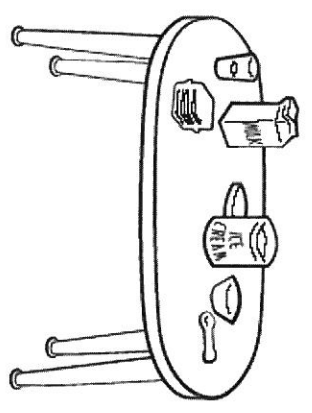
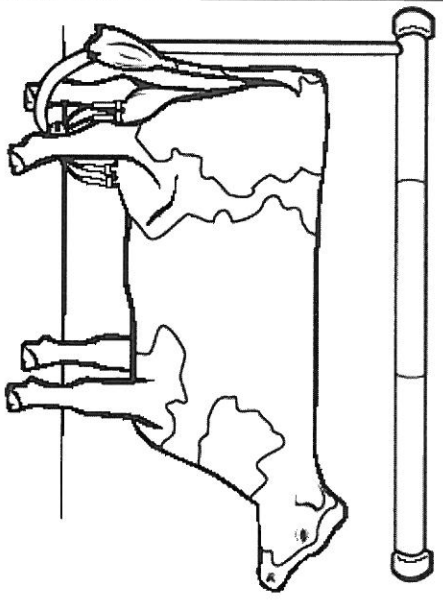
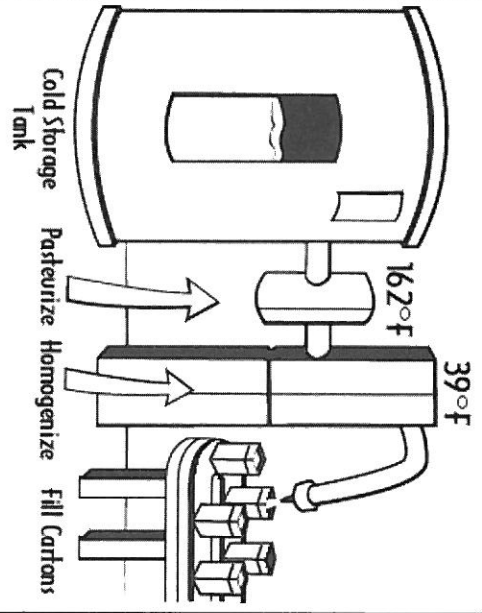
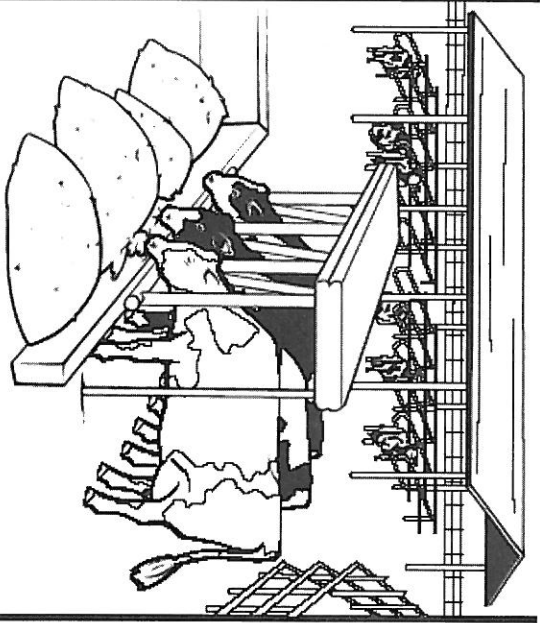
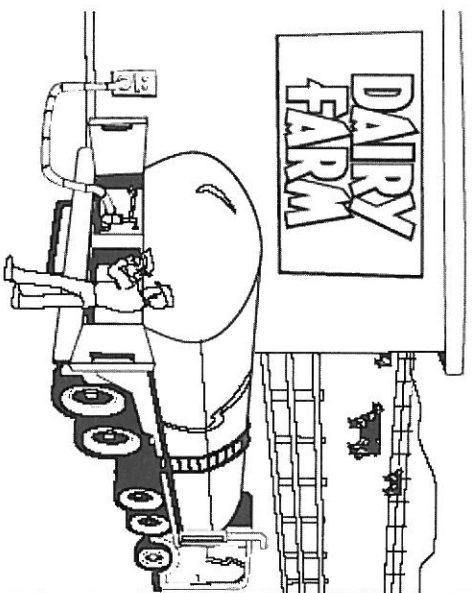


MILK

From cow

to container

by

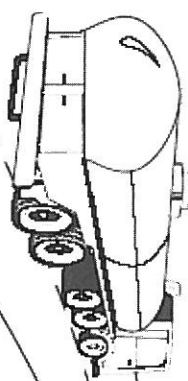


Holding Tank

Milk is made into many different products. Have you ever wondered how yogurt, cheese and ice cream are made?

IN OUT

162°F for 16 seconds.
Pasteurized Milk



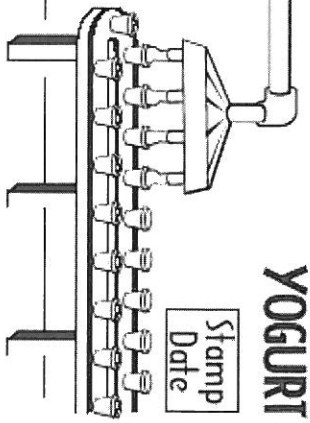
Follow the path of each product. Color each product pipeline a different color. Write about how each product tastes. What is your favorite flavor of yogurt, cheese and ice cream?

Good bacteria added to digest the milk sugar and turn it into lactic acid (the sour taste).

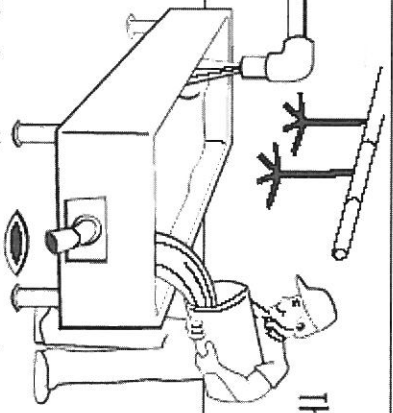
Milk is now YOGURT. Add flavors.

YOGURT

Stamp Date



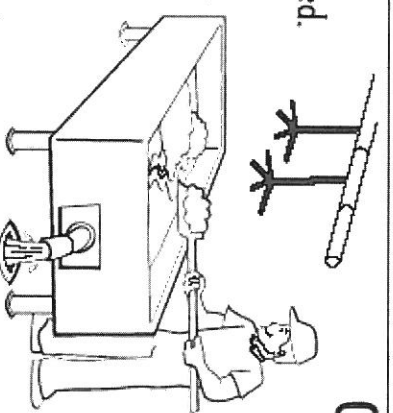
The milk is heated and stirred.



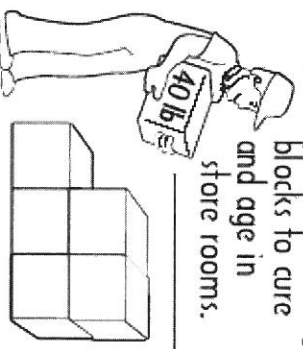
Starter culture and rennet are added to the milk. Coloring is added to some cheese.

CHEESE

is pressed into big blocks to cure and age in store rooms.



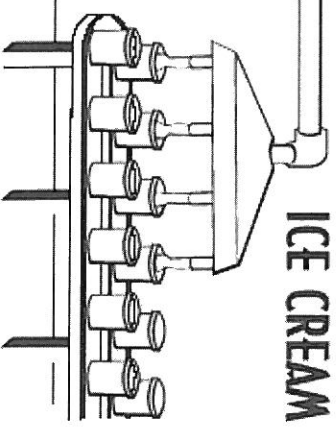
The liquid (whey & water) is drained from the milk solids (curds). Whey is processed into whey powder & lactose sugar. Water is recycled to clean and wash the cheese plant.



Sugar and other ingredients are added to the milk.

Flavors are added to milk.

ICE CREAM



MILK FROM COW TO CONTAINER STORY

Make a copy of "Milk from Cow to Container" for each student. You may want to read the descriptions that follow to help explain each picture. Create a word wall or review a recent dairy experience with your class to help your students understand what is happening in each picture. Students can create their own books (write, color, sequence). Upper grade students may want to paste the picture on a paper with more writing space. Students can share their dairy stories with family, friends or other students.

- **Dairy cows** in California are generally three breeds (pictured on poster front): the black and white **Holstein**, the brown **Jersey** and the red and white **Aryshire**. Cows are **ruminant** animals. They have four stomach compartments and efficiently digest many different foods: hay, silage (fermented corn, wheat or hay including the stalk and leaves) and grain (corn, oats and barley). Cows also eat many different agriculture by-products including cottonseed, almond hulls, beet pulp and blemished vegetables. Each cow drinks about 35 gallons of water each day. A cow must have a **calf** before she produces milk. Dairy farmers employ veterinarians, dairy nutritionists and other professionals to provide the best care possible.
- **Milking** a cow by machine takes five to seven minutes and is comfortable for the cow. Cows are moved into a milking parlor and milked two or three times every day of the year. A cow produces milk in her **udder**. Milk is released through the udder's four **teats**. The cow's udder and teats are cleaned before the **milking machine** is attached. The milk is piped immediately to a refrigerated storage tank on the dairy and kept at 40°F then loaded each day onto a refrigerated milk truck.
- **Milk truck** drivers test the milk before loading it at the dairy. The testing ensures safe and high quality products. Samples are collected and tested again at the processing plant before unloading. The United States dairy industry is one of the most highly regulated food industries in the world. The United States Department of Agriculture requires strict safety regulations and milk handling procedures. Milk is transported to a **processing plant** where it is prepared into many different products.
- **Processing plants** pasteurize and homogenize the milk. **Pasteurization** heats the milk to 162°F for 16 seconds and destroys harmful bacteria, germs and yeast. The milk is cooled immediately to 39°F. **Homogenizing** is mixing and blending the cream in the milk. There are several varieties of milk commonly available – whole milk, low fat, reduced fat, non fat (skim) and chocolate. All milks contain the same amount of the bone building mineral, calcium. The main difference is the fat content. Some milk is further processed for cheese, yogurt, ice cream, butter and hundreds of different dairy products.
- **People** can choose from a wide variety of dairy products to meet their taste and nutritional needs. Milk and milk products provide the highest percentage of calcium in our diets. **Calcium** is critical for the development of strong bones and teeth and especially important for growing children. *Have students draw their family or friends around the table.*