



Welcome Educator!

You are one of the brave teachers that have decided to take on the daunting task of explaining the agriculture to your students, never to fear! We are here to help! The following is a basic curriculum we have put together for teachers, like you, to make this process a little easier.

These tools are simply to aid you and enhance the students learning opportunity when they attend Heartland Acres Agribition Center. When presenting this topic the most important thing to remember is:

**Agriculture touches EVERYONE!**

Heartland Acres is providing you with a very basic format guideline for your class discussions concerning agriculture. It is your task to make sure these items fit your curriculum requirements and elaborate on each topic as you see fit. Any of these subjects may be combined, reduced, or altered to help you achieve your learning objective.

For more information or for additional assistance please visit us at [www.heartlandacresusa.com](http://www.heartlandacresusa.com)  
or call us at (319) 332-0123.

Thank you and Happy Teachings!

Sincerely,

*Heartland Acres Staff*

Heartland Acres Staff

## **Session #1: Animals**

### **Introduction:**

Start the session by asking the students what they had for breakfast that came from agriculture; you may need to explain what agriculture is depending on how much has been discussed prior to this session. The answer is everything! Follow up with, what are you wearing that came from agriculture? Again, the answer is EVERYTHING! Our rubber shoes, cotton t-shirts, wool jackets, etc. all come from agriculture! What are our basic needs (food, shelter, clothing, water, etc.)? Agriculture is a component of all of these essentials in our lives.

Transition now to the animal side of agriculture. It is suggested that you, the educator, first introduce the basic vocabulary, as well as, the basic concept for each species at the beginning the lesson to increase the level of understanding. Ask introductory questions like how many live on a farm, how many have ever been to a farm, and what they remember about the farm. You can ask them questions like what is the biggest farm animal, what is the smallest. Go over some of the vocabulary words associated with cattle, farm, etc (This may be good for a spelling bee/lesson).

The Dig In! Program, provided by Alltech is a great source of handouts and activity sheets for your students. The resources used have different learning components and activities for all grade levels. As a supplemental component to your teachings, it may be helpful to utilize this resource for informational pieces, or as a guideline to help you facilitate your lesson. You will find activities for almost every component of agriculture at <http://www2.alltech.com/kidzone/digin/Pages/default.aspx>.

Again, all of these sessions are simply guidelines for you to follow to help with the basic understanding of agriculture before your trip to Heartland Acres Agribition Center. As a final supplemental material to tie all of the sessions together, you may consider using the film, "Bill Nye the Science Guy: Farming, Season 5:Episode 5." This great video reinforces all of the components of agriculture in a 30-minute video.

## Cattle:

- What are cattle? What sounds do cattle make?
  - Cattle (cows) are one of the biggest farm animals. They like to drink water, eat hay, or grain like corn, while grazing on grass for most of the day. Cattle usually live outside, but typically have some kind of a shelter that keeps them warm in the winter and dry and cool in the summer. What sound does a cow make? (Use this link: <http://www.kbears.com/farm/> to play farm animal noises→from the Home Page click the cow, which will take you to another link:)
- What do cattle look like?
  - When the students begin to describe what a cow looks like, follow up with a description:
    - Lots of different colors and sizes
      - You may also use the above link to provide some images for students of what cows look like.
    - Feet called hooves,
    - Some have horns, but may have been removed because they can hurt us,
    - All cows do not look the same, just like us, We're all different,
- How do you keep yourself clean? How do you think cows keep themselves clean?
  - Unlike humans, cows do not have hands or thumbs, so they cannot hold washcloths with soap to clean themselves. In order for cows to stay clean, they often lick themselves or each other. They also do this to get rid of insects that might be crawling on their skin.
- What do we get from cattle?
  - Cattle are a great source of protein. Do you know what protein is? Protein is a vital part of our diet that allows us to have enough energy to run and play.
  - Dairy cows are also a huge supplier of milk. We get 90% of our milk supply from cows. (<http://www.aipl.arsusda.gov/kc/cowfacts.html>) What kinds of things may be made from milk/dairy? (Cheese, butter, yogurt, ice cream, candy bars, etc.)
    - At this time, you can do an activity like making your own butter by shaking heavy cream (<http://pbskids.org/zoom/activities/sci/butter.html>), milking your own cow (rubber gloves) , etc.

## Swine:

Introduction: Have you ever heard of the phrase, “Sweating like a pig?” Well in reality, pigs do not sweat, so you really cannot be sweating like a pig.

- What is a pig? What sounds do pigs make?
  - Pigs are a lot smaller than cattle. They like to drink water and eat things like grain or oats while playing in the mud on a hot summer day. Most pigs live in barns that keep them cool during the summer and warm during the winter. There are some pigs that live outside and have a dome shaped hut to protect them from the weather. What sound does a pig make? Most people think that pigs make noises like “Oink! Oink!” in reality they make more of a snorting noise.(Use this link to play farm animal noises→from the Home Page click the pig, which will take you to another link: <http://www.kbears.com/farm/>)
- What does a pig look like?
  - When the students begin to describe what a pig looks like, follow up with a description:
    - Four legs and a tail–sometimes a curly tail
    - Feet called hooves,
    - Some wild pigs may have things that look like horns coming out of their nose called tusks.
      - All pigs do not look the same; just like us–We’re all different,
      - Lots of different colors and sizes
        - You may also use the above link to provide some images for students of what pigs look like.
- How do you keep yourself clean? How do you think pigs keep themselves clean?
  - Pigs do not really like to be clean. They would rather lie in the mud all day long. The mud keeps them cool and comfortable.
- What do we get from pigs?
  - Pigs too, are a great source of protein. Can you remember what protein is? Protein is a vital part of our diet that allows us to have enough energy to run and play.

## Sheep:

- What are sheep? What sounds do they make?
  - Sheep are a lot smaller than cattle, but closer in size to a pig. Sheep graze for grass and hay. They eat very quickly then lie down as they continue digesting their meal. Most lambs live in barns that keep them cool during the summer and warm during the winter. What sound do sheep make? They make more of a “Baaahhh, Baah” noise.(Use this link to play farm animal noises→from the Home Page click the lambs, which will take you to another link: <http://www.kbears.com/farm/>)
- What does a lamb look like?
  - When the students begin to describe what a lamb looks like, follow up with a description:
    - Feet called hooves,
    - Sometimes fluffy hair
    - All lambs do not look the same; just like us–We’re all different,
    - Lots of different colors and sizes
      - You may also use the above link to provide some images for students of what sheep look like.
- What do we get from sheep?
  - Sheep are a huge source of wool. When their hair has grown long enough the farmer will take some shears and shave off their wool. This is then cleaned, stretched, and turned into wool that makes up our clothes.

## Chickens, Roosters, Ducks

- What are Chickens, Roosters, and Ducks? What sounds do they make?
  - These birds are some of the smallest animals on the farm. They like to drink water and then walk around the farm looking for grain and bugs to eat. Most Hens (that is a mommy chicken) will make a nest in a barn to lay their eggs. They like to find a nice quiet place where they will not be bothered. What sound do chickens, ducks, and roosters make? Use this link to play farm animal noises→from the Home Page click the animals individually, which will take you to another link:  
<http://www.kbears.com/farm/>)
- What do these animals look like?
  - When the students begin to describe what they looks like, follow up with a description:
    - 2 legs
    - Wings and feathers
    - Roosters may have a long spur on the back of their leg. This helps with defending themselves
    - Chickens have short beaks, Ducks have long flat ones
    - Roosters have a red waddle and beautiful tail feathers
    - All chickens, ducks, and roosters do not look the same; just like us–We’re all different,
  - Lots of different colors and sizes
    - You may also use the above link to provide some images for students of what these animals look like.
- What do we get from these animals?
  - Chickens and ducks are the largest producers of eggs. We use eggs in many things we cook and eat. Can you think of some things where chicken eggs are used?
  - We also eat their meat. Chickens are another good source of protein. Duck is served in very fancy restaurants most of the time.

## Session #2: Crops

### Introduction:

This is an opportunity to explain to the students the most visible form of farming. Many students may have seen or know what a tractor is, but do they know what it is for? What about other types of machinery (planters, combines, etc.)? This may sometimes be a difficult topic since it is so vast, but a basic understanding will help the students when they come to the campus and see our expanding tractor exhibit, as well as, learning how corn was transformed in the mill station years ago.

You may start the session similarly to the last by asking students to discuss what they ate for breakfast (i.e, cereal, whole-wheat toast, etc.). When they begin to shout out their answers, explain that most of our processed breakfast foods come from grains, or crops. This will be a good transition into discussing what crops are, why we need them, and how they are grown.

During this lesson, it may be fun and rewarding to bring in “live” crops that we grow in Iowa. For instance, two of our largest crops and exports are corn and soybeans. If available, the different stages the plants go through may also be helpful so they may understand the final product.

Ask the students to name some grains they know and can identify (wheat, corn, soybeans, rice, etc.) How are those grown? We will now begin focusing on what plants need in order to survive, which is much like what we need!

### How Plants Grow:

Depending on your curriculum, you may have already discussed this concept. If so, use this as a “refresher course” before continuing. If not, use this as an introductory opportunity into the vast wonders of a plant and its food production.

Ask the students, what do you need to survive? They may throw out suggestions like food, water, and shelter. Those are great answers, of course. Follow up with what do plants need (Water, Sunlight, air, etc.).

When a plant gets hungry, it does not need to go to the grocery store or order a pizza. It can make its own food! How does it do it?

Plants use the resources they have like light from the sun, water, minerals or nutrients, and carbon dioxide to make their food. All of the things they need are drawn up into the plant by their roots and then they go through a cycle called photosynthesis to make their own food, which is glucose (or sugar). When a plant goes through this phase, it releases a product called Oxygen. Ask if they know what oxygen is for? Plants help us just as we help them. Plants do need these things, but just like you, if they get too much sun it can hurt them. While plants don't get sunburn, they can still get very, very thirsty if the ground dries out. That is why it is important to make sure that plants and crops are watered a lot either by a watering hose or by the rain.

<http://www.sheppardsoftware.com/content/animals/kidscorner/foodchain/photosyntesis.htm>

Another important thing plants need to complete this process is soil (or the dirt they are planted in). When plants undergo photosynthesis, they also need nutrients that they can get from the soil. The soil needs to be healthy for the crops to be able to grow. The farmer makes sure the soil is healthy and that it does not have too much of one nutrient before planting the crop. A farmer can tell if the soil is healthy or not by the color of it (dark brown) and whether or not it can easily crumble in your hands. If it is not too wet and not too dry then it is the perfect kind of soil to grow yummy plants in! If the farmer is still not sure about the soil, they can take a "soil sample." This is a test on the soil to see if it is healthy enough to grow strong crops. If the soil comes back weak, the farmer can add nutrients to it to get it healthier, similar to when you take vitamins. Things like cattle and pig manure may be added to help the soil get more Nitrogen, which helps the plants grow.

<http://www.kidsgeo.com/geology-for-kids/0002-the-earths-soil.php>

[http://www2.alltech.com/kidzone/digin/Module1/Module1\\_soil\\_Fact.pdf](http://www2.alltech.com/kidzone/digin/Module1/Module1_soil_Fact.pdf)



### Harvest Time:

Plants produce a product over the summer, such as corn and soybeans. When the plant approaches the end of the growing season, the farmer prepares for a time called Harvest. This is when the crops are taken out of the field and transported to a storage bin or grain elevator to be sold and turned into the products we use from them. Harvest time usually happens in late fall. This is when you can see all of the big machines and tractors in the field. The farmer must make sure all of the machinery is ready to take the crops out of the field.

When corn is ready to be harvested, the once green leaves will turn very dry, change to a different color, and become “paper-like.” When the corn plant is ready to be harvested, the farmer will go into the field with his combine and begin collecting the crop. The combine is a very large machine that costs a lot of money. These machines cut the plant off from the ground and strip the ear of corn from the stalk. At the front of the combine is the “corn-head” this is the place that cuts and picks the plant. Corn kernels are then “thrashed” or separated from the cob. After the corn is thrashed, it will then go into the grain tank. This compartment will hold the corn until it can be emptied into a grain cart or wagon. From there it is transported to a grain bin or grain elevator.

Corn is used for many things that you may not have thought about. And remember, this isn't regular sweet corn that you eat in the summer; this is field corn. Besides being used in food, field corn is used for things like animal feed, or fuel for your parents' vehicles. It can also be used to make things like pens and coloring books.

Soybeans are harvested in a way very similar to corn. The same machines used to harvest corn are also used to harvest soybeans. The only difference is the front of the machine, or head that is used. Instead of using a “corn-head”, the farmer uses a “grain-head.” Soybean plants are much smaller than corn plants; therefore, they do not need as large of a combine head. When the pod is fully matured, the beans inside will be a tan color. When the soybean approaches harvest time, approximately 95% of the pods are fully matured and the combine can begin harvesting.

Soybeans, like corn, are also used for many of the same products. Soybeans, however, make up many of our food products. Have you ever tried Tofu or Soy Milk? Both are made from soybeans! Soybeans are also used in classroom items, like crayons. Soybeans are used in a wide array of products. Feel free to browse online for a listing of bi-products that can be made from soybeans and soybean oil.

<http://www.cyberspaceag.com/kansascrops/default.htm>

The Iowa Corn Promotion Board and the Iowa Corn Growers Association have come together to develop a website and activity sheet for kids to help with the understanding of corn and what it gives us. These helpful handouts may also be utilized to help with this discussion. You will find these handouts at:

[http://www.iowacorn.org/en/corn\\_use\\_education/fun\\_for\\_kids/](http://www.iowacorn.org/en/corn_use_education/fun_for_kids/). The Iowa Corn Collaboration also has products like coloring books and pens made directly from corn. If funding and resources are available, it may be worth contacting them about those products to add to the corn learning experience.

The Iowa Soybean Association with the collaborative effort from the Iowa Beef Industry Council, Iowa Turkey Federation, Iowa Pork Producers Association, Iowa Egg Council, Iowa Farm Bureau, and Midwest Dairy Association have come together to develop a kid friendly booklet to help explain the spectrums of agriculture. In this packet, you will find related material for many of the large agricultural industries within Iowa. Please use this booklet as well. It is a great resource, with many activities and learning components. You will find it and other resources at

<http://www.iasoybeans.com/soyedmaterials/soyedmaterials.html>.

### **Session #3: Farm to Food**

My American Farm, an online educational agriculture site, is a good learning source for this component. The next session will focus all on how our food goes from the farm to our fork. Since we already have a basic understanding of the types of foods that are produced, it is now time to put it all together!

Start the session by asking the students how many of them like pizza. Have them draw or discuss their favorite types of pizza, what they like on it, etc. Once they are done drawing have them share and discuss what they have prepared. As the students share what they like, highlight the ingredients they included on the white board, poster, etc. Use the supplemental “Ag is Everywhere” Lesson power point from My American Farm ([http://www.myamericanfarm.org/educator\\_resources/](http://www.myamericanfarm.org/educator_resources/)) during this session. Pull up the slide “Where does Pizza come from?” Have the students go through the slide, pointing out the animals, products, origin, etc.

Proceed with the rest of the discussion. One farmer feeds approximately 155 people. You may use the slide under the same power point titled, “How many people does one farmer feed?” There are approximately 6.6 billion people on Earth today, but scientists believe that there will be 9.3 billion by 2050. This means that we will need more food and farmers.

Without farming and farmers, we would have NO food! Most of our food, including fruits and vegetables, comes from the farm. The food starts out at the farm. Once it has grown and harvested it is taken to shops, local farmer markets, or straight to processing plants, where it is sold to people like us.

[www.myamericanfarm.org](http://www.myamericanfarm.org) is a great source of information, games, and activities for students to do. If you have a computer lab or “computer time” scheduled for the whole class this may be a great item to reinforce what agriculture is all about.

School Matters, sponsored by the ASDA, provides students with interactive games to use during classroom discussion. The games provide explanations to the different crops and produce being grown, what products may be found where, and how they got

there. It gives students the opportunity to travel through all of the stages a producer and consumer would have to go through, including planting, harvesting, and purchasing in a super market. There are also activity sheets that may be printed off and the student can complete at home.

There are many programs that have recently been started, including the Buy Fresh, Buy Local campaign, as well as Know your Farmer, Know your Food. The Buy Fresh, Buy Local campaign focuses on the importance of buying food locally. The Know your Farmer, Know your Food campaign, focuses on the importance of knowing and understanding where our food comes from. It is important for us to understand the concept of where our food comes from because there is currently a three generation disconnect between the average person and where their food really comes from. This youtube link provides an animated account of how food travels from the farm to the local farmer's market.

[http://www.youtube.com/watch?v=1ZdwbcT\\_LAw](http://www.youtube.com/watch?v=1ZdwbcT_LAw)



## Conclusion:

Congratulations! You have now successfully completed providing your students with a basic understanding of agriculture.

To complete this section you can do a quiz review. Ask the students what a farmer looks like, what a cow is, what sheep provide us, etc. or you can do something a bit more exciting, such as an activity. For instance, show the Bill Nye the Science Guy: Farming video. Bring in only Iowa raised snacks, such as “Tiny, but Mighty” popcorn, which can be purchased at Heartland Acres or fresh produce from the farmer’s market, etc. There are many options for agriculture and farm related activities and crafts that you can involve your students with during this time.

Given their new found knowledge, you may recommend that your students begin formulating some questions to ask during their visit to Heartland Acres. The staff LOVES to answer questions that students, faculty, and all other guests have!

Please also provide us with any feedback, either from your students or yourself about this program. We are very proud of the materials we have provided you with, but are always looking to improve our programs.

Thank you again for including us in your curriculum and your support. We hope your students enjoyed learning about agriculture as much as we love spreading the awareness of this magnificent industry. We look forward to your visit and can’t wait to see you and your students!

Sincerely,

*Heartland Acres Staff*

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