



# Agriculture On-the-Go

*Easy, Fun, and Educational AG-tivities.*



# TABLE OF CONTENTS

## HANDS-ON ACTIVITIES

Corn Face Painting

Cover Crop Monsters

Mighty Soybean

Pork Feed Rations

Seed Germination Necklaces

Soil Dirt Cups

## DEMONSTRATIONS & PRESENTATIONS

Apple Earth

Dress Up A Cow

Many Hats of an Iowa Farmer

## PRINTABLES

Farm Fact Finder

Product Puzzle

# CORN FACE PAINTING

## Description:

Create a fun and safe way to use agricultural products to make a face paint.

## Instructions:

1. In a small cup or bowl, mix together 1 T corn starch, 1 drop food coloring, and enough milk to get the right consistency of paint.
  - Lotion can be substituted with milk for thicker paint.
    - You do not need to add in lotion to the mixture, it is optional
2. Use brushes to paint a design on the child's face or hand while talking to them about the two agriculture products used to make the paint.
  - Corn starch is a by-product of corn. There are more than 4,000 uses for corn today.
  - Milk is the product we get from dairy cows.
  - Lanolin from sheep's wool and oil from soybeans common ingredients in lotion.

Note: You can either prepare the paint in advance or let kids mix up one color of paint in a small cup.

## Discussion Questions:

1. What is the common type of corn grown in Iowa? (Dent or field corn. Less than 1% of the corn grown in Iowa is sweet corn, popcorn, or Indian corn.)
2. Where did corn come from? (Corn is native to Mexico and related to grass).
3. How many kernels are on one cob of corn? (Around 800)
4. Discuss other products that come from corn. (Cell phones, tooth paste, yogurt, salad dressing, gum, make up, shampoo, aspirin, diapers, perfume, and much more).



## Curriculum Connections:

- Life Science
- Environmental Science

## Targeted Grade Level / Age Range:

K-2, 3-5

## Time:

5-10 minutes

## Materials:

- Corn starch
- Milk (can substitute with baby lotion)
- Food coloring
- Small paint brushes
- Small, disposable bowls or cups
- Popsicle sticks

# COVER CROP MONSTERS

## Description:

Cover crops help provide protection for soil while other crops are not growing on it. In this activity students learn about germination, growth, root structures, and conservation practices by making a Cover Crop Monster and helping it grow.

## To Start—Ask Questions

1. What is soil erosion and how does it occur? (Wind and water movement)
2. Are there any ways to reduce erosion? (Conservation practices like no-till farming and cover crops that help keep the soil in place)
3. What is a cover crop? (A crop grown for the protection and enrichment of the soil)

**Talking Point:** In Iowa, rye is one of the most popular cover crops because of its quick germination. The seed is sometimes flown on with an airplane while the main crop is still in the field. This gives the cover crop a chance to grow before the main crop is harvested, minimizing soil erosion. Other popular cover crops are radishes and red clover. Cattle can graze cover crops, too. This reduces the feed that may need to be supplied to the cattle.

## Activity Instructions:

1. Fill the toe of your sock with a teaspoon of grass seed. Top it with potting soil until you have a ball shape. Fasten tightly with a knot close to the soil.
2. Form and pinch a nose and twist an elastic band around to hold it in place. Form two ears using the same method.
3. Stand the stocking ball in the plastic cup with the grass seed at the top. Add some eyes and any other decorative bits you like.
4. Add water to the cup and keep it damp up with water. The grass seeds in the cover crop monster will sprout up and make some wild hair dos!
  - The monsters should sprout hair in 3-4 days.

**Talking Point:** The roots of the cover crop help hold the soil in place. The growing plant can also hold nutrients so that they aren't lost to leaching. As the cover crop plant decays, the nutrients are released back into the soil for the growing cash crop.

## Curriculum Connections:

- Life Sciences
- Environmental Science

## Targeted Grade Level / Age Range:

3-5, 6-8

## Time:

5-10 minutes

## Materials:

- A nylon sock or a foot from tights or a stocking
- Grass seed (annual grass or something that has a quick germination rate works best)
- Potting soil (make sure it is wet and can compact well)
- Elastic band (small hair bands work best)
- Plastic cup or small plastic ramekin
- Googly eyes
- Small, sharp nails
- Super glue (to glue eyes to nails)

## Instructional Video:

<https://youtu.be/9FsNGo0TAk4>





# MIGHTY SOYBEANS

## Description:

Students will observe the power of seeds by germinating soybeans in plaster of Paris.

## Talking Point:

Sometimes soil isn't very hospitable to newly germinating and growing seeds. Those little seeds need to exert a lot of force to break free of soil—especially poor soils like dense clay. Plaster of Paris dries hard, and takes 2,000 lbs. per square inch to break!

## Activity Instructions:

1. Place plaster of Paris in a plastic cup.
2. Add water and mix. Continue adding water until the water has the consistency of a thick milkshake.
3. Using the popsicle stick or spoon, push the soybeans into the plaster until they are covered, then smooth the surface of the plaster.
4. If possible, check the soybeans every hour for the first day. What do you think will happen?
5. At the end of the day, add five drops of water to the cup.

## Instructors Notes:

Seeds require moisture and warmth to germinate. In this case, the seed absorbs moisture from the plaster mixture. As the seed absorbs water it increases in size and applies pressure to the surrounding plaster. This force, combined with the strength of the germinating sprout, causes the plaster to crack and allows the shoot to start to grow through the plaster. This strength and ability to grow in adverse conditions allows plants to survive in a wide range of environments. The soil in fields often crusts over and becomes hard after farmers plant soybeans in the spring. The beans will break the hard surface of the topsoil as they germinate and emerge as seedlings.

## Curriculum Connections:

- Life Science
- STEM

## Targeted Grade Level / Age Range:

3-5, 6-8

## Time:

10-20 minutes

## Materials:

- 3 soybeans per student
- 1, 3 oz. plastic cup
- 2 Tablespoons plaster of Paris
- Water
- Plastic spoon or popsicle stick for stirring

## Go Further:

- Have some students place their cups in various places, like dark, cold, sunny, or warm places. Then compare the cups the next day.

## Link to Full Lesson:

<http://www.iowaagliteracy.org/resources/lesson-plans/resources/mighty-soybeans/Mighty%20Soybeans%20Lesson.zip>

## Instructional Video:

<http://youtu.be/vdJEuiMrzTU>



# PORK FEED RATIONS

## Description:

Students will learn the basics of pig nutrition and how these diets are specifically formulated and measured out carefully so that each pig gets the appropriate amount of feed for its nutritional needs. All weights are based on a 9-pound ration.

## Instructions:

1. Students each take a "Feed Sack" (plastic bag) and label it with the explanatory feed sack sticker.
2. Students will count out 6 blue M&Ms to represent that pigs drink up to 6 gallons of water per day, depending on their growth stage. Nursery pigs drink much less than a sow (mother pig) nursing piglets.
3. Students will weigh and add 10 grams of toasted oat cereal mixed with corn nuts to represent carbohydrates in a pig's diet. Carbohydrates give the pig its daily energy and calorie goals.
4. Students will weigh and add 4 grams of soy nuts to represent the protein in a pig's diet. Protein is required in the diet for maintenance, muscle growth, and development of fetuses for pregnant sows and lactation.
5. Students will count out 10 small candies and 10 raisins. Small candies represent vitamins and raisins represent minerals. Vitamins and minerals help support specific functions of the body.
6. Students should weigh out 2 grams of white chocolate chips, representing fat. Fat is used in a pig's diet to add energy, calories, and boost average daily gain (ADG) and helps with feed conversion.
7. Students use photographs and the pig feed sample to associate the activity with real pig farms, farming procedures and pig diets.
8. Talk with students about the real components of a pig's diet as they create their own Feed Sack to emphasize that animals typically don't eat candy, but they do eat a similar feedstuff to get a specific nutrient.



## Curriculum Connections:

- Life Science
- Math
- Economics

## Targeted Grade Level / Age Range:

3-5, 6-8

## Time:

10-15 minutes

## Materials:

- Sandwich size Ziploc bags
- Scales
- Weigh boats
- Containers with lids for each feed type
- Pig feed sample
- Cheerios—*represents carbohydrates*
- Corn nuts—*represents carbohydrates*
- Blue candy (M&Ms)—*represents water*
- Raisins—*represents minerals*
- Soy nuts—*represents protein*
- Small candy (Nerds)—*represents vitamins*
- White chocolate chips—*represents fat*
- Explanatory feed sticker (attached)

## Go Further:

- Interview a pig farmer.
- Talk with students about the STEM careers needed to feed a pig, including a nutritionist and an engineer.

## Link to Full Lesson:

<http://www.iowaagliteracy.org/resources/lesson-plans/resources/feed-sack-pork-lesson/feed-sack-pork-lesson.zip>

I'm a **swine nutritionist**. I balance pigs' rations so they get all the nutrients they need. These pigs need these feed components to stay healthy:



Pig's Feed Component	Representative
Water	Blue M&Ms
Carbohydrates (Corn)	Toasted Oats/Corn nuts
Protein (Soybeans)	Soy Nuts
Vitamins	Nerds Candy
Minerals	Raisins
Fat (Oil or Tallow)	White Chocolate Chips

I'm a **swine nutritionist**. I balance pigs' rations so they get all the nutrients they need. These pigs need these feed components to stay healthy:



Pig's Feed Component	Representative
Water	Blue M&Ms
Carbohydrates (Corn)	Toasted Oats/Corn nuts
Protein (Soybeans)	Soy Nuts
Vitamins	Nerds Candy
Minerals	Raisins
Fat (Oil or Tallow)	White Chocolate Chips

I'm a **swine veterinarian**. I take care of the pigs' health. These pigs need these feed components to stay healthy:



Pig's Feed Component	Representative
Water	Blue M&Ms
Carbohydrates (Corn)	Toasted Oats/Corn nuts
Protein (Soybeans)	Soy Nuts
Vitamins	Nerds Candy
Minerals	Raisins
Fat (Oil or Tallow)	White Chocolate Chips

I'm a **hog farmer**. I take care of the pigs every day. I make sure my pigs eat these feed components to stay healthy:



Pig's Feed Component	Representative
Water	Blue M&Ms
Carbohydrates (Corn)	Toasted Oats/Corn nuts
Protein (Soybeans)	Soy Nuts
Vitamins	Nerds Candy
Minerals	Raisins
Fat (Oil or Tallow)	White Chocolate Chips

# SEED GERMINATION NECKLACES

## Description:

Students will observe corn and soybean seeds as they germinate. These plants germinate in the ground the same way they do in the seed germination necklaces and this activity serves as a visual to show the germination process.

## Instructions:

1. Place moistened water beads (approximately 4), soil moist, or cotton balls (approximately 2) into the hole-punched jewelry sized bag.
2. Place one corn and one soybean into the bag.
3. Seal the bag and run yarn through the hole to create a necklace.
4. While the students are putting together the necklaces, ask students these questions.
  - a. What are two things a seed needs in order to germinate (start growing)?
    - i. Warmth and water
  - b. Ask them if they can identify the corn and the soybean.
  - c. Ask if they can identify some differences of corn and soybeans.
    - i. Monocot vs. Dicot
5. After the activity is done remind students that if they wear the necklace (body warmth) or if they keep it in a warm place that the seeds will start to germinate.
6. When the seeds germinate, the students can take the seed out and plant it and observe the process of watching a corn or soybean grow.

## Instructor Notes:

Corn and soybeans work great for this experiment because corn is a monocot and beans are dicots. Corn is a type of grass and so only has one cotyledon (hence monocot). Cotyledons are the embryonic leaf from which the first leaf or leaves appear from a germinating seed. Beans have two cotyledons and will have two leaves emerge.

The water beads provide the water for the seeds. You can find them online or at craft stores. If worn as a necklace, your body heat will provide a warm temperature for the seeds to germinate. The seeds should start to germinate in 3 to 5 days. It is best to transplant them to soil after the roots have started to form and the first leaves appear.

In the field, corn shouldn't be planted until the soil temperature reaches at least 50 degrees F. Seeds will not germinate or germination will be poor if the temperature is below that. Soybeans require a soil temperature of 54 degrees F.



## Curriculum Connections:

- Life Science
- STEM

## Targeted Grade Level / Age Range:

3-5, 6-8, 9-12

## Time:

5-10 minutes

## Materials:

- Corn and soybean seeds
- Jewelry sized re-sealable bags, hole punched above the seal
- Soaked water beads or damp cotton balls
- Yarn

## Go Further:

- Ask students to develop a list of corn and soybean products by looking at food labels and researching non-food uses. Compare findings as a class or in small groups, and develop a master list of food and non-food uses.

## Link to Full Lesson:

<http://www.iowaagliteracy.org/resources/lesson-plans/resources/seed-germination-necklaces/Seed%20Germination%20Necklaces.docx>

## Instructional Video:

<https://www.youtube.com/watch?v=QJMoxGwwzFs>



# SOIL DIRT CUPS

## Description:

Students will learn the layers of the soil and how they are made up with a fun and edible activity to visually show the layers of the soil.

## Instructions:

\*Before starting the lesson ask instructor/teacher/or students if they have any allergies related to the food items used in the activity.

1. Start the lesson by asking students what things have layers. Get a variety of answers from students and ask if they ever thought of the soil having layers.
  2. Pass out cups to students. Save spoons till the very end so students are not tempted to start eating. Introduce the activity of creating dirt cups to show the layers of the soil.
- \*Teach the activity by each soil layer. Once you have discussed each layer have students add the correct "layer" to their cup. Scaffold each layer until the cup is complete.
3. Draw up a diagram on a white board or have a visual of the layers of the soil to reference. Starting from the bottom and working up, explain each layer, what it is made up of, what it resembles, and the associated food item that represents it in each cup. Fill students cup with each layer after you explain that layer.

**R Horizon (Bedrock):** the bottom layer is several feet below the surface. The bedrock is made up of a large solid mass of rock.

- Broken up Oreos represent R Horizon in bedrock.

**C Horizon (Parent Material):** The layers on top of the C Horizon are made by parent material. Made of slightly decomposed rock it is made up from weathered rock material. Parent material tells us how the soil formed based on the mode of transportation: ice, water, gravity, wind, lakes and ocean, or in place.

- Mini chocolate chips represent C Horizon (small decomposed rocks)

**B Horizon (Subsoil):** This layer is made primarily of clay, iron, and organic matter which accumulates through a process called illuviation. It is usually a lighter brown color.

- Butterscotch pudding represents this layer to show the color difference.

**A Horizon (Topsoil):** Fairly thin layer (5-10 inches thick) composed of organic matter and minerals. This is the primary layer where plants and organisms live and grow. It is dark in color and rich in nutrients.

- Chocolate pudding represents this layer. This shows the richness of the soil and the organic matter that has decomposed.

**O Horizon (Organic Matter):** This layer is made of plant remains such as twigs and leaves and decaying organisms like insects. This is where the topsoil gets a lot of its nutrients.

- Green coconut and gummy worms represent this layer by showing the plants and insects that decay and decompose

## Curriculum Connections:

- Life Science
- Geology

## Targeted Grade Level / Age Range:

3-5, 6-8, 9-12

## Time:

15-20 minutes

## Materials:

- Coconut dyed green
- Gummy worms
- Chocolate pudding (premade)
- Butterscotch pudding (premade)
- Mini chocolate chips
- Oreos broken up in big pieces
- Cups
- Spoons
- Serving spoons to use to distribute materials to students

\*Amount of supplies will vary on number of students participating.

## Go Further:

- Have students draw a soil profile and explain the layers to a partner.

# APPLE EARTH

## Description:

Using an apple as a symbol of the Earth, students become aware of the small fraction of the Earth's limited land that is used to produce food. Students will learn the importance of soil to agriculture and food production and understand the value and needs of the soil to be maintained.

## Instructions:

Start the activity by asking students these questions:

- What makes the land in Iowa beautiful? (Soil)
  - What made so much plant and animal life in Iowa possible? (Soil)
  - What makes it possible for more than 90 percent of Iowa's land to be in agriculture production such as grain or livestock grazing? (Soil)
1. (*Hold up the apple*) This apple represents planet Earth. We're going to cut the apple into pieces to see how much of the Earth can be used to grow food for more than 7 billion people and all the animals in our care.
  2. How much of the world is water? (*Cut the apple lengthwise in four equal parts and take away three.*) These three parts represent the water on Earth.
    - $\frac{3}{4}$  or 75% of the Earth is made up of water.
    - Ask students where we find water on planet Earth. (Oceans, rivers, revisions)
  3. How much of the land is too hot or too cold to grow crops? (*Cut the remaining quarter in half lengthwise and take away half.*) This half represents the areas on Earth that are too hot, too cold, or too wet for the plants we eat to grow.
    - $\frac{1}{8}$  of the Earth has land in a climate that is unable to grow or produce food.
    - Ask students what places are too hot? (Deserts, equator.) What places are too cold? (The poles, places where there is frozen ground.) What places other than bodies of water are too wet? (Swamps and the rainforest.)
  4. Can we grow food on all of the remaining land? (*Cut the remaining portion crosswise into four equal parts and take away three.*) These three parts represent areas of Earth where the plants we eat can't grow roots into the ground. We call these surfaces impervious, which means incapable of penetrating or being passed through.
    - The fourth portion- only  $\frac{1}{32}$  of Earth – represents the land that can grow crops for the 7+ billion people and animals on Earth.
    - Ask students what things cover soil and make the ground impenetrable? (Roads, houses, businesses, shopping malls, schools, parking lots, mountains, forests.)
  5. Can we grow food to the core of the Earth? (*Peel the skin off the remaining section.*) This skin represents topsoil, the part of the soil that plants grow in. This is the amount of soil on planet Earth that grows the food to feed all the people and animals that live around the world.
    - Ask the students if this is very much topsoil on planet earth to grow our food? (No.) What should we do to take care of this valuable resource? (Be responsible and keep the soil healthy so that it can grow food for many generations.)

## Curriculum Connections:

- Life Science
- Math
- Geography

## Targeted Grade Level / Age Range:

3-5, 6-8, 9-12

## Time:

10-20 minutes

## Materials:

- Large apple
- Knife
- Cutting board

## Go Further:

- Ask students to write a paragraph describing why Iowa's soil is important and/or what steps can be taken to protect this valuable resource.
- Invite a farmer or local NRCS staff to discuss soil and water conservation practices on farmland
- Ask students to retell the story as homework and present to parents and family members.
- Have students interview a farmer to learn how they grow crops and practices they use.

## Link to Full Lesson:

[http://www.iowaagliteracy.org/resources/lesson-plans/resources/iowa-soil-invaluable/iowa%20Soil An%20Invaluable%20Resource.zip](http://www.iowaagliteracy.org/resources/lesson-plans/resources/iowa-soil-invaluable/iowa%20Soil%20An%20Invaluable%20Resource.zip)

# DRESS UP A COW

## Description:

Students learn about the physical features of cattle and understand the purpose each serves.

## Instructions:

1. Ask for a volunteer to come up front, and then the class tell the class you are going to dress up him/her as a cow. Ask the students what their classmate needs to be a cow. When students name features of a cow, put the corresponding items below on the volunteer. As you dress the "cow" discuss the function and purpose of each feature, and describe how each is different than human features.
  - a. **Ears & ID Tag** (Ears and Headband)
    - Many cattle are born without horns, or are polled. However, some cattle are born with horns and require extra attention from the farmer. But all cattle have big ears. Farmers use ear tags, like earrings, to help identify the cattle. This helps them keep records and tell the animals apart.
  - b. **Hide** (Vest)
    - Cattle have thick skin with lots of hair. This helps keep them warm in the winter and cool in the summer. The leather from cattle can be used for many things, like baseballs, basketballs, belts, wallets, gloves, shoes, and so many other things!
  - c. **An Udder** (Surgical Glove)
    - Milk comes from a cow's udder! There are two different kinds of cattle, beef cattle and dairy cattle. Our milk comes from dairy cattle. They are very good at turning their food into milk. Beef cattle are better at turning their food into meat that we like to eat. Beef cows are not milked, but they use their udders to nurse their baby calves.
  - d. **Hooves** (Socks)
    - Hooves help cattle walk around outside. They are strong and help them get around. Cattle can get their hooves clipped (like getting your fingernails clipped) if they get too long.
  - e. **Tongue** (Sandpaper)
    - Cattle have long rough tongues. This helps them eat grass, because they use their tongue to pull the grass into their mouth. A cow's tongue can be 12 inches long!
  - f. **Stomach** (Balloons)
    - Cattle are ruminant animals, meaning their stomach has four compartments (The reticulum, omasum, abomasum, and the rumen.) These compartments help them get more value from plants. The biggest compartment is the rumen. It has microbes that break down the plants they eat so much of.
  - g. **Tail** (Fly Swatter)
    - Cattle have tails! They flick their tails to shoo away flies that may land on them. Sometimes flies can bite or give cattle diseases. When they swish away their own flies, it can keep them more comfortable!
  - h. **Cud** (gum)
    - Cattle sometimes chew their cud. This is another thing that ruminant animals do. They can swallow their food before they're done chewing, and regurgitate it later to finish chewing! This is made possible by another stomach compartment they have called the reticulum.



## Curriculum Connections:

- Life Sciences

## Targeted Grade Level / Age Range:

K-2, 3-5

## Time:

25-30 mins

## Materials:

- Plastic headband with felt ears attached (represents ears)
- ID tag cut out of fun foam and attached to the ears with glue or Velcro.
- Suede or leather vest (represents hide)
- Surgical glove stuffed with tissue or cotton, tied on yarn long enough to tie around a waist (represents udder)
- Four tube socks with felt hoof prints attached (represents hooves)
- Cut sand paper into a long skinny tongue shape, and tie to yarn long enough to tie around students' head (represents tongue)
- Four balloons, one inflated larger than the rest, tied together on yarn long enough to tie around a waist (represents stomach compartments)
- Fly swatter tied to yarn (represents tail)
- Bubblegum (represents cud)

## Go Further:

- Have students name products that come from cattle. Most students will name main products like milk and beef but lead them toward some of the byproducts that many don't think of, like glue, lipstick, footballs, and leather.

# MANY HATS OF AN IOWA FARMER

## Description:

Students will identify the many different types of tasks that farmers have to complete for their jobs and why those tasks are important.

## Instructions:

1. Ask students to list jobs in their community. Ask them if they know what farmers do?
2. Farming is an occupation that requires farmers to do many different jobs on a day to day (or even season to season) basis. In many lines of work, people complete the same tasks every day, but for farmers, tasks have a great deal of variability throughout the day, week, or year. Farmers must be proficient in the completion of many different types of jobs, which is often called “wearing many hats,” or having skills in a variety of different trades or ability to complete many different jobs.
3. For Each “hat” have a student or volunteer come up and put on the costumes or props and then discuss the purpose of that “hat”.
  - **Veterinarian:** Identifies health problems in their livestock. Helps deliver baby animals when problems occur.
  - **Business Manager:** Watches the market and decides when to sell crops and livestock. Makes business deals, buys and sells land and equipment, and calculates profit and whether a new business venture will be profitable. Manages employees, keeps financial records, sends bills, and distributes checks.
  - **Mechanic:** Fixes tractors, trucks, and implements when problems occur. Sometimes they make repairs in the farm shop, but during busy times of the year repairs are often made in the field.
  - **Construction Worker:** Builds fence and buildings. Makes repairs to fences, loading chutes, etc. Pours concrete and prepares the foundation for new buildings.
  - **Electrician:** Properly installs wire to bring electricity to bins, grain dryers, shops, augers, and farm machinery.
  - **Plant & Soil Scientist (Agronomist):** Monitors crops for insect and disease problems. Needs to be able to identify different soil types on their farms and knows what those soils need to produce a bountiful crop.
  - **Truck Driver:** Hauls grain to the farm or elevator, transports feed for their operation.
  - **Nutritionist:** Prepares feed rations for the best health and development of livestock. *Talking Point: Farmers make sure that their livestock (cows, pigs) are healthy because they are raising the animals for human consumption.*
  - **Athlete:** Farmers are usually physically fit, because they do hard physical labor nearly every day. Jobs such as scooping corn, stacking hay bales, and lifting bags of feed (50 lbs each) are physically demanding and require farmers to be strong.
  - **Computer Technician:** Uses technology to farm the land more efficiently. *Talking Point: Thanks to modern technology, such as biotechnology, global positional systems and conservation tillage, farmers are producing more food on fewer acres with fewer inputs.*
  - **Engineer:** Often makes changes to farm equipment so that they work better and do the job they need them to do. *Talking Point: a farmer invented a Shovel, which is two tools in one: a shovel at one end with a detachable hammer on the opposite end.*
  - **Meteorologist:** Understands weather and climate; is aware of possible weather changes and how to prepare for these changes. *Talking Point: Farmers need to be aware of the weather conditions outside. Farmers can only spray fertilizers when there is little or no wind. They can also only plant and harvest in optimal dry conditions.*
  - **Environmental Scientist:** Works to protect and conserve our natural resources. *Talking Point: Farmers take good care of the soil and water because they earn their living from the land and want to protect it for the future generations.*
  - **Teacher:** Teaches the next generation about farming. Farmers usually learn how to be farmers by watching and working with their parents/grandparents/neighbors. Today most farmers have a college education, many of the skills needed to be a good farmer cannot be learned in a classroom—they learn by experience and watching others.

## Curriculum Connections:

- Careers
- Community Helpers
- STEM

## Targeted Grade Level / Age Range

K-2, 3-5

## Time:

20-30 minutes

## Materials:

- Suggested Costumes and Props
  - **Veterinarian:** scrubs, syringe, stethoscope
  - **Business manager:** tie, calculator, brief case
  - **Mechanic:** John Deere, Case IH or Gleaner hat; wrench; mechanic’s shirt/overalls
  - **Construction worker:** hard hat, tool belt, screwdriver, safety glasses
  - **Electrician:** Electrical tape, wire stripper, hard hat, spool of wire
  - **Plant & Soil Scientist (Agronomist):** magnifying glass, insect holder, Pioneer/Dekalb/Wyffels/other seed hat
  - **Truck driver:** Trucking company hat, road map, steering wheel
  - **Nutritionist/chef:** chef’s hat, measuring cup, MyPlate graphic
  - **Athlete:** dumbbell, sweatbands
  - **Computer technician:** Laptop case, GPS unit
  - **Inventor/engineer:** Calculator, graph paper, pliers, wrench
  - **Meteorologist:** Umbrella, big sunglasses, weather map
  - **Environmental scientist:** big test tube, water test strip, tree book
  - **Teacher:** chalk, blackboard, apple
- Name tags or signs for each “hat” or costume
- A cloth shopping bag for each set of “hat” props

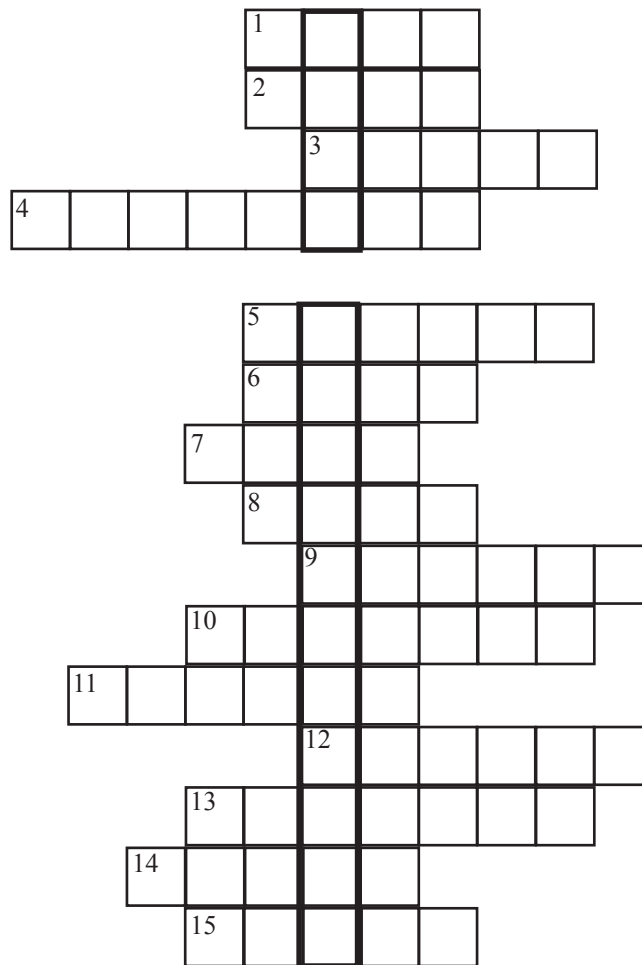
## Link to Full Lesson:

<http://www.iowaagliteracy.org/resources/lesson-plans/resources/many-hats-of-an-iowa-farmer/Many%20Hats%20of%20an%20Iowa%20Farmer.zip>



# Agriculture Product Puzzle

Using the word bank and riddles on the back, try to decode the **secret message** in the bold boxes!  
Some answers can be used more than once, and each one is related to an agriculture product!



The secret message is:

---

Fill in the blanks with words from the word bank, and use them to fill in the puzzle on the other side!

Cattle  
Corn  
Beef  
Dairy

Eggs  
Pigs  
Poultry  
Sheep

Soybeans  
Turkey  
Wheat

1. I'm a by-product of \_\_\_\_\_, and you may have used me this morning. I'm good at untangling knots. What am I?

9. I'm a by-product of \_\_\_\_\_, and you use me to keep cuts and scrapes clean. Once you stick me on, I'll help you heal! What am I?

2. I'm a by-product of \_\_\_\_\_, and I'm very sweet. I make a great July treat, and can be found in many different flavors. What am I?

10. I'm a by-product of \_\_\_\_\_, and if you want a good night's sleep, you need me! I'll keep you warm and comfy. What am I?

3. I'm a grain found in bread, noodles, and bagels. I'm only five letters, and I rhyme with eat! What am I? \_\_\_\_\_

11. I'm a by-product of \_\_\_\_\_, and if people don't put me on, they stink. I come in all different scents to cover up yours – imagine life without me! What am I?

4. I'm a by-product of \_\_\_\_\_, and a sandwich just isn't the same without me! I can also be found in deviled eggs and cole slaw. What am I?

12. I'm found at Thanksgiving and sometimes in between. In the Midwest is where I'm often seen! What am I? \_\_\_\_\_

5. I'm red when raw and brown when cooked. Cover me with cheese, lettuce, onion and a bun, and I've got the perfect look! I'm a product of \_\_\_\_\_. What am I?

13. Iowa has lots of me, and so does Minnesota. I cluck or quack or gobble some, and I have lots of feathers. What am I?  
\_\_\_\_\_

6. I'm scrambled or fried or boiled as sides. I'm nutritious, delicious and small in size. What am I? \_\_\_\_\_

14. I'm a product of \_\_\_\_\_ and I build strong bones. You put me on your cereal when you are at home. What am I?

7. I'm a by-product of \_\_\_\_\_, and speaking of stink, you need me to keep your breath in check. You can chew me all day, but try not to swallow! Who am I?

15. I'm a by-product of \_\_\_\_\_, and I'm a type of soap, used to keep people clean. There's only one place on your body you would want to use me, and that's on your head! What am I?

8. I'm a by-product of \_\_\_\_\_, and I can make music! You play me with sticks and I keep the beat. What am I?

**FARMS**

**DAIRY**

**SHEEP**

**FOOD**

**BEEF**

**TURKEY**

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**PORK**

**EGGS**

**FUEL**

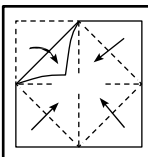
**SOYBEANS**

**CORN**

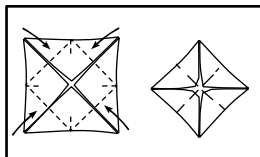
**FIBER**



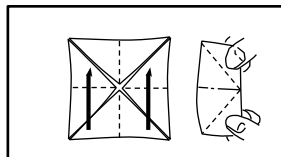
Fold & tear here to make your paper square.



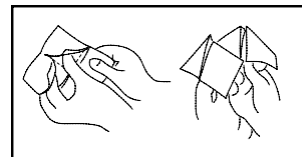
Start on plain side  
Fold outside corners in to middle.



Turn square over. Fold new outside corners to the middle.



Fold top edge to bottom edge. Crease along middle. Open back up. Fold one side to other side. Crease along middle. Open back up.



Turn square over. Put your thumbs and pointer fingers into the four pockets on back. Write numbers on the outside of the question flaps. Color, then play the game!

**How to play:**

1. Ask a friend to pick a word. Open and close the pop-up as you spell that word.
2. Ask the player to pick another word. Then open and close the pop-up as you spell that word. Open the word chosen and ask the question.

**Make a Farm Fact Finder to play with Friends!**

Q. What is a group of cattle called?

A. Herd

Q. Why are most pigs raised in barns?

A. To keep them safe & comfortable

Q. What is a male (boy) turkey called?

A. A Tom

Q. How many eggs does a hen lay per day?

A. One

Q. Name one product made from cow's milk.

A. Milk, sour cream, cheese, cottage cheese, buttermilk, yogurt, ice cream, butter

Q. What is a baby sheep called?

A. Lamb

Q. True or False: Some crayons are made from soybeans.

A. True

Q. True or False: Corn can be used to make fuel & plastic.

A. True