



Agricultural Goods



Natural Resources



Human Resources

Unit Title: Thinking outside (and inside) the grocery store!

Grades: 5-8

Duration of Unit: 2 - 50 minute periods

Montana State Standards:

Social Studies Content Standard 5: Students make informed decisions based on an understanding of the economic principles of production, distribution, exchange and consumption. 1. Identify and explain basic economic concepts.

NGSS MS. Matter and Energy in Organisms and Ecosystems

Disciplinary Core Ideas, LS2.A: Interdependent Relationships in Ecosystems

Organisms, and populations of organisms, are dependent on their environmental interactions both with other living things and with nonliving factors. (MS-LS2-1)

Understanding(s) /Big Ideas:

Students will understand reasons for scientific naming of animals, plants, etc. Students will understand resource grouping in economics. Students will understand the role of agricultural resources in economics.

Essential Question(s):

What is the purpose of scientific naming?
What are the differences between natural resources, human resources, and agricultural resources?

Students will know: The division of economic goods: natural resources, human resources, and agricultural resources, and the factors to determine division.

Students will be able to: Identify natural resources, human resources, and agricultural resources.

STAGE 2 – ASSESSMENT EVIDENCE

Performance Task(s): Students will investigate everyday food products by scientific analysis. Students will categorize by economic resources: natural, human, and agricultural resources. Students will examine the division of the food dollar for economic purposes.

Other Evidence:

Students will receive a grade based on their participation and completion of the projects.

STAGE 3 – LEARNING ACTIVITIES

Do cows eat granny's toenails?

Discuss that each ingredient in food has a scientific name. Scientists, including botanists, animal scientists, and nutrition scientists use scientific names for plants, animals, and compounds. In our home kitchens or in the grocery store we use the common name. However, sometimes common names can be different in different parts of the world, even in different parts of the United States. This often happens with plants. A plant can also have many different common names that vary between regions and through time. Many plants have more than one vernacular (local) name like Birdsfoot Trefoil (*Lotus corniculatus*), for example, is also known in the UK as hen and chickens, Tom Thumb, granny's toenails, cuckoo's stockings, and Dutchman's clogs. Finding information on a plant is almost impossible if you have to search the references to all the names you've heard or have read about for each plant. This is why botanists use scientific names. Scientific names are **recognized globally**. This means that when botanists in Bozeman, Baltimore, Bangor, Bogata, Bombay or Biysk mention *Lotus corniculatus* they are all talking about the same plant. Another good reason for using scientific names is that the majority of the world's plants do not have English names! Birdsfoot Trefoil grows in Montana, have you seen it? Cattle often times munch on this plant for forage. So, do cows eat granny's toenails, well if you are calling *Lotus Corniculatus* granny's toenails they must!

Pictures of *Lotus Corniculatus*, a rather pretty yellow flowering plant, can be seen at: <http://images.cdn.fotopedia.com/benjamine-lfPiRcF8cIc-image.jpg>

Notes:

What's in a name?

1. Divide students into 5 groups and give them the list on **activity sheet #1**, (cut the bottom off each page, activity sheet 2 will be used next). Allow students 5 minutes to complete. They may use the dictionary, or any other resource books you allow.
2. Discuss the list of items that were written with scientific names, make a list on the board of those items the students could identify.
3. Give each group **activity sheet #2**. Allow students 5 minutes to reassess and answer the question.

ANSWER: The product that is made of these ingredients is link sausage.

What are productive resources?

The scientific world uses specific scientific names to identify resources such as plant, animals, etc. In the world of money, economists also have a method of naming resources. Economists categorize resources into separate categories sometimes called productive resources. Productive resources are resources people use to produce goods and services. Economic categories include natural resources, capital goods, and human resources. In this lesson we will be working with capital goods which are agricultural, and will call them agricultural goods. But first, let's practice putting each item into economic categories.

Natural resources such as land and water are gifts of nature, they are present in our world without human labor or resources being used.

Some examples of natural resources are: water, minerals, native forest, and wildlife.

Agricultural goods or resources are goods produced by farmers and ranchers, and are used to make food and other goods or services.

Some examples of agricultural capital goods are: food, fiber (clothing), and cosmetics.

Human Resources are the quantity and quality of human efforts directed toward producing goods and services. Some examples of human resources are: farmers, botanist, truck drivers, grocers, and scientists.

Give each student a copy of **activity Sheet #3**. Ask students to look at each picture and decide whether the key product featured is a natural resource, agricultural capital good, or a human resource. If the key product is something the students can link to the correct resource from experience, have them make a comment about the resource and their experience.

ANSWER: All of the items on worksheet #3 are agricultural resources, natural resources, and human resources. Here are a few websites to visit to find out more about the agriculture resources as seen in activity #3.

Chicken Feathers to Flower Pots

<http://www.ars.usda.gov/is/pr/2009/090908.htm>

Pork Byproducts

<http://www.pork.org/NewsAndInformation/DidYouKnow.aspx?c=Products>

Beef Byproducts – So when is a cow more than a cow?

<http://www.agt.net/public/jross/beefprod.htm>

Tour a sugar processing plant (sugar is grown and processed in Montana)

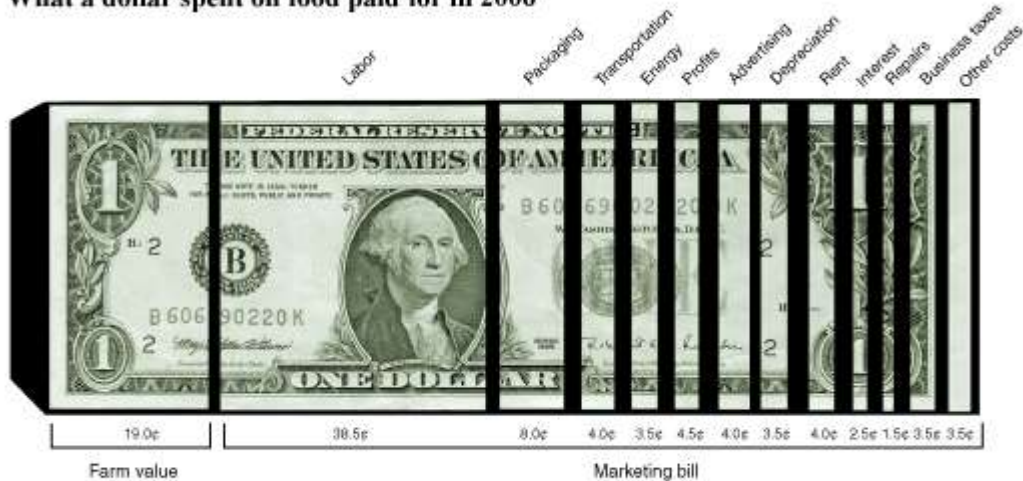
<http://www.westernsugar.com/ProductionAndProcessing.aspx>

Notes:

If agriculture provides all those capital goods, why aren't all farmers rich?

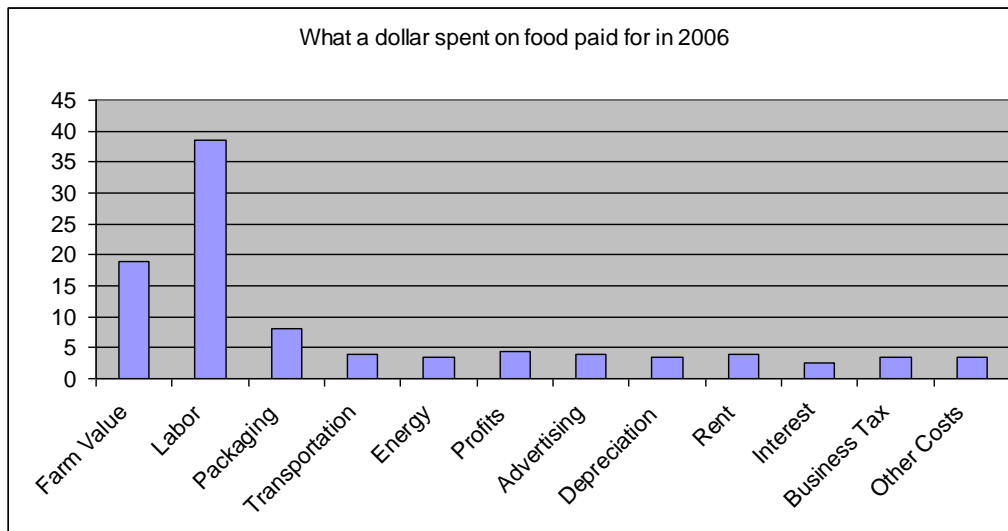
Let's examine the sausage from activity #1. The farmer will get approximately 19 cents on the dollar for food. If a pound of sausage is \$2.50, the farmer will get approximate 48 cents. Wow! The farmer raised the hog for the pork, invested time and energy, and provided all the food, why does the farmer get such a small share? Well, this is where the other economic resources, human and natural, come into play. Natural resources such as water were used to water the hogs. Water is not free, there are electricity costs for pumping water and other costs, such as irrigation fees. But wait, the farmer also had to pay for those before he sold the hog, so what other resources were used to make up the difference in the price paid to the farmer and the price paid at the market. One of the biggest costs is human resources, which are used for packaging, transportation, marketing, etc. Give each group of students **activity sheet #4**, and ask them to look at the division of dollar and the bar graph.

What a dollar spent on food paid for in 2006



Sources: USDA's Economic Research Service.

In 2006, 19 cents of every dollar spent on U.S.grown food went to the farmer for raw food inputs, while the other 81 cents covered the cost of transforming these inputs into food products and getting them to grocery store shelves and restaurants.



As you can see there are many economic factors that affect the price of food. After looking at each of the categories on the graph discuss the three economic production resources with students, (natural resources, human resources, and agricultural resources). Is each of the economic production resources easily identified?

Labor would of course be human resources. Packaging could include all three resources (plastic wrapping film is a pork byproduct, machinery used is at least partially manufactured from a natural resource, and the human resource is made of all the personnel at the packaging site). It becomes clear that most of these other costs are a combination of all three economic production resources. Now you know what production resources are, and the three economic production resources are sometimes easy to identify, and are other times so woven together that it is hard at a glance to discern the actual cost of each economic production resource.

Notes:

Activity Sheet #1

Can you name the products, which could be bought at any grocery store, by looking at the ingredients?

sodium nitrite (usually 6 percent) on a sodium chloride base
45 pounds fresh *Sus domesticus* (70 % lean)
2 1/2 quarts H₂O
1 1/3 cups sodium chloride
15 1/2 T of *Piper nigrum*,
25 leaves from *Salvia officinalis*
1/2 cup *Beta vulgaris* subsp. *vulgaris*
collagen
Ovis aries casing

Your Answer is: _____

Cut Line

Activity Sheet #2

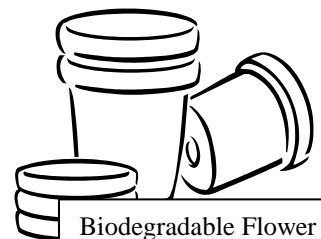
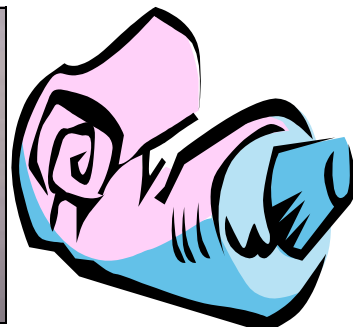
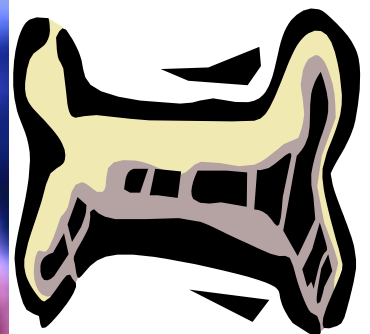
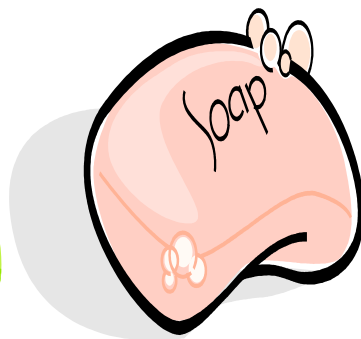
Can you name the same product, which could be bought at any grocery store, by looking at the ingredients now? You may recognize some of the ingredients now that we have given you common names. Think, what could it be?

Cure: sodium nitrite (6%) on a salt base
45 pounds fresh pork trimmings (70 percent lean)
2 1/2 quarts water
1 1/3 cups salt
15 1/2 tablespoons white pepper
1/4 cup rubbed sage
1/2 cup sugar
Casing: collagen or sheep intestine

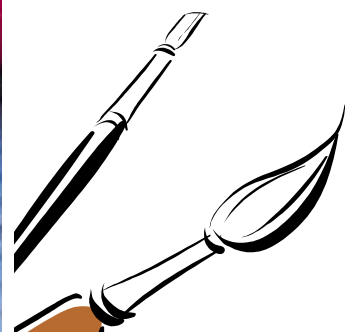
Your Answer is: _____

Activity Sheet #3

Label each resource as one of the following by writing the correct economic category on the picture: Natural Resource, Human Resource, Agricultural Capital Resource. If the picture shows a container, only label what is in the container.

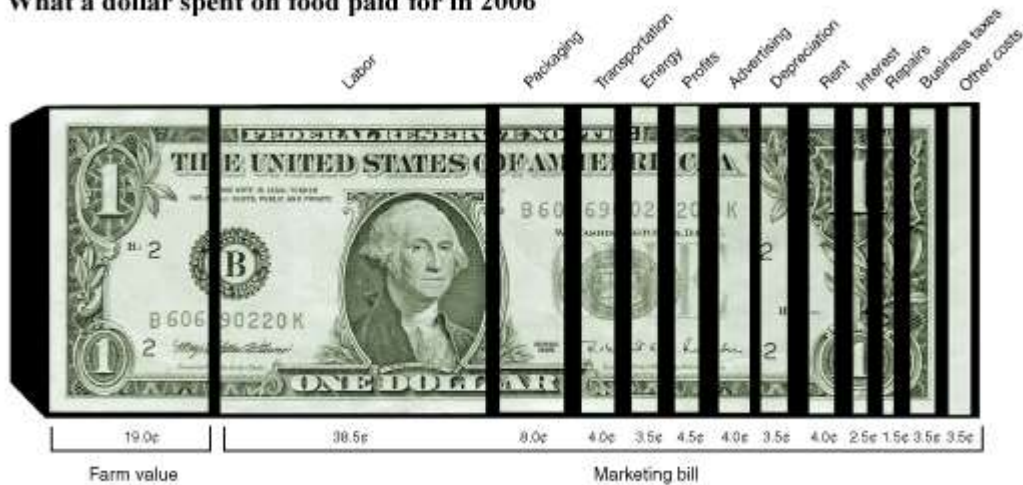


Biodegradable Flower Pot



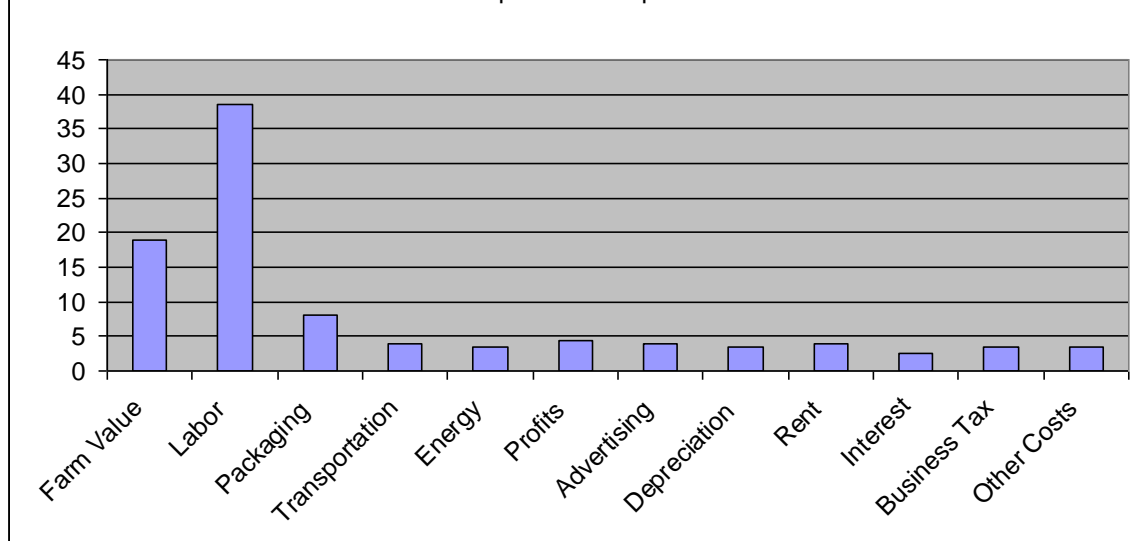
Activity Sheet #4

What a dollar spent on food paid for in 2006



Source: USDA's Economic Research Service.

What a dollar spent on food paid for in 2006



In 2006, 19 cents of every dollar spent on U.S.grown food went to the farmer for the raw food inputs, while the other 81 cents covered the cost of transforming these inputs into food products and getting them to grocery store shelves and restaurants

How many of the categories above include human resources? How many include agricultural resources? How many include natural resources?

Human

Agricultural

Natural

Resources:

Scientific names for herbs

http://www.ces.ncsu.edu/depts/hort/consumer/factsheets/herbs/scientific_names.htm

The Art and Practice of Sausage Making

[http://www.ag.ndsu.edu/pubs/yf/foods/he176w.htm#Emulsified Products](http://www.ag.ndsu.edu/pubs/yf/foods/he176w.htm#Emulsified_Products)

What's in a Sausage?

http://www.fsis.usda.gov/factsheets/hot_dogs/index.asp

Plant Names

<http://www.kew.org/ksheets/pdfs/b2names.pdf>

Economic Research Service

<http://www.ers.usda.gov/Briefing/FoodMarketingSystem/pricespreads.htm>

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