanding
- III.A.2 Adjusts presentation (delivery, vocabulary, length) to particular audiences and purposes
- III.B.1 Participates actively and effectively in one-on-one oral communication situations
- III.B.2 Participates actively and effectively in group discussions

- III.B.3 Plan and delivers focused and coherent presentations that convey clear and distinct perspectives and demonstrate solid reasoning
- IV.A.1 Analyzes and evaluates the effectiveness of a public presentation
- IV.A.2 Interprets a speaker’s message; identifies the position taken and the evidence in support of that position
- IV.A.3 Uses a variety of strategies to enhance listening comprehension
- IV.B.1 Listens critically and responds appropriately to presentations
- IV.B.2 Listens actively and effectively in one-on-one communication situations
- IV.B.3 Listens actively and effectively in group discussions
- V.A.1 Formulates research questions
- V.A.2 Explores a research topic
- V.A.3 Refines research topic and devise a timeline for completing work
- V.B.1 Gathers relevant sources
- V.B.2 Evaluates the validity and reliability of sources
- V.B.3 Synthesizes and organizes information effectively
- V.B.4 Uses source material ethically
- V.C.1 Designs and presents an effective product

Mathematics:

- IV.D.2 Applies probabilistic measures to practical situations to make an informed decision
- VI.A.1 Plan a study
- VI.B.1 Determines types of data
- VI.B.2 Selects and applies appropriate visual representations of data
- VI.B.4 Describes patterns and departure from patterns in a set of data
- VIII.A.1 Analyzes given information
- VIII.A.2 Formulates a plan or strategy
- VIII.A.3 Determines a solution
- VIII.A.4 Justifies the solution
- VIII.A.5 Evaluates the problem-solving process
- VIII.B.1 Develops and evaluates convincing arguments
- VIII.B.2 Uses various types of reasoning
- VIII.C.1 Formulates a solution to a real-world situation based on the solution to a mathematic problem
- VIII.C.2 Uses a function to model a real-world situation
- VIII.C.3 Evaluates the problem solving process
- IX.A.3 Uses mathematics as a language for reasoning, problem-solving, making connections, and generalizing
- X.A.2 Connects mathematics to the study of other disciplines
- X.B.1 Uses multiple representations to demonstrate links between mathematical and real-world situations
- X.B.2 Understands and uses appropriate mathematical models in the natural, physical, and social sciences

Science:

- I.A.1 Utilizes skepticism, logic, and professional ethics in science
- I.A.2 Uses creativity and insight to recognize and describe patterns in natural phenomena
- I.A.3 Formulates appropriate questions to test understanding of natural phenomena
- I.A.4 Relies on reproducible observations of empirical evidence when constructing, analyzing, and evaluating explanations of natural events and processes
- I.B.1 Designs and conducts scientific investigations in which hypotheses are formulated and tested

- I.C.1 Collaborates on joint projects
- I.E.2 Uses essential vocabulary of the discipline being studied
- III.B.3 Recognizes scientific and technical vocabulary in the field of study and use this vocabulary to enhance clarity of communication
- III.B.4 Lists, uses, and gives examples of specific strategies before, during, and after reading to improve comprehension
- III.C.1 Prepares and represents scientific/technical information in appropriate formats for various audiences
- III.D.1 Uses search engines, databases, and other digital electronic tools effectively to locate information
- III.D.2 Evaluates quality, accuracy, completeness, reliability, and currency of information from any source
- IV.B.1 Understands how scientific research and technology have an impact on ethical and legal practices
- V.C.1 Recognizes patterns of change

Social Studies:

- I.A.3 Analyzes how physical and cultural processes have shaped human communities over time
- I.B.2 Identifies and evaluates sources and patterns of change and continuity across time and place
- I.B.3 Analyzes causes and effects of major political, economic, and social changes in U.S. and world history
- I.C.1 Evaluates different governmental systems and functions
- I.C.2 Evaluates changes in the functions and structures of government across time
- I.E.3 Analyzes how social institutions function and meet the needs of society
- I.E.4 Identifies and evaluates the sources and consequences of social conflict
- I.F.1 Uses a variety of research and analytical tools to explore questions or issues thoroughly and fairly
- I.F.2 Analyzes ethical issues in historical, cultural, and social contexts
- II.B.4 Evaluates how major philosophical and intellectual concepts influence human behavior or identity
- II.B.5 Explains the concepts of socioeconomic status and stratification
- III.B.1 Applies social science methodologies to compare societies and cultures
- IV.A.1 Identifies and analyzes the main idea(s) and point(s) of view in sources
- IV.A.2 Situates an informational source in its appropriate contexts
- IV.A.3 Evaluates sources from multiple perspectives
- IV.A.4 Understands the differences between a primary and secondary source and uses each appropriately to conduct research and construct arguments
- IV.A.5 Reads narrative texts critically
- IV.A.6 Reads research data critically
- IV.B.1 Uses established research methodologies
- IV.B.2 Explains how historians and other social scientists develop new and competing views of past phenomena
- IV.B.3 Gathers, organizes, and displays the results of data and research
- IV.B.4 Identifies and collects sources
- IV.C.1 Understands/interprets presentations critically
- IV.D.1 Constructs a thesis that is supported by evidence
- IV.D.2 Recognizes and evaluates counter-arguments
- V.A.1 Uses appropriate oral communication techniques, depending on the context or nature of the interaction
- V.A.2 Uses conventions of standard written English
- V.B.1 Attributes ideas and information to source materials and authors

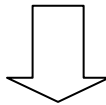
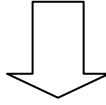
Cross-Disciplinary Standards:

- I.A.1 Engages in scholarly inquiry and dialogue
- I.A.2 Accepts constructive criticism and revise personal views when valid evidence warrants
- I.B.1 Considers arguments and conclusions of self and others
- I.B.2 Constructs well-reasoned arguments to explain phenomena, validate conjectures, or support positions
- I.B.3 Gathers evidence to support arguments, findings, or lines of reasoning
- I.B.4 Supports or modifies claims based on the results of an inquiry
- I.D.1 Self-monitors learning needs and seeks assistance when needed
- I.D.2 Uses study habits necessary to manage academic pursuits and requirements
- I.D.3 Strives for accuracy and precision
- I.D.4 Perseveres to complete and master tasks
- I.E.1 Works independently
- I.E.2 Works collaboratively
- I.F.1 Attributes ideas and information to source materials and people
- I.F.2 Evaluates sources for quality of content, validity, credibility, and relevance
- I.F.3 Includes the ideas of others and the complexities of the debate, issue, or problem
- I.F.4 Understands and adheres to ethical codes of conduct
- II.A.1 Uses effective prereading strategies
- II.A.2 Uses a variety of strategies to understand the meanings of new words
- II.A.3 Identifies the intended purpose and audience of the text
- II.A.4 Identifies the key information and supporting details
- II.A.5 Analyzes textual information critically
- II.A.6 Annotates, summarizes, paraphrases, and outlines texts when appropriate
- II.A.7 Adapts reading strategies according to structure of texts
- II.A.8 Connects reading to historical and current events and personal interest
- II.B.1 Writes clearly and coherently, using standard writing conventions
- II.B.2 Writes in a variety of forms for various audiences and purposes
- II.B.3 Composes and revises drafts
- II.C.1 Understands which topics or questions are to be investigated
- II.C.2 Explores a research topic
- II.C.3 Refines research topic based on preliminary research and devise a timeline for completing work
- II.C.4 Evaluates the validity and reliability of sources
- II.C.5 Synthesizes and organizes information effectively
- II.C.6 Designs and presents an effective product
- II.C.7 Integrates source material
- II.C.8 Presents final product
- II.D.1 Identifies patterns or departures from patterns among data
- II.D.2 Uses statistical and probabilistic skills necessary for planning an investigation, and collecting, analyzing, and interpreting data
- II.D.3 Presents analyzed data and communicate findings in a variety of formats
- II.E.1 Uses technology to gather information
- II.E.2 Uses technology to organize, manage, and analyze information
- II.E.3 Uses technology to communicate and display findings in a clear and coherent manner
- II.E.4 Uses technology appropriately

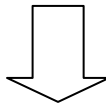
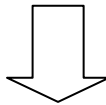
Attachment #1
Key Innovations of the Twentieth Century

Invention/Innovation	Year
Psychoanalysis	1900
Radio receiver	1901
Motorized airplane	1903
Einstein's Theory of Relativity	1905
Ford Model T	1908
Assembly line	1913
Women's right to vote	1920
Vacuum	1923
Television	1926
"Talking" movies	1927
Social Security	1935
Splitting the atom	1942
Atomic bomb	1945
Transistor	1947
First modern computer	1948
Polio vaccine	1952
Discovery of DNA	1953
Poodle skirts	1955
Rock and roll	1955
Affirmative Action	1965
Miniskirts	1965
Internet	1969
Astronauts on the moon	1969
Personal computer	1975
Cellular telephone	1979
World Wide Web	1992
DVD player	1995

**Attachment #2
Before and After**



Innovation:



Attachment #3
Innovators

Aristotle	Greek philosopher who wrote works of logic, metaphysics, ethics, natural sciences, politics, and poetics.
Austen, Jane	British writer who paved the way for Victorian authors with her irony and wit.
Bi Sheng	Chinese inventor credited with inventing movable type 300 years before Gutenberg's similar invention revolutionized the Western world.
Bell, Alexander Graham	American inventor of the telephone, an early hearing aid, and an improved phonograph, among other inventions.
Blackwell, Elizabeth	American social reformer who was the first woman to receive a medical doctorate and the first woman to be appointed a pastor. She sought reform in women's rights, abolition, and temperance.
Bohr, Niels	Danish physicist who received the Nobel Prize for his investigation of atomic structure and radiation.
Carson, Rachel	American writer, biologist, and ecologist who was a pioneer in environmental advocacy.
Carver, George Washington	American botanist, agricultural chemist, and educator who found innovations for the growth of peanuts, soybeans, and sweet potatoes.
Copernicus	Polish astronomer who furthered the theory that the sun is the center of the solar system.
Crick, Francis	British biologist who with James Watson proposed the double helix model of DNA.
Curie, Marie	French chemist who won two Nobel Prizes for her work with radiation.
Dalton, John	British chemist who formulated the atomic theory and the law of partial pressures.
Darwin, Charles	English natural scientist who formulated a theory on evolution by natural selection.
DaVinci, Leonardo	Italian painter, engineer, musician, and scientist who was probably the most versatile man of the Renaissance.
Edison, Thomas	American inventor who patented over one thousand inventions, including the first electric power plant and the microphone.
Einstein, Albert	German-born American physicist who formulated the special theory of relativity and the general theory of relativity and who won a Nobel Prize for his work on the photoelectric effect.
Fleming, Alexander	British bacteriologist who discovered penicillin.

Ford, Henry	American automobile manufacturer who developed a gasoline-powered automobile and who mass produced the Model T.
Fulton, Robert	American engineer who developed the first useable submarine, torpedo, and steamboat.
Galileo	Italian astronomer and mathematician who refined the refracting telescope.
Gates, Bill	American computer software designer and business entrepreneur who co-founded Microsoft.
Goodall, Jane	British zoologist who is known for her revolutionary study of chimpanzees.
Harvey, William	English physician, anatomist, and physiologist who discovered the circulation of blood in the human body.
Jemison, Mae	American astronaut who was the first African-American woman to go into space.
Jenner, Edward	British physician who discovered the small pox vaccination.
Julian, Percy Lavon	American chemist whose research yielded over 100 patents.
King, Jr., Martin Luther	American preacher and activist who was a main organizer of the Civil Rights movement.
Lavoisier, Antoine	French chemist who is considered the father of modern chemistry.
Linnaeus, Carolus	Swedish botanist who founded the modern classification system for plants and animals.
Mann, Horace	American educator who introduced reforms and regulations that greatly influenced public education.
McClintock, Barbara	American genetic botanist who received a Nobel Prize for her work with genes in plant cells.
Meitner, Lise	Swedish physicist who was one of the first to study nuclear fission.
Mendel, Gregor	Austrian botanist who founded the science of genetics and discovered the principle of inheritance.
Mendeleev, Dmitri	Russian chemist who invented the periodic table of elements.
Monet, Claude	French painter who advocated the school of Impressionism and who examined the effect of changing light on the subject.
Mozart, Wolfgang Amadeus	Austrian composer who was a child prodigy and composed over six-hundred works.
Muir, John	American naturalist who advocated the creation of natural parks and reservations.
Newton, Issac	English mathematician and scientist who invented differential calculus and who formulated the theory of universal gravitation and three laws of motion.
Nightingale, Florence	British nurse who organized and directed a unit of field nurses during the Crimean War and who is considered the founder of modern nursing.

Roosevelt, Franklin	American politician who was president of the United States and a governor of New York and whose administration implemented New Deal programs to assist Americans during the <i>Great Depression</i> .
Schweitzer, Albert	French philosopher, physician, and musician who founded a missionary hospital in <i>Gabon</i> and who won the <i>Nobel Peace Prize</i> .
Victoria	Queen of <i>Great Britain</i> and <i>Ireland</i> for over sixty years who influenced the sense of duty and moral code of the <i>Victorian age</i> .
Vo-Dinh, Tuan	Vietnamese-born biophysicist who invented numerous lifesaving devices that detect and diagnose diseases by optical scanning.
Washington, Booker T.	African-American educator who acquired an education after emancipation and presided over <i>Tuskegee Institute</i> .
Watson, James	American biologist who with <i>Francis Crick</i> proposed the double helix model of <i>DNA</i> .
Woolf, Virginia	British writer who perfected the modernist fiction technique of <i>stream-of-consciousness</i> writing.

Attachment #4
Innovator's Timeline

Innovator: _____

Innovation: _____

Year of the Innovation: _____

What problems did the innovation solve? Did the innovation create any problems?

What happened after the innovation? How did the innovation change over time?

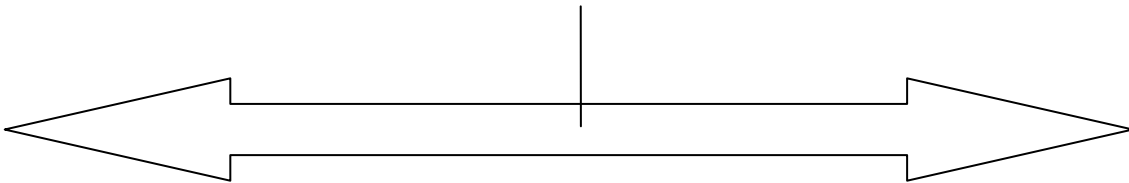
What was going on in the world during the time of the innovation?

Put the year of the innovation in the middle of the timeline. Enter major world events above the arrow. Enter major events in the innovator's life below the arrow (e.g., birth, death). You may wish to recreate the timeline on a separate piece of paper if you need more space.

World Events

Innovation: _____

Year: _____



Life Events

What was the relationship between world events and the innovation?

Attachment #5
Invention Idea Survey

One of the best ways to collect ideas for developing an innovation or invention is to take a survey. The following list of questions may help you to think about what you want to invent or change.

What does not work as well as you would like it to work? _____

What problem(s) would you like to see solved? _____

If you could invent something to make your life easier, what would you invent?

What is the most annoying problem:

At home? _____

At school? _____

At the airport? _____

On the road? _____

At the grocery store? _____

At the mall? _____

At the park or playground? _____

In the cafeteria? _____

Source: http://inventors.about.com/lessonplans/a/survey_p.htm

Attachment #6
Innovator's Journal

Entry #1: Define a problem and hypothesize solutions.

Problem:

Possible Solutions:

Entry #2: Discuss existing products or solutions.

What ideas or products already exist that solve the problem, if any?

How can you improve on these existing solutions, if any?

Entry #3: Provide a drawing of the prototype and detailed plans or a schematic and detailed description of your solution to the problem.

Entry #4: Test the prototype or idea. Record your results below.

How did you test your prototype or idea?

How many times did you test your prototype or idea? _____

What were the results?

How many times did it work? _____

What works?

What doesn't work?

What else do you still need to know to improve your innovation?

What revisions are necessary?

What happened after you made revisions and retested?

Entry #5: Develop a plan for communicating with others about your innovation.

Brainstorm names for the innovation:

Who would be interested in your innovation? Who would likely consumers be?

How would the innovation help them?

What are possible logos, slogans, packaging ideas, sales price for your idea or invention?

Provide an advertising or communication plan aimed at likely consumers of your idea.

Attachment #7
Invention Design Brief

Name of Invention:

Possible Uses:

Materials Needed:

Procedure:

Represent your invention in a sketch or diagram. You may need to use the back of this paper or a separate sheet of paper.

Attachment #8
Innovation Description

Name of Innovation:

Possible Uses:

Theoretical basis:

How will this help:

Draw a schematic illustrating your innovation. You may need to use the back of this paper or a separate sheet of paper.

COVER SHEET

Name: _____

District: _____ School: _____

Project I.D. Number: _____ Topic: Innovation Celebration

Items submitted:

_____ Cover sheet

Research process:

_____ Attachment #6 Innovator's Journal with 5 entries

Product:

_____ Product (select one of the following)

_____ Attachment #7 Invention Design Brief

_____ Attachment #8 Innovation Description

Communication:

_____ Videotape or audiotape of advertisement, including the Q&A session

For the Student:

I certify that all work submitted is totally my work and that I have credited others for any contributions.

Student Signature: _____ Date: _____

For the Teacher:

I certify that all the work submitted is totally that of this student.

Teacher Signature: _____ Date: _____