Butter Making
Adapted from Project Seasons from Shelburne Farms

Grade Level: K-3
Season: Winter
Larger IGS Unit: Farms

Essential Question: Where does food come from? Where does butter come from? What is butter? How can we feed ourselves? What happens on a farm in winter?

Objective: Students will learn how to make butter.

Materials:
• An old-fashioned butter churn or picture of one
• Per group:
  • Whipping or heavy cream at room temperature, approximately one cup or a half pint
  • Plastic peanut butter jar or other container that seals securely
  • Two or three marbles
  • Colander
  • Bowl
  • Wooden spoon
  • Butter knife
  • Crackers
  • Small paper cups

Time Allotment: 20 minutes

Groupings: Two or three groups, 8-10 students per group

Activity:
An hour before beginning this activity, remove the cream from the refrigerator. Cream at room temperature will turn into butter more quickly than cold cream.

1. Tell the students that many food products are made from milk. Ask them to list as many as they can. Explain that you will be reading a few riddles and they need to guess which milk product you are describing.

• Cold and creamy; a frozen treat; in a cone or a shake; it can’t be beat! (ice cream)
• A thick, tart, custard; fruit flavored or plain; curdled or cultured; with a funny name. (yogurt)
• Rich, creamy, yellow; salted or sweet; on toast or corn; it’s good to eat. (butter)
2. Explain that they will get a chance to make their own butter. Ask the students how they think butter is made? Record their ideas. Show them an old fashioned butter churn or a picture of one. How was it used?

3. Divide the class into two or three groups of eight to ten students each. Give each group a half-pint of cream, a plastic peanut butter jar and two or three clean marbles. Direct them to add the cream and marbles to the jar and fasten the lid securely. Ask the students why marbles are put in the container with the cream.

4. Now it is time to begin shaking. Have one student in each group shake their jar and ask everyone to listen to the sound of the cream and the marbles in the jar. What do they think will happen to the sound as the cream begins to thicken? Ask the students to predict how long it will take to make butter. Have each group record their predictions and starting times.

5. Since it can take 5-10 minutes to make a batch of butter, teach the class a traditional butter making song to sing while shaking the (see Butter Cake below). Explain that as the butter was passed from child to child they sang this song, changing the name each time. When the next verse begins, the jar is passed to another student who continues the shaking. Or teach the class a more lively modern song, Shake It! (see below), passing the jar after each chorus. Take breaks periodically to listen to the sound of the marbles in the jar. When do they notice a difference in sound? You can also turn the process into a competition to see which group can make butter first.

6. When the students see a lump of butter surrounded by a thin liquid, have them record the finish time. Ask whether they know the name of the liquid that is formed when making butter? (buttermilk) Direct the students to place a bowl beneath a colander and carefully pour the buttermilk off. Pour the buttermilk into another container and chill for tasting later.

7. With the colander over the bowl, have the students wash the butter by pouring cold water over it to rinse off any traces of buttermilk. Direct them to gently press the butter against the side of the colander with a wooden spoon to be sure all the water is out. Then have them place their butter in a small bowl. A half-pint of cream will make approximately a quarter pound of butter.

8. Now it’s time to enjoy the taste of fresh homemade butter. If the students will be eating the butter on salted crackers, they do not need to add salt. Otherwise, each group can add a pinch of salt and mix it into the butter.
Extensions:

1. Do From Farm to You (Project Seasons, page 37) using only dairy products. Have the students use their descriptive words and phrases to make short poems or riddles similar to those used at the beginning of this activity.

2. Make several flavored butters to sample. Honey butter is made by adding some honey to your butter. Try raspberry butter and add fresh or frozen raspberries and a bit of sugar. Chill them in small crocks and serve with homemade bread or rolls. You can even make bright red tomato butter that tastes great on corn on the cob by mixing 1 tablespoon of tomato paste to ¼ lb. of butter.

3. Have the students chill their butter in old fashioned butter molds. Or have them decorate their butter with sprigs of fresh herbs, clover, or edible flowers. Invite another class or parents in for a sample.

4. Try making yogurt or ice cream with your class.

All Buttered Up
How would you like a cluster of fat globules spread on your breakfast toast? Doesn’t sound very appealing first thing in the morning, does it? Yet a piece of buttered toast is just that. Butter is made of cream which is liquid milk high in butterfat. The percentage of butterfat varies among the different types of milk and cream you buy. Whole milk has 4% butterfat, whereas heavy cream has at least 36% butterfat. That’s why it’s so thick and rich. Butter is made by shaking or churning cream. The butterfat particles in cream are wrapped in a coating or membrane. When you shake the cream, you break the coating around these fat particles, and they start to stick together. As you continue shaking, the particles completely separate from the liquid in the cream and form larger and larger fat clusters. When most of these fat particles are stuck together, you have a lump of butter floating in a sea of buttermilk. Just pour off the buttermilk (chill and enjoy later), then dip your knife into some fresh creamy butter.
BUTTER CAKE SONG
Come butter come
Come butter come
(Student’s name) is at the garden gate
Waiting for a buttered cake
Come butter come

SHAKE IT!
(Sung to the tune of the “I Have something in My Pocket” or the “Brownie Smile Song”
Post the verses on the wall for the class to follow.)

We’re going to make some butter,
Rich and creamy too,
With milk from a cow’s udder
Before you can say moo.

Chorus:
So shake it, shake it, shake it,
Shake it if you can
Shake it like a milkshake,
And shake it once again.

Put some cream into a jar,
You can add a marble or two,
Make sure the lid is on tightly,
That’s all you have to do.

Chorus
We’re learning while we’re churning,
Hey this is lots of fun!
It’s easy to make butter,
Let’s eat it when it’s done.

Chorus
Oh listen very carefully,
It’s sounding different now,
Hooray it’s finally butter!
Be sure to thank the cow.

Chorus