

GROW YOUR PALS PROGRAM GUIDE



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LESSON 1.21

Make Your Own Butter

Unit:
FIELD TO FORK

PRECEPTS

G- Physical Growth

G1. Practice healthy eating habits

NATIONAL STANDARDS

CS.02.01.01.c. Practice healthy eating habits.

FPP.03.01.02.b. Explain how the chemical and physical properties of foods influence nutritional value and eating quality.

FPP.03.01.03.a. Explain the Food Guide Pyramid in relation to essential nutrients for the human diet.

FPP.03.01.04.a. Discuss common food constituents (e.g., proteins, carbohydrates, fats, vitamins, minerals).

FPP.03.01.05.a. Identify common food additives (e.g., preservatives, antioxidants, buffers, stabilizers, colors, flavors).

FPP.04.02.01.a. Identify and describe foods derived from meat, egg, poultry, fish and dairy products.

NL-ENG.K-12.12 – Applying Language Skills

NS.K-4.1 Science as Inquiry

NS.K-4.6 Science in Personal and Social Perspectives



Lesson Type:
Large Group

STUDENT LEARNING OBJECTIVES

As a result of this lesson, the student will ...

- Describe the basic steps for making butter.
- Explain the role of fats and oils in a healthy diet as depicted on the *food guide pyramid*.





TIME

Instruction time for this lesson: **25 minutes.**



RESOURCES

<http://www.mypyramid.gov/kids/index.html>

National FFA Organization. (2003). LifeKnowledge Precepts and Signs of Success.



TOOLS, EQUIPMENT AND SUPPLIES

Enough for each student in the large group:

- ✓ **Twenty-five** - two oz plastic cups with lids
(*you may also use cleanbaby food jars with lids*)
- ✓ **One** - Gallon heavy whipping cream
- ✓ **One** - Salt shaker
- ✓ **Two** - Large loaves of French bread
- ✓ **Twenty-five** - Napkins
- ✓ **Twenty-five** - Plastic Spoons
- ✓ **PALS1.21.LG.TM.A**
- ✓ **PALS1.21.LG.ASSESS.A** – one per student

KEY TERMS



The following terms are presented in this lesson and appear in ***bold italics***:

Fat

Cream

Food Guide Pyramid



CONTENT OUTLINE

II. How Butter is made

A. Milk is the primary ingredient in butter

1. Milk is a natural beverage produced by all mammals including sheep, goats and buffalo. However, the most popular milk consumed in America comes from dairy cows.
2. Milk is a mixture of ***fat*** and water. The solid fatty part of milk is called the curds, which is made into cheese and butter. The thin liquid part of milk is called the whey.
3. ***Cream*** is a milk product that contains a very high amount of ***fat***. Skim milk or reduced ***fat*** milks have relatively less ***fat***.
4. Butter is created when the ***fat*** globules in milk separate from the water and stick together.
5. Commercially, salts and color additives are often added to butter to give it the taste and color customers expect.

B. Making butter

1. Begin with a small plastic or glass container with a secure lid
2. Fill the container one and a half to two-thirds full with room temperature heavy whipping **cream**
3. Add one small dash of salt (if preferred).
4. Close the lid tightly and check for leaks. Replace cup or lid if needed
5. Shake the milk slowly for one minute
6. Remove the lid periodically and observe the mixture. If the majority of the **cream** has separated in a glob of solids from the liquid, stop shaking

II. Butter and the **food guide pyramid**

- A. The **food guide pyramid** is a visual depiction of the serving recommendations provided by the United States Department of Agriculture (USDA) to encourage balanced and healthy diets
- B. There are five main groups on the **food guide pyramid** including:
 1. Grains, which include breads and pastas
 2. Vegetables, such as tomatoes or spinach
 3. Fruits, such as apples and kiwi
 4. Milk and other calcium-rich foods
 5. Meats and beans, which provide protein
 6. Fats and oils
 - A. These are only recommended in small amounts
 - B. Butter, although made from milk, is mainly **fat** and should therefore be used sparingly to improve health

INTEREST APPROACH

*Prepare for this lesson by gathering all materials needed, including small plastic containers with lids (you may also choose to use baby food jars with a secure lid), at least one gallon of heavy whipping **cream**, salt, napkins, spoons, and enough fresh bread for each of the PALS in your large group. It is very important to discuss food allergies with the teacher before beginning the lesson. Provide an alternative snack for any student with an allergy.*



Good morning everyone. I am so excited to be working with each of you today. Today we are going to discover how to make one of the most popular foods in the world . . . butter. To get started, on a scrap sheet of paper, list all of the foods you can think of that are made extra delicious with butter. Work quickly to list as many as possible. For example, two that I always think about are toast and pancakes. You will have two minutes to list as many as possible. When the time is up, we will share our lists as a class.

Allow students two minutes to complete the activity. As the PALS work to complete their lists, monitor their progress and encourage them to think of as many examples as possible. When the time has elapsed, allow each PALS to share one example from his/her list.



Very good! Thank you for working so hard. Now, everyone will have a chance to share one example from their list. Let's see how many we can come up with!

Allow each PALS to share one example. Then begin explaining the ingredients in butter and how it is made.

SUMMARY OF CONTENT AND TEACHING STRATEGIES



CTIVE 1. | Describe the basic process of making cheese



Wow! Those were all very great examples of foods that are made especially delicious with butter. In fact, listening to your suggestions has made me hungry. Who would like to make some delicious butter today?

Encourage positive response from PALS.



Great! Before we can make our own delicious, fresh butter, we need to understand what butter is made of. What do you think butter is made of? Raise your hands if you have an idea.

Allow PALS to share their thoughts regarding the ingredients in butter.



Thank you for your suggestions. Butter, as many of you guessed, is made from milk. Where does milk come from?

Allow PALS to share their answers. Then discuss the basics of milk and butter production with the group. Encourage the group to take notes of key points while discussing the

properties of milk and the process of making butter:



As we learn a little more about milk and how butter is made, take notes and feel free to raise your hand to ask questions at any time.

C. Milk is the primary ingredient in butter

1. Milk is a natural beverage produced by all mammals including sheep, goats, and buffalo. However, the most popular milk consumed in America comes from dairy cows
2. Milk is a mixture of **fat** and water. The solid fatty part of milk is called the curds, which is made into cheese and butter. The thin liquid part of milk is called the whey
3. **Cream** is a milk product that contains a very high amount of **fat**. Skim milk or reduced **fat** milks have relatively less **fat**
4. Butter is created when the **fat** globules in milk separate from the water and stick together



Today we will be making butter using heavy whipping **cream**. Why do you think we are using such a fatty milk product and not **fat** free or reduced **fat** milk?

*Encourage responses from the PALS group. There may be a variety of answers. The desired response is that butter is made from **fat** globules; therefore, reduced **fat** milk would be less effective.*



Very good! Low **fat** milk, while healthier, is not the best ingredient to make butter because much of the **fat** has been extracted and butter is formed by the **fat** of milk. So, let's get started. Everyone will need one plastic cup with a tight lid. *Pass out containers to the group.*

Then, as a group, go through each of the steps in the process of making butter. Read each step to the group and watch as they complete the step to ensure they are following directions.



D. Making Butter

1. Begin with a small plastic or glass container with a secure lid.
2. Fill the container a half to two-thirds full with room temperature heavy whipping **cream**.
3. Add one small dash of salt (if preferred)
4. Close the lid tightly and check for leaks. Replace cup or lid if needed
5. Shake the milk slowly for three minutes

Allow students to shake the milk slowly for at least three minutes. Then they should open the lid carefully and observe their mixture.



OK everyone, stop for a second. Carefully remove the lid to your container, and look inside. What does your **cream** look like? Is it thick or liquidy? Tilt your cup slightly. If the butter still moves, continue shaking.

6. Remove the lid periodically and observe the mixture. If the majority of the **cream** has separated in a glob of solids from the liquid, stop shaking

7. Drain the extra liquid from the container

8. Serve and enjoy!

Remember not to shake the container too fast or rough. Check the mixture frequently. Once the majority of the milk **fat** has separated from the liquid, you may stop shaking.

*As the PALS group makes their butter, monitor their progress and offer suggestions for success. This activity should only take about six minutes to turn the **cream** into butter.*



Great! Was that fun or what? Now that everyone has created their own little tub of butter. Let's enjoy our homemade butter on fresh bread.



*Provide PALS with a slice of bread each, a napkin, and a plastic spoon to spread their butter. Then, as the group enjoys their snack, discuss the nutritional concerns related to butter and other **fats** and oils. Display PALS1.21.LG.TM.A.*



OBJECTIVE 2. | Explain the role of **fats** and oils in a healthy diet as depicted on the **food guide pyramid**.



As everyone enjoys our little snack, let's discuss how healthy butter is for us. Is butter good for you?

Allow PALS to share their opinions.



One of the best ways to know we should and should not eat or how much of each type of food we should eat a day is by looking at the **food guide pyramid**. Take a look at the display on the board (*refer to PALS1.21.LG.TM.A*).

C. The **food guide pyramid** is a visual depiction of the serving recommendations provided by the USDA to encourage balanced and healthy diets.



The size of each section of the **food guide pyramid** indicates how many servings of each group of food we should eat a day in order to have a healthy diet.

D. There are five main groups on the **food guide pyramid** including:

1. Grains, which include breads and pastas
2. Vegetables, such as tomatoes or spinach
3. Fruits, such as apples and kiwi
4. Milk and other calcium-rich foods
5. Meats and beans, which provide protein
6. Fats and oils
 - A. These are only recommended in small amounts
 - B. Butter, although made from milk, is mainly **fat** and should therefore be used sparingly to improve health

*After discussing each of the groups depicted on the **food guide pyramid**, explain why butter should be added to meals sparingly.*



As you remember, butter is made from what part of the milk? **Fat**

Therefore, butter fits into this very small section of the **food guide pyramid** that contains fats and oils. Other foods in this group include your favorite candy bars, deserts, and the grease in all of the fried foods, such as French fries and corn dogs. If these foods are eaten too much by one person, they could cause that person to become overweight or have health problems. That is why butter should be added to foods on a little at a time.

What are your questions?

Allow students about four to five minutes to finish their bread. Then, ask students to clean up their area with wet napkins or paper towels, throw away their trash, wash their hand, and prepare to review.



OK everyone, it's clean up time. Everyone needs to clean off their table, throw away any trash you may have, wipe off your hands, and then sit quietly at their desk. As we clean up, let's sing the clean up song:



Clean up! Clean up everybody, everywhere! Clean up! Clean up, everybody do your share!



REVIEW / SUMMARY

To review today's activity the students will explain the steps of making butter to a partner in the group.



Thank you for cleaning up so well. Now, to review our activity today, turn to one person nearest you and discuss the steps involved in making our delicious butter.

Allow PALS about two minutes to complete this activity.



Very good! I hope everyone had a great time today and learned where one of our most common foods comes from. Look forward to seeing you again soon.

APPLICATION

Continued Discussion

In small groups, you may experiment using low fat milk, condensed milk, powdered milk, buttermilk, flavored creamers, and other milk products to attempt to make homemade butter. Follow the same procedures outlined above. Discuss why some milk products are less effective for butter making than others.



One-on-One Suggestion

Work with your PALS to list everything he or she has eaten in the past 24 hours. Compare this diet to the recommended diet on the food guide pyramid. Develop a plan for your PALS to improve their nutrition by increasing consumption of fresh fruits and vegetables and decreasing consumption of fats and oils.



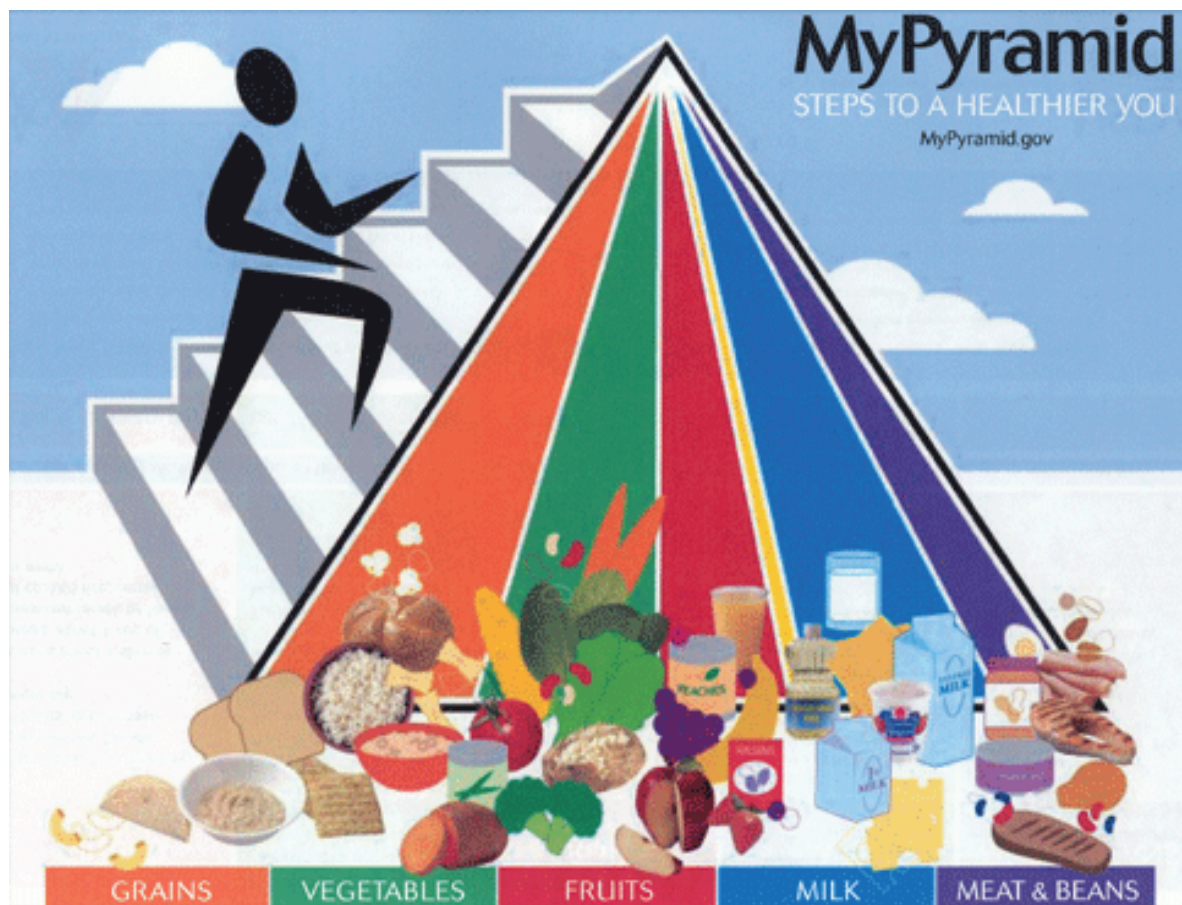
EVALUATION

To evaluate your PALS' understanding of the objectives, use PALS1.21.LG.ASSESS.A either to review out loud as a large group or by allowing each PALS to complete the quiz on their own.

ANSWERS TO EVALUATION:

1. Fat
2. Food Guide Pyramid
3. Cream

PALS1.21.LG.TM.A



Source: www.usda.gov

PALS1.21.LG.ASSESS.A

Student Name: _____

Date: _____

Fill in the blanks for each of the following questions using the word bank below.

Word Bank:

Cream

Fat

Food Guide Pyramid

1. Butter is made when _____ globules come together and separate from the water in milk.
2. The USDA developed a guide called _____ to encourage balanced diets and healthy lifestyles in America.
3. _____ is a milk product that contains a high percentage of milk fat when compared to other milk products.