

**Grade Level:** K-4

**Essential Skills:** 1, 4, 5, 9

**NGSS:** K-2-ETS1-1; K-2-ETS1-2; K-2-ETS1-3; 3-4-ETS1-1; 3-4-ETS1-2; 3-4-ETS1-3

**CCSS:** K.RL.1; K.RL.3; K.RI.1; K.RI.2; K.RI.4; K.SL.1; K.SL.2; K.SL.3; 1.RL.1; 1.RL.3; 1.RI.1; 1.RI.2; 1.SL.1; 1.SL.2; 2.RL.3; 2.RI.1; 2.SL.1; 2.SL.2; 3.RL.1; 3.RI.1; 4.RI.1

**Social Studies:** K.13; K.15; K.16; K.18; 1.15; 2.18, 2.21

**Time:** 45 minutes

**Materials:** Inventor's Kit\* or:

- 6 Invention cards\*
- 10 craft sticks\*
- 8 binder clips\*
- 6 clothespins\*
- 5 objects (i.e. tape dispenser, water bottle, stapler, etc.)

\*Free kit with all materials available from Oregon Agriculture in the Classroom

**[AITC Library Resources:](#)**

**Books:**

*John Deere, That's Who!*

**More Lessons:**

Drones in High Tech Farming  
Growing a Nation: Growing Technology  
High-Tech Farming  
High-Tech Food  
Increasing Food Production with Precision Agriculture  
Robots in High-Tech Farming  
Technology in Agriculture

# Lesson to Grow

## Agricultural Inventors

### Description:

Back in the 1830s, a young blacksmith from Vermont, made his mark on American history. *John Deere, That's Who!* is the story of John Deere and his development of the steel plow. Beautiful illustrations accompany the fun text and bring the story of this remarkable innovator to life.

### Background:

The book *John Deere, That's Who!* provides a look at agricultural technological advances and how these innovative technologies have allowed farmers to farm more sustainably. Read as a group, then have students discuss the following questions:

- 1) What problem did farmers have that John Deere helped solve?
- 2) How did the steel plow solve those problems?

### Directions:

#### Part I: Agricultural Inventions Timeline

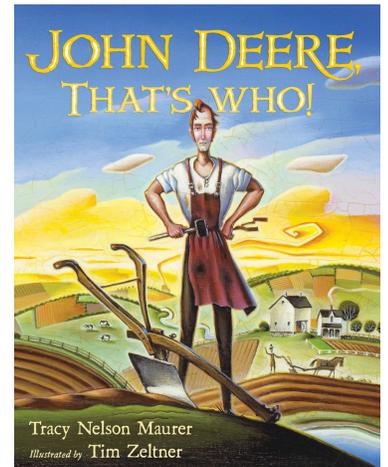
- 1) Show students each of the 6 inventions cards reading each caption aloud and placing it on the board.
- 2) Divide students into five groups. Have each group discuss where each card should be placed in a timeline of agricultural inventions starting with the oldest. Go around the room and have students share what sequence the group place each invention in.

- 3) Review the correct order of inventions (C, F, E, B, D, A) with students and discuss challenges or problems these inventions helped solve and their contribution to sustainability.

#### Part II: Students as Inventors (STEM Activity)

- 1) Provide students with the context that when farmers drive their tractors over soil it compacts which reduces the air and water in the soil. Today, your challenge is to see if you can help these farmers out! Your goal is to build a structure to support the weight of an object they choose using the least amount of surface area possible (least amount of points touching the table). This represents spreading the weight of equipment used in agriculture over a broad area to reduce compacting the soil.

- 2) Provide each group with a set of Building



Materials (10 craft sticks, 8 binder clips and 6 clothes pins) and an object and give them 7-10 minutes to build a structure.

3)Have each group present their support structure to the class and test it by placing the assigned object on the structure.

4)When the activity is complete, have students dismantle their structure and place the materials back in their bag.

5)Discuss the following questions:

a. How did this activity relate to agriculture?

b. What techniques did you use to build your structure? How did you decide?

c. How many points touched the table?

d. Did your structure hold the object? Why or why not?

e. How could you improve your structure?

**C.**



**John Deere invented the steel plow.**

This plow was stronger, sharper and easier to use than wooden or iron plows.

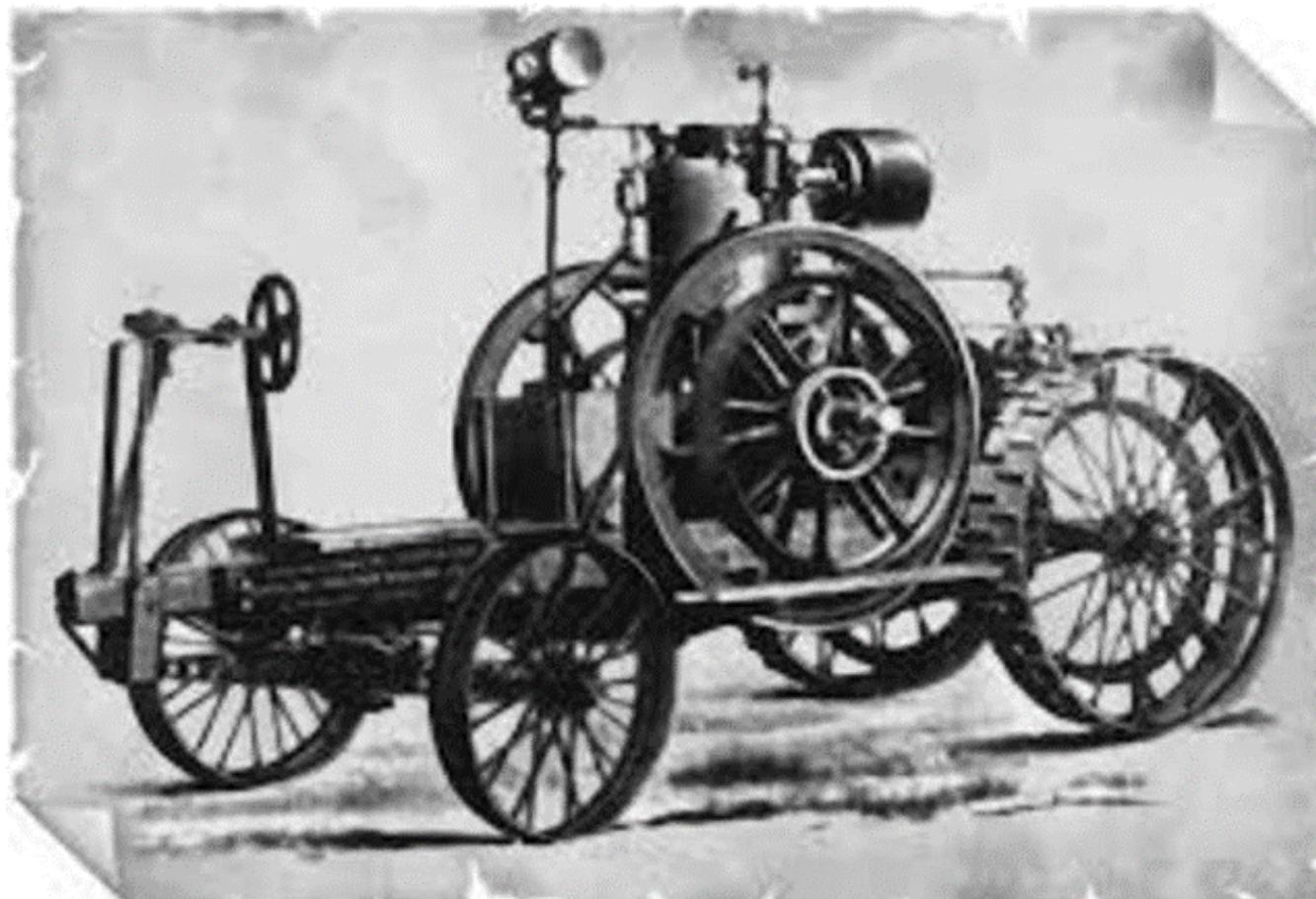
**F.**



**Horse-drawn combines used on West Coast farms.**

This made harvesting wheat much easier and didn't require as many people.

**E.**



**The first gasoline tractor used on farms.**

This tractor helped save time and manual labor.

**B.**



## **GPS systems installed in tractors.**

These systems help farmers go exactly where they want in their fields which helps save time and resources.

**D.**



## **Drones are used on farms.**

Drones take photos and videos of fields so that farmers can identify problems that they might not be able to see from the ground.

A.



## **Self-driving tractor used on farms.**

This robot-like tractor collects information and can be controlled remotely.