Dairy Project Area Guide

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Dairy Project

Click on each activity number below to be taken to where it appears in the document.

Activity 1
What Is Dairy Science?

Outcomes:
- Identify different dairy careers.
- Identify basic dairy terms.

What do you think of when you hear the word science?

Did you know that science is used in the dairy industry? Dairy foods are foods produced from the milk of a mammal, such as a cow. We call these specific cows dairy cattle.

How do you think science is used in the dairy industry?

Throughout this project area guide, you'll see QR codes like the one on your left. These will link you to a video, news article or website. To use them, scan the image using the camera on a smart device or click the image.

Watch the video to learn ways science is used every day in dairy production.

Dairy science focuses on the production and manufacturing of all dairy products including milk and cheese.

Now that you know what dairy science is, what do you think a dairy scientist does during their career?

Science is all around you! It can be used in all parts of your everyday life. If you know someone who operates a dairy farm, then you know a scientist!

To learn more about dairy scientists in Tennessee, visit the University of Tennessee Department of Animal Science Extension website, then click on Dairy.

On the Extension website, you may have noticed that dairy scientists can have careers within multiple industries – animal care; research; dairy product development, quality and safety; and dairy marketing.

Below you will find four career categories and 15 careers. Place each career into its respective category.

Dairy Herd Manager	Dairy Nutritionist	Dairy Science Professor
Dairy Industry Consultant	Dairy Plant Manager	Food Safety Regulatory Officer
Dairy Industry Journalist	Dairy Reproduction Specialist	Large Animal Veterinarian
Dairy Industry Marketing Specialist	Dairy Research Assistant	Milk Safety Regulatory Officer
Dairy Industry Sales Representative	Dairy Science Extension Specialist	Precision Technologist and Data Analyst

Animal Care	Research	Dairy Product Development, Quality and Safety	Dairy Marketing

There are many ways you could have sorted the careers. One example of how you may have sorted them is in the chart below.

Animal Care	Research	Dairy Product Development, Quality, and Safety	Dairy Marketing
Dairy Herd Manager Dairy Industry Consultant Dairy Nutritionist Dairy Reproduction Specialist Dairy Science Extension Specialist Dairy Industry Sales Representative Large Animal Veterinarian	Dairy Research Assistant Dairy Science Professor Precision Technologist and Data Analyst Dairy Nutritionist Dairy Reproduction Specialist Dairy Science Extension Specialist	Dairy Plant Manager Food Safety Regulatory Officer Milk Safety Regulatory Officer	Dairy Industry Journalist Dairy Industry Marketing Specialist

From the careers listed above, select three you find interesting and research on your own. Upload your findings to your digital 4-H portfolio.

Activity 2
Finding Resources

Outcomes:
- Identify different dairy resources.
- Research dairy resources.

The University of Tennessee offers multiple resources for Dairy. Use a timer to see how many you can find in five minutes. List the resources below.

_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

Did any of these resources catch your eye? If so, take the time to review the document. If you'd like to learn more, scan the QR code on the right with the camera on a smart device or visit https://utdairy.tennessee.edu/resources/. This will take you to the UT Extension Resources website. Click on Dairy and identify a topic that interests you.

SCAN ME

Use this website to research a topic of your choosing to locate an article that discusses your selected topic. Write down the name of the publication and two things you learned from the publication.

Publication Title: _____

Publication Number: _____

What two things have you learned from the publication?

1. _____

_____

_____

_____

2. _____

_____

_____

_____

Activity 3

Learning the Lingo

Outcomes:

- Identify different dairy careers.
- Apply basic dairy terms.

Work through the following statements and definitions below. Then identify one term that relates to each statement.

WORD BANK

Colostrum	Castration	Lactating Cow	Bred Heifer	Hundredweight (CWT)
Ruminants	Heifer	Dry Cow	Bull	Eructation
Parturition	Cow	Calves	Gestation	Rumination
Bovine	Steer	Calving	Bovine	

1. The technical name for a cow regardless of gender

   _____

2. The overall term for any adult animal in the herd

   _____

3. A female calf

   _____

4. A calf that has not been castrated

   _____

5. A calf that has been castrated

   _____

6. The young animals in a herd

_____

7. The process of bringing food up from a cow's stomach, chewing it again and re-swallowing it

_____

8. Burping in cows

_____

9. A heifer that has been successfully bred and is pregnant

_____

10. A cow (females only) that has completed lactating and is pregnant

_____

11. A cow (females only) that is producing milk

_____

12. The term for how long a cow is pregnant

_____

13. The process of giving birth

_____

14. Removing the testicles from a bull

_____

15. Species of animals that have a rumen

_____

16. The first milk produced after a cow calves

_____

17. What 100 pounds of milk equals

_____

ANSWERS:

1. The technical name for a cow regardless of gender: Bovine
2. The overall term for any adult animal in the herd: Cow
3. A female calf: Heifer
4. A calf that has not been castrated: Bull
5. A calf that has been castrated: Steer
6. The young animals in a herd: Calves
7. The process of bringing food up from a cow's stomach, chewing it again and re-swallowing it: Rumination
8. Burping in cows: Eructating
9. A heifer that has been successfully bred and is pregnant: A bred heifer
10. A cow (females only) that has completed lactating and is pregnant: Dry Cow
11. A cow (females only) that is producing milk: Lactating Cow
12. The term for how long a cow is pregnant: Gestation
13. The process of giving birth: Calving
14. Removing the testicles from a bull: Castration
15. Species of animals that have a rumen: Ruminant
16. The first milk produced after a cow calves: Colostrum
17. What 100 pounds of milk equals: Hundredweight (CWT)

Use the terms you identified from the activity above to complete a portion of the story below, "A Journey Through the Farm."

Yesterday I got to experience my first day on the dairy farm, and it was exciting! There were (1) _____everywhere; I learned that term yesterday. There is so much to learn on the farm! Did you know that there is general terminology to describe how the (2) _____ fit into the group? Such as (3) _____, (4) _____ and (5) _____. There is even a term for young animals — they're called a (6) _____ _. They also taught me about the digestive system of cows, discussing (7) _____ and (8) _____ which helps the cow breakdown their food. However, this is just the start of what I had the opportunity to experience.

Since it was a dairy farm, there were, of course, plenty of (9) _____. As I was learning more about the terms (10) _____ and (11) _____ it just so happened that a heifer had reached the end of her (12) _____ period and was in stage 2 of (13) _____! I had never seen a heifer give birth before, but in the process, the calf got stuck, and we needed a veterinarian quickly! Fortunately, there was one already on the farm performing a (14) _____ on a bull. A few moments later, there was a new (15) _____on the farm, and the lactating term I was learning about before was now something I was seeing.

The heifer was producing (16)_____which is essential because it produces antibodies for the newborn calf.

If there is one thing I learned, it's that heifers are crucial to a dairy farm. Did you know milk is sold by (17)_____? That's a lot of milk for the heifers to produce! I don't know everything about dairy farms yet, but I know they are extremely important and beneficial for us. I cannot wait to come visit again!

Check your answers on the next page.

Yesterday I got to experience my first day on the dairy farm, and it was exciting! There were (1) bovine everywhere; I learned that term yesterday. There is so much to learn on the farm! Did you know that there is general terminology to describe how the (2) cows fit into the group? Such as (3) heifer, (4) bull and (5) steer. There is even a term for young animals — they're called a (6) calf. They also taught me about the digestive system of cows, discussing (7) rumination and (8) eructation, which helps the cow breakdown their food. However, this is just the start of what I had the opportunity to experience.

Since it was a dairy farm, there were, of course, plenty of (9) bred heifers. As I was learning more about the terms (10) dry and (11) lactating, it just so happened that a heifer had reached the end of her (12) gestation period and was in stage 2 of (13) parturition! I had never seen a heifer give birth before, but in the process, the calf got stuck, and we needed a veterinarian quickly! Fortunately, there was one already on the farm performing a (14) castration on a bull. A few moments later, there was a new (15) ruminant on the farm, and the lactating term I was learning about before was now something I was seeing. The heifer was producing (16) colostrum which is essential because it produces antibodies for the newborn calf.

If there is one thing I learned, it's that heifers are crucial to a dairy farm. Did you know milk is sold by (17) hundredweights? That's a lot of milk for the heifers to produce! I don't know everything about dairy farms yet, but I know

they are extremely important and beneficial for us. I cannot wait to come visit again!

Activity 4

What's That Breed?

Outcomes:
- Identify different breeds.
- Identify the two main U.S. breeds.

Can you take a guess at how many main dairy breeds there are?

_____

The correct answer can be found using this QR code. Watch the video to learn more about different breeds for the next activity.

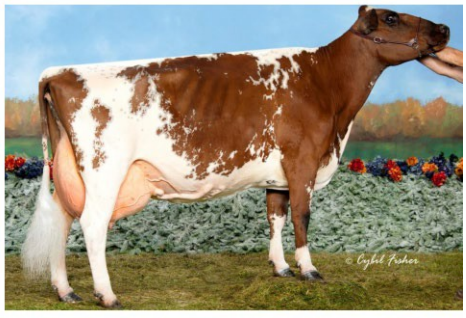
SCAN ME

With a parent's permission, use the video you watched as well as the Internet to try and match the picture of the cow to its breed. Look for colorings, size and markings to help you!

A. Jersey B. Red and White C. Ayrshire D. Brown Swiss

E. Holstein F. Guernsey G. Milking Shorthorn

1. _____ 2. _____



3. _____

4. _____

5. _____

6. _____

7. _____

Check your answers on the last page of this Activity.

Now that you have had a chance to look at what the different breeds look like, take some time to read through the following table of facts about the different breeds.

Ayrshire	Brown Swiss	Guernsey
Originated in Scotland Originally known as the Dunlop breed Medium frame (900 to 1,300 lbs.) Red and white markings in a variety of patterns • Red can change from shades of orange to dark brown Excellent udder conformation Good feet and legs	Originated in Switzerland Oldest breed of dairy cow Large frame (1,300 to 1,400 lbs.) Can be light brown or light gray to dark gray in color with a creamy white muzzle Cows have a docile temperament Excellent feet and legs	Originated from the Isle of Guernsey in the English Channel Medium frame (roughly 1,000 lbs.) Can be fawn or red and white in color Milk is high in fat and protein Milk appears golden because of high beta-carotene content, called "Golden" Guernsey milk Can naturally produce A2:A2
Holstein	**Jersey**	**Milking Shorthorn**
Originated in the Netherlands Sometimes called Holstein-Friesian Large frame cattle (roughly 1,500 lbs.) Can be black and white or red and white Have the greatest milk production Can be naturally polled Make up 90 percent of the U.S. dairy cow population	Originated from the Isle of Jersey in the English Channel Smallest breed of dairy cattle (800 to 1200 lbs.) Vary in color from very light gray to dark brown, almost black Have a signature "double dish" face Generally produce milk with a high fat and protein percentage ideal for ice cream and cheese production A main US breed	Originated in England Large frame (1,410 to 1,500 lbs.) Can be red, white, red and white or roan Milk is high in fat and protein Most versatile of all dairy breeds: • Good producers • Good temperament • Good calves • Good frame Considered a dual breed — can be used for both dairy and beef

Red and White
Originated in the U.S. and Canada Newest official dairy breed (1964) Large frame (roughly 1,400 lbs.) Red and white coat pattern Can have genetics from several different breeds Red color is a natural variation caused by the expression of recessive genes

There are seven main dairy breeds and two main breeds in the U.S. Which one of these breeds should be referred to more as an association?

_____

With the information from above, list the two main U.S. breeds.

1._____ 2. _____

Out of the seven breeds you learned about, which one is your favorite and why?

_____

_____

_____

_____

Answer Key: 1. C. Ayrshire 2. D. Brown Swiss 3. F. Guernsey 4. E. Holstein 5. A. Jersey 6. G. Milking Shorthorn 7. B. Red and White

Association instead of a breed: Red and White

Two Main U.S. breeds: Jersey and Holstein

Activity 5

Registering Your Breed

Outcomes:
- Identify different breeds.
- Differentiate between commercial and registered dairy operations.

Think about the most expensive pair of shoes, bag or vehicle you could ever want. Can you guess what makes these items expensive? It is the material and supplies that are used to build the item, but it's also the long history they have with high quality items and positive reviews from consumers. The same can be said about your dairy breed.

Registering your breed creates a permanent database that allows you to track the history of your cattle's identification and ancestry. You can use this to show the quality and development of your cattle, which can help increase the sales of your product.

Each breed has its own registration process. Use the QR codes below to learn the steps for the two main dairy breeds in the United States, Jersey and Holstein, and write down three facts you learned about the registration process for each breed.

<u>Breed: Jersey</u>
Registration Information:

SCAN ME

Breed: Holstein
Registration Information:

SCAN ME

Now, let's review what these breeds look like. Can you label which image is a Jersey cow and which is a Holstein? Check your answers at the bottom of the page.

1._____

2._____

Answer Key: 1. Holstein, 2. Jersey

Activity 6

Find the Body Parts

Outcomes:

- Name and locate at least 10 of these body parts: muzzle, poll, throat, neck, hip, wither, heart girth, hock, knee, chine, loin, rump, udder, tail head, hoof, switch, dewclaw.

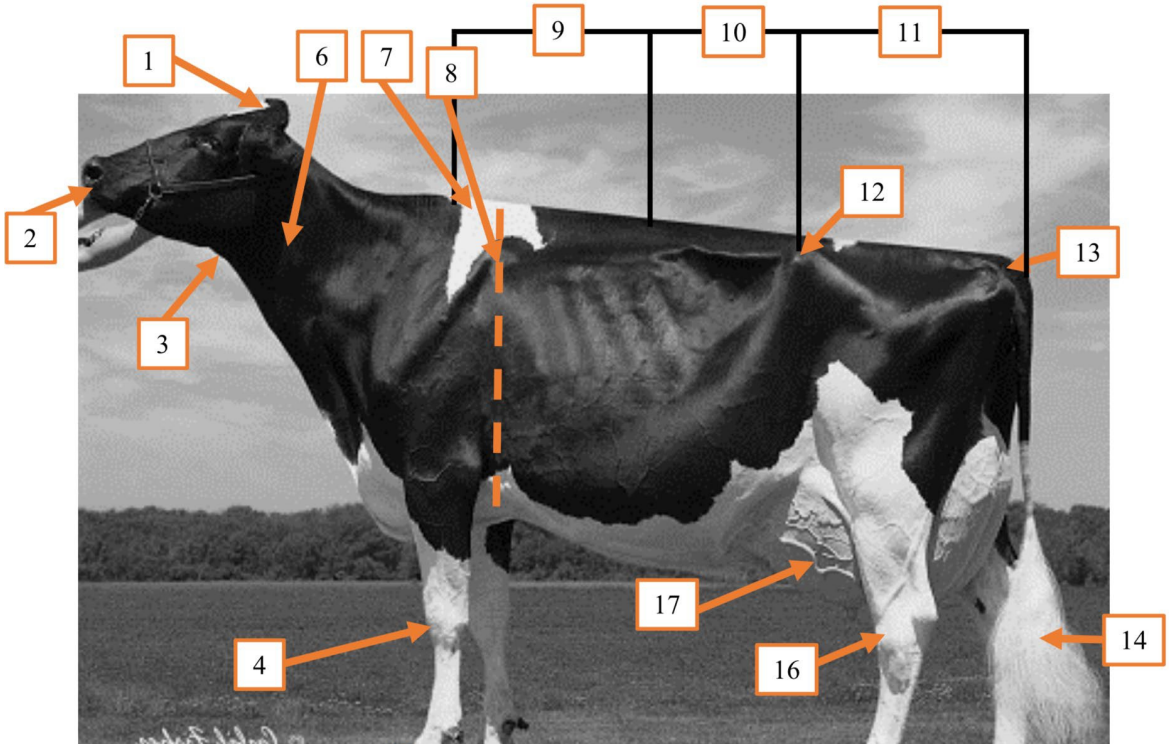
Now that you can identify the seven main breeds, let's learn some of their anatomy.

Anatomy is a complex way of saying the structure and the internal workings of the dairy cow that help keep it functioning and healthy. There are over 40 body parts of a dairy cow, but for this activity we are going to focus on 17 of them.

Do you think you could label the basic body parts of the cow? Using the image and word bank below, label the body parts correctly. (Hint: It's okay to miss some, we have another opportunity to try again later).

Word Bank

Muzzle	Poll	Throat	Neck	Hip
Withers	Heart girth	Hock	Knee	Chine
Loin	Rump	Udder	Tail head	Hoof
Switch	Declaw			



Answers:

1. _____ 2. _____

3. _____ 4. _____

5. _____ 6. _____

7. _____ 8. _____

9. _____ 10. _____

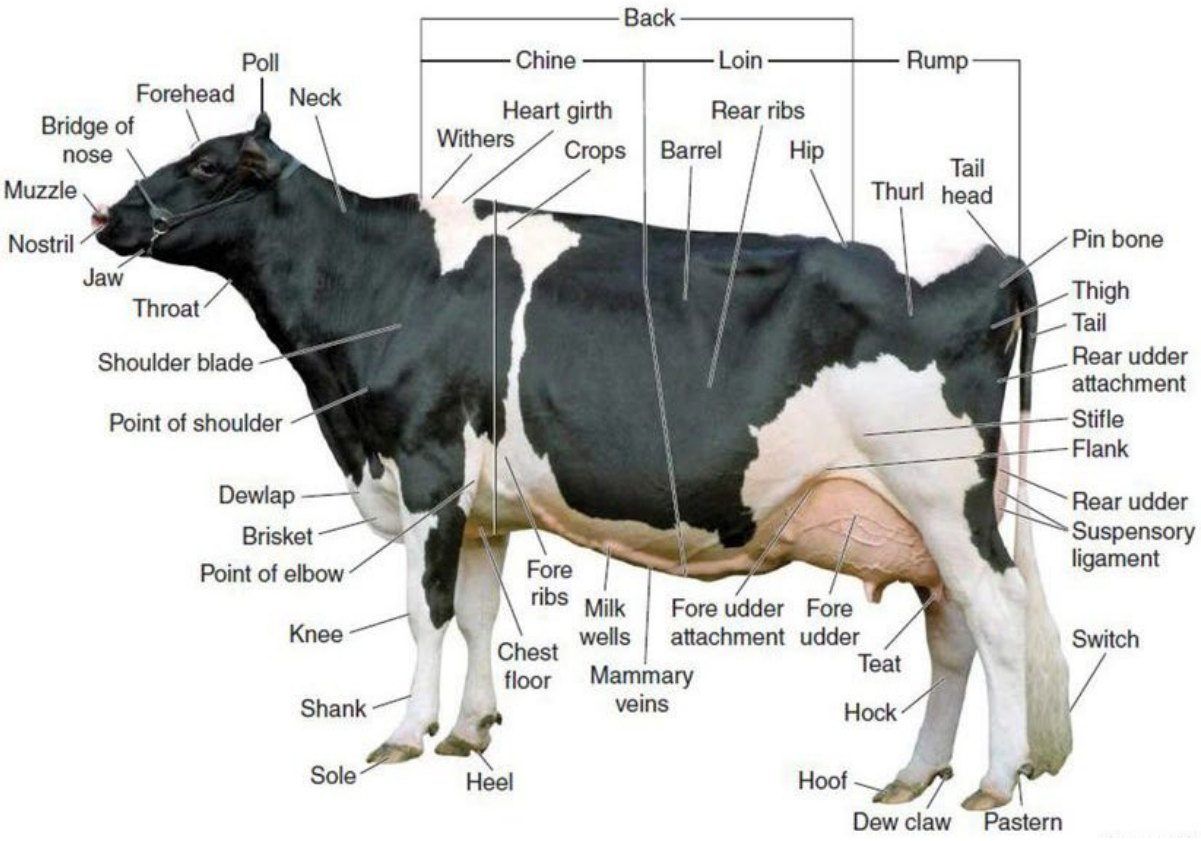
11. _____ 12. _____

13. _____ 14. _____

15. _____ 16. _____

17. _____

You can check your answers here.



SCAN ME

How did you do? Now, spend some time watching the video at the QR code to the left to learn even more about these body parts and their functions.

After, record a video of you identifying the body parts on a live animal. If you do not have a cow to use, you can use a stuffed animal, a family pet if you have one or the drawing from above and upload it to your online 4-H Portfolio. Remember to have fun!

Activity 7
Is My Cow Healthy?

Outcomes:

- Understand the normal temperature, respiration rate and pulse of dairy cattle.
- Identify symptoms of sick, injured or unwell dairy cattle that would require medical attention.
- Define vaccination and understand the importance of vaccinations in disease prevention.

It is important to have a healthy dairy cow to have proper and quality dairy production. Cow health includes many things including behavior, physiology, diseases, vaccinations, sleep and nutrition.

Dairy cattle are creatures of habit and love routine. This causes them to respond differently when anything in their environments may change. For example, when there is a stranger in the barn, their level of lactation may decrease.

Heat stress can also alter a dairy cow's behavior and production. Heat stress can alter the dairy cow's temperature, heart rate and respiratory rate.

Use the chart from the QR code to learn what the average temperature, heart rate, and respiratory rate should be for a dairy cow, and write the answers below. Don't forget units!

SCAN ME

Average temperature of a dairy cow:

_____

Normal heart rate range (beats/minute) of a dairy cow:

_____

Average respiratory rate (breaths/minute) of a dairy cow:

_____

Now use the following QR codes to determine how heat stress negatively impacts cattle and what the signs are of heat stress.

SCAN ME

SCAN ME

List five signs of heat stress in dairy cows:

_____ _____

_____ _____

_____

What are the effects of heat stress on dairy cows?

_____

_____

_____

_____

_____

What are some ways that you can prevent and/or minimize heat stress?

_____

_____

_____

Let's see what we can learn about dairy cattle's behavior. With a parent's permission, use the QR code to go to The Dairy Alliance website to answer the questions below.

SCAN ME

How many pounds of food does a dairy cow eat each day?

_____

How many gallons of water does a dairy cow drink each day?

_____

How many hours does a dairy cow spend lying down throughout the day?

_____

Cows receive vaccinations to help with their health and production. Follow the QR code to look at this site to see all the options of vaccinations available, then answer the questions below.

SCAN ME

How do you know which vaccinations your cattle may need?

_____

_____

What are the two main types of vaccination?

_____ _____

Explain the difference:

_____

_____

_____

_____

Using the site from the following QR code, describe the symptoms and treatment for three of the most common diseases:

SCAN ME

Disease:_____

Symptoms:

_____

_____

_____

Treatment: _____

_____

_____

Disease: _____

Symptoms: _____

_____

_____

Treatment: _____

_____

_____

Disease: _____

Symptoms: _____

_____

_____

Treatment: _____

_____

What's one other interesting fact that you learned about dairy cattle? Be sure to share with your 4-H group.

Activity 8
What's the Use of That?

Outcomes:
- Identify 10 pieces of equipment used for dairy cattle.
- Identify the resources (facilities, money, equipment, feed, labor, time, etc.) that are required for a successful dairy cattle project.
- Explain why it is important to keep accurate health, feed and growth records.

Let's take a virtual field trip to a new dairy farm! Use the QR code to watch the video to take the virtual tour.

Now, that you have taken a tour of a dairy farm. It's time to create your own! Let's start by listing the equipment, feed and time you will need to run a successful dairy farm! (Hint: Don't forget you'll need a calf)

Equipment	Feed	Time

Next, using the information from the previous page, draw or create a model of the dairy farm. Use the rest of this page to draw your design.

Lastly, record a video of you giving a tour of your designed dairy farm. Once you have finished your virtual tour, upload it to your digital 4-H portfolio.

There is a lot of work that goes into your project area.

Create an interactive exhibit or poster explaining how you keep health, feed and growth records for your project animals, and present it at your local 4-H club. You could also display it at your local fair! Remember to take pictures of your exhibit/poster and your presentation and upload them to your digital portfolio.

Below you will find the guidelines for interactive exhibits and posters:

Guidelines for your poster or interactive exhibit:

Exhibit:

- The exhibit should showcase your record keeping of health, feed and growth for your project animals.
- It should be self-explanatory (someone should be able to know what your exhibit is teaching without you giving step by step instructions).
- A free-standing tri-fold board should be used for an interactive exhibit.
- Use pictures and/or diagrams to help explain.
- Use words/writing to explain.

Poster:

- Your record keeping of health, feed and growth for your project animals should be the topic of your poster.
- Poster should be 14 inches by 22 inches (roughly a poster board cut in half).
- Three dimensional objects or materials should not extend 1/8 inch or more above the surface of the poster (roughly two nickels stacked on top of each other).
- Posters must be horizontal.
- No copyrighted material can be used.

Activity 9
What's In Your Belly?

Outcomes:
- Label the parts of a ruminant stomach.
- Understand the difference between forage and concentrates and their role within a dairy cow's diet (provide two examples of each).
- Identify three roughages, three mineral sources and five concentrates sources.
- Identify information included on a feed tag.

Nutrition and feeding are important aspects of a dairy cow's health. There are four parts of the ruminant's stomach that helps the cows to digest their feed. These parts are discussed below. Scan the QR code or visit https://youtu.be/53ram-VHEgE.

SCAN ME

Please describe the function of each part of the ruminant stomach pictured below.

1. Rumen

Function:

_____

_____

_____

_____

_____

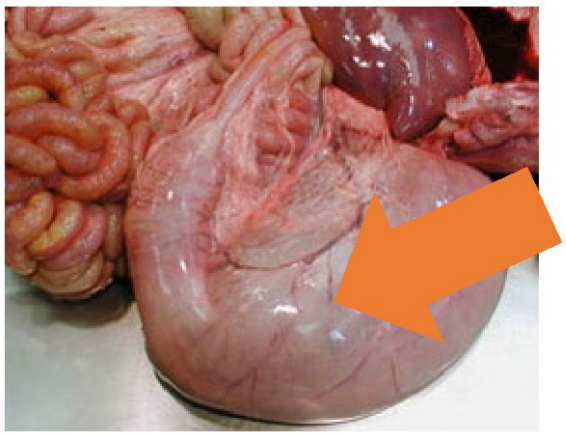
2. Reticulum

Function:

3. Omasum

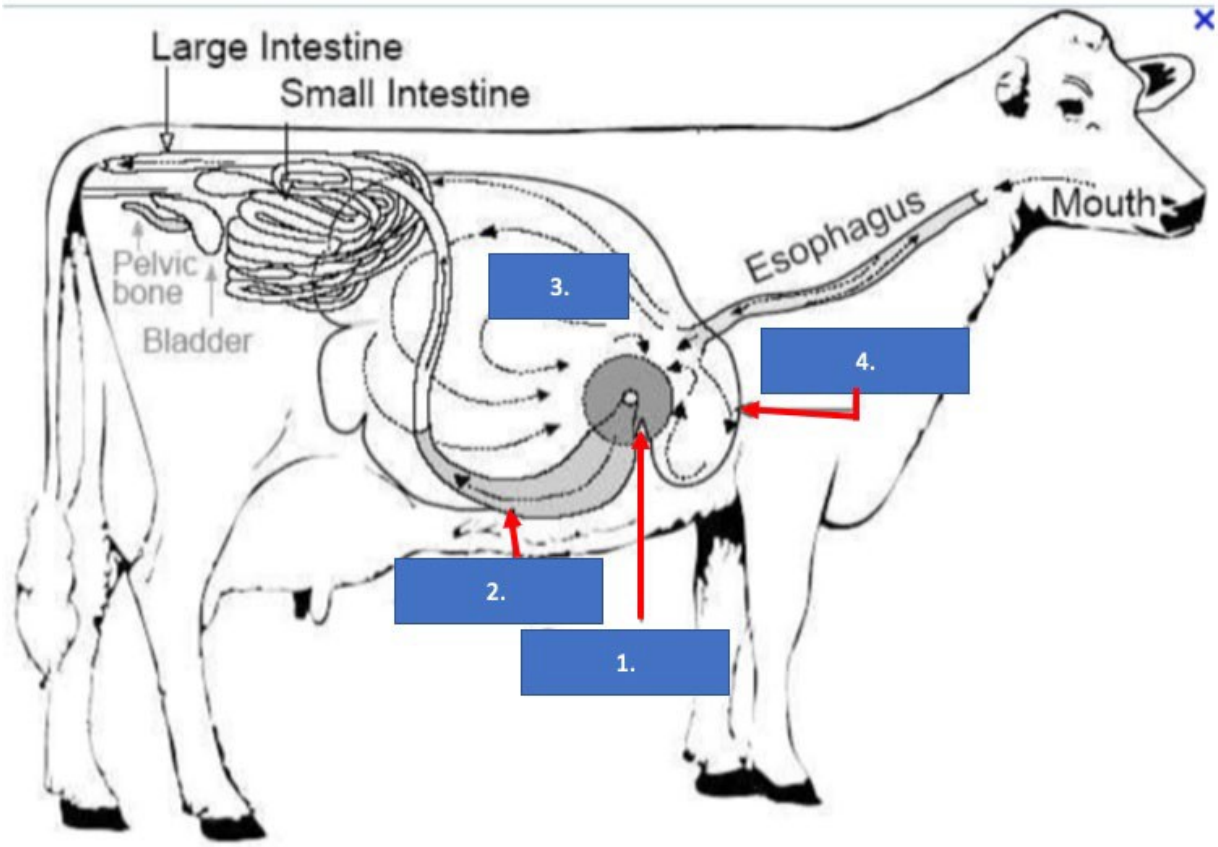
Function:

4. Abomasum



Function:

Now, let's see if we can identify the parts of the ruminant stomach using the model below:



1._____ 2. _____

3._____ 4. _____

Check your answers at the bottom of the page.

1. Omasum 2. Abomasum 3. Rumen 4. Reticulum

For a dairy cow to have a properly working digestive system, it must also have the correct feed. Check out this feed video to learn about common dairy cattle feeds using the QR code.

SCAN ME

Describe the difference between forage and concentrate:

Using the chart below, list three forages, three minerals and five concentrates.

Forages		

So you know the difference between forage and concentrate, but how do you read the feed tag?

Using the QR code on the right, watch a video to learn how to read a feed tag.

SCAN ME

Take a picture of a feed tag that you have or find one online. Use the rest of this page, to create a chart that describes what percentage of fat, protein, fiber, etc. is included.

Explain the importance of this information and what is needed to provide for a dairy cow's energy, protein, fiber, etc.:

Activity 10
In My Pedigree

Outcomes:
- Define the following terms related to genetics: sire, dam, inheritance, physical characteristic, genetic selection and pedigree.
- Distinguish between male and female reproductive tracts.

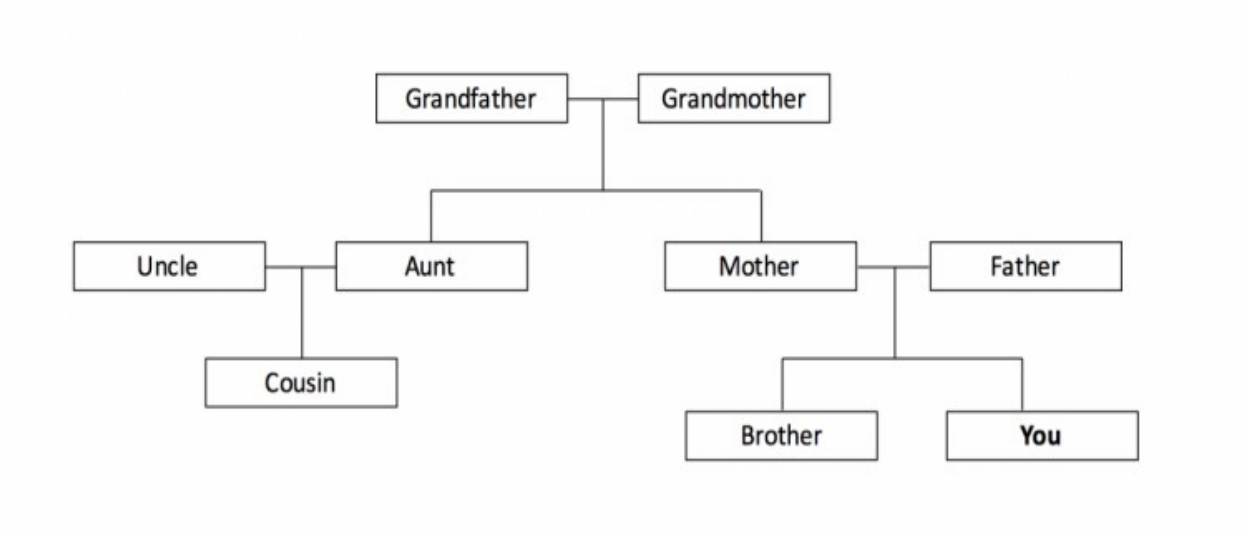
In the previous activities, we discussed registering your breed. The purpose of registering is to have a record of ancestry/pedigree. This history will allow for you to better understand the genetics and reproduction traits of your dairy cows.

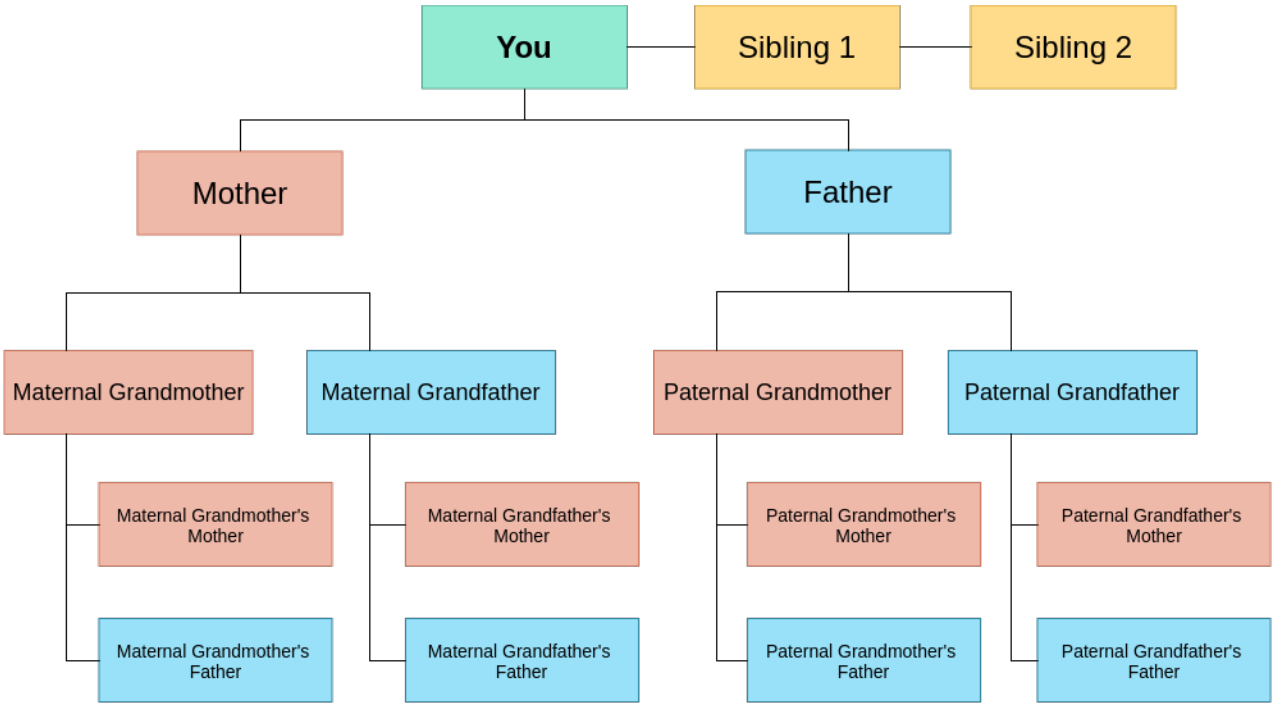
It is important to understand that the sire and dam genetics/traits will pass on to their calves and impact their development.

A sire is:

A dam is:

Here are two examples of family trees:





Just like a calf's traits are passed on to them from their parents and grandparents, so are yours. Let's create a family tree below to explain the linage of a family. You can use your own family or a famous family. Use the rest of the page below to create your own version of a family tree.

Did you notice any traits that are shared throughout the family? Such as: hair color, eye color, dominant hand, high blood pressure, etc.?

List these traits below:

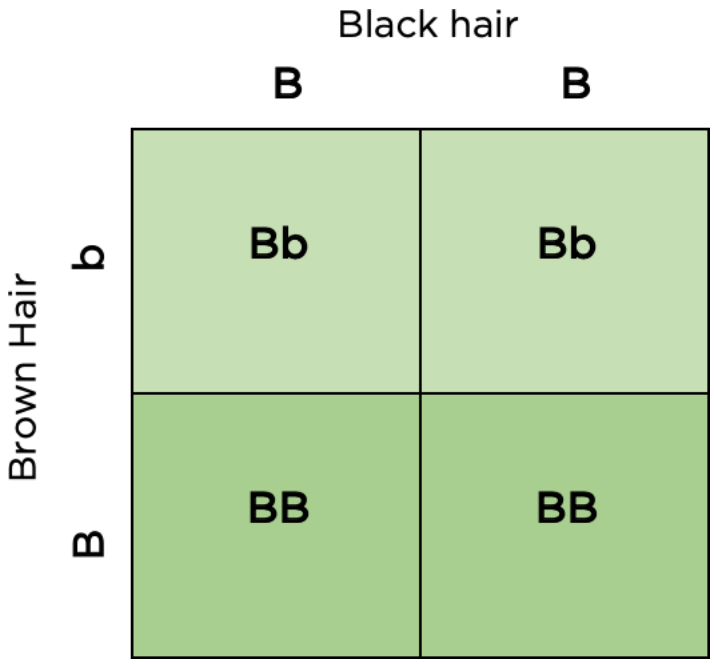
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

Was hair color one of the traits? The same way that hair color is a genetic trait passed on for humans, coat color is passed on from one generation of calves to the next.

How do we know what traits get passed? One way we can see what traits get passed to offspring is using a tool called a Punnett Square.

A Punnett Square is a simple way to predict the possible genetic combinations of an offspring.

For example: Black hair is a homozygous dominant trait. In simple terms, this means that it has the greatest chance of being passed on and is represented in the Punnett Square below as "BB". Notice that the letters are the same. This is because the root word "homo" means same. Brown hair is a heterozygous recessive trait. This means it has a less likely chance of being passed on. It is represented as "Bb". Notice that the letters are different. This is because the root word "hetero" means different.



2/4 offspring would have black hair (BB).

2/4 offspring would have the gene for brown hair, but would more than likely have black hair (Bb).

This same formula can be used to predict the traits of a dairy cow offspring. Using the information provided on the next page, try to fill in the Punnett Square on your own!

Reprinted from the Holstein Foundation "Understanding Genetics and the Sire Summaries."

Punnett Square Activity:

Your black and white Holstein cow, Holstein-Acres Daisy May, does not have any red and white cattle in her pedigree, so you know she is homozygous for black coat color. You are interested in red and white cattle though and want to try to eventually get some red and white offspring from this cow family.

Because of this you decide to breed her to a red and white Holstein bull to work towards this goal, and you choose Mighty-Fine Studly Brick-Red.

Holstein cattle can possess one of three genotypes for coat color:
• Homozygous for black coat color
• Heterozygous (called "red carrier")
• Homozygous for red coat color
Black coat color is dominant (labeled "B")
Red coat color is recessive (labeled "r")

Start out by writing the genotype (recessive or dominant gene/trait) for each combination. The phenotype (physical trait) has already been filled in.

Homozygous for black coat color
Genotype:_____
Phenotype: Black and White Coat

Heterozygous/red carrier
Genotype:_____
Phenotype: Black and White Coat

Homozygous for red coat color
Genotype:_____
Phenotype: Red and White Coat

Next, let's write out the genotypes for Daisy May's genotype and Brick-Red's genotype:

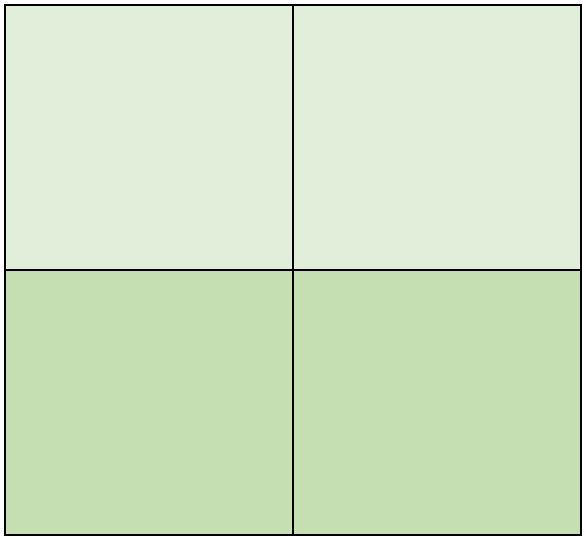
Daisy May's Genotype: _____

Brick-Red's Genotype: _____

Reprinted from the Holstein Foundation "Understanding Genetics and the Sire Summaries."

Next, create a Punnett Square to determine the type of offspring you would get from breeding Daisy May with Brick-Red:

_____ _____



What are the results? (Genotype)

_____ /_____calves will be homozygous for black coat.

_____ /_____calves will be heterozygous (red carriers).

_____ /_____calves will be homozygous for red coat.

What are the results? (Phenotype)

_____ /_____calves will be black and white coat.

_____ /_____calves will be red and white coat.

Is it possible to get red and white daughters from Daisy May? Why or why not?

Lastly, you must understand the reproductive tract for dairy. Using the QR code below, watch this video to learn about the importance, function and structure of a dairy cow's reproductive parts.

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Activity 11
Yummy, Yummy In My Tummy

Outcomes:
- Understand the differences between common types of milk.
- Identify and distinguish the following dairy products: butter, milk, ice cream, hard cheese and soft cheese.
- List four meat products we can get from dairy cattle.

We have talked a lot about dairy cows and how they live, but what about the products they produce?

Did you know there are different classes of milk? Check out this QR code to understand how USDA classifies milk products.

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Using the list of dairy products below, put the prodcuts in their correct class.

Class I	Class II	Class III	Class IV

List of dairy products

Chocolate Chip Ice Cream	Buttermilk	Cheddar Cheese
Cottage Cheese	Coffee Creamer	Yogurt
Cream of Mushroom Soup	Whey Protein Powder	Eggnog

Think about the last time you went to the store. How many dairy products did you see? On your next trip to the grocery store take along something to take pictures and notes.

While you are at the store, write down all the types of milk that come from dairy cows and take a picture of each item's nutrition label. Once you arrive home, use this information to describe the difference between skim milk and whole milk.

Differences between skim milk and whole milk:

Skim milk	Whole milk

Which one do you normally buy? _____

Which do you like better and why?

_____

_____

_____

Did you know that dairy products are not the only item that dairy cows provide? Dairy cows can also be used for meat just like beef cattle.

Though they are bred to produce milk, they still have the same body parts as beef cattle. Roughly 21 percent of dairy steer contributed to beef production within the United States.

Look at this video, using the QR code, to learn about the different cuts of meats. Then, fill out the blanks below.

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What are four types of meat products that come from cows?

1._____

2._____

3._____

4._____

What part of the body do they come from?

1._____ 2._____

3._____4. _____

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To learn more about other nutritional facts and benefits of dairy, check out The Dairy Alliance website which can be reached by this QR code!

Activity 12
Show Off That Cow

Outcomes:
- Understand basic showmanship skills.
- Identify 10 basic pieces of equipment used in raising, grooming and showing a dairy cow.

As you have learned, taking care of dairy requires a large of amount of responsibility. When you participate in dairy shows, it's crucial to provide your animal with the resources it may need as well as practice your showmanship skills. Showmanship is more than just leading your cow into the showring, but it takes patience and teamwork, between you and your animal.

Use the QR code on this page to watch a video about what it takes to show dairy.

Watching a video is always a fun way to learn, but let's kick it up a notch. Take some time to interview a local dairy showman regarding what is required to show, like daily care, management, sanitation and feed.

Using this information, write your own guide for showmanship below:

Using the QR code, take a look at the first 15 minutes of this show of Holstein at the Williamson County Fair.

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Use the space below to evaluate the showmanship: (For consistency, each contestant should be labeled 1-7 in your evaluation, starting with the first to enter.)

Before moving on to the next activity, check out some of the additional resources below to learn more about showing cattle.

Showring Ready Guide: Video

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Showmanship Reasons

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Activity 13
Why Do You Stand Like That?

Outcomes:
- Recognize 2-3 common conformation faults of dairy cattle.
- Define the following terms used to describe dairy cattle conformation: udder depth, udder attachment, dairy character and leg soundness.
- Understand the differences between judging heifers and lactating dairy cows.

Dairy judging is something that takes time and practice to become comfortable with your final decision for the judgment of the cow's structural correctness and dairy character. When judging, you will learn that people have different things they may accept in the structure of a cow. Luckily there are scorecards for cattle andheifers that are used as a baseline guide on what to look for.

Take some time to look over the scorecards below to better understand the basis of what you should look for when judging dairy animals.

Heifers: https://youtu.be/53ram-VHEgE
Cattle: http://www.purebreddairycattle.com/file_open.php?id=2

Here are also some more in-depth videos on dairy judging criteria. Scan the QR code or click on the hyperlinked heading.

Heifers:

Correctness	Dairy Character	Size
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Cattle:

Udder	Dairy Character	Feet and Legs
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Now, look over this practice class of Holsteins to rank them in the order you think is best. Scan the QR code or click here: https://youtu.be/6x9ES-EuWaU. Also provide your reasoning below.

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Holstein	Reasoning
1. _____	_____
	_____
	_____
2. _____	_____
	_____
	_____
3. _____	_____
	_____
	_____
4. _____	_____
	_____
	_____

Congratulations!

You have now completed the Beginner Dairy Project curriculum.

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