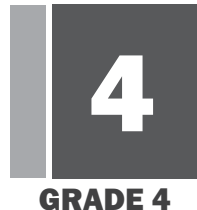


# INNOVATION CELEBRATION



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 and Reading 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 State of Texas Assessments of Academic Readiness (STAAR). The final section of this document presents the applicable Texas College and Career Readiness Standards adopted by the Texas Higher Education Coordinating Board (THECB) on January 24, 2008.

## 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.

### *Innovation Celebration (Grade 4)*

## 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.schoolhouserock.tv/Mother.html> to introduce historical inventions. You may also wish to use these websites:
  - [http://www.kidinfo.com/American\\_History/Inventors\\_Inventions.html](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**

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

**Texas Essential Knowledge and Skills**

The unit may address the following TEKS:

**English Language Arts and Reading:**

- |      |   |
|------|---|
| 4.1  | Reads grade-level text with fluency and comprehension   |
| 4.2  | Understands new vocabulary and uses it when reading and writing* (Testable on the Grade 4 Reading STAAR, Reporting Category 1)  |
| 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* (Testable on the Grade 4 Reading STAAR, Reporting Category 3) |
| 4.11 | Analyzes, makes inferences, and draws conclusions about expository text and provides evidence from text to support their understanding* (Testable on the Grade 4 Reading STAAR, Reporting Category 3)   |
| 4.14 | Uses comprehension skills to analyze how words, images, graphics, and sounds work together in various forms to impact meaning* (Testable on the Grade 4 Reading STAAR, Reporting Category 2, Reporting Category 3)  |
| 4.18 | Writes expository and procedural or work-related texts to communicate ideas and information to specific audiences for specific purposes* (Testable on the Grade 4 Writing STAAR, Reporting Category 1, Reporting Category 2)                                      |
| 4.20 | Understands the function of and uses the conventions of academic language when speaking and writing* (Testable on the Grade 4 Writing STAAR, Reporting Category 3)  |
| 4.21 | Writes legibly and uses appropriate capitalization and punctuation conventions in their compositions* (Testable on the Grade 4 Writing STAAR, Reporting Category 3)   |
| 4.22 | Spells correctly* (Testable on the Grade 4 Writing STAAR, Reporting Category 3)   |
| 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:

- 4.1 Uses mathematical processes to acquire and demonstrate mathematical understanding
- 4.3 Applies mathematical process standards to represent and generate fractions to solve problems
- 4.4 Applies mathematical process standards to develop and use strategies and methods for whole number computations and decimal sums and differences in order to solve problems with efficiency and accuracy
- 4.5 Applies mathematical process standards to develop concepts of expressions and equations
- 4.8 Applies mathematical process standards to select appropriate customary and metric units, strategies, and tools to solve problems involving measurement
- 4.9 Applies mathematical process standards to solve problems by collecting, organizing, displaying, and interpreting data
- 4.10 Applies mathematical process standards to manage one's financial resources effectively for lifetime financial security
- 5.1 Uses mathematical processes to acquire and demonstrate mathematical understanding
- 5.7 Applies mathematical process standards to select appropriate units, strategies, and tools to solve problems involving measurement
- 5.9 Applies mathematical process standards to solve problems by collecting, organizing, displaying, and interpreting data
- 5.10 Applies mathematical process standards to manage one's financial resources effectively for lifetime financial security

### Science:

- 4.1 Conducts classroom and outdoor investigations, following home and school safety procedures and environmentally appropriate and ethical practices\* (Testable on the Grade 5 Science STAAR)
- 4.2 Uses scientific inquiry methods during laboratory and outdoor investigations\* (Testable on the Grade 5 Science STAAR)
- 4.3 Uses critical thinking and scientific problem solving to make informed decisions\* (Testable on the Grade 5 Science STAAR)
- 4.4 Knows how to use a variety of tools, materials, equipment, and models to conduct science inquiry\* (Testable on the Grade 5 Science STAAR)

- 4.5 Knows that matter has measurable physical properties and those properties determine how matter is classified, changed, and used\* (Testable on the Grade 5 Science STAAR, Reporting Category 1)
- 4.9 Knows and understands that living organisms within an ecosystem interact with one another and with their environment\* (Testable on the Grade 5 Science STAAR, Reporting Category 4)

### Social Studies:

- 4.2 Understands the causes and effects of European exploration and colonization of Texas and North America
- 4.5 Understands important issues, events, and individuals of the 20th century in Texas
- 4.6 Uses geographic tools to collect, analyze, and interpret data
- 4.7 Understands the concept of regions
- 4.9 Understands how people adapt to and modify their environment
- 4.10 Understands the basic economic activities of early societies in Texas and North America
- 4.13 Understands how Texas, the United States, and other parts of the world are economically interdependent
- 4.19 Understands the contributions of people of various racial, ethnic, and religious groups to Texas
- 4.20 Understands the impact of science and technology on life in Texas
- 4.21 Applies critical-thinking skills to organize and use information acquired from a variety of valid sources, including electronic technology
- 4.22 Communicates in written, oral, and visual forms
- 4.23 Uses problem-solving and decision-making skills, working independently and with others, in a variety of settings

## Texas College and Career Readiness Standards

This unit may address the following Texas College and Career 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

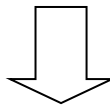
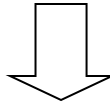
- I.B.1 Considers arguments and conclusions of self and others
- I.B.2 Constructs well-reasoned arguments to explain phenomena, validate conjectures, or support positions
- I.B.3 Gathers evidence to support arguments, findings, or lines of reasoning
- I.B.4 Supports or modifies claims based on the results 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  |

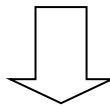
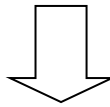
**Attachment #1  
Key Innovations of the Twentieth Century**

<b>Invention/Innovation</b>	<b>Year</b>
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 Great Depression.
Schweitzer, Albert	French philosopher, physician, and musician who founded a missionary hospital in Gabon and who won the Nobel Peace Prize.
Victoria	Queen of Great Britain and Ireland for over sixty years who influenced the sense of duty and moral code of the Victorian age.
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 Tuskegee Institute.
Watson, James	American biologist who with Francis Crick proposed the double helix model of DNA.
Woolf, Virginia	British writer who perfected the modernist fiction technique of stream-of-consciousness writing.

**Attachment #4  
Innovator's Timeline**

Innovator: \_\_\_\_\_

Innovation: \_\_\_\_\_

Year of the Innovation: \_\_\_\_\_

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

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

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

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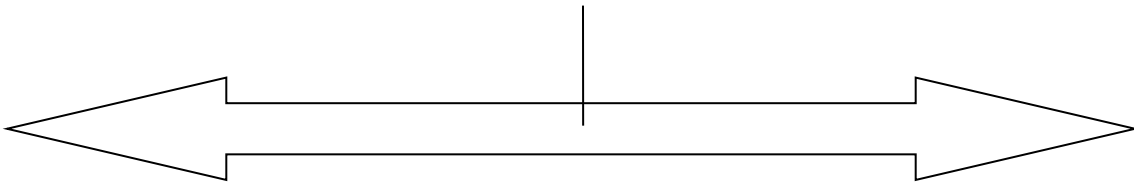


Put the year of the innovation in the middle of the timeline. Enter major world events above the arrow. Enter major events in the innovator's life below the arrow (e.g., birth, death). You may wish to recreate the timeline on a separate piece of paper if you need more space.

**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/cs/lessonplans/a/survey.htm>

Attachment #6  
Innovator’s Journal

**Entry #1: Define a problem and hypothesize solutions.**

Problem:

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Possible Solutions:

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**Entry #2: Discuss existing products or solutions.**

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

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

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**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?

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How many times did you test your prototype or idea? \_\_\_\_\_

What were the results?

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How many times did it work? \_\_\_\_\_

What works?

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What doesn't work?

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

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What revisions are necessary?

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What happened after you made revisions and retested?

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

Brainstorm names for the innovation:

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

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How would the innovation help them?

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

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

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**Attachment #7  
Invention Design Brief**

Name of Invention:

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Possible Uses:

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Materials Needed:

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Procedure:

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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:

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Possible Uses:

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Theoretical basis:

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How will this help:

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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&amp;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: \_\_\_\_\_