

4-1-2014

# Inventive American Mind

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## Recommended Citation

Mauch, Daniel, "Inventive American Mind" (2014). *Lesson Plans*. 39.  
<https://via.library.depaul.edu/tps-lesson-plans/39>

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## The Inventive American Mind

### Unit Plan - Grade Level 4/5

Overview: This project is designed to help students see the impact of the ideas of American Inventors from the late 19th and early 20th centuries, on the American way of life. Students will be given a list of American inventors to choose from. They will then have to research the inventor trying to find information on the inventor's contributions to America, not only their inventions but more importantly, how they changed the way America (and the world) worked.

Time Requirements: 5-6 class sessions; 5-6 lab sessions

Pre-requirements: Students should have a basic understanding of the following: Microsoft PowerPoint, Internet usage, Internet search techniques; MLA style of citation; Primary sources.

Subject Matter: Science/Social Studies (Also Language Arts & Character Education)

#### Standards:

##### Illinois State Standards:

STATE GOAL 3: Write to communicate for a variety of purposes.

B. Compose well-organized and coherent writing for specific purposes and audiences.

3.B.2a Generate and organize ideas using a variety of planning strategies (e.g., mapping, outlining, drafting)

3.B.2b Establish central idea, organization, elaboration and unity in relation to purpose and audience.

STATE GOAL 5: Use the language arts to acquire, assess and communicate information.

A. Locate, organize, and use information from various sources to answer questions, solve problems and communicate ideas.

5.A.2a Formulate questions and construct a basic research plan.

5.A.2b Organize and integrate information from a variety of sources (e.g., books, web-sites, CD-ROMs).

B. Analyze and evaluate information acquired from various sources.

5.B.2a Determine the accuracy, currency and reliability of materials from various sources.

5.B.2b Cite sources used.

C. Apply acquired information, concepts and ideas to communicate in a variety of formats.

5.C.2a Create a variety of print and nonprint documents to communicate information for specific audiences and purposes.

STATE GOAL 13: Understand the relationships among science, technology and society in historical and contemporary contexts.

B. Know and apply concepts that describe the interaction between science, technology and

society.

13.B.2b Describe the effects on society of scientific and technological innovations.

13.B.2c Identify and explain ways that science and technology influence the lives and careers of people.

STATE GOAL 16: Understand events, trends, individuals and movements shaping the history of Illinois, the United States and other nations.

A. Apply the skills of historical analysis and interpretation.

16.A.2c Ask questions and seek answers by collecting and analyzing data from historic documents,

images and other literary and non-literary sources.

E. Understand Illinois, United States and world environmental history.

16.E.2b (W) Identify individuals and their inventions (e.g., Watt/steam engine, Nobel/TNT, Edison/electric light) which influenced world environmental history.

Technology Required:

Computers (with Internet access)

Microsoft PowerPoint

Materials Required:

Paper and pencils (for note taking)

MLA citation guidelines

Resources:

Internet: Library of Congress website: [www.loc.gov](http://www.loc.gov)

Search Engines: [www.google.com](http://www.google.com)

[www.ask.com](http://www.ask.com)

[www.ajkids.com](http://www.ajkids.com)

Other sites

Books: Biographies/Autobiographies on American Inventors of the late 19th and early 20th centuries

Encyclopedias (hard-cover or CD-ROM)

Assessment Tools:

Informal: Students will be observed and their progress will be recorded using the Project Checklist. This checklist is designed to identify areas of strength and needed improvement for each student, as well as allow for the recording of daily achievement and observations in anecdotal form.

Formal: Completed project will be evaluated using the PowerPoint Rubric. The rubric evaluates ten components of the final presentation.

Presentation components:

1. Organization
2. Information
3. Language Mechanics
4. Word Usage
5. Graphics
6. Individual Work and Focus
7. Research
8. Overall Presentation
9. Creativity
10. Analysis and Reflection

#### Copyright Information

Thomas Alva Edison: Unknown. "Thomas A. Edison, head-and-shoulders portrait." Between 1900 and 1920. Touring Turn-of-the-Century America: Photographs from the Detroit Publishing Company, 1880-1920. [[http://lcweb2.loc.gov/cgi-bin/query/i?ammem/detr:@field\(NUMBER+@band\(det+4a25922\)\):displayType=1:m856sd=det:m856sf=4a25922](http://lcweb2.loc.gov/cgi-bin/query/i?ammem/detr:@field(NUMBER+@band(det+4a25922)):displayType=1:m856sd=det:m856sf=4a25922) -->] [det 4a25922] (Oct. 9, 2004)

Alexander Graham Bell: Washington, D.C.: Harris & Ewing. "Alexander Graham Bell, half-length portrait." No Date Given. Emile Berliner and the Birth of the Recording Industry. [[http://lcweb2.loc.gov/cgi-bin/query/i?ammem/berl:@field\(NUMBER+@band\(berlp+12030109\)\):displayType=1:m856sd=berlp:m856sf=12030109](http://lcweb2.loc.gov/cgi-bin/query/i?ammem/berl:@field(NUMBER+@band(berlp+12030109)):displayType=1:m856sd=berlp:m856sf=12030109) -->] [berlp 12030109] (Oct. 9, 2004)

Henry Ford: Unknown. "Henry Ford, full-length portrait, standing, facing slightly left, leaving the White House after calling on the president." 1927. Prosperity and Thrift: The Coolidge Era and the Consumer Economy, 1921-1929. [[http://lcweb2.loc.gov/cgi-bin/query/i?ammem/coolbib:@field\(NUMBER+@band\(cph+3c11360\)\):displayType=1:m856sd=cph:m856sf=3c11360](http://lcweb2.loc.gov/cgi-bin/query/i?ammem/coolbib:@field(NUMBER+@band(cph+3c11360)):displayType=1:m856sd=cph:m856sf=3c11360) -->] [cph 3c11360] (Oct. 9, 2004)

#### Objective:

Students will obtain information from a variety of sources including, but not limited to the Library of Congress website, [www.loc.gov](http://www.loc.gov), biographies, and encyclopedias. The information collected should not focus on the inventions, but also the life of the inventor,

and if possible, the impact of the inventions on society. Students will then organize the information and present it in a PowerPoint presentation. Students will include in their presentation information about the inventor and/or inventions, photos and other primary sources. Students capable of higher level thinking should be encouraged to include their reflections on why this inventor was important (how he/she impacted American society), and what can be learned from this person.

Procedures:

Day 0 (approx. 1 week prior to beginning lesson):

Introduce unit

Explain purpose and give overview of unit

Review primary sources

Brainstorm or supply list of inventors and choose topics

Have students begin to acquire books and references materials on topic

Day 1: (students should be prepared to take notes on procedures or have handouts with procedures available)

Review basic PowerPoint procedures (i.e. creating presentations, adding new pages, copy and paste, inserting text, saving and opening files)

Review MLA citation (supply students with copies of citation examples)

\*Students should be encouraged to cite web sites, resources, and photos as they are used.

Lab 1: (If possible, labs should be done in small groups)

Begin PowerPoint presentation (start prior to research so information and photos can be placed directly into presentation with citation)

Day 2: (students should be prepared to take notes on procedures or have handouts with procedures available)

Explain procedures for navigating the LOC website

Demonstrate how to locate pictures and other primary sources on the LOC website

Review students' progress on projects and answer questions

Labs 2-3: (If possible, labs should be done in small groups)

Research using LOC websites

Take notes

Insert photos/primary sources into PowerPoint (include citation)

Day 3: (students should be prepared to take notes on procedures or have handouts with procedures available)

Explain procedures for using search engines on the Internet

Discuss determining reliable websites

Review students' progress on projects and answer questions

Lab 4: (If possible, labs should be done in small groups)

Research topic using search engines

Day 4:

Review notes and progress

Answer questions

Discuss finishing projects

Labs 5-6: (If possible, labs should be done in small groups)

Complete PowerPoint presentations using information acquired from the Internet, books, and encyclopedias

Add reflections and student analysis of inventor (if applicable)

Days 5-6:

Share projects

Project Checklist

Student Name: \_\_\_\_\_

Inventor: \_\_\_\_\_

Book/Encyclopedia title: \_\_\_\_\_

Student has an understanding of the following:

+ - Clear understanding - Some understanding X - Little or no understanding

\_\_\_\_\_ Primary vs. secondary source

\_\_\_\_\_ PowerPoint basic skills

\_\_\_\_\_ Using Internet search engines

\_\_\_\_\_ Searching on the LOC websites

\_\_\_\_\_ Determining relevant information in text

\_\_\_\_\_ Citation

Daily Progress

Day 1

\_\_\_\_\_ Student has shown an understanding of the days concepts

\_\_\_\_\_ Student needs extra help with: \_\_\_\_\_

\_\_\_\_\_ Student was able to stay on task.

\_\_\_\_\_ Student had difficulty staying on task.

Additional comments: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Day 2

\_\_\_\_ Student has shown an understanding of the days concepts

\_\_\_\_ Student needs extra help with: \_\_\_\_\_

\_\_\_\_ Student was able to stay on task.

\_\_\_\_ Student had difficulty staying on task.

Additional comments: \_\_\_\_\_

\_\_\_\_\_

### Day 3

\_\_\_\_ Student has shown an understanding of the days concepts

\_\_\_\_ Student needs extra help with: \_\_\_\_\_

\_\_\_\_ Student was able to stay on task.

\_\_\_\_ Student had difficulty staying on task.

Additional comments: \_\_\_\_\_

\_\_\_\_\_

### Day 4

\_\_\_\_ Student has shown an understanding of the days concepts

\_\_\_\_ Student needs extra help with: \_\_\_\_\_

\_\_\_\_ Student was able to stay on task.

\_\_\_\_ Student had difficulty staying on task.

Additional comments: \_\_\_\_\_

\_\_\_\_\_

### Day 5

\_\_\_\_ Student has shown an understanding of the days concepts

\_\_\_\_ Student needs extra help with: \_\_\_\_\_

\_\_\_\_ Student was able to stay on task.

\_\_\_\_ Student had difficulty staying on task.

Additional comments: \_\_\_\_\_

\_\_\_\_\_

Day 6

\_\_\_\_ Student has shown an understanding of the days concepts  
\_\_\_\_ Student needs extra help with: \_\_\_\_\_

\_\_\_\_ Student was able to stay on task.  
\_\_\_\_ Student had difficulty staying on task.

Additional comments: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Lab 1

\_\_\_\_ Student has shown an understanding of the days concepts  
\_\_\_\_ Student needs extra help with: \_\_\_\_\_

\_\_\_\_ Student was able to stay on task.  
\_\_\_\_ Student had difficulty staying on task.

Additional comments: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Lab 2

\_\_\_\_ Student has shown an understanding of the days concepts  
\_\_\_\_ Student needs extra help with: \_\_\_\_\_

\_\_\_\_ Student was able to stay on task.  
\_\_\_\_ Student had difficulty staying on task.

Additional comments: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Lab 3

\_\_\_\_ Student has shown an understanding of the days concepts  
\_\_\_\_ Student needs extra help with: \_\_\_\_\_

\_\_\_\_ Student was able to stay on task.  
\_\_\_\_ Student had difficulty staying on task.

Additional comments: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_



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Lab 4

\_\_\_\_\_ Student has shown an understanding of the days concepts

\_\_\_\_\_ Student needs extra help with: \_\_\_\_\_

\_\_\_\_\_ Student was able to stay on task.

\_\_\_\_\_ Student had difficulty staying on task.

Additional comments: \_\_\_\_\_

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Lab 5

\_\_\_\_\_ Student has shown an understanding of the days concepts

\_\_\_\_\_ Student needs extra help with: \_\_\_\_\_

\_\_\_\_\_ Student was able to stay on task.

\_\_\_\_\_ Student had difficulty staying on task.

Additional comments: \_\_\_\_\_

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Lab 6

\_\_\_\_\_ Student has shown an understanding of the days concepts

\_\_\_\_\_ Student needs extra help with: \_\_\_\_\_

\_\_\_\_\_ Student was able to stay on task.

\_\_\_\_\_ Student had difficulty staying on task.

Additional comments: \_\_\_\_\_

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Observations and Comments: \_\_\_\_\_

Grading Rubric (PowerPoint):

The following rating scale is based on the expectations listed below.

- 1- Unsatisfactory
- 2- Below expectations
- 3- Meets expectations
- 4- Above expectations
- 5- Clearly exceeds expectations

1. Organization: PowerPoint is organized in an orderly fashion. Begins with a title page. Information is presented in a logic order.

1 2 3 4 5

2. Information: Information is relevant and clearly stated.

1 2 3 4 5

3. Language Mechanics: Appropriate use of capital letters and punctuation. Proper sentence and paragraph formats. Correct spelling.

1 2 3 4 5

4. Word Usage: Vocabulary is at student's level and words are used correctly.

1 2 3 4 5

5. Graphics: Photos and other graphics are included, neat, relevant, labeled, and adequately cited.

1 2 3 4 5

6. Individual work and Focus: Ability to work independently and stay on task.

1 2 3 4 5

7. Research: The inventor's life and works have clearly been researched.

1 2 3 4 5

8. Overall Presentation: Project is neat and uniform. Transitions are appropriate and not distracting.

1 2 3 4 5

9. Creativity: Presentation is original and creative.

1 2 3 4 5

10. Analysis and Reflection: Student's analysis and reflection on materials shows an understanding of the topic's relevance and importance.

1 2 3 4 5

Complete list of MLA citation examples available at:

<http://www.hcc.hawaii.edu/education/hcc/library/mlahcc.html>

MLA Citation Examples. Honolulu Community College Library. 27. Dec. 2004

<<http://www.hcc.hawaii.edu/education/hcc/library/mlahcc.html>>

Information from the Library of Congress

<http://memory.loc.gov/ammem/ndlpedu/start/cpyrt/index.html>

<http://memory.loc.gov/ammem/ndlpedu/start/cite/index.html>

MLA Citation Examples

written by Honolulu Community College Library

The Modern Language Association (MLA) Style is widely used for identifying research sources. In MLA style you briefly credit sources with parenthetical citations in the text of your paper, and give the complete description of each source in your Works Cited list. The Works Cited list, or Bibliography, is a list of all the sources used in your paper, arranged alphabetically by author's last name, or when there is no author, by the first word of the title (except A, An or The).

For example:

In the text of your paper:

Results of studies done by Hawaii's Ocean Mammal Institute indicated that humpback whales were affected by the noise of marine engines (Calvez 41).

or, According to Leigh Calvez, studies by the Ocean Mammal Institute indicated that Hawaiian humpback whales were affected by the noise of marine engines (41).

In your Works Cited list: Calvez, Leigh. "By the Time We Have Proof." *Ocean Realm* Spring 2000: 41-47.

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The following examples are based on the *MLA Handbook for Writers of Research Papers*, 5th ed., by Joseph Gibaldi. (Ref LB2369 .G53 1999b) The numbers in < > refer to the appropriate chapters in the handbook. For example, for more information about about citing a source by two authors, see chapter 4.6.4.

BOOKS

BOOKS

Format: Author. Title of Book. City of Publication: Publisher, Year.

Take the title from the title page, not the cover.

The author's name should be written Last Name, First Name.

#### One Author <4.6.1>

Borg, Jim. *Tigers of the Sea: Hawaii's Deadly Sharks*. Honolulu: Mutual, 1993.

Reagan, Michael D. *Curing the Crisis: Options for America's Health Care*.  
Boulder: Westview Press, 1992.

#### Editor or Compiler <4.6.1>

If the person named on the title page is the editor, rather than the author, add a comma then the abbreviation "ed." For a compiler, use "comp."

Fitzgerald, Terence J., ed. *Police in Society*. New York: H.W. Wilson, 2000.

#### Two or More Authors <4.6.4>

List the names in the order in they appear on the title page.

Only the first author's name should be reversed: Last Name, First Name.

Use a comma between the authors' names. Place a period after the last author's name.

Landre, Rick, Mike Miller, and Dee Porter. *Gangs: A Handbook for Community Awareness*. New York: Facts on File, 1997.

If the persons named on the title page are editors, add a comma after the final name, then the abbreviation "eds." For compilers, use "comps."

If there are more than three authors, name only the first and add et al., or give all the names.

Cott, Nancy R., and Elizabeth H. Pleck, eds. *A Heritage of Her Own: Toward a New Social History of American Women*. New York: Simon and Schuster, 1979.

Daconta, Michael C., et al. *Java 1.2 and JavaScript for C and C++ Programmers*.  
New York: Wiley, 1998.

#### Two or More Works by the Same Authors <4.6.3, 4.6.5>

When citing two or more sources by the same author, give the name in the first entry only.

For the subsequent entries, type three hyphens, add a period, and skip a space (--- ) then give the title. The three hyphens stand for the name(s) in the preceding entry.

Mead, Margaret. *Coming of Age in Samoa: A Psychological Study of Primitive Youth for Western Civilisation*. New York: Morrow, 1961.

---. *People and Places*. Cleveland: World, 1959.

#### ENCYCLOPEDIAS and REFERENCE BOOKS <4.6.8>

Format:

Author of Article.(if given) "Article Title." Title of Book. City of Publication: Publisher, Year.

When citing familiar reference books, especially those that often appear in new editions, it is not necessary to include full publication information. Give the edition (if available) and

the year of publication.

If articles are arranged alphabetically, you do not need to give volume and page numbers.

Faron, Louis C. "Inca." *Encyclopedia Americana*. International Edition. 1999.

When citing less familiar reference books, give full publication information.

"Refrigeration." *The New Illustrated Science and Invention Encyclopedia*.

Ed. Donald Clarke. 28 vols. Westport: H.S. Stuttman, 1989.

Hosick, Howard L. "Cloning." *Magill's Medical Guide*. Ed. Tracy Irons-Georges.

Rev. ed. 3 vols. Pasadena: Salem Press, 1998.

#### MULTIVOLUME SETS <4.6.15>

Format:

Author or Editor. Title of Set. Total number of vols. City of Publication: Publisher, Year.

Use this format when citing two or more volumes of a multivolume set.

Reference to specific volumes and page numbers belong in the text of your paper (e.g. 4:

149-53 means volume 4, pages 149-153), not in the Works Cited.

Jaffe, Jerome H., ed. *Encyclopedia of Drugs and Alcohol*. 4 vols. New York:

Macmillan, 1995.

#### INTERNET RESOURCES

##### WEB SITE -- Professional or Personal <4.9.2c>

Format:

Creator's name (if given). Web Page Title. Institution or organization. Date of access  
<URL network address>.

Basic Hula Words. 8 Nov. 2000 <<http://www.geocities.com/~olelo/o-h-general.html>>.

Li, Rong-Chang. English as a Second Language. 6 Nov. 2000 <<http://www.rong-chang.com/>>.

Harden, Mark. Picasso the Legend. The Artchive. 6 Nov. 2000

<[http://www.artchive.com/artchive/P/picasso\\_postww2.html](http://www.artchive.com/artchive/P/picasso_postww2.html)>.

Dinosaurs in Hawaii! Honolulu Community College. 6 Nov. 2000

<<http://www.hcc.hawaii.edu/dinos/dinos.1.html>>.

#### LIBRARY OF CONGRESS RESOURCES

##### FILMS

Format:

Photographer last name, first name, middle initial. "Title of film." Date. Title of collection.

[Protocol and address] [digital ID] (date of visit)

.uExample:

uArmitage, Frederick S. "Bargain day, 14th Street, New York." 1905. The Life of a City: Early Films of New York, 1898-1906. [<http://memory.loc.gov/ammem/papr/nychome.html>] [(m)lcmp002 m2a25469] (August 14, 1996).

## LEGAL DOCUMENTS AND GOVERNMENT PUBLICATIONS

Format:

Author's Last Name, First Name. "Title of Work." Title of Complete Work.  
[protocol and address] [path] (date of visit).

Example:

u"A Memorial of the Officers." Now residing in the State of New York of the late American Army. [<HTTP://memory.loc.gov/ammem/>] [law.html] (May 15, 1998).

## PHOTOGRAPHS

Format:

Photographer last name, first name, middle initial. "Title of photograph." Date.  
Title of Collection. [Protocol and address] [digital ID] (date of visit).

Example:

uO'Sullivan, Timothy H. "Incidents of war." 1865. Selected Civil War Photographs from the Library of Congress, 1861-1865. [<http://memory.loc.gov/ammem/cwphome.html>] [cwp4a40875 40875] (August 14, 1996).

## TEXTS

Format:

Author last name, first name, middle initial. "Title of work." Date. Title of collection.  
[Protocol and address] [Call Number] (date of visit).

Example:

Boynton, Charles B. "A duty which the colored people owe to themselves. A sermon delivered at Metzertott hall, Washington, DC." 1867. African American Perspectives, 1818-1907. [<http://memory.loc.gov/ammem/aap/aaphome.html>] [lcrbmrp t 2002] (August 14, 1996).

