

# Tracking Technology

**Grade Level: 4-6**

**Approximate Length of Activity: One class period**

**Objectives:**

**Teacher:**

1. Teach the history of agricultural advancements in farming.
2. Familiarize students with various pieces of farm equipment.
3. Understand the purpose and importance of each piece of farm equipment and machinery.

**Students:**

1. Learn about changes in farming methods over the years.
2. Learn about the equipment farmers use.
3. Understand what each piece of equipment or machine does.
4. Compare old ways of doing various jobs on a farm with how they are done today.

**Michigan Content Standards: (Social Studies) I.1.1; I.2.2; II.2.4; II.5.1; III.5.1; IV.2.3**

**Introduction:**

Before the voyages to discover new land began, only a few crops were grown in particular regions. For instance, people in Europe did not know what potatoes were until the Spanish brought them to Europe in the 1500s. When European and Spanish explorers and settlers came to America, the native Americans introduced them to many new crops. The Europeans brought with them knowledge of various farming methods, tools, seeds, and livestock.

The Agricultural Revolution began in the early 1700s. During this time, many discoveries and inventions were made. This helped make farming easier and much more productive. Inventions allowed one farmer to produce more food and feed more people than before. As a result, people began taking new jobs off the farm.

Farmers do a lot to prepare the soil for planting and to care for the crop and harvest. In earlier times, farmers had to do most of the jobs by hand with very few tools to help them. Farmers used animals to do most of the heavy work. Farmers have gone from using very few hand tools before the 1700s to using different types of equipment in the 1700s and 1800s. Still, many inventions in the 1800s required animals, such as oxen or horses, to pull them through a field or to supply the power for a machine to run. Since then, many advances in farm machinery and farm equipment have been made. Using modern machinery, one farmer can feed more people now than ever before.

One piece of valuable machinery that farmers use today is a tractor. Before tractors, farmers used horses and other animals to pull and work pieces of heavy equipment. The first types of tractors were called traction engines. They ran on steam and were hard to maneuver. Over time, newer, improved versions were made, and by the 1920s a more practical tractor was developed. Today, tractors are used for many different things. They are used to plant, cultivate, and pull heavy loads, such as wagons filled with grain, a mower, and much more. A tractor can pull these heavy machines and equipment because it has a powerful engine. In fact, it is so powerful that it equals the power of 200 horses.

Before the 1700s, farmers planted crops by spreading seeds by hand. In the early 1700s, a farmer named Jethro Tull invented a seed drill. The seed drill dug small trenches in the soil and dropped seeds into them. Today, this piece of equipment is called a planter. Planters put seeds in the soil. They have tanks which hold the seeds. The planters have seed meters so the right amount of seeds are dropped into the soil. A row of wheels on the planters cover the seeds with soil after they are dropped in the field.

Farmers used to harvest crops by hand. They could cut the stalks, stack them in large piles, then store them in a silo. (A silo is a cylindrical structure in which grain is kept.) Then the farmer had to separate the grain from the stalk by hand. It took many people to do these two tasks, until Cyrus McCormick invented the reaper, a machine that cuts the stalks. Then a thresher was invented. The thresher separated the grain from the stalks. Farmers then used a reaper to cut the stalks and a thresher to separate the grain from the stalks.

Since the 1930s, farmers have used machines called combines to pick the grain from the fields (which is also called harvesting). A combine does the job of a reaper and a thresher. A combine separates grain from the stems, as it cuts stalks in the field. The combine stores the grain in a big tank inside the machine. The leftover stalks are blown out the back of the combine. An auger is a long tube on the side of the combine. Inside the auger is a rotating flange (like a screw) that moves the crop from the storage tank and dumps it into a truck or wagon.

In the past, using horses and other farm animals, farmers would cut hay in the fields and rake it into bundles. Then, they would haul it back to the barn to store. Today, farmers use mechanical hay balers. These hay balers cut the hay or straw, and then pack it into square or round bales.

Dairy cows used to be milked by hand. Every day farmers would milk their cows by hand two to three times. Today, most farmers use milking machines. Farmers still milk cows two to three times a day, but it is a much easier process. The farmers attach suction cups to the teats of a dairy cow, and this suction system pulls milk from the cow and pumps it into a storage tank. The storage tank keeps the milk fresh and cool. When farmers had to milk by hand, it used to take two people about two and one-half hours to milk 20 cows. Today, an electric milking machine enables one farmer to milk 20 cows in about 15 minutes!

### **Materials Needed:**

- Set of "Farm Equipment and Machinery Pictures" to display (for teacher use)
- Copies of "Farm Equipment and Machinery Pictures" (for the students)
- "From Old to New" worksheet

### **Activity Outline:**

1. Talk to the students about farm machinery and equipment. Hold up each picture of the "Farm Equipment and Machinery Pictures" and discuss what each did a long time ago or what it does today (depending on the picture). Pass around the pictures for the students to get a close-up look at them.
2. Pass out the worksheet "From Old to New." Have the students draw a line between the old method of farming to the method used today. Discuss the answers with students.
3. Pass out copies of "Farm Equipment and Machinery Pictures," one to each student. Not all students will have the same picture. Have the students write a paragraph about their piece of equipment or machinery. The paragraph should contain information about how farmers used the machinery in the past and how they use it now. For instance, if the student has a picture of a planter, the student should write a paragraph about how farmers used to scatter the seeds by hand and now they have a machine that puts seeds into the ground. The student should also discuss why the newer way is more beneficial.

**Discussion Questions:**

1. How do farmers plant seeds now? How did they plant seeds in the past?
2. What two pieces of equipment did farmers use to harvest crops in the past?
3. What big machine do farmers use today to harvest crops?
4. What machine do farmers use to pull heavy loads or pieces of equipment?
5. How did farmers used to milk cows? How do they milk cows today?
6. How many times a day does a farmer need to milk the cows?

**Related Activities:**

1. Have the students learn about other types of equipment that farmers use and how they are beneficial.
2. Visit a local implement dealer or invite an implement dealer into the classroom to discuss his/her business, what types of equipment or machinery he/she sells, and how much each piece costs.

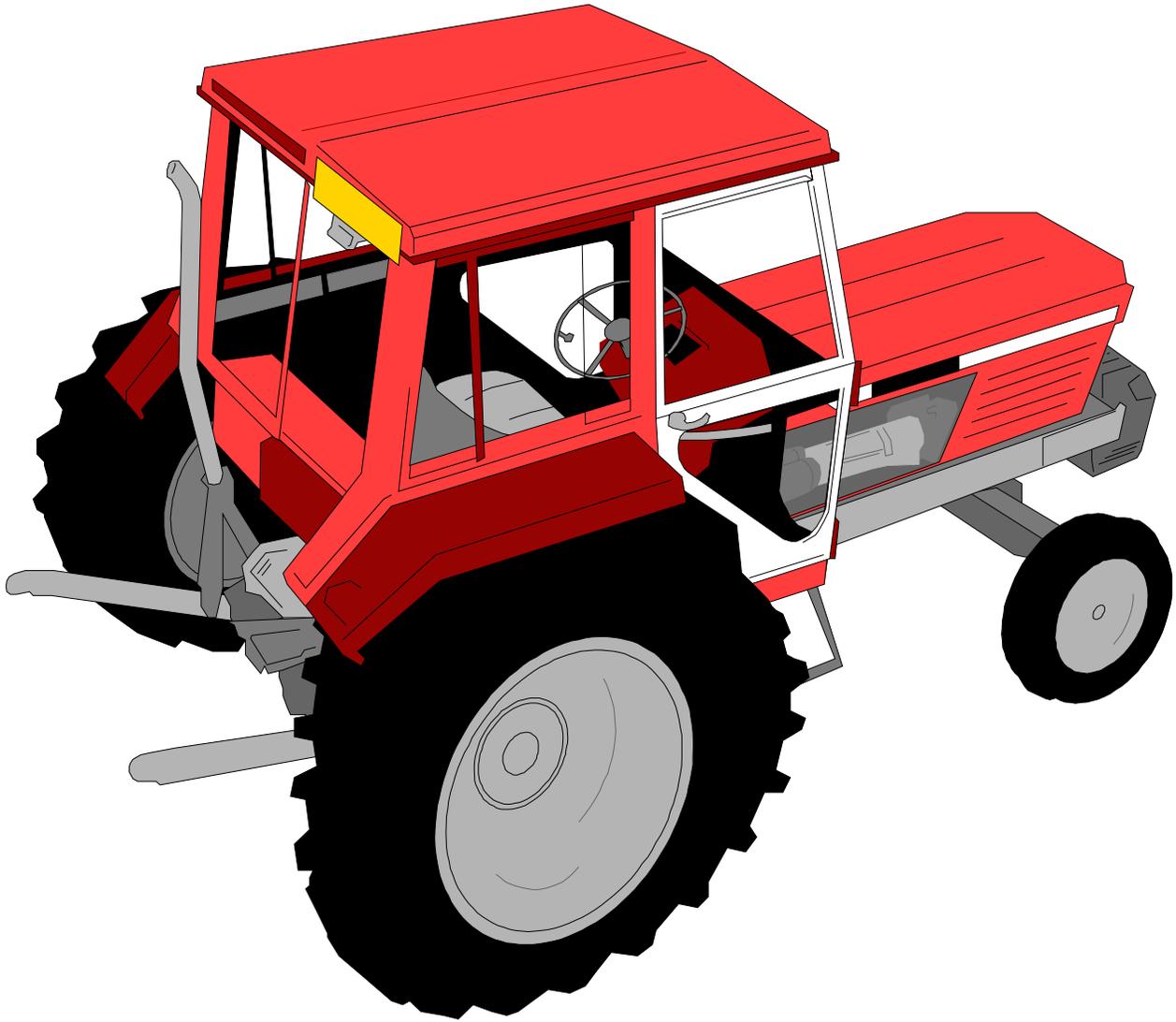
**Other Resources:**

1. The Michigan Farm Bureau has an educational magazine geared for kids entitled "Dairy Ag Mag" which contains activities and history stories of how farming use to be, to how it is now. To obtain copies for your classroom contact Michigan Farm Bureau the Promotion and Education department at 1-800-292-2680 ext. 3202.
2. *A Tractor Goes Farming* by Roy Harrington, published by the American Society of Agricultural Engineers.
3. *Harvest Year* by Cris Peterson, Boyds Mills Press, Inc.
4. *Century Farm* by Cris Peterson, Boyds Mills Press, Inc.

To be used with:  
**Tracking Technology**

Name \_\_\_\_\_

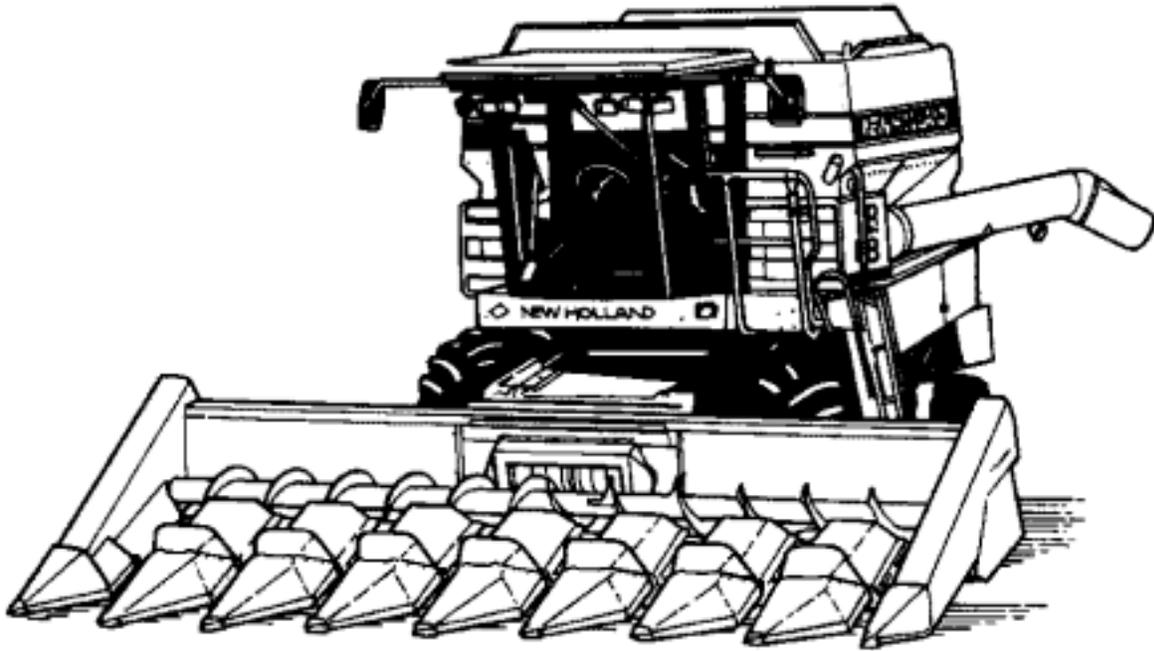
## Farm Equipment and Machinery



To be used with:  
*Tracking Technology*

Name \_\_\_\_\_

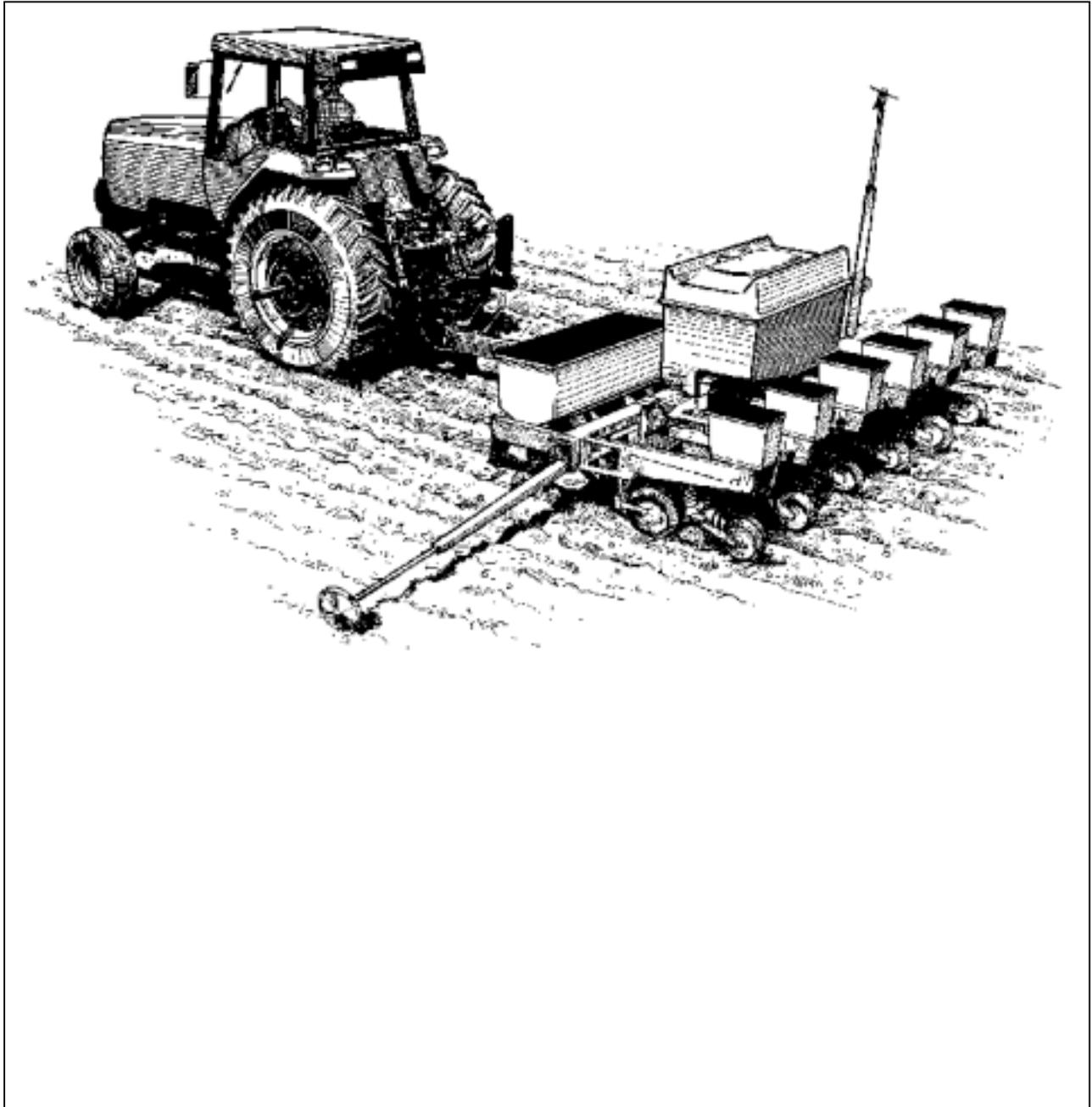
## Farm Equipment and Machinery



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## Farm Equipment and Machinery



To be used with:  
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Name \_\_\_\_\_

## From Old to New

Technology has changed the way people farm. Draw a line to match up the old method to the new method used today.

### Old Way



### New Way

