



# Washington Agriculture in the Classroom

## Agriculture Literacy Project

### 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.

### Part 1: Introduction and Reading 20 minutes

#### 1. Briefly introduce yourself and your connection to agriculture (2-3 minutes)

Bring props, samples or photos of your farm. This is a very important part of these presentations! Take your time and talk about how you contribute to agriculture.

**2. Introduce the Six F's of Agriculture (2 minutes)** Example: Say, "Agriculture is a big word and it is an important part of our daily lives. I am going to teach you "The Six F's of Washington Agriculture" to help you understand the importance of agriculture. Now repeat after me. The first F is for Farming. Farms are where food and fiber is produced. The second F is for Food. Agriculture feeds us. The third F is Fiber. Fiber is used to make fabric and clothes. The fourth F is Fishing. In Washington we harvest lots of food from the ocean. The fifth F is Flowers. One of Washington's biggest agricultural industries is nursery and greenhouse crops like flowers. The last F is Forestry. Wood products are used to make buildings, furniture, paper products and more. As you can see, agriculture is everywhere and very important to all of us. It feeds us, keeps us warm and provides us with shelter."

**3. Introduce the story (1 minute)** Example: Say, "We are going to learn about the role inventions play in agriculture. I am going to read a story that talks about the invention of the steel plow. As we read the book, think about farming throughout history and how inventions have led to the different types of tractors we see today."

**4. Reading (15 minutes)** READ SLOWLY and take time to show students the pictures as you go. Have students pay particular attention to the reasons John Deere invented the steel plow. Tell students they will have the opportunity to invent something later as part of a hands-on activity!

### Part 2: Lesson 20-25 minutes

#### 2A. Transition into the Activity (5 minutes)

**1. After you have read the book,** lead the students in a few follow-up questions. For example: "What problem did farmers have that John Deere helped solve? How did the steel plow solve these problems?" For younger grades, use illustrations from the book to remind students about the thick soil (gumbo) and heavy iron plow. Help students recall that the iron plow was very heavy and got stuck easily. It took farmers a lot of time to plow the fields and the hard labor was exhausting. After John Deere invented the steel plow, it made farming more efficient.

#### 2B. Agricultural Inventions (5 - 10 minutes)

**1. Explain the activity.** Say, "Over time, different inventions have helped farmers solve challenges and make changes that are better for the environment, require less resources or do things in a better way. Today, we are going to start by playing a game. I have six cards; each card has a picture of a different agricultural invention."

**Grades K-2:** Remaining at the carpet, begin by holding up the card with the steel plow. Say, "We've learned that John Deere invented the steel plow, now let's look at some other inventions and the order of important inventions." Read each of the other cards, being careful NOT to read them in order. After you've read each card, pick up the card with the steel plow, and ask the students, "Which invention do you think came next?" Continue selecting cards until all of them have been placed in order; C, F, E, B, D, A. You might want to have student volunteers hold the cards as they are discussed or place them in order on a board or easel. After the cards are in order, ask students to identify what problems that invention solved and how it helped farmers do their job more efficiently. For example, GPS systems have helped farmers be more accurate and precise in their work.

**Grades 3-4:** Have the students return to their desks if you've been in a reading area. Show

#### Overview:

**Time:** 60 minutes

**Grade Level:** K-4

**Standards:**

**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 EARLS:**

History – 4.1, 4.2, 4.4

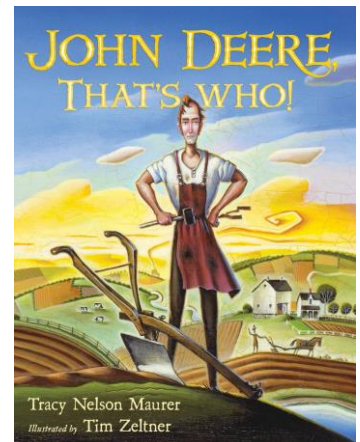
Social Studies skills – 5.1, 5.2, 5.4

**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

**Materials:** Book; 6 cards with photos of inventions and 5 sets of building materials (each set contains 10 craft sticks, 8 binder clips and 6 clothespins)



#### Checklist:

- Contact the teacher well before your presentation.
- If you plan to use a white/smart board, check with the teacher beforehand.
- Practice reading the book out loud and doing the activity beforehand.
- Complete the participation form and return it to WAIC

students each of the cards, read the captions and place each card on the board. Allow students to work in groups to decide where each card should be placed in order of oldest to most recent invention. Once students have had a chance to discuss, start at the beginning with the plow and sequence each of the items; C, F, E, B, D, A. As you are discussing, ask the students to identify what challenges or problems each of these inventions helped solve and how the invention has contributed to sustainability, better practices, etc. For example, you may consider discussing how farming has continued to evolve.

Tractors are now used to pull implements that till or plow the ground. GPS systems have helped farmers become more accurate and precise in their work. Some farmers practice no-till farming, which means crops are grown from year-to-year without disturbing the soil.

**2. As you transition** into the second activity, ask students to imagine themselves as inventors. Remind students that people around the world are doing exciting things and now it's their turn.

## 2C. STEM Activity (10 - 15 minutes)

**1. In this portion of the activity**, students will use simple supplies (craft sticks, binder clips and clothespins) to build a structure to support an object. Before you begin, determine an object that you'd like to use as the "weight" for the challenge. Ideas include a tape dispenser, stapler or a water bottle. Pick something that has a little bit of weight, but can't easily be damaged.

**2. Divide students into small groups** (3-4 per group is ideal - no more groups that you have bags of supplies for) and explain that it's now their turn to be inventors and work together to solve a real challenge farmers have.

**Grade K-2:** Say, "Just like John Deere, use the materials you have available to solve a challenge. Your challenge is to build a structure that will support the weight of the chosen object."

**Grade 3-4:** Say, "When farmers drive their tractors over the soil, it compacts the soil which reduces the air and water in the soil. Innovators are working right now to reduce tractor's impact on 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 [this object] 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."

**3. Before handing each group their materials**, say "each group will receive ten craft sticks, eight binder clips and six clothespins. You do not have to use all of the materials." (For younger grades, consider demonstrating how to open and close the binder clips).

**4. Set a few guidelines:** Tell students to handle their materials with care, there will be no replacements if their items break. They need to work together as a team and consider their groups opinions and ideas. Remind students to be creative, there is no "right or wrong" way to build their structure.

**5. Pass out the materials to students** and set a time limit to complete the task. Seven to ten minutes is typically enough time, but read the class as you go.

**6. Walk around the classroom** to assist groups as needed. Groups might want to test their structure's ability to hold the chosen object during the building process. For older students, if time allows, encourage them to try different techniques to improve their structure. When time is winding down, give students a time warning. As the students are finishing or at the end of the time limit, test the structures with the group. After each group has had the chance to test their objects, bring the group together for a discussion. Invite the groups to share their structures with the class.

## Part 3: Wrap-up

**15 minutes**

**1. When the activity is complete**, ask the students to carefully dismantle their structure and place all of their materials back into their bag.

**2. Ask the students to return** to their seats (or the carpet) to talk about the activity and what they learned. Here are some questions to lead the discussion:

- How did this activity relate to agriculture?
- What techniques did you use to build your structure? How did you decide?
- (Grades 3-4) How many points touched the table?
- Did your structure hold the object? Why or why not?
- How could you improve your structure?

**3. Review The Six F's of Agriculture** if you have time.

**4. Thank the teacher and students** for sharing their time to learn about agriculture.

**5. Leave the book and the contents** of the "Teacher Packet" for the classroom's library and collect all other supplies to reuse in another classroom. Once completed, you can return the materials to AITC for other volunteers to reuse.

**Don't forget to fill out the participation form and sent in!**

**Thank  
you!**

