

Transportation Pringle Challenge

Grade Level(s)

7th-8th

Estimated Time

40 minutes

Purpose

The supply chain, while once not a concern, is now affecting communities around the world due to COVID-19 disruptions. Students will explore the importance of different modes of agriculture transportation and packaging through a "Protect the Pringle Chip" Challenge, virtual resources, cargo math comparisons, real-world supply chain problem solving, and creative/research-based writing strategies into your classroom.

Materials

Key Links:

Website: www.linncoag.com -2020/21 virtual learning- October- Middle School

Intro video: <https://www.youtube.com/watch?v=Jo2Ex1Dq75M>

Supplies:

- Pringles
- Card stock
- Cardboard
- Tape
- Scissors
- Rubber bands
- Cotton

Worksheets available in kit or on website:

- Math comparisons
- Design a label
- Mode of transportation research
- Supply chain cards from Land, Sea and Air lesson

Vocabulary

Transportation: the movement of people or goods from one place to another

Cargo: goods carried on a ship, plane, or vehicle

Processing: in agriculture, the alteration or modification, for the purpose of storage, transport, or sale, of an agricultural product

Commodity: a product of agriculture that can be bought and sold

Perishable: likely to spoil or decay

Export: to send goods or materials to another country

Import: to receive goods or materials from another country

Interest Approach – Engagement

Read one of the supply chain blog posts together as a class or split the class up into small group and have each group read a different blog post. Hold a classroom discussion. *What did you learn in the article? What are the challenges? Have you thought about the supply chain before?*

- Supply chain blog post:
 - Plenty of pigs on the farm and meat shortages at the grocery store.
<https://www.iowafarmbureau.com/Article/Plenty-of-pigs-on-farms-and-meat-shortages-at-the-grocery-store-how-does-that-happen>
 - The raw story <https://www.rawstory.com/2020/04/here-is-why-dairy-farmers-are-dumping-milk-even-as-americans-are-going-hungry/>
 - Dumping milk <https://www.cnn.com/2020/04/15/business/milk-dumping-coronavirus/index.html>
 - Closing of meat processing plants
<https://www.cnn.com/2020/04/26/business/meat-processing-plants-coronavirus/index.html>

Background - Agricultural Connections

Agricultural commodities are transported in a variety of different ways. Transportation is the movement of people or goods from one place to another and in this lesson, students will explore how our food gets from the farm to the grocery store. Agricultural commodities can be transported by land, sea and air. Farmers, transporters and agribusiness personnel must consider packaging and how the products will safely arrive at their next destination. Students will design their own package for a pringle chip. They will use the engineering process to build and test different designs for their durability and protection.

Procedures

1. Watch intro video with the class available on our website (www.linncoag.com - 2020/21 virtual learning -October-Middle School).
2. Show one of the local transportations FarmChat video- Day in the Life of a Semi-Driver or Lock and Dam 10.
 - Day in the life of a semi driver
<https://www.youtube.com/watch?v=bK3wnovsgwY&t=55s>
 - Lock and Dam 10 <https://www.youtube.com/watch?v=syiXbYTwmx0&t=300s>
3. Ask the students to complete the supply chain cards (available in kit or on website). Talk with each group and discuss their sequence and compare them to the right answers.

- Read Transportation Blog Post <https://www.linncoag.com/single-post/2020/03/31/Modes-of-Ag-Transportation> as a class to review.
4. Instruct the students to think about how packages are made. *How do packages look different at the grocery store? Why are there different packaging designs? Are goods transported the same in each mode of transportation? Why is grain hauled loosely while cereal is packaged in bags, boxes and on pallets?*
 5. PRINGLE STEM CHALLENGE: Instruct the students to create a Pringle package. The goal is to protect the pringle through transportation. Pass out the following materials: pringle, card stock, tape, cotton, scissors, etc. Give the students 10-15 minutes to build a pringle package.
 6. If time- test the packages.
 1. Drop from top of a chair
 2. Drop an object on the package
 7. How many pieces is your pringle in?
 8. What are your thoughts? Lead a class discussion about transportation and packaging.
 9. Transportation math comparisons worksheet (available in the kit or on our website).
 10. FOOD FOR THOUGHT: Read Iowa Ag Today Middle School Edition 1: focus on pages 6 (Trade) and 8 (American Ag). *Why is trade important to the supply chain/transportation?*
https://www.iowaagliteracy.org/page/file?path=Files%2Fwebsite%2Fiowa-ag-today%2FIALF_AT_MD_issue1-online.pdf

Additional resources/ activities

Worksheets:

- Transportation research: Ask the students to pick a mode of transportation and conduct their own research.
- Design a label worksheet: design a new label for your favorite snack.

Ag Careers:

Ag Explorer (which careers relate to transportation) <https://agexplorer.com/>
 My Little Ag Me game <http://www.myamericanfarm.org/games/my-little-ag-me>

FarmChat@s:

- Banana video <https://www.youtube.com/watch?v=sqHMKj04WQ0>
- CGB Grain <https://www.youtube.com/watch?v=CBwpqc-ifSw>
- Milk to store <https://www.youtube.com/watch?v=1LEG16SF4Jc>
- Christmas tree <https://www.youtube.com/watch?v=2zF3gF36o10>
- Fish transportation https://www.youtube.com/watch?v=0-xw5XU0PFo&index=6&list=PLiUfd658tHYMx4_LqT5GyTDyPLqIruQyb

Organization Affiliation

Morgan Hibbs, Linn County Farm Bureau

Agriculture Literacy Outcomes

T5.6-8.g Identify agricultural products that are exported and imported.

T4.6-8.a Compare and contrast historical and current food processing and systems.

T1. 6-8.f. Explain and discuss why people migrate and change environments to meet their basic needs.

T5. 6-8.a. Consider the economic value of agriculture in America.

Iowa/ Common Core Standards

SS. 6.18. Explain how changes in transportation, communication, and technology influence the movement of people, goods and ideas in various countries.

SS. 7.23. Explain how global changes in population distribution patterns affect changes in land use areas.

SS. 7.22. Evaluate the push and pull factors involved in human population movement and patterns.