



UNIT 1: PRODUCTION AGRICULTURE

Lots More from Agriculture

Grade level: Upper elementary

**NATIONAL
STANDARDS**
NL-ENG.K-12.4
NS.K-4.5

Student Learning Objectives

By the end of this lesson, students will be able to:

1. Define byproduct.
2. Identify new-use agriculture products and agricultural byproducts they use every day.

Time: 50 minutes

Tools, Equipment, and Supplies: Writing surface, copies of Activity Sheet 5:1, access to byproducts in or near the classroom, small reward for scavenger hunt completion

Key Term(s): Byproduct

Background Information

When students think about agriculture, their first thoughts are probably of food or farms. They may be aware that some of their clothing comes from agriculture as well, but they are probably unaware of the myriad of other products they use every day that come from agriculture. Many of these products are agricultural byproducts—secondary products produced when making something else. For example, when grains are made into ethanol, a byproduct is a mash that can be used in pet food.

Today, agriculture is the solution to many environmental concerns. Ethanol added to gasoline or used as a stand-alone fuel is reducing our dependence on petroleum. Biodegradable plastics made from corn and other agricultural products are reducing the need for landfill space.

In addition, many agricultural products are used for pharmaceuticals. Researchers continue to look for new uses for agricultural products.



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Interest Approach

All of us know the importance of agriculture in our lives. We couldn't survive without it. Let's refresh our memories by sharing our favorite agricultural products. When I point to you and say, "What's your favorite product?" let me have it. Are we ready? I'll start us off. My favorite agricultural product is _____. (You can insert yours here, but use a food product to get them thinking in that direction).

Great job, gang! Is anybody hungry yet?

If applicable say: Some of you mentioned some non-food related items. That's great!

Let's focus our attention now on non-food related items, and explore how these items are important to agriculture and our lives.

OBJECTIVE 1: Define byproduct.

When you think about agriculture, your first thoughts are probably of food. Remember all of our favorite agricultural products that we just shared? Most of them were food products. We may be aware that some of our clothing comes from agriculture as well. But many of us are probably unaware of other types of products we use every day that also come from agriculture.

Many of these other products are made up of **byproducts**. Who will tell us what a byproduct is?

Wait for responses. Comment positively on responses.

Very good! Our definition of a **byproduct** is simple. A **byproduct** is something produced in the making of something else.

Use a Choral Response e-Moment® to help students remember the definition of byproduct.

When I ask what a product is called that is produced in the making of something else, you say "**byproduct!**" Ready... What is a product that is produced in the making of something else called?



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OBJECTIVE 2: Identify new-use agricultural products and agricultural byproducts they use every day.

This objective requires the use of byproducts in a scavenger hunt activity. Bring products made from byproducts of agricultural products with you for the activity or meet in an area with access to many of these types of products. Set up the scavenger hunt before the lesson. It may be wise to have the scavenger hunt in an area away from the regular classroom. Set up products so students can record finding them, but not take them.

Now that we know what a **byproduct** is, can you think of any **byproducts** that you may use every day?

Wait for responses

Very good! Let's take a look at the activity sheet and check our answers.

*Hand out the Activity Sheet 5:1, "Lots More from Agriculture." Review the list of agricultural products and **byproducts**.*

What items are on the list that we didn't mention?

Wait for responses.

Great! What are you surprised by on the list?

Wait for responses and comment positively.

We are about to join our friend Cob on a scavenger hunt. On our hunt, we will search for byproducts. Find as many items as you can that are byproducts. If you are unsure whether it is a byproduct or not, look at the label.

After approximately 15 minutes bring students together as a group. (Time may be adjusted based upon how many products are available.)

Note: This Activity Sheet could also be a homework assignment.



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REVIEW / SUMMARY

What a day! What do you call a product that is simply something produced in the making of something else?

Students should answer, "Byproduct!"

Great, you remembered. Let's take a look at the items you found. Who had the most? Great job!

Reward the winner of the scavenger hunt with something—even if it is just a standing ovation.



ACTIVITY SHEET 5:1

Lots More from Agriculture



Agricultural products have many more uses than food and clothing for people or feed for animals. From the ink that printed this Activity Sheet to the medicine you may have taken this morning, agricultural products are found in places where you least expect them.

Go on a scavenger hunt. See how many things made with agricultural products you can find. (If you're not sure, look at the label.) List them below.

Beef

- Hide and hair—leather, artists' brushes, drum heads
- Intestines— sausage casing, tennis racket strings, instrument strings
- Bones-horn and hooves— adhesive tape, bone meal for plant food, dog biscuits, emery boards, marshmallows, bone china
- Fats-fatty acids— crayons, shaving cream, dish soap, protein hair conditioner and shampoo (Source: Arizona Cow Belles)

Pork

- Bones and skin— glue, pigskin gloves and shoes, buttons
- Hair— artists' brushes, insulation
- Fatty acids and glycerine— floor waxes, crayons, chalk, cosmetics

Corn

- Corn sweetener used in many food products (check the label) biodegradable packing pellets, fuel (ethanol), road de-icer, diapers, plastic

Sheep

- oil-lanolin for hand lotion

Soybeans

- cooking oil, printer's ink, paint

Trees

- turpentine, paper