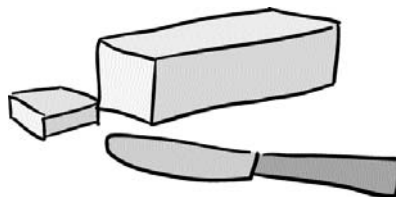
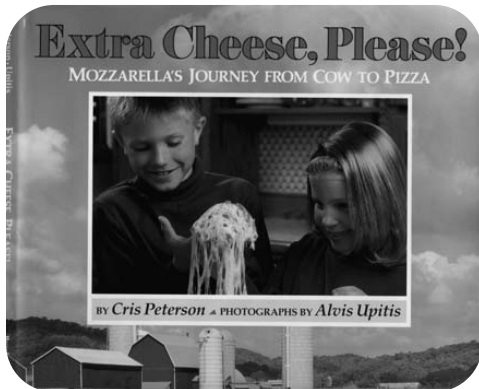


Extra Cheese, Please! by: Cris Peterson



Talking Points:

Cows that are well cared for produce wholesome, healthy milk. The dairy farmer keeps the cows healthy by making sure they have plenty of green grass and hay to eat.

Every morning and evening the farmer milks the cows. Some farmers milk their cows by hand. Others use milking machines. The farmer will sell the cows' milk to a milk processing plant.

After the farmer milks the cow, he cools it and stores it in a stainless steel tank. The milk stays in the tank until it is time for it to go to the milk processing plant.

When it is time to take the milk to the processing plant, a stainless steel tank truck comes to the farm and pumps the milk from the cooling tank. The truck's tank acts like a huge thermos bottle and keeps the milk cool during the trip to the processing plant.

When the milk arrives at the processing plant, workers take it and make it into many delicious, healthy things to eat. Some of the milk goes into the cartons your parents buy at the store. The rest is made into things like butter, cheese, ice cream and cottage cheese.

Dairy

Activity: Butter

Grade Level: Any

Subject Area: Science & Social Studies

Materials

Whipping cream (room temperature works best)

Small jar, with lid (like a baby food jar)

Vocabulary

Bacteria - tiny organisms that cause milk to sour.

Brine - very salty water.

Butter - a solid yellow fatty food made by churning milk or cream.

Butterfat - the fat contained in milk.

Condense - to remove part of the water in a substance.

Curd - the custardlike substance that forms when milk ferments.

Fertilize - to add nutrients back into the soil.

Pasteurize - to expose milk to a high temperature to destroy microorganisms.

Protein - a basic nutritional requirement for all living things.

Rennet - a liquid containing enzymes from a calf's stomach.

Silo - a tall cement structure used to store hay and grain on a farm or milk on a dairy farm.

Soybean meal - high-protein grain fed to dairy cows.

Starter culture - a liquid containing acid-forming bacteria that sours milk.

Whey - the watery substance that separates from milk as cheese is made.

Butter Activity Instructions:

- Pour whipping cream into jar.
- Screw lid on tightly.
- Shake contents for approximately 10 minutes or until butter forms.

Note: There are several variations to “making butter.” The method described above is by far the simplest and most effective. However, some demonstrations call for half and half, rather than whipping cream. It is also believed that if you place a marble in the jar with the whipping cream, it will serve as an agitator and the butter will form faster. Use extreme caution if placing a marble in a glass jar and then shaking. The marble could cause the glass jar to break.

Other Activity Suggestions:

Language Arts - The Story of Milk (Prek-2nd)

- Read and discuss background.
- Hand out the student “The Story of Milk” worksheet.
- Have students color, cut out pictures, and glue them above the appropriate sentences.

Language Arts - Word Doctor (1st-3rd)

You could make ice cream with the students using the ice cream in a bag recipe, then do the following activity.

- Ask each student to write down three adjectives to describe ice cream, each on a small card. Make an illustration of an ice cream cone and hang the cards from it to make a mobile.
- Have the students to divide up into small work groups. Then have them to come up with as many words as they can using the letters in “ice cream”.

Example:

I -- igloo C -- cream E -- egg

Ect... or have them to come up with as many words as they can using the letters in “ice cream” that describe ice cream.

Example:

I -- ice C -- cold E -- excellent

Quick Dairy Facts

- Dairy cows are milked twice a day.
- A mature holstein cow weighs 1,400 pounds.
- Holstein cows produce the most milk.
- The Guernsey breed produces milk high in butterfat.
- A cow’s stomach has four (4) compartments.
- The average cow consumes 35 gallons of water each day, which is about a bathtub full of water.
- The average cow consumes 20 pounds of grain and concentrated feed, plus 35 pounds of hay or silage.
- It takes about 23 pounds of milk to make one (1) pound of butter.
- It takes about 12 pounds of milk to make one (1) gallon of ice cream.
- It takes 10 pounds of milk to make one (1) pound of cheese.
- Factories produce cheese in 500-pound blocks.
- A cow spends approximately six (6) hours a day eating and eight (8) hours a day chewing its cud.
- A cow produces 61 pounds of milk per day, which is about 112 glasses per day.
- The bushy tip of a cow’s tail is called the switch.
- June is dairy month.
- Five breeds of dairy cattle in Tennessee:
 - Holstein
 - Jersey
 - Brown Swiss
 - Guernsey
 - Ayrshire

Recipes:

ROCK - N- ROLL ICE CREAM

(Ice Cream in a Bag Recipe)

Ingredients:

- 1 small "zipper" bag (snack size) per person
- 1 large "zipper" bag (pint size) per person
- 1/4 C. rock salt or table salt
- 1 1/2 to 2 C. ice per person
- 1-2 drops vanilla
- 1 T. sugar per person or 2-3 sugar packets
- 1/2 C. milk per person

Directions:

- Measure out ingredients (vanilla, sugar, and milk) into a small bag.
- Seal carefully. Shake to mix.
- Place the small bag inside the large one.
- Fill the large bag with ice and salt.
- Shake, rattle, rock and roll the mixture in the bag until it is hard. (This should take approximately 5 minutes.)
- Wipe off excess ice and salt from the top of small bag.
- Enjoy!

Note: It's fun to have music playing that the students can shake, rattle, rock and roll to during this activity.

Purple Cows

Ingredients:

- Grape soda
- Vanilla ice cream

Directions:

- Put one scoop of ice cream in each cup of grape soda.

Purple Cow #2

Ingredients:

- 2 cups vanilla ice cream
- 6-ounce can frozen grape juice concentrate
- 1 1/2 cups reduced fat milk

Directions:

- Put all the ingredients in a blender. Mix and enjoy!

Farm Day Fun

Thumbprint Cows (Prek-2nd)

Materials:

- Cow design
- Black ink or stamp pad
- Crayons, if desired

Directions:

- Preface this activity by explaining how Holstein cows look.
- Make a copy of the cow design for each student.
- Using the ink or stamp pad, have students put thumbprints all over the cow to make cow spots.
- Color the cow's ears, face, tail, and udder.

Snack Treats (all grades)

- See recipes to the left. Rock-N-Roll Ice Cream is a fun, hands-on activity to do with students if time permits.

Visual Aids

(for classroom or Farm Day)

- Bring samples of dairy products for students to taste.



Name _____

The Story of Milk

1. Dairy cows on the farm give milk every day.

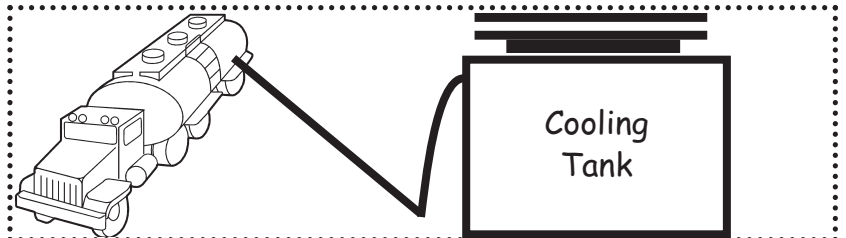
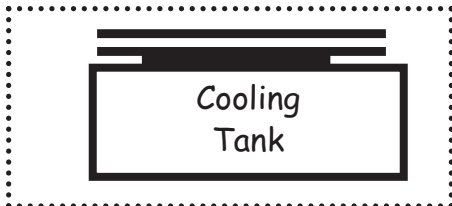
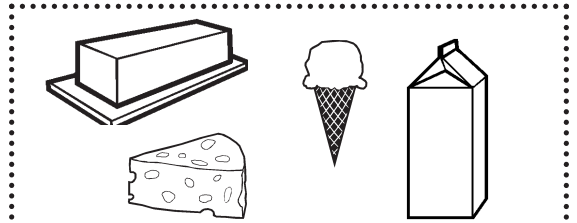
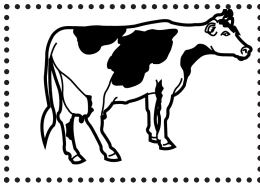
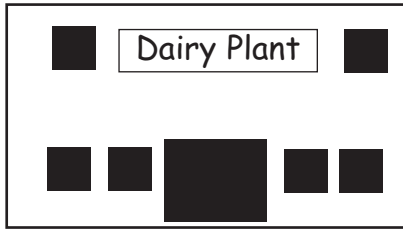
2. Milk is stored in a cooling tank on the farm.

3. Milk is pumped into a cooling tank on a truck and taken to the milk plant.

4. The dairy plant is where milk is made into things to eat or drink.

5. Many good things to eat and drink are made from milk.

Cut out the pictures and glue above the correct sentence.



Thumbprint cow example

