



Lesson 6: Dairy

Activity Level: K-2 | Time: 45-60 minutes

PURPOSE

This lesson: Students will explore Nebraska's dairy production and discover locally produced dairy products.

Overview of Lesson Series: Students will explore the five food groups and what state-grown foods fit into each group. This club makes a local connection to good nutrition and a healthy lifestyle.

NEBRASKA STATE STANDARD CONNECTION

Kindergarten:

- SC.K.7.2.C Use a model to represent the relationship between the needs of different plants or animals (including humans) and the places they live.
- PE.K.3.4 Communicates the importance of health-related fitness components and nutrition for physical activity.
- PE.K.3.4.a Recognizes that food provides energy for physical activity. (E)

1st Grade:

- SS 1.3.5.b Match resources to their sources (e.g., food from farms, wood from trees, minerals from the ground, fish from the sea).
- PE.1.3.4.a Differentiates between healthy and unhealthy foods.

2nd Grade:

- SS 2.2.2.a List various goods and services that can be produced with the same list of resources (e.g. soil, seed, and labor used to produce animal feed, plastics, cereal, or fuel).
- SS 2.3.4.b Identify patterns of land use (e.g., agricultural, residential, industrial, commercial, educational, recreational).
- PE.2.3.4.a Recognizes the impact of nutrition on physical activity. (E)

ACTIVITY SNAPSHOT

1. Organize and Prepare Supplies
2. Read Background Information
3. Interest Approach
4. Conduct Activities 1 & 2
5. Ask follow up questions and make the connection to agriculture
 - What food group did we explore today?
 - Nebraska has about 160 registered dairy herds. What kind of products can we get from a dairy cow?
 - Why is dairy important in our daily diet?
 - Is the dairy industry important to us here in Nebraska?
 - What can we share with others about what we learned today?



MATERIALS

- Computer with PowerPoint Software
- Food Matters: Dairy PowerPoint
- Nebraska MyPlate Poster
- Dairy Discover Template, 1 per student
- Scissors
- Glue
- Markers/Crayons

WHAT'S THE CONNECTION TO AGRICULTURE?

Although we rank 26th in overall dairy production, we are fortunate to have six dairy processing plants to provide us with fresh dairy products on our grocery store shelves. It only takes about 48 hours from the time the dairy cow is milked to the time the milk is processed and reaches the store shelves.

PROCEDURES:

1. Organize and Prepare Supplies
See "Materials" above.

2. Background Information

Source: choosemyplate.gov and Nebraska Department of Agriculture

Nebraska ranks 26th in dairy production. Virtually all of Nebraska's dairy farms are family owned and operated. Dairy farms will recycle and re-use many production inputs, such as sand that is used for bedding and water which will be used multiple times - from drinking to cleaning - before being used to irrigate crops. Since cows are milked two to three times per day and milk is perishable, dairy farms tend to locate near processing facilities to reduce shipping time and expense.

All fluid milk products and many foods made from milk are considered part of this food group. Foods made from milk that retain their calcium content are part of the group. Foods made from milk that have little to no calcium, such as cream cheese, cream, and butter, are not. Calcium-fortified soy milk (soy beverage) is also part of the dairy group.

According to the USDA Dietary Guidelines, the recommended daily dairy serving is 2½ – 3 cups for children 4 to 13 years old. Dairy provides us with the essential nutrients to stay healthy. Dairy is a great source of calcium which promotes the development of healthy bones.

Nutrients:

- Calcium is used for building bones and teeth and in maintaining bone mass. Dairy products are the primary source of calcium in American diets. Diets that provide three cups or the equivalent of dairy



products per day can improve bone mass.

- Diets rich in potassium may help to maintain healthy blood pressure. Dairy products, especially yogurt, fluid milk, and soymilk (soy beverage), provide potassium.
- Vitamin D functions in the body to maintain proper levels of calcium and phosphorus, thereby helping to build and maintain bones. Milk and soymilk (soy beverage) that are fortified with vitamin D are good sources of this nutrient. Other sources include vitamin D-fortified yogurt and vitamin D-fortified ready-to-eat breakfast cereals.
- Milk products that are consumed in their low-fat or fat-free forms provide little or no solid fat.

Health benefits:

- Intake of dairy products is linked to improved bone health and may reduce the risk of osteoporosis
- The intake of dairy products is especially important to bone health during childhood and adolescence, when bone mass is being built.
- Intake of dairy products is also associated with a reduced risk of cardiovascular disease and type 2 diabetes, and with lower blood pressure in adults.

Choosing foods from the dairy group that are high in saturated fats and cholesterol can have health implications. Diets high in saturated fats raise “bad” cholesterol levels in the blood. The “bad” cholesterol is called LDL (low-density lipoprotein) cholesterol. High LDL cholesterol, in turn, increases the risk for coronary heart disease. Many cheeses, whole milk, and products made from them are high in saturated fat. To help keep blood cholesterol levels healthy, limit the amount of these foods you eat. In addition, a high intake of fats makes it difficult to avoid consuming more calories than are needed.

There are calcium choices for those who do not consume dairy products, though they are not part of the Dairy Group. The amount of calcium that can be absorbed from these foods varies.

- Calcium-fortified juices, cereals, breads, rice milk, or almond milk.
- Canned fish (sardines, salmon with bones).
- Soybeans, soy products (tofu made with calcium sulfate, soy yogurt, tempeh), and some other beans.
- Some leafy greens (collard and turnip greens, kale, bok choy).

3. Interest Approach (3-5 Minutes)

- a. Review with students that our food comes from the farm and that farmers and ranchers grow our food. Food comes from either a plant or an animal.
- b. Ask students to recall what they remember about proteins.
 - What does protein give us? *Proteins, B vitamins, vitamin E, iron, zinc, and magnesium.*
 - Should you eat foods containing protein every day? *Yes, 5-6 oz.*
 - Do we raise animals that provide us with protein? What do we raise? *Beef cattle, pigs, chickens.*
 - What are some examples of plant-based proteins that we grow? *Soybeans, dry beans.*
 - Where can we buy locally grown proteins? *Local butcher shops, grocery stores.*



- c. Farmers and ranchers raise livestock animals for the purpose of providing us with a choice to choose to eat meat, which gives us protein. If we choose not to eat meat we can get protein from plant-based foods like soybeans and dry beans.
 - d. Today we are going to identify dairy products that are locally produced in Nebraska.
4. Learning Activity 1- Dairy PowerPoint (15-20 Minutes)
- Source: choosemyplate.gov, Nebraska Department of Agriculture and the Eat Happy Project- Youtube
- a. Slide 1 – Show students where dairy is located on MyPlate (blue). Read the brief story about Dustin and Amanda Fairley’s dairy farm on Nebraska’s MyPlate poster.
 - b. Slide 2 – Ask students where they think dairy products come from (dairy cows). Sometimes we can get dairy products from goats, but most dairy products come from dairy cows. Dairy products are all made with milk which comes from the cow. Watch the dairy video to understand how cows are milked.
 - c. Slide 3 – Virtually all of Nebraska’s dairy farms are family owned and operated. Dairy farms will recycle and re-use many production inputs, such as sand that is used for bedding and water which will be used multiple times - from drinking to cleaning - before being used to irrigate crops. There are about 160 licensed dairy herds in Nebraska and we rank 26th in dairy production. Cows are typically milked two-three times a day producing on average about seven gallons of milk a day. Nebraska has six plants that process dairy in our state. A majority of dairies in Nebraska are located close to a processing plant. This allows dairies to have milk on the grocery shelf within 48 hours.
 - d. Slide 4 – All fluid milk products and many foods made from milk are considered part of this food group. Foods made from milk that retain their calcium content are part of the group. Foods made from milk that have little to no calcium, such as cream cheese, cream, and butter, are not. Calciumfortified soymilk (soy beverage) is also part of the Dairy Group. Foods included as dairy in your diet include milk, cheese, yogurt and milk-based desserts. Even though we can make cream cheese, ice cream, and butter using milk, it does not contain the dietary requirements of dairy a product because it does not contain a enough calcium.
 - e. Slide 5 – Kids age 4–13 should consume 2½–3 cups of dairy each day.
 - f. Slide 6 – Dairy provides us with calcium which is a mineral. Calcium is very important because it supports bone development. Dairy can also provide us with other vitamins and minerals that are essential for our bodies to remain healthy. Here is a short video that explores the importance of dairy in our diets.
 - g. Slide 7 – Some choose not to consume milk but they still need calcium to help with bone development and support healthy teeth. People who choose not to eat dairy can get their nutrients and calcium from other food products like calcium fortified juices, cereals, breads, rice milk, canned fish, soy products, and certain leafy greens.



5. Learning Activity 2 - Dairy Discovery

Source: *Nebraska Agriculture in the Classroom*

- In this activity students will review the many products we get from dairy cows.
- Students will cut out the dairy discovery template along with the images.
- Students will glue the dairy cow in the center of template.
- Students will choose six dairy products that they enjoy eating and glue one to each petal. *Option is to have students draw dairy products rather than cutting them out and gluing them on.



- When students are finished, ask students to share their favorite dairy product that comes from a dairy cow. Ask students to think of other products or meals that might include dairy. Examples could be alfredo sauce, ranch dressing, french onion chip dip, etc.
- Review the recommended daily serving is 2 ½-3 cups each day and dairy provides our bodies with vitamins and minerals that help build bones and teeth.

6. Ask Follow Up Questions and Make the Connection to Agriculture (3 -5 Minutes)

• **What food group did we explore today?**

Dairy.

• **Nebraska has about 160 registered dairy herds. What kind of products can we get from a dairy cow?**

Milk, cheese, ice cream, butter, yogurt, cream cheese, cottage cheese, etc.

• **Why is dairy important in our daily diet?**

Dairy provides us with calcium which is essential for bone development and healthy teeth.

• **Is the dairy industry important to us here in Nebraska?**

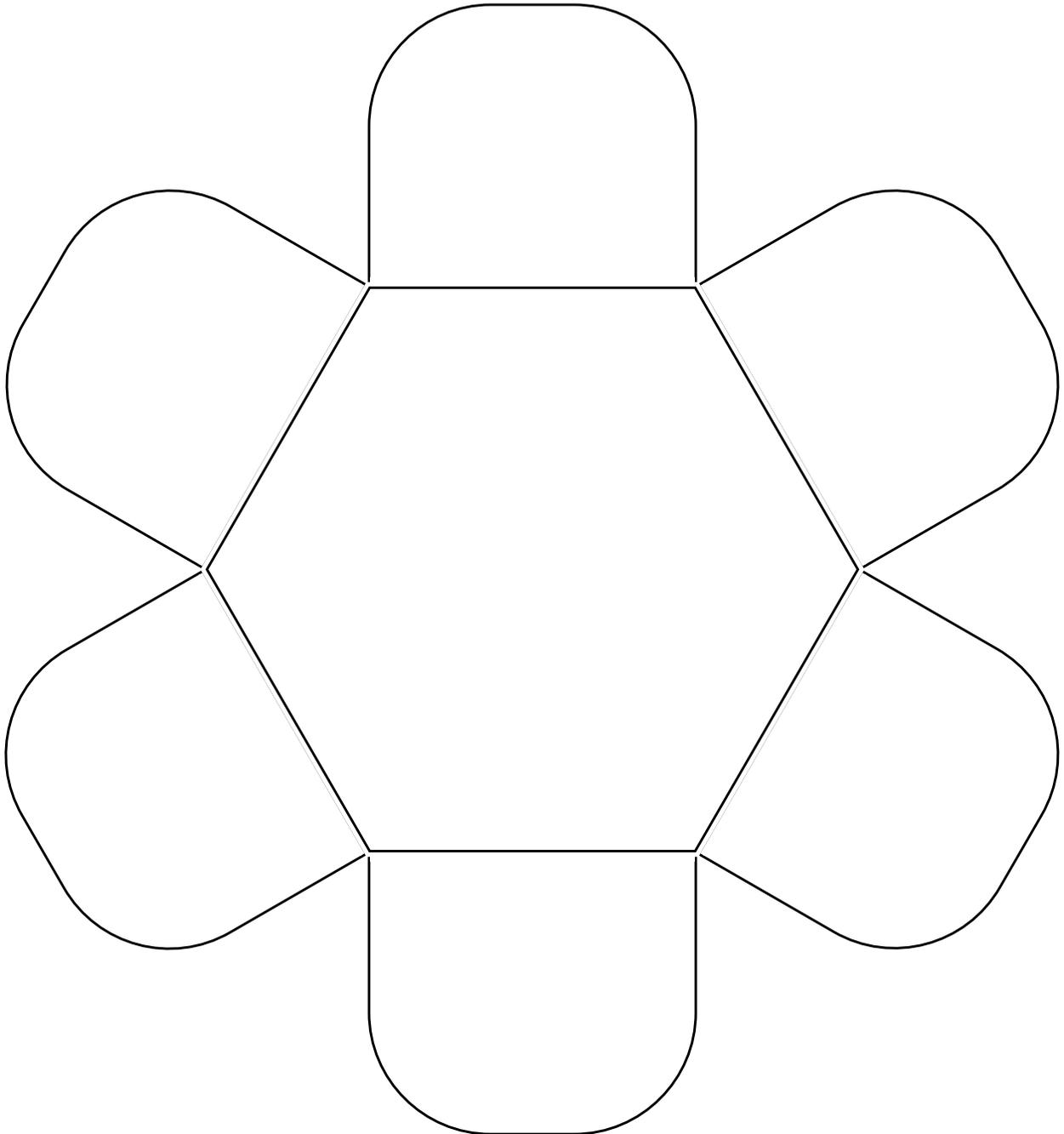
Yes, although we rank 26th in overall dairy production, we are fortunate to have six dairy processing plants to provide us with fresh dairy products on our grocery store shelves. For example, it only takes around 48 hours from the time the dairy cow is milked to the time the milk is processed and reaches the store shelves.

• **What can we share with others about what we learned today?**

It is important to know where we can find local dairy products and understand the essential nutrients we can get from dairy animals.



Dairy Discovery



NEBRASKA
AGRICULTURE
IN THE CLASSROOM
NEBRASKA FARM BUREAU FOUNDATION

