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Materials:paper, pencils, poster board, construction paper, dictionaries,
encyclopedias, internet access, magazines, equipment books, obtained
from local farm equipment supply company

Equipment:computers with I nternet access

Agricultural Heroes

1. Definition of a Hero
 - A. Dictionary: An important figure in myth or legend and is usually especially strong and able. The word "hero" is also used to mean the main character in a literary or dramatic work. (Hirsch, E.D. A First Dictionary of Cultural Literacy.)
2. Webster's Third International Dictionary:
 - A. A mythological or legendary figure endowed with great strength, courage or ability.
 - B. A person of courage and nobility famed for his military achievements: an illustrious warrior.
 - C. A person admired for their achievement and noble qualities and considered a model or ideal.
 - D. The principal character in drama, novel, or narrative poem: protagonist.
 - E. The central figure in an event, action, or period.
3. The following people contributed to the agricultural industry either through inventions, scientific research or important innovations. Have your students research one or more. The Internet has a wealth of information to aid in the research.
 - Cyrus Hall McCormick - Invented the first mechanical reaper
 - Eli Whitney - Invented the cotton gin
 - George Washington Carver - many agricultural discoveries, including over 300 uses of the peanut.
 - John Deere - Invented the steel plow.
 - Louis Pasteur - Discovered heat treatment of food, called pasteurization, that slowed down food spoilage.
 - Rudolf Diesel - Developed an internal combustion engine widely used today.
 - Jethro Tull - Invented mechanical drill for planting, in addition to other agricultural innovations.
 - Joseph Glidden - Patented barbed wire.
 - Benjamin Holt - Invented the "Caterpillar" tractor.
 - Clarence Birdseye - Developed "quick freezing" process for preserving food.
 - Gail Borden, Jr. - Developed a process for condensing and canning milk.

Agricultural Heroes

Procedure

1. Introduce new vocabulary:

Grades 1-3

hero
agriculture
cotton
gin
wheat

Grades 4-6

invention
hero
reaper
combine

2. **Hero Sandwich.** Introduce the lesson by asking, "What is a Hero?" Brainstorm with the students a working definition of a hero, and the qualities a hero must possess. Be sure to guide the students to include the following qualities: risk takers, responsible, honest, loyal, courageous, thinkers, problem solvers. After all the answers are included on the board, ask the students what type of food would be fitting for a hero. The discussion should lead into a hero sandwich. List the ingredients for a hero sandwich that should include a roll top, ham, pickles, lettuce, tomato, cheese, and the roll bottom. Associate the following terms as a memory technique: roll--responsible, ham--honest, pickles--problem solver, lettuce--loyal, tomato--thinker, cheese--courage, and roll--risk taker.

Next, have the students construct a "hero sandwich" from construction paper using each ingredient and on the back of each ingredient define the hero term that goes with it. For example: ham--honest.

3. **Tracing the ingredients.** Complete a discussion on the importance of the roll in the sandwich, tracing the roll back to the wheat plant. With the teacher's direction, guide the students in a discussion of how the wheat is harvested and the process it has to go through to become a roll. (See lesson, "Wheat--- The Staff of Life".) Guide the students into a discussion on what types of harvesting equipment was used years ago up to the modern equipment we have now. Show pictures from the farm equipment brochures. Ask students if they know how the harvesting equipment was first invented or who invented it. A class discussion should occur with much guessing. Guide students to research how to find out by using encyclopedias, the Internet, and other resources. The class should create a chart of inventors and their inventions.

4. Grades 1-2: After reading the biographies of several of the inventors, have students complete Ag Hero Match-Up, matching the inventor to his contribution to agriculture. Grades 3-6: Have students choose and research two of the inventors using the enclosed format.

5. **Assessment.** The students will complete "Agricultural Heroes Research." They will choose two of the heroes to research using the included format. After the research and project are completed, they will be scored against the scoring rubric.

Rubric:	oral presentation -- 20 pt.
	content facts -- 20 pt.
	changes made in ag -- 30 pt.
	poster, collage -- 20 pt.
	participation -- 10 pt.

Reteach

The teacher can use the same procedure to complete a class research project on another contributor to agriculture.

Extension

- q Social Studies -- These same procedures can be adapted to Community Heroes (1st-3rd), Texas Heroes (4th), American Heroes (5th), and World Heroes.
- q Literature: Wilder, Laura Ingalls. Little House in the Big Woods.

AGRICULTURE HEROES RESEARCH

You will research the following scientist or inventor and answer the following questions:

Name:

Date of Birth: _____

Date of Death: _____

Facts about his invention or discovery:

How was this invention used?

How has this invention or discovery changed agriculture and helped the farmers and people who use it?

Using your teacher's instructions, write a composition about this person, then complete a project illustrating this person's invention or discovery.

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Research two of the following names:

Cyrus McCormick

Eli Whitney

George Washington Carver

John Deere

Louis Pasteur

Rudolph Diesel

Jethro Tull

Joseph Glidden

Benjamin Holt

Clarence Birdseye

Gail Borden



George Washington Carver worked with the soil to conserve nutrients and discovered hundreds of new uses for crops, such as the peanut.

George had to overcome many things. He was born to slave parents and worked as a farm hand. He studied in a one-room schoolhouse. He went to college in 1887. When he was older, he worked in a college as the Director of Agriculture.

At college, he developed a crop rotation method that helped the nutrients in the soil. After learning of this method, farmers began to rotate their crops. Carver saw that peanuts were mostly used for feeding the farm animals, so he started to develop ways to use peanuts. He came up with 325 different uses for peanuts. *If you want to learn more about George Washington Carver and the uses of the peanut, check out the website www.mit.edu/invent.*



Cyrus Hall McCormick invented a machine to help farmers harvest their crops faster. His machine was called the mechanical reaper. Before his invention farmers had to harvest grain by hand, using a long handled tool called a scythe.

He was born in Virginia in 1809. His father was also an inventor, and he got lots of ideas from him. He patented his reaper in 1834. In 1847, he even set up a factory and became a great success. He started a company that is still in business today. It is called International Harvester Company.

Cyrus even sold his invention door-to-door. He wrote guarantees for his ready-to-assemble machine. *Check out our picture of his famous reaper.*



Cyrus McCormick's Reaper

World Book Encyclopedia

Research other great inventors at
<http://inventors.about.com>

John Deere developed the first American cast-steel plow. He was born in 1804 in Vermont. He learned about steel when working for a blacksmith. When the settlers began moving west, the plows they had been using did not work well in the prairie soil. The soil would stick to the plow and the farmer would have to stop often and clean it. Soil did not stick to John's steel plow. That made the farmer's work much easier.

Soon John was selling thousands of plows a year. He started his own plow company in Illinois. His incorporated company is still in business today. In fact, the name of his company is Deere and Company.

Below is an example of a steel plow like John Deere invented.

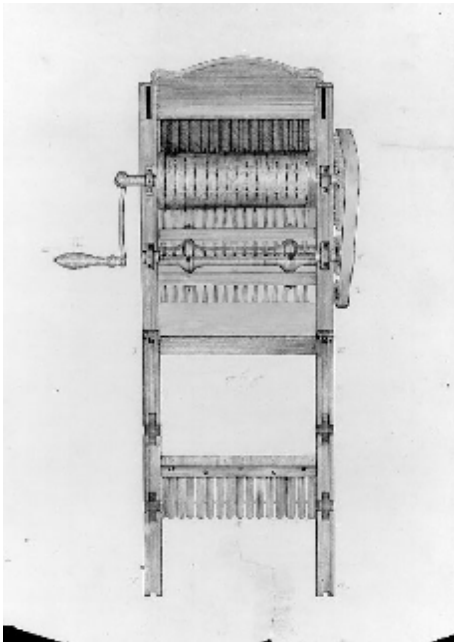


John Deere's invention had to be pulled by a horse or mule.

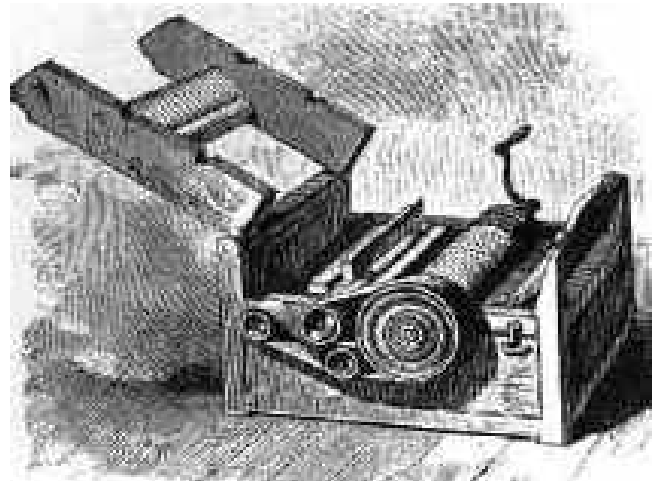
Research other great inventors at
<http://inventors.about.com>

Eli Whitney is another famous inventor. He was born in 1765. He is known as the inventor of the cotton gin.

Years ago, when cotton was harvested, the fiber, or lint, had to be separated from the seed by hand. People could not separate much cotton in a day. Eli saw that a machine to separate the seed and lint from cotton could make the South rich and the inventor rich, too. He set to work at once and began building one. He finally patented his machine in 1794. Whitney did make the South some money. Other planters refused to pay for the patent and Whitney's business failed. He later invented other inventions to help farmers but never tried to patent them. *Check out the illustrations of his famous invention.*



The cotton gin saved the cotton industry in the United States



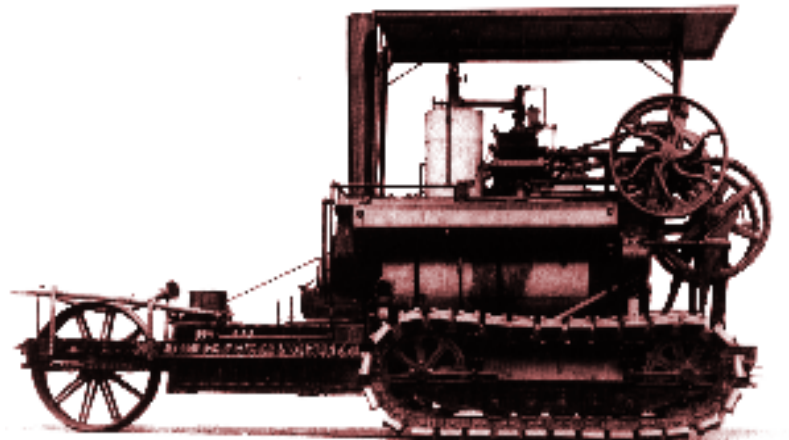
It was said the cotton gin could do the work of 50 men

Research other great inventors at

<http://inventors.about.com>

Benjamin Holt invented the "caterpillar" tractor. Tractors with wheels got stuck in soft soil. Benjamin invented a tractor that moved on tracks instead of wheels. The tracks would not sink in sandy soil or mud.

Benjamin started the Caterpillar Tractor Company. Today you see Benjamin Holt's invention every time you see a bull dozer or even an army tank that moves on tracks. Look at the pictures of Benjamin Holt's invention.



Steam powered Caterpillar tractor built by Holt in 1908

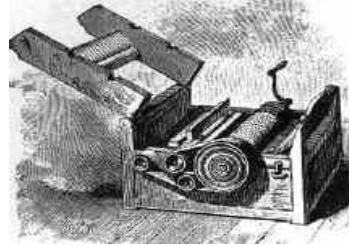


Have you ever seen a Caterpillar like this?

Ag Hero Match-Up

Draw a line from the inventor to the discovery he is known for.

Benjamin Holt -



Invented the cotton gin

Cyrus Hall McCormick -

Many agricultural discoveries, including over 300 uses of the peanut.



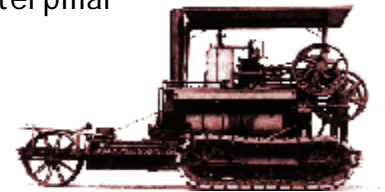
Eli Whitney -



Invented the steel plow.

George Washington Carver -

Invented the "Caterpillar" tractor.



John Deere -



Invented the first mechanical reaper