





"For the first question," continues Clarabelle, "please answer true or false. Most dairy cows are milked by hand."

Albert quickly presses his buzzer and shouts, "False!"

"Correct, for 50 points," exclaims host Clarabelle.
"Today, on modern dairy farms, cows are typically milked by sophisticated milking machines. Great job, Albert!"

"And now, for a chance to earn an additional 100 points," Clarabelle continues, "Can you name two other people - besides farmers - who care for cows on a dairy farm?"

Albert thinks for a moment and then confidently responds, "Veterinarians and nutritionists! I know this because they come take care of us on pig farms, too!"

"Nicely done," replies Clarabelle. "Now, let's take a quick look at the MooTube to see how hard human creatures work to keep their cows healthy."



Albert's opponent Lucy quickly sounds her buzzer and cries out her response, "True! The answer is true! I know this because my best friend is a cow and she eats cereal all the time—and without milk! Can you imagine?"

"Great job, Lucy," replies Clarabelle. "You are correct. And I must admit, we really do love snacking on cereal. Now, Lucy, for a chance at the Dairy Double: Name a type of bedding cows prefer-besides grass and straw, of course!"

Lucy excitedly exclaims, "Sand!"

Host Clarabelle replies, "Lucy's answer is 'sand.' What do you think, folks? Did she answer correctly? Let's take a look at the MooTube to find out."



Back over at the MooTube, audience members learn how keeping cows comfortable is a priority for every dairy farmer, because happy, stress-free cows produce more milk. That's why sand is used as a common type of bedding. Sand conforms to the cow's bodies, and keeps them cool and comfortable. So, for many dairy cows, life is a beach!

"Congratulations, Lucy," declares Clarabelle. "You are correct for an extra 100 points! As you can see, my friends and I sure do live the good life, safe and cozy inside." "Well folks, this certainly is an exciting game! Contestants, the score is now tied!"

Just then the buzzer sounds.

"Oh, and that sound means we only have time for one more round," exclaims Clarabelle. "Whoever wins this round wins the gameand the grand prize! Are you ready?"

Back at the Dairy Double Wheel, Coco and Berry reveal the last category, "From Moo to Market!"

"Okay, contestants,"
declares Clarabelle, "For our
final round and the title of
Dairy Double winner, here's
the question: How long does
it take to mooove milk from
the cows to the coolers in
your grocery stores?



Both contestants hesitate momentarily and then Albert buzzes in and responds, "Uh, two days?"

Clarabelle replies, "You heard it folks. Albert's final answer is two days! Let's take a look at the MooTube to see if he's correct!"

Back over at the MooTube, audience members learn how milking machines deliver milk directly from the cow to a refrigerated holding tank where it is cooled between 38° and 45° Fahrenheit to preserve freshness and safety. The milk is then quickly transported from farms to processing plants in order to maintain quality and ensure freshness. And so the entire process of moving milk from the cows to the shelves in your grocery store takes just two days!







There are many different kinds of milk: skim, one percent, two percent, vitamin D, organic, chocolate, strawberry and vanilla. While the taste and color of milk may vary, the different types share a common characteristic: they're good for you.

Some people prefer thicker whole milk.
Others are fans of organic, while many of us think flavored is best. But whatever kind of milk you drink, milk is milk-with nutrients that are good for growing bodies!

All milk contains nine essential nutrients: calcium, potassium, phosphorous, protein, vitamins A, D and B12, riboflavin and niacin.

# Take a poll: What's your classmates' favorite kind of milk?

S	k	ĺl

1%:

2%:

Vitamin D:

**Chocolate:** 

Strawberry:

Vanilla:

The class favorite is: \_

Do the same thing at home or in your neighborhood!



Milk and milk products are the top source of calcium in the American diet.

Potassium helps your muscles flex and also helps maintain normal blood pressure.

Vitamin A prevents eye problems and promotes healthy skin.

Niacin gives energy to the cells in your body.

### **Happy cows = nutritious milk**

Farmers really do care for their animals. In fact, the health and comfort of their cows is one of their top priorities. That's why they go to great lengths to ensure their cows have clean, dry bedding and living conditions that are healthy and free from germs.

Many farmers have both veterinarians and nutritionists visit their dairy farms every week. Veterinarians give cows regular check-ups and preventive vaccinations, and promptly treat any illnesses. Nutritionists ensure cows receive the right amount of carbs, fiber and other nutrients in their diets.

Farmers know that dairy cows must be healthy and well cared for in order to produce pure, wholesome milk.

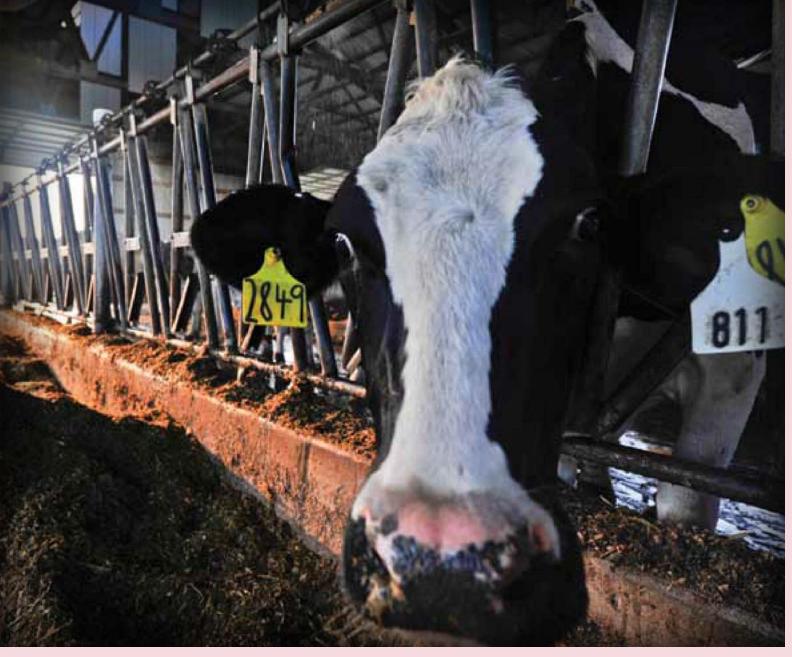


A cow produces an average of 6.3 gallons of milk each day-more than 2,300 gallons each year. That's a lot of milk from one cow!



One cup of milk has the same amount of calcium as 3½ cups of broccoli.







No one cow has exactly the same pattern of spots.

### Life's a beach

Many people like to think of cows out grazing in pastures. The truth is, most dairy cows prefer living indoors. Outside, they face predators (even with fences) and weather that can be too hot, too cold or just plain unpredictable. Inside, they are protected from wild animals that threaten their safety. Fans and sprinklers cool them down in the summer months, and temperaturecontrolled barns keep them warm throughout the winter months.

Best of all, life's a beach for many dairy cows that live in beds of sand. Sand has been proven to not only be much more comfortable and cushiony (Think about it: what would you prefer: itchy straw or sand that moves with your body?), but it also prevents bacteria from growing in their stalls. Cows may also sleep on waterbeds, rubber or foam flooring, or even mattresses. Now that's living the good life!



# It's all in the family

Next time you pull a milk carton out of your refrigerator, think of the dairy farmer who worked a long day to produce dairy fresh, great tasting milk products.

Almost all dairy farms are family-owned. In fact, more than 60,000 American families are involved in dairy farming across every state in the U.S. and Puerto Rico. With an average herd of 135 mature cows, these families take pride in providing milk, cheese, yogurt and other great tasting dairy products for the United States and other countries.

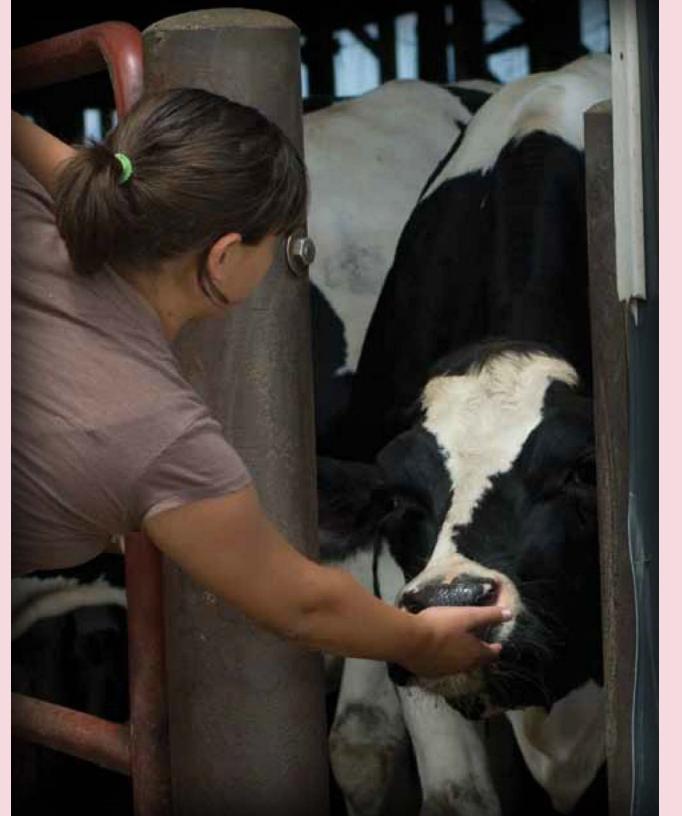


The average American consumes nearly 25 gallons of milk a year.

## A weighty matter

Cows are large animals. Very large. In fact, the average Holstein—the most popular breed of dairy cows—weighs 1,400 pounds, with its udder alone weighing between 25-60 pounds!





### Talk about bad table manners

Next time your mom tells you your table manners are lacking, you can tell her at least they aren't as bad as a cow's.

Because cows have a unique digestive system that includes four different stomach compartments, they swallow food quickly without chewing it well. The food is then stored in their first and second compartments called the rumen and reticulum.

After a dairy cow has had her fill, she will burp up a small portion of the food she has stored. (That will gross mom out!) This small portion of food is called cud. The dairy cow goes on to chew the cud and then swallow it to her third compartment called the omasum.

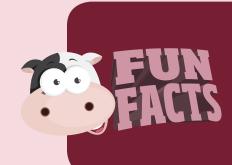
After food leaves the third stomach compartment, it enters the abomasums, the fourth and last compartment (How does it not get lost?), where digestion occurs. Cows spend about 6 1/2 hours eating per day, and they eat about 90 pounds of food in that time. (Doesn't make you look like such a...hog, huh?)



Cows have four stomach compartments and can detect smells up to six miles away!

## **Cereal please!**

In factories where cereal is made, sometimes there is a bit more produced than needed. But this cereal doesn't go to waste. The extra cereal is routinely sold to dairy farmers to feed to cows. Apparently, cows love cereal ... and potato chips and even cotton seed! Who knew?



Research shows that drinking chocolate milk after exercising can help replenish muscles and aid recovery as well as, or even better, than popular sports drinks.

# How well do you know dairy cows?

Below are the most common types of dairy cows. See if you can match up the breed type with the features or traits for which they are known.

- 1. Holstein
- 2. Jersey
- 3. Ayrshire
- 4. Guernsey
- 5. Brown Swiss

- A. Originated from Scotland
- B. Big eyes and honeybrown color
- C. Highest milk production of all of dairy cattle breeds
- D. Large ears; high protein makes them ideal for cheese production
- E. Cream and brown; known for high butterfat content of milk



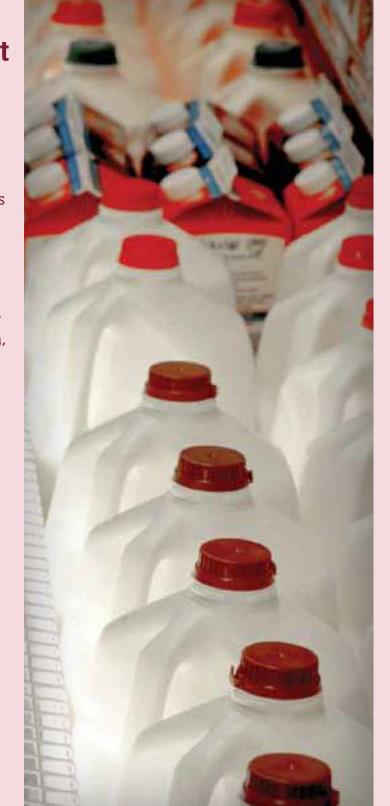
# Moooving milk to the market

So how does milk get from the cow to the market? Is it complicated? Does it take long? Read on to find the answers to these questions and more!

Farmers typically milk their cows about three times each day. Long gone are the days of milking by hand. Today's sophisticated farmers use electronic milking machines with a pulsating vacuum that gives the cow the same feeling of a suckling baby calf. The machines aren't harmful or uncomfortable—and, more importantly, they protect the milk from outside contamination, which means it's safer for you.

After a cow is milked, the milk goes into an insulated refrigerated tanker truck where it is transported to the processing plant and then pasteurized and packaged. At the dairy processing plant, all incoming milk is immediately tested for a variety of safety standards. If any single standard is not met, the entire tank of milk is discarded and never reaches the public. After passing the safety tests, the raw milk is pasteurized, or heated to kill any pathogens (disease-causing agents). Pasteurization does not affect the taste or nutritional value of the milk; it only makes it safer for you to drink.

After pasteurization, the milk is quickly cooled, packaged and then sold. At grocery stores, dairy cases are carefully monitored to ensure the safety and quality continues.





California provides nearly a quarter of the U.S. milk supply-more than any other state.

### **Shop smart**

Here are some tips to tell your parents about buying milk. You can help maintain the quality of milk by:

- Examining containers for leaks and other damage
- Checking the "sell-by" or "use by" dates on product containers (The "sell by" date refers to how long the grocery store can keep the product for sale in the dairy case. When properly cared for, milk generally stays fresh for 2 to 3 days after this date. The "use by" date indicates how long the product maintains its quality at home.)
- Picking up milk and other perishable dairy foods (in other words, foods which can spoil without refrigeration) immediately prior to checking out of the store–especially in hot weather
- Taking dairy products home from the store immediately after purchasing

Answers: 1C, 2B, 3A, 4E, 5D

# **Barnyard Chronicles Teacher Tips**

## Bring the barnyard into your classroom. Consider supporting your curriculum with these ideas!

#### **Social Studies**

- Invite a dairy producer to the classroom for a career day presentation or take a field trip to a local dairy farm
- Invite a 4-H representative to your classroom to encourage students to explore the world of agriculture

#### Health

- Introduce students to the "Step Up To A Healthier You" Food Pyramid and discuss how and where dairy fits in
- Prepare an "In the Moo'd for Cooking" cookbook of students' favorite family recipes made with dairy products. Print and send stapled copies home. Better yet – make it a school project by encouraging other classrooms to participate.

#### Art

- Assign an art project where students design a cover for their own "In the Moo'd for Cooking" cookbook, or encourage a classroom cover design contest
- Design a "Dairy Diner" restaurant menu featuring only delicious dairy products; name and describe the items in the most appetizing and appealing way
- Direct small groups of students to create a lifecycle chain demonstrating the process of moo'ving milk from the cow to your local grocery stores

### Language

- Create a word search or crossword puzzle that incorporates terminology from *The Barnyard Chronicles Volume 3 Game Show*
- Direct students to research "A Day in the Life of a Dairy Producer" and have them write a report on their findings

#### Math

- Mix math and measurements with fun "in the kitchen" (at school!) by having students measure ingredients for a chocolate shake or banana smoothie made with wholesome milk or delicious ice cream
- Direct students to individually research the recommended daily servings of dairy products for their age group and "cowculate" a listing of various dairy options that would meet those requirements

# **Read-to-Learn Comprehension Questions**

### **Barnyard Chronicles Story**

- How are cows milked at modern dairy farms?
- Can you name two facts about how cows are cared for on dairy farms?
- Why do cows enjoy sleeping on sand?
- How long does it take for milk to "moove" from a cow to your grocery store? What are some of the steps of that process?

#### **Factual Sidebar Information**

- Pick two breeds of dairy cows mentioned in this book and research how they are alike and how they are different.
- Compare the weight of an average Holstein to something in your house. (An average Holstein weighs as much as....)
- Can you describe how a cow's digestive system works?
- What are some things you should consider when purchasing milk?

### **Bonus Question**

• What are some ways the author and illustrator pulled in humorous cow and milk references into the story?

### **Key Learning Points**

- Dairy cows are raised in a safe and comfortable environment—one in which farmers go to great lengths to ensure they are clean, with dry bedding and living conditions that are healthy and free from germs.
- At modern dairy production facilities, milk is safely pasteurized, packaged and put on grocery shelves within two days of being produced by the cow.
- There are many different kinds of milk, but whatever your preference, all milk contains nine essential nutrients to help bodies grow.

