Packing Peanuts

Grade Level(s)

3rd grade

Estimated Time

30 minutes

Purpose

Students will learn about the difference between primary and secondary products!

Materials

- Links:

  Website with virtual resources: www.linncoag.com -2020/21 virtual learning drop down tab- January

  Book: Corn https://drive.google.com/drive/folders/17wRvpFOT2rjAd7U6hAzDAaItqsde_Q_8?usp=sharing

  Instructional video https://www.youtube.com/watch?v=Rl0HjaXynEo

  Iowa Ag Today Issue 6: https://www.iowaagliteracy.org/page/file?path=Files%2Fwebsite%2Fiowa-ag-today%2FIALF_IAT_Issue6-web.pdf

- Worksheets:

  Byproduct riddles worksheet

  Prediction worksheet

- Other:

  Styrofoam packing peanuts

  Corn packing peanuts

  Ziploc bag

  Water

Vocabulary

Byproduct- product created from the leftovers of a primary plant or animal product.
Primary product- product derived directly from the plant or animal.
Packing peanuts- loose-fill packaging and cushioning material used to prevent damage to fragile objects during shipping.
Renewable resource- resource can be replenished.

Nonrenewable resource- resource is depleted and cannot be recovered once it is used.

Interest Approach – Engagement

1. Begin by reading page one in our Iowa Ag Today publication. https://www.iowaagliteracy.org/page/file?path=Files%2Fwebsite%2Fiowa-ag-today%2FIALF_IAT_Issue6-web.pdf
2. What is a byproduct?
3. What is the difference between renewable and nonrenewable resources?
4. Which is better for the environment? Renewable or nonrenewable?

Background - Agricultural Connections

The Midwest part of the United States grows some very important crops and livestock, including corn, soybeans, sugar beets, beef cattle, hogs and sheep. While these crops and livestock are grown for primary uses such as fuel (ethanol and biodiesel), food or fiber, they have secondary uses that are a huge part of our everyday lives. By-products from crops and livestock can be found in cosmetics, ice cream, bandages and brushes. These by-products are products that would otherwise go to waste but bring additional economic value to the crop or livestock item at harvest. Today we will be learning about corn by-products.

Procedures

1. Listen to the instructional video: there is a point where I will be asking you to pause to conduct the science experiment.
2. Pass out 1 Ziplock bag, 2 Styrofoam packing peanuts and 2 corn packing peanuts per student or create small groups.
3. Explain the experiment- we will be adding water to your bag of packing peanuts. Before we do so, let's make a prediction. Pass out the prediction worksheet.
    - What are packing peanuts used for?
    - What do you predict will happen when we add water to the bag?
    - What similarities and differences do you see between the two different packing peanuts?
    - What do you predict the packing peanuts are made from?
4. Conduct the experiment. Answer the last two questions on the prediction worksheet.
    - Which do you believe is renewable? Nonrenewable?
5. Explain to the class that the dissolving packing peanut is renewable and made from corn. The Styrofoam packing peanut did not change and is a nonrenewable product made from oil (derived from the ground).
6. Pass out the By-product Riddle worksheet and resume play on the instructional video. I will walk us through the activity together as a class.
7. Answers:
    1. Band-aids, cow (adhesive from hooves)
    2. Brush, pig (hair- not as common anymore)
    3. Pillow, poultry (feathers) or cotton
    4. Paper, trees
    5. Shampoo, sheep (lanolin from the wool)
    6. Livestock feed, sugar beets

7. Ink, soybeans
8. Battery, corn
9. Makeup, cow (fatty-acids help keep the makeup from separating)
10. Tofu, soybeans

8. Read or listen to the story Corn, Corn, Corn to review- video link above

Organization Affiliation

Iowa Ag Literacy Foundation, National Ag in the Classroom and Linn County Farm Bureau

Agriculture Literacy Outcomes

T1.3-5.a describe similarities and differences between managed and natural systems.
T3.3-5.b. Diagram the path of production for a processed product, from farm to table.

Iowa/ Common Core Standards

3-LS4-4. Make a claim about the merit of a solution to a problem caused when the environment changes and the types of plants and animals that live there may change.

SS.3.13. Identify how people use natural resources, human resources, and physical capital to produce goods and services.