



The Amazing Dairy Cow



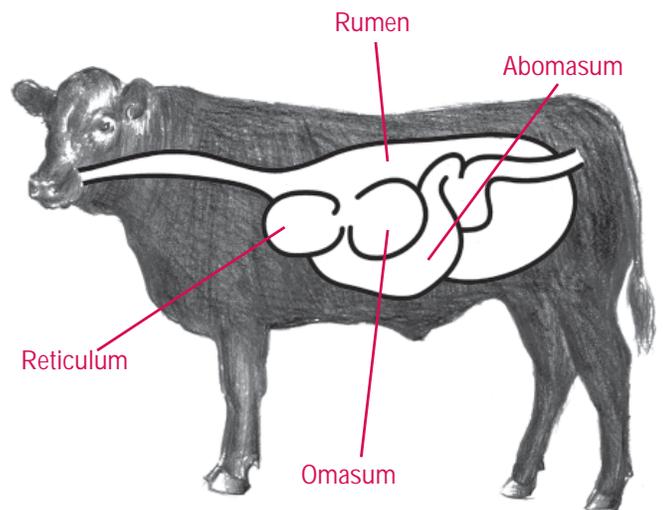
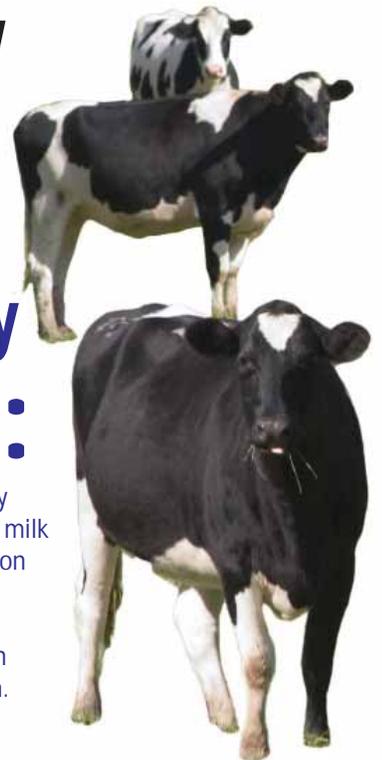
Dairy cows are amazing animals. They can turn grass and grains into milk! Heifers are female dairy cattle and after two years, they usually give birth to their own calves. All female dairy cows must have a calf to produce milk. The gestation (pregnancy) period for cows is nine months. Newborn calves weigh about 80-100 pounds. Male dairy cattle are called bulls and do not produce milk.

Do A Double Take

Dairy cattle are called ruminants because they chew their cud. Food eaten by the cow is first chewed to soften it, swallowed, and then returned to the animal's mouth for continued chewing. This is called chewing the cud. After chewing the cud, it is swallowed a second time, broken down further, and digested. Cows will spend up to eight hours a day chewing their cud. The four digestive compartments of a cow's stomach include the rumen, reticulum, omasum, and abomasum.

Udderly Cool:

Each year, U.S. dairy farmers provide the milk for more than 1 billion pounds of butter, 7 billion pounds of cheese, and 1 billion gallons of ice cream.



At the Farm



On today's dairy farms, cows are milked two or three times a day with special milking machines. Farmers use automated equipment to milk dairy cows. Rubber-lined cups are attached to the teats, or nipples, of the cow. Then a pump sucks the milk through the cups and into a pipe. This pipe leads to a refrigeration tank that stores the milk at 40 degrees Fahrenheit. Dairy farmers take extra steps to keep the milk clean and safe.

Before modern milking machines, a farmer could milk six cows by hand in one hour. Now he can milk over 100 cows in an hour.

Illinois has about 114,000 dairy cows that produce more than two million pounds of milk a year. On average, each cow produces enough milk per day to fill 90 glasses. That's over five gallons per day!

On the Road



Special trucks haul the milk from the farm to the dairy plant. The trucks keep the milk cold—like a giant thermos on wheels. The truck drivers take samples of the milk to make sure it meets certain standards before they deliver it.

In Your Body



Milk provides your body with calcium, which is needed for healthy bones and teeth. Calcium also helps our muscles and nerves work properly, and helps blood to clot. Milk products also provide us with carbohydrates, protein, and Vitamin D. You should have three servings of nonfat or low fat milk and milk products each day. One serving of dairy is equal to one cup of milk, yogurt, or ice cream, and one to two ounces of cheese.

Your bones need more than calcium to stay strong. They also need exercise! How many of these good bone-building activities do you like to do?

- play soccer
- dance
- jump rope
- skate
- roller blade

At the Plant



This is where the milk is tested, standardized, homogenized, pasteurized, and packaged.

1. Milk is **tested** for butterfat content, flavor, odor, and bacteria. Then it is pumped into a refrigerated storage tank.
2. The milk is moved from the storage tank to a clarifier, where it is **standardized**. Here, milk from several different dairy farms is mixed so it all tastes the same and has the same amount of cream.
3. During homogenization, milk fat is broken into tiny particles that are evenly spread throughout the milk. Without being **homogenized**, the cream would rise to the top of the milk and it would need to be stirred or shaken before drinking.
4. Milk is **pasteurized** to kill bacteria and protect its purity and flavor. This is done by quickly heating, then cooling, the milk. Pasteurization got its name from Dr. Louis Pasteur, who first discovered that heat kills germs.
5. Automated machines **package** the milk. The machines fill, seal, and stamp the expiration date on each carton. The milk is refrigerated until it is ready to be shipped out of the plant.

In the Kitchen



Try this activity to make your own butter!

1. Place a half-pint of room temperature whipping or heavy cream in a plastic or glass jar with a lid. One half pint of cream will make about one-quarter pound butter.
2. Shake the jar for five to ten minutes.
3. When a lump of butter forms, pour the contents of the jar into a colander to separate the butter from the buttermilk.
4. Eat the butter on bread or crackers. A pinch of salt can be added.

At the Store



Refrigerated delivery trucks pick up the packaged milk from the dairy plant and deliver it to grocery stores across the country. The milk may have been inside a cow as little as two days before it's bought. Long ago, milk was stored in jars, pails, cans, and eventually, glass bottles. Paper cartons arrived in 1906 and plastic jugs followed. Today we are lucky enough to find milk available almost everywhere - thanks to refrigerated tanks and trucks.

Lots of other dairy products can be found in the grocery store, too, like ice cream, cheese, butter, yogurt, cream cheese, sour cream, cottage cheese, and buttermilk.

WHERE'S THE DAIRY?

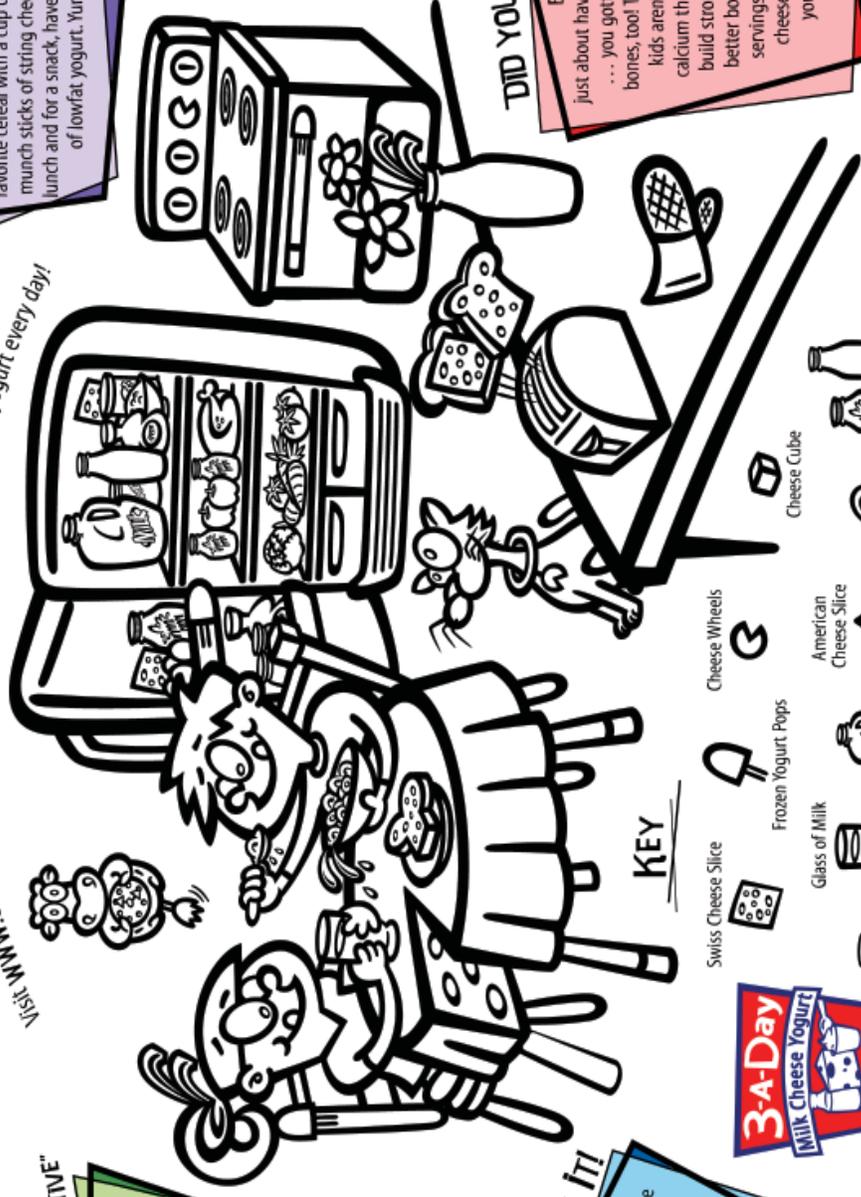
THERE ARE 20 DAIRY FOODS HIDDEN IN THIS PICTURE. CAN YOU FIND THEM ALL?

"MOOS" YOU CAN USE
 Eating 3-A-Day of Dairy is as easy as breakfast, lunch and dinner! Start your day off with a bowl of your favorite cereal with a cup of milk, munch sticks of string cheese at lunch and for a snack, have a cup of lowfat yogurt. Yum!

BE A "DAIRY DETECTIVE"
 Color in all the milk, cheese and yogurt you can find. Score bonus points if you know what eating three servings of these dairy foods everyday can do for you.
*sipoon, jaiiseq, pure, saooq, jriifuaits, ping, jaksosny

MILK IT!
 Try mixing it with milk for a dairy-licious drink! Stir in your favorite flavor like chocolate or strawberry. Or, have mom help you mix up lowfat milk with fat free pudding and add your favorite fruits for an extra kick!

DID YOU KNOW?
 Being strong isn't just about having big muscles ... you gotta have strong bones, too! Two out of three kids aren't getting the calcium they need to help build stronger bones and better bodies. How many servings of lowfat milk, cheese or yogurt did you eat today?



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For More Information...

Check Out These Websites

www.prairiefarms.com

www.midwestdairy.com

www.ilovecheese.com

www.moomilk.com

www.holsteinusa.com

www.brownswissusa.com

www.whymilk.com

www.stldairyCouncil.org

www.3aday.org/

www.nutritionexplorations.org/kids/main.asp

www.nationaldairyCouncil.org



A Holstein's spots are like a fingerprint or a snowflake. No two spots are alike.

Fill'er Up!

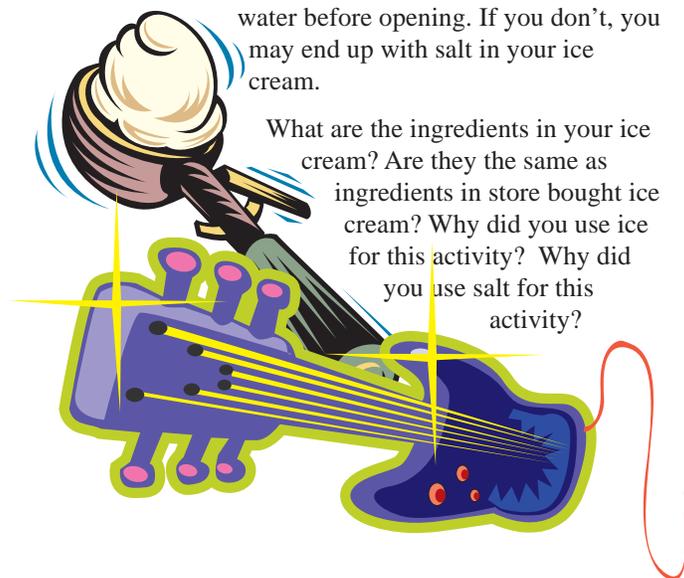
Dairy cows eat hay, silage, and grain. Silage is fermented corn, wheat, or hay with the stalks and leaves. Cows eat 50 pounds of silage as well as 40 pounds of feed and hay each day, for a total of 90 pounds. Dairy cows also drink 25-50 gallons of water each day.



- If one cow eats 90 pounds of feed each day, how many pounds of feed would a herd of 100 cows eat in a day?
- If one cow drinks 40 gallons of water each day, how many gallons of water would a herd of 100 cows drink in a day? If a cow drinks 40 gallons of water a day, how many cups of water does she drink? (16 cups=1 gallon)

Rock 'n Roll Ice Cream

1. Empty and clean a 3-pound coffee can and a 1-pound coffee can.
2. Mix 1 pint of half & half with a 1/2 cup sugar in the small can. Add a little vanilla or fruit if you like.
3. Place the lid on the small can, secure it with duct tape and then place the small can inside the large can.
4. Pack ice around the small can. Then sprinkle about 2 tablespoons of rock salt on the ice. Finally, fill the rest of the can with ice.
5. Place the lid on the large can. Secure the lid with duct tape so it does not fall off.
6. Sit on the floor with some friends and roll the large can to each other. You may want to put a tarp on the floor for this. After about 10 minutes of rolling your can, you will have made ice cream in the small can!
7. Remove the small can and rinse it with water before opening. If you don't, you may end up with salt in your ice cream.



What are the ingredients in your ice cream? Are they the same as ingredients in store bought ice cream? Why did you use ice for this activity? Why did you use salt for this activity?

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