



Grade Level: K-2

Essential Skills: 4, 5

CCSS: K.RL.1, K.RL.3, K.RL.10, K.SL.2, K.SL.6, 1.RL., 1.SL.2, 2.RL.2, 2.SL.2

NGSS: K-ESS3-1

Time: 45 minutes

Materials:

- Who am I? Powerpoint
- Brad per students
- How many hats does a farmer wear? Worksheet per student
- Scissors (not included)
- Crayons or markers (not included)

AITC Library Resources:

Books:
'Til the Cows Come Home
Cows Can Moo! Can You?
Allison Investigates: Does Chocolate Milk Come from Brown Cows?

More Lessons:
Ice Cream in a Bag
Phase Changes of Cream into Butter
It's a Moo-stery!

The Many Hats of Farmers

Description:

Students identify what cows and humans need to survive by exploring the physical characteristics of cows and the food, water, shelter, and other environmental needs of cows compared to their own needs. Students also examine how farmers work to meet the needs of their cows.

Activity Directions:

1. Ask the students, "What are some things you need to live or survive every day?" List the student answers on the whiteboard.
2. Project Slide 1 of the *Who am I?* PowerPoint Slides. Explain to the students that they are going to learn about what another animal needs to survive and compare those needs to our own needs. They will be given clues about the animal. As soon as they have figured out the animal, they should stand up. Go through the next four slides to walk through the clues and let students guess.
 - I can be a few different colors, but these are the most common
 - This is where I like to live
 - I visit a place that has these a couple times a day
 - I produce a product that makes all these foods
3. Ask the students to all repeat at the same time the animal that was described. That's right, it's a cow, and specifically a dairy cow!
4. Read the book *Tales of the Dairy Godmother: Chuck's Ice Cream Wish* by Viola Butler.
5. After reading, ask students the following questions:
 - a. What were some of the jobs Chuck had to complete on the farm?
 - b. What was Chuck's wish?
 - c. How did Chuck help make his wish come true?

Activity 1: What Cows Eat and Drink

1. Refer back to the question, "What are some things you need to live or survive every day?" and the list on the board. (They likely included food and water in their list.) Explain to the students that just like humans, cows need food and water.
2. Show the video [Ask a Farmer: What do cows eat?](#) to learn about the food cows eat. Explain to the students that both humans and cows have a need for food. Ask the students the following questions:
 - What kind of foods did you learn cows eat?
 - What kind of foods do you eat?
 - How are they the same or different?
3. Show Slide 7 of the *Who am I?* PowerPoint. Ask the students if they would like to eat each of the foods as you point to the pictures. Explain that we eat a lot of different foods compared to what cows eat, but the foods we do eat provide our bodies with the nutrients needed to grow healthy and strong, just like the food cows eat helps them to grow healthy and strong.
4. Explain to the students that they are going to learn a little more about some of the food

cows eat (Slide 8). Ask the students if they can name the plants, helping them if needed (the animations on the slide will show one picture at a time followed by the plant's name). As you talk about each plant, ask the students to name products that come from cotton, wheat, alfalfa, and corn plants. For example, clothing, cotton balls, and denim can be named for the cotton photo. Cereals, breads, pastas, pastries, etc. can be listed for the wheat photo.

5. Show Slide 9 and explain that part of a cotton plant is used to make clothes. That is the primary purpose of growing cotton. Wheat is primarily grown to be processed into flour to make products like pasta, breads, and cereals. You may have also eaten corn on the cob, corn tortillas, or corn flour in cereal. Fresh alfalfa sprouts are commonly eaten on sandwiches. When we use each of these items, there is still some of the plant that is leftover that we can't use.

6. Discuss the importance of not being wasteful and just throwing things in the garbage. We have found a really cool way to use some of our "leftovers" which are also called byproducts.

7. Explain to the students that some of the byproducts from these plants look like this (Slide 10). Ask, "Who do you think can digest these byproducts?" (cows!) Ask students, "Why are cows able to digest byproducts that humans can't digest?" Let the students try to guess the answer. If students don't know the answer, show them Slide 11 and ask, "What are some of the differences between these two stomachs? Which is a human stomach, and which is a cow stomach?" Explain that since cows have a different digestive system with four compartments and humans have just one stomach compartment, they can eat and digest some parts of these plants that we can't digest.

8. Show students the six feed samples provided in your kit, explain where each originated from using the information below.

Cottonseed: A white ovular seed used in animal feed that is a left-over product the cotton used to make clothing.

Alfalfa: A legume that is cut and dried for hay in livestock.

Canola Meal: A by-product of canola oil, high in protein used in animal feed.

Ground Corn: Corn in a small granular form used in livestock feed.

Bakery Waste: Stale bread and pastries leftover from bakery or stores that provide a high starch content.

Grass Hay: Cut and dried grass used for livestock feed.

Activity 2: How Farmers Care for Cows

1. Ask the students, "Do you think farmers like to take care of their cows and work to keep them happy?" Show the video [Are Your Cows Happy?](#) to learn about how a farmer takes care of his cows. Project Slide 14 of the *Who am I?* PowerPoint on the screen and explain to the students that aside from eating different things, cows and humans have different needs because they have different physical characteristics. Ask the students to take a minute to look at the two pictures and notice what is different about cow and human bodies. Allow the students to respond with some differences. Responses may include their legs, feet/hooves, hair/fur, tail, belly/stomach, shape of ear/nose/mouth, udder.

2. Explain to the students that because of these differences, cows need to be taken care of in a different way than humans. Use Slide 15 which has animations to walk through the steps in the below order.

Hooves: Explain that cows have hooves that look like this (point to the picture). Have the students come up and put the correct pictures on the board (hoof trimming and hoof bath). Explain that it is important to keep cows' feet healthy. To do this, farmers regularly trim their feet, just like you have to regularly trim your nails. The cows also have access to a special foot bath that will spray off their hooves to keep them clean.

Udders: Explain that cows need and like to have different places to lay down. These places need to be clean to keep them healthy and to prevent infections. Straw, sand, or sawdust are a few examples of bedding that can be used. Cows like these beddings to lay in and find them very comfortable. Watch the video *Do cows sleep standing up?* to learn how one farmer uses sand for bedding his cows.

Hair: Explain that cows have hair and skin that help to regulate their body temperature. Cows actually like the temperature to be similar to that in the wintertime (25° - 65°F) which is similar to winter temperatures. Ask students "What were some of the things the farmers did to keep their cows warm or cool enough?" Make sure to point out the different kinds of shelters you see in the pictures—calf hutches for the calves, barns with fans, and misters for the cows. Explain that depending on the location, cows live in various shelters to keep them the most comfortable.

Mouth/teeth: We have already talked a lot about what cows eat. Now we are going to go over part of their physical attributes that show why they can eat these foods. Show the picture of what a cow's mouth looks like. Point out that cows have teeth on the bottom but not on the top in the front. The top front has is just hard, kind of like the top of your mouth. This helps them to eat and digest the different foods we already learned about.

3. Inform the students that farmers need to know a lot about their animals to make sure that the animals are taken care of and grow big and strong because they provide food for us.

4. Help students begin to understand the skills a farmer must have to properly care for their animals by completing the following activity.
5. Provide each student with a copy of the *How Many Hats Does a Farmer Wear* activity sheet, and ask them to color the farmer and the hats.
6. Instruct students to cut out the three circles on their activity sheets and stack them on top of each other so that the largest circle (the one with the career descriptions) is on the bottom and the smallest circle (the one with the farmer) is on the top. Fasten them in the center with a brad so that all three circles spin separately.
7. Ask the students to find a hat in the middle circle to put on the farmer's head and then match up the words that best describe what the farmer does when wearing that hat.
8. Discuss the following "hats" listed on the wheel:
 - Veterinarian - Must be able to recognize early signs of disease in animals, assist at birth of animals, and administer medicine to sick animals
 - Engineer - Must know how to plan and construct fences and buildings, build irrigation ditches and control the flow of water, and use natural resources to grow products useful to people
 - Mechanic - Must be able to operate and maintain both simple and complicated machinery, make repairs, and keep machines in good working order
 - Business Manager - Must be able to balance accounts, sell farm produce to the market, be responsible for making payments and meeting payrolls, and keep track of equipment, products, and land
 - Nutritionist - Must know how to prepare feed rations for best growth and production of livestock
 - Forest Ranger - Must be able to recognize the various kinds of trees, detect fires and know the methods for controlling them, and clear trees from land and prevent soil erosion
 - Scientist - Must be able to conduct experiments that help answer agricultural questions like which crops grow best in a particular climate or soil
 - Weather Forecaster - Must understand weather and climate, be aware of possible weather changes, and know how to prepare for these changes