

# **iPods, Wagon Wheels & Lightbulbs: How Inventions Change Our World**

## **Overview:**

In this lesson students will explore the impact of inventions on society, culture and communication. They will conduct surveys, and explore the historical impact of inventions that have changed people's daily lives. Students will work in small collaborative groups to conduct Internet research on inventions such as iPods, instant messaging and cell phones. Each group will design a billboard highlighting the impact of inventions in changing our world.

**Grade Level:** 6-12

## **Subjects:**

Language Arts, English, Mathematics, Visual Arts

## **Learning Objectives:**

Students will do the following:

- Conduct surveys
- Engage in small-group and whole-group discussion
- Analyze and evaluate information from multiple sources
- Create a billboard design
- Create a class presentation

## **Learning Activities**

### **Building Background**

#### **Activity One: Invention Questions**

*The purpose of this activity is to help students explore the role that inventions play in society and culture.*

1. As a class, read the following articles, which describe inventions that impact people's lives.

- "Magic Roundabout Can Make Water Appear on Dry Land"

<http://www.ik.com/servlet/Front?pagename=OpenMarket/Xcelerate/ShowPage&c=Page&cid=1119523488905>

- The Katrina Cottage  
<http://www.dexigner.com/forum/index.php?showtopic=8012>

Lead a class discussion focusing on how these inventions impact people's daily life experiences.

2. Have your students ask five people of varied ages the following question:

- What invention has had the biggest impact on your life?

3. Collect students' survey responses and create a class graph showing the range of choices.

4. Ask your students to brainstorm answers to the following question:

- What invention do you think has had the biggest impact in the world in the last 100 years?
- What invention do you think has had the biggest impact in the world in the last 1000 years?

Record and post students' responses. Discuss the differences between students' survey responses and their answers to the questions above. Encourage students to compare the different ways in which inventions have impacted people's lives across time.

### **Activity Two: Whose Life Was Changed?**

*The purpose of this activity is to encourage students to reflect on how inventions impact different segments of our population.*

1. Provide students with the "Invention Brainstorming" handout below. After the class has completed the handout, ask students to share their responses.

# Invention Brainstorming

## Electricity

1. Brainstorm a list of ideas about how people's lives changed when electricity was invented.
2. On whom do you think the invention of electricity had the biggest impact on? Why?

## Airplanes

3. Brainstorm ideas about how people's lives changed when airplanes were invented.
4. On whom do you think the invention of airplanes had the biggest impact on? Why?

## Washing Machines

5. Brainstorm ideas about how people's lives changed when electricity was invented.
6. On whom do you think the invention of the washing machine had the biggest impact on? Why?

## Steps for Learning

### Activity One: Communication Research

*The purpose of this activity is for students to explore the ways communication-related inventions impact people's lives.*

1. Divide the class into small groups. Tell the students that they are going to create group presentations. Provide the students with the information below that describes what each presentation must include.

- Description of the way the invention was created.
- Description of the way the invention works.
- Description of what makes the invention important in people's lives.
- Description of what aspect of society and culture the invention influences and/or changes.
- Description of the way the invention impacts communication.
- A design for a billboard highlighting the impact the invention has had on people's lives.

2. Tell the students to use the resources listed below to begin their research.

#### Group One: Cell Phones

- <http://electronics.howstuffworks.com/cell-phone.htm>
- <http://inventors.about.com/library/weekly/aa070899.htm>
- [http://www.fcc.gov/cgb/kidszone/faqs\\_9.html](http://www.fcc.gov/cgb/kidszone/faqs_9.html)
- [http://en.wikipedia.org/wiki/Martin\\_Cooper](http://en.wikipedia.org/wiki/Martin_Cooper)

## Group Two: iPods

- <http://electronics.howstuffworks.com/ipod.htm>
- <http://en.wikipedia.org/wiki/IPod>
- <http://www.apple-history.com/?page=gallery&model=ipod&performa=off&sort=date&order=ASC>

## Group Three: Instant Messaging

- <http://computer.howstuffworks.com/instant-messaging.htm>
- [http://en.wikipedia.org/wiki/Instant\\_messaging](http://en.wikipedia.org/wiki/Instant_messaging)
- [http://en.wikipedia.org/wiki/Instant\\_messaging#History](http://en.wikipedia.org/wiki/Instant_messaging#History)
- <http://www.dotomi.com/about/team.html#Yair>

3. Provide time for each group to share its presentation with the class. Post the billboard designs for others in the school and community to view.

## Activity Two: Reflections

*The purpose of this activity is to encourage students to engage in reflective writing on the lesson topics.*

1. Ask the students to respond in a writing journal to the following questions:

- How do inventions change society?
- How do inventions change the way we communicate?
- How do inventions change the way we spend our leisure time?
- How do inventions impact the role of women?
- How do inventions impact the way children spend their free time?

- How do inventions change schools?
- How do inventions impact the role of the arts?

2. Ask for volunteers to share their journal reflections. Discuss students' responses.

## **Extension Activities**

### **Activity One: Online Invention Games**

1. Ask your students to explore the invention-based games at the following MIT website:

- <http://www.mit.edu/afs/athena/org/i/invent/www/ima/which2.html>.

### **Activity Two: Strange & Unusual Inventions**

1. Create a class collection of unusual inventions. You may wish to begin by reading about the invention of popsicles at the following website:

- <http://www.ideafinder.com/history/inventions/story026.htm>.

An additional helpful resource can be found at the following website:

- <http://www.ideafinder.com/history/category/snackfood.htm>

## **National Education Standards**

[www.mcrel.org](http://www.mcrel.org)

### **Language Arts**

#### **WRITING**

##### **Standard 4:**

Gathers and uses information for research purposes

<http://www.mcrel.org/compendium/Benchmark.asp?SubjectID=7&StandardID=4>

##### **Level III (Grade 6-8)**

1. Gathers data for research topics from interviews (e.g., prepares and

asks relevant questions, makes notes of responses, compiles responses)

6. Organizes information and ideas from multiple sources in systematic ways (e.g., time lines, outlines, notes, graphic representations)

### **Level IV (Grades 9-12)**

2. Uses a variety of print and electronic sources to gather information for research topics (e.g., news sources such as magazines, radio, television, newspapers; government publications; microfiche; telephone information services; databases; field studies; speeches; technical documents; periodicals; Internet)

## **MATHEMATICS**

**Standard 8.** Understands and applies basic and advanced properties of functions and algebra

<http://www.mcrel.org/compendium/topicsDetail.asp?topicsID=758&subjectID=1>

### **Level III [Grade 6-8]**

#### **Benchmark 3.**

Understands various representations (e.g., tables, graphs, verbal descriptions, algebraic expressions, Venn diagram) of patterns and functions and the relationships among them

## **VISUAL ARTS**

#### **Standard 2.**

Knows how to use structures (e.g., sensory qualities, organizational principles, expressive features) and functions of art

### **Level III (Grades 5-8)**

3. Knows how the qualities of structures and functions of art are used to improve communication of one's ideas

### **Level IV (Grades 9-12)**

1. Understands how the characteristics and structures of art are used to accomplish commercial, personal, communal, or other artistic intentions

## **WORKING WITH OTHERS**

### **Standard 1:**

Contributes to the overall effort of a group

<http://www.mcrel.org/compendium/Benchmark.asp?SubjectID=22&StandardID=1>

### **Level IV (Grade K-12)**