

# If I Only Had a Brain!

## Advancements in Agriculture

### ***Science, Social Studies***

#### **Materials**

Appendix A: Agriculture Picture Cards  
Student Worksheet A: KWL Chart  
Student Handout A: Agriculture Products in Everyday Life  
State Agriculture Overview

#### **Overview**

Students will observe how agriculture has changed with the aid of technology so that products can be used for more than food and clothing.

#### **Objectives**

1. Students will match household products that have an agricultural commodity in them.
2. Students compare agriculture 100 years ago to agriculture now.
3. Students will identify how technology has changed agriculture.

#### **Background Information**

Agriculture products used to be limited to food and clothing, but now agriculture can be found in the most surprising places and in many everyday products. Agriculture now not only feeds and clothes the world, but it also fuels the world.

Just like in the Scarecrow in the “Wizard of Oz,” agriculture has needed a brain to keep it going strong throughout the years. The brain of agriculture has been researchers, farmers, and ranchers who have used their brains to find new uses for agriculture. Because of these people, quality of life has been enhanced with new products, and the agriculture industry has grown despite a decline in agriculture production acres.

Researchers and engineers have also created crops that will grow better for different areas of the country and have allowed farmers to better manage their land. It is because of the brain of agriculture that farmers are able to feed more people with less land. This includes the individuals who have helped make advancements in agriculture equipment that have allowed producers to be more efficient with their time and resources.

**Grade Level:** 5-8

**Time:** 60 minutes

**Standards:**

5th-7th grade Science  
S5: Science and  
Technology, B2 I2; B2 I3

S6: Science in Personal  
and Environmental  
Perspectives, B2

KS 5th grade Social  
Studies History Standards  
B4 I1; B4 I5

KS Intro to Ag.  
018. Agriscience in  
our world; 3, 4, 5

*For Kansas standards, visit  
[www.ksde.org](http://www.ksde.org)*



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For information on specific household products and agricultural commodities, refer to Student Handout B: Agriculture Products in Everyday Life.

## Preparation

Begin by printing Appendix A: Agriculture Picture Cards. Matching cards will need to be taped around the room. It is suggested to print the cards on two different colors of paper or cardstock – one color for the products and another for the commodity. Laminating the cards will preserve for use in future years.

Student Handout A: KWL Chart and Student Handout B: Agriculture Products in Everyday Life will need to be printed. To print the latest Kansas Overview, visit [http://www.nass.usda.gov/Statistics\\_by\\_State/Ag\\_Overview/AgOverview\\_KS.pdf](http://www.nass.usda.gov/Statistics_by_State/Ag_Overview/AgOverview_KS.pdf)

## Instructional Format

1. Share background information with students.
2. Students will complete “K” and “W” on Student Handout A: KWL Chart,
3. Students will participate in the Product Matching Activity.
4. Upon completing the lesson, students will discuss the activity. They will also complete the “L” on Student Handout A: KWL Chart.

## Procedures

1. Play the clip from the Wizard of Oz when Dorothy meets the scarecrow for the first time and he tells her that he needs a brain. Do a simple YouTube or Google search.
2. Provide students with background information. This can be done with a PowerPoint presentation or it can be discussed.
3. Have students complete Student Handout A: KWL Chart by listing products they already know (“K”) are tied to agriculture. Students will also need to complete the “W” section by listing what they would like know about agricultural advancements and how they would like to learn it.

## *Product Matching Activity*

1. Have each student retrieve a card from the wall with either a household product or an agricultural commodity. Give students some time to mingle and pair up with the student(s) that has the matching card. Encourage students to create a rationale as to why they believe the household product and agricultural commodity should be paired together.
2. Reveal the actual answers to students and discuss how each agriculture commodity is used to make the product (this might involve research).
3. Give each student a copy of Student Handout B: Agriculture Products in Everyday Life and discuss each of the products.
3. Students will look at the production numbers (State Agriculture Overview) for Kansas and compare those numbers to 50 years ago.
4. Discuss with students how agriculture would look like today had advancements and inventions not been made.
5. Students will complete the “L” section of Student Handout A: KWL Chart. They will “pair share”



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what they learned with a partner and then share with the class.

### **Conclusion Questions (Assessments)**

Assessment will be based on students' discussion about agriculture advancements. Students will submit Student Handout A: KWL Chart for review.

### **Resources**

Alissa Krafft, Kansas State University agriculture education student

National Agriculture Statistics Service. 2010 State Agriculture Overview for Kansas.

[http://www.nass.usda.gov/Statistics\\_by\\_State/Ag\\_Overview/AgOverview\\_KS.pdf](http://www.nass.usda.gov/Statistics_by_State/Ag_Overview/AgOverview_KS.pdf)

### **Want More? Extensions**

Have students look at the major crops for Kansas and their production for the current year compared to years past. Discuss with them how there is less land to farm, yet Kansas farmers are producing more than they were in years before. This information can be found for any state on the National Agriculture Statistics Service website at [www.nass.usda.gov](http://www.nass.usda.gov). For Kansas agriculture statistics, visit

[http://www.agcensus.usda.gov/Publications/2007/Full\\_Report/Volume\\_1,\\_Chapter\\_1\\_State\\_Level/Kansas/st20\\_1\\_001\\_001.pdf](http://www.agcensus.usda.gov/Publications/2007/Full_Report/Volume_1,_Chapter_1_State_Level/Kansas/st20_1_001_001.pdf)



# If I Only Had a Brain!

## Agriculture Matching Cards

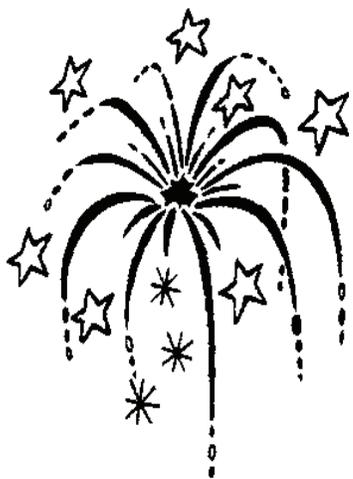
Household Product

Commodity



**Windshield Washer Fluid**

**Canola  
(Oil)**



**Fireworks**

**Corn  
(Starch)**



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## Agriculture Matching Cards

Household Product

Commodity



**Oil-based Paint**

**Linseed &  
Flax**



**Creams, Lotions, Shampoo**

**Canola &  
Soybeans  
(Oil)**

*Pictures from various Internet sources.*



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## Agriculture Matching Cards

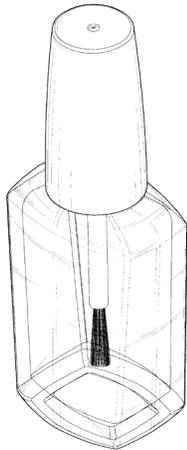
Household Product

Commodity



**Emery Board**

**Sheep  
(Hooves &  
Horns)**



**Nail Polish**

**Wheat**

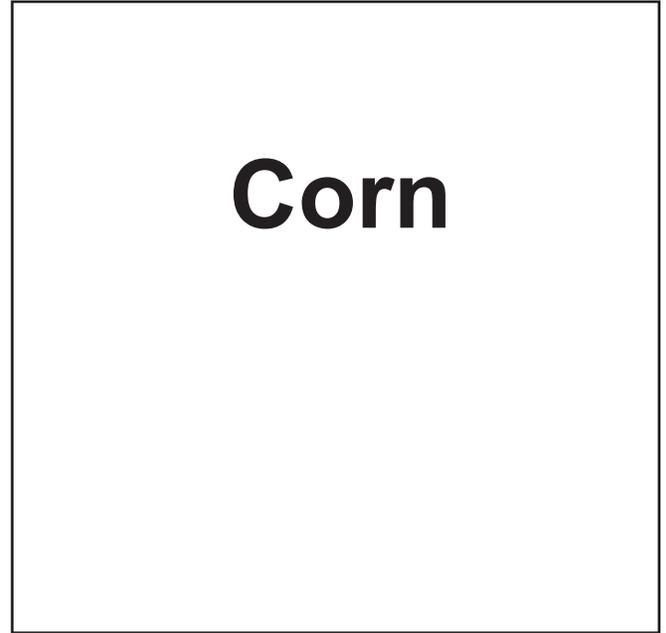
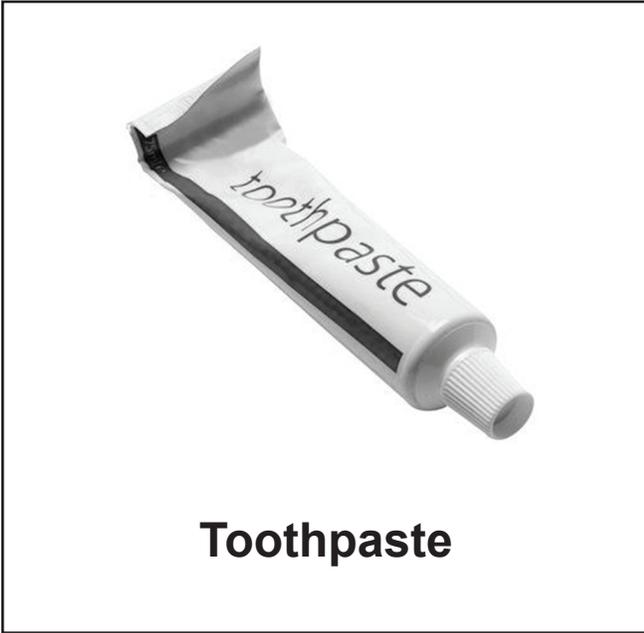


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## Agriculture Matching Cards

Household Product

Commodity



*Pictures from various Internet sources.*



# If I Only Had a Brain!

## Agriculture Matching Cards

Household Product

Commodity



**Newspaper Ink**

**Soybeans  
(Oil)**



**Car Tires**

**Sheep  
(Fat)**

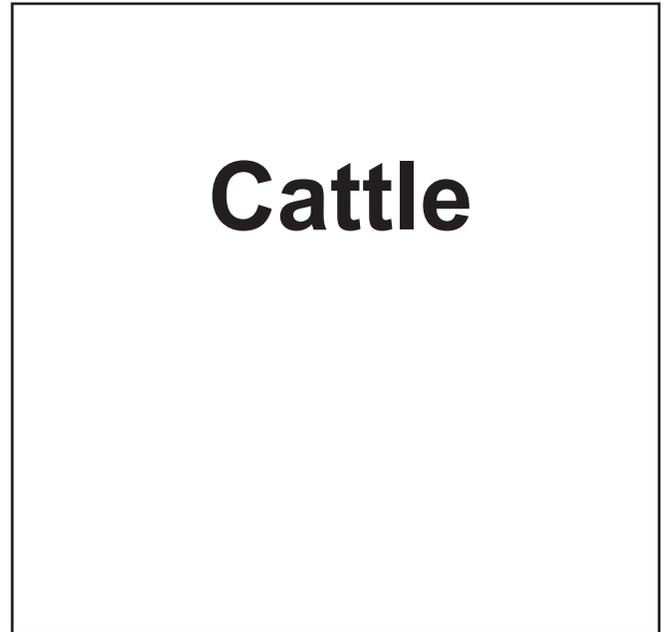
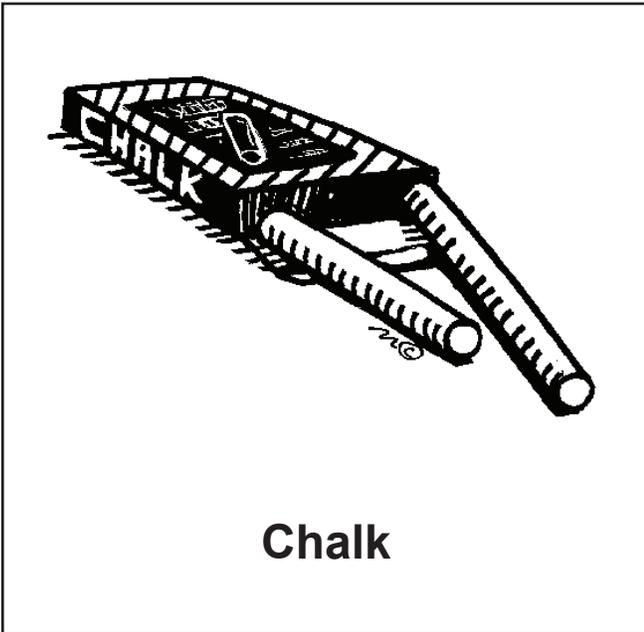


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## Agriculture Matching Cards

Household Product

Commodity



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Today we will be exploring advancements made in agriculture to bring the industry to where we are today. This includes products utilizing agriculture, advancements in equipment and technology. List three to five things in each column concerning agriculture advancements.

What do I already <u>Know</u> ?	What do I <u>Want</u> to know?	What did I <u>Learn</u> ?



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Windshield washer fluid contains glycerin from fat of canola oil.

Fireworks contain corn starch from the corn kernel. Kansas farmers produced 581,250,000 bushels of corn in 2010.

Oil-based paint contains oil from linseed and flax plants.

The oil from canola is used in creams, lotions, shampoo, and other personal hygiene products.

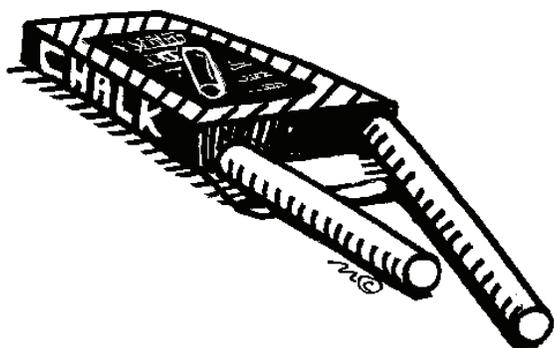
Whey is one of the proteins in cow's milk, and it acts as a binder for the ingredients.

Part of the oat kernel contains an extract called arriveen that has anti-irritant properties. In 2009, Kansas farmers produced 1,250,000 bushels of oats.

The rough texture on an emery board is made from sheep hooves and horns. There are approximately 70,000 sheep being raised in Kansas right now.

Nail polish has textural properties from the protein in wheat. Kansas is known as the "Wheat State," and Kansas farmers produced 360,000,000 bushels of wheat in 2010.

Toothpaste has glycerin from corn for its texture. Kansas ranks 7th for corn production in the United States and 49th in the world!



The enzyme on a blood glucose test strip is peroxidase, which is from the horseradish plant.

Beeswax makes lipstick smooth and helps lips retain moisture.

Soybean oil is slightly refined and then blended with pigment, resins, and waxes to create newspaper ink.

Acid obtained from sheep fat is added to car tires to make them run cooler on the road. Kansas ranks 15th in the United States for sheep, goats and their products.

Chalk includes glycerin from the fats in cattle. There are approximately 6,300,000 cattle being raised in Kansas today.

