



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

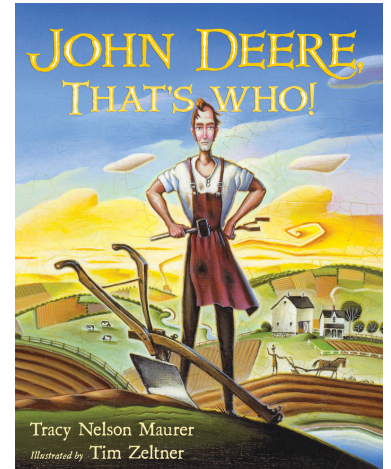
- 1) Show students each of the 6 inventions cards reading each caption aloud and placing it on the board.
- 2) Divide students into five groups. Have each group discuss where each card should be placed in a timeline of agricultural inventions starting with the oldest. Go around the room and have students 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 inventó el arado de acero.
Este arado era más fuerte, más afilado y más fácil
de usar que los arados de madera o hierro.

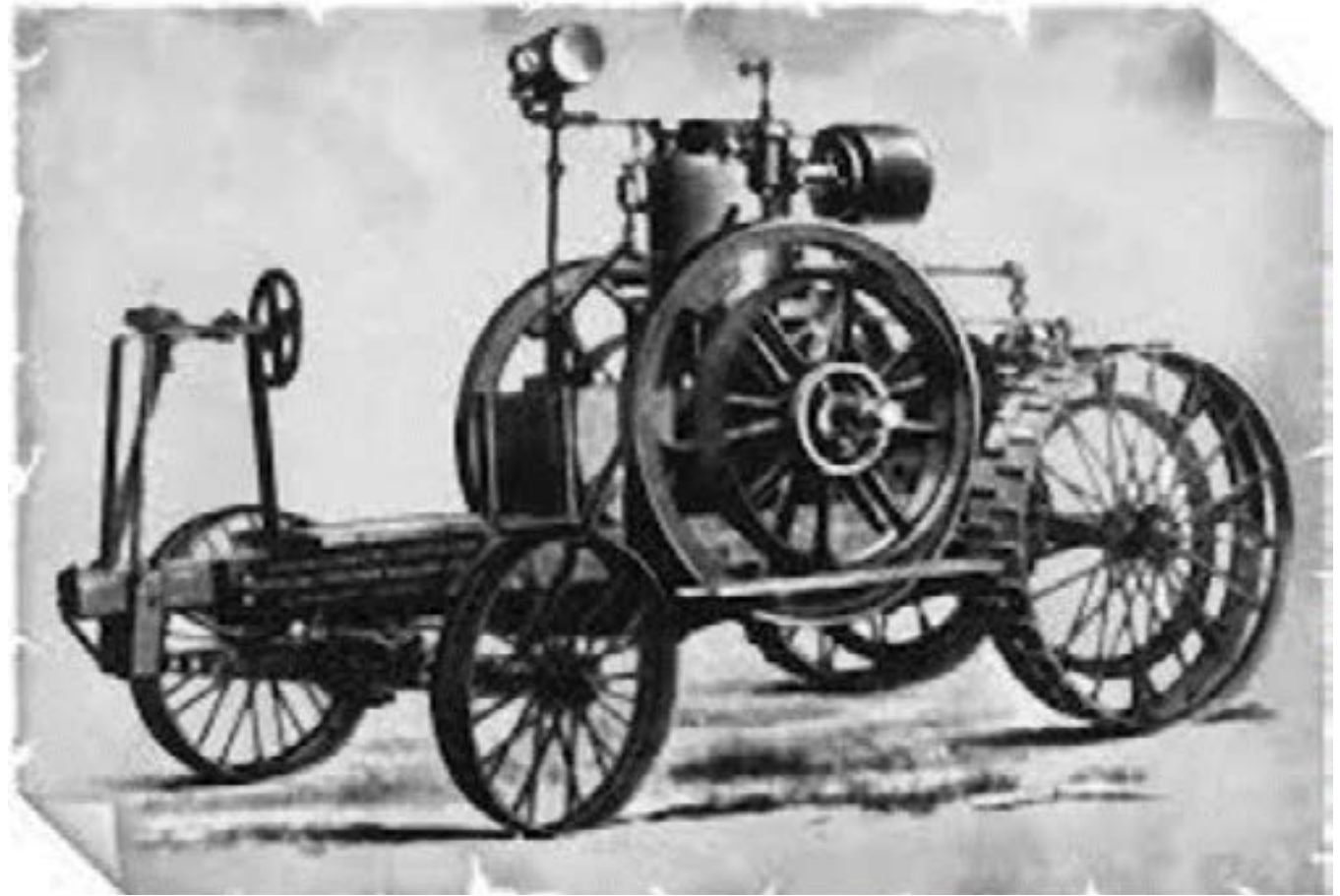
F.



Cosechadoras de caballos utilizadas en granjas de la costa oeste.

Esto hizo que la cosecha de trigo fuera mucho más fácil y no requirió tanta gente.

E.



El primer tractor gasolina utilizada en las granjas.
Este tractor ayudó a ahorrar tiempo y mano de
obra.

D.



Los drones se usan en granjas.

Los drones toman fotos y videos de los campos para que los agricultores puedan identificar problemas que tal vez no puedan ver desde el suelo.

B.



Sistemas GPS instalados en tractores.
Estos sistemas ayudan a los agricultores a ir exactamente a donde quieren en sus campos, lo que ayuda a ahorrar tiempo y recursos.

A.



Tractor autónomo utilizado en granjas.
Este tractor tipo robot recopila información
y se puede controlar de forma remota.