



# Make & Taste **DAIRY**



## Greek Yogurt (Grades 6-8)

### Lesson Activity

#### LESSON OVERVIEW:

During this lesson, students will be introduced to the origin and science behind the process of traditional and Greek yogurt production. Students will discover that traditional yogurt and Greek yogurt are healthful foods because they offer nutrients in every bite. The students will make Greek yogurt, measure the solid and liquid whey created by the yogurt-making process and discover ways to incorporate Greek yogurt into healthy recipes.

#### LESSON MATERIALS NEEDED:

##### *Ingredients for each work station (2-4 students)*

- 2 cups traditional yogurt, plain (*nonfat, fat-free or whole*)

##### *Options for taste testing:*

Granola  
Berries, fresh or frozen  
Shredded coconut  
Honey or maple syrup

##### *Tools for each work station (3-5 students)*

- Large colander
- Large bowl (*colander should fit completely over bowl*)
- 2 coffee filters (*12 cup size or larger*)
- Large spoon
- Clear cups for parfait tasting
- Spoons for parfait tasting
- Measuring cups and spoons

#### LESSON OBJECTIVES:

During this lesson, students will:

- Become familiar with the history of traditional and Greek yogurt
- Explain the basic science of how traditional yogurt is produced and the additional steps required to make Greek yogurt
- Compare and contrast the nutritional compositions of traditional and Greek yogurt
- Learn the health benefits yogurt provides to the body
- Using a simple method, make Greek yogurt
- Create a yogurt parfait with healthy ingredients
- List at least five ways that Greek yogurt can be used as part of a healthy meal

#### ACADEMIC INTEGRATION

- Science
- History
- Language Arts

*\*Please follow COVID-19 guidelines established by your school. This activity can also be completed at home.*



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### Leader Background



### HOW IS YOGURT MADE?

Yogurt is a fermented dairy product made by adding bacteria starters or “cultures” to fresh milk. *Lactobacillus bulgaricus* and *Streptococcus thermophilus* are two common bacterial strains used in yogurt production as well as other beneficial bacteria. The bacteria are added to heated, pasteurized, homogenized milk, afterward, the milk is incubated for several hours at a specific temperature (110-115°F) to maximize the activity of the bacteria. If the temperature is too low, the bacteria will not grow sufficiently and if the temperature rises too high, the bacteria will die.

The bacteria convert the lactose (natural sugar in milk) to lactic acid, which thickens the milk and gives it the tangy taste characteristic of yogurt. Because lactose is converted in the fermentation process, individuals who are sensitive to this natural sugar in milk can often eat yogurt without experiencing symptoms. This sensitivity to lactose is called lactose intolerance.

*\*Source: Dairy Farmers of Canada*

### WHAT IS GREEK YOGURT?

When traditional yogurt is strained, much of the liquid (whey) is removed which results in a thicker product known as Greek yogurt. The primary protein left after straining is casein, which remains after the process known as “coagulation.” Casein is the also the primary protein in cheese and accounts for the curds in cottage cheese. Compared to traditional yogurt, Greek yogurt is higher in total protein, but lower in sugar (or lactose which occurs naturally in milk), sodium, calcium, and phosphorus than traditional yogurt.

The “Greek” label is a misnomer and a little misleading, since most are not from Greece and strained yogurt is enjoyed by people throughout the world (see history of yogurt section).

### WHY EAT IT?

Both traditional and Greek yogurts are nutrient-rich foods and are beneficial for health. Yogurt provides a high-quality source of protein, which helps build and repair muscles and calcium which helps strengthen bones and teeth. Most yogurt also contains live and active bacterial cultures known as probiotics. Probiotics benefit human health by improving digestive function and the immune system. Physically active students looking for a good recovery snack after a long workout, or intense competition can use Greek yogurt as a snack or in smoothies. The protein in Greek yogurt is equal to a scoop of protein powder, plus the yogurt offers many nutrients and probiotics from the bacteria cultures.

*\*Source: Wisconsin Milk Marketing Board*



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### **HISTORY OF YOGURT**

Yogurt is a very old food which dates to around 5000 BC (over 7,000 years ago)! Herdsmen in the Middle East kept milk in goatskin bags hung across their camels' backs. After traveling in the hot sun, the milk was transformed into tangy custard. Intestinal juices in the goatskin bag contained bacteria, and the warmth and agitation caused by the camel's movements were ideal for making the first yogurt.

In the 11th century, the curative properties of yogurt were evaluated for the first time in Turkish literature. Genghis Khan introduced yogurt in the Mongolian diet of his army, believing it instilled bravery.

In the early 1900s, Dr. Stamen Grigorov, a Bulgarian medical student, discovered the specific bacteria responsible for yogurt fermentation and described the health benefits of lactic acid and bacteria found in yogurt.

As an ancient food, yogurt has gone by many names over the millennia: Katyk (Armenia), dahi (India), zabadi (Egypt), mast (Iran), leben raib (Saudi Arabia), laban (Iraq and Lebanon), roba (Sudan), iogurte (Brazil), cuajada (Spain), coalhada (Portugal), dovga (Azerbaijan), and matsoni (Georgia, Russia and Japan).

Only recently, Greek yogurt become popular throughout the world. In the U.S., the popularity of Greek yogurt began to surge around 2009. In Iceland, thick, strained yogurt is known as "skyr" and has also become a popular commercial yogurt in America.

*\*Source: Yogurt in Nutrition Initiative for a Balanced Diet*



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## Greek Yogurt (Grades 6-8)



### Teaching the Lesson

#### CLASS DISCUSSION

1. Begin the lesson by finding out what students know about the history of both traditional and Greek yogurts. Describe how yogurt is an ancient food dating back at least 7,000 years. Students may be interested to know that yogurt was an accidental discovery in the Middle East when bacteria from goatskin bags caused milk to ferment into yogurt when carried by camels through the hot desert (see above for more information on the history).
2. Ask students if they can describe the process of how milk becomes yogurt. Explain the basic process of fermentation using beneficial bacteria. (See how is yogurt made section).
3. Ask students if they can name the nutrients found in traditional and Greek yogurts. Compare and contrast the differences between the two types of yogurt. (Greek yogurt is thicker, higher in protein and lower in sugar, sodium, calcium and phosphorus). Later in the lesson, students will complete an activity sheet using the Nutrition Facts labels for both products.
4. Describe how the class will break into small groups and take turns starting the straining process to make Greek yogurt. The following day, students will use the Greek yogurt with fruit and other healthful foods to create parfaits for tasting.

### Glossary

**Calcium:** An important mineral found in dairy foods that gives bones and teeth structure and strength.

**Casein:** The primary protein in milk, it accounts for 82% of the total protein, while whey accounts for the remaining 18%. Casein is known to coagulate or thicken when exposed to certain conditions and forms the lumps or curds necessary for cheese making. When Greek yogurt is strained, much of the whey is removed, resulting in a thicker casein-rich product.

**Fermentation:** In food, fermentation is a process where beneficial bacteria convert sugar into lactic acid, resulting in a tangy flavor. Besides yogurt, other examples of fermented food include sauerkraut, kefir, sour cream and some cheeses.

**Greek Yogurt:** Yogurt that has been strained to create a thicker and higher protein product. The primary protein in Greek yogurt is casein.

**Protein:** A nutrient needed by the body for growth, maintenance, and repair muscle tissue.

**Whey:** The liquid portion of yogurt that is left when yogurt is strained. Known as "acid whey," this tangy liquid contains protein, calcium and other nutrients and can be used in smoothies, baked goods and puddings.

**Yogurt:** A fermented dairy product made by adding specific live bacterial cultures to milk and promoting bacterial growth by holding the mixture at a temperature of 110-115° F for several hours.



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## Greek Yogurt (Grades 6-8)

### Making & Tasting



### MAKE YOUR OWN GREEK YOGURT

Number of participants per group: 2-4

#### Ingredients

2 cups plain, traditional yogurt

#### Greek Yogurt Yield

Will vary depending on type of yogurt used and length of time in strainer. After 24 hours, 2 cups of traditional yogurt will yield approximately 1 cup of Greek yogurt.

#### Equipment

Small to medium colander  
Large bowl  
2 coffee filters  
Large spoon  
Small clear cups and spoons for taste testing  
Measuring cups and spoons

#### Tasting

Once a group of students completes their Greek yogurt, they can move to a separate table set with small clear cups, spoons and toppings such as granola, berries, coconut and sweetener. They should be encouraged to layer the yogurt with berries or other fruit and then top with granola, coconut and a touch of honey or another sweetener, if desired.

#### Food Safety

- Thoroughly clean table or preparation area with soap and warm water before starting this project.
- Always wash hands with soap and warm water before beginning food preparation.
- Ingredients should be kept chilled, both before and after preparation.



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## Lesson Activity



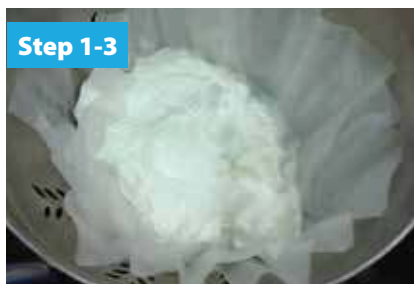
### DIRECTIONS

#### Day 1

1. Place the colander over the mixing bowl and make sure there is room for liquid to drain into the bowl.
2. Place 2 coffee filters inside the colander.
3. Carefully measure and scoop two cups of yogurt into the coffee filters.
4. Cover the colander/bowl with plastic wrap before placing in the refrigerator.
5. Refrigerate overnight and allow yogurt to drain overnight.

#### Day 2

1. The next day, there will be a clear liquid at the bottom of the bowl (whey) and thick, strained (Greek) yogurt in the coffee filter.
2. Use a measuring cup to measure the amount of both strained (Greek) yogurt as well as the amount of liquid (whey) that drained off. Record your results.
3. Carefully scoop the strained yogurt into a container and take to the tasting table, where you will use the Greek yogurt to make parfaits.





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## References



1. **The History of Yogurt, Dairy Farmers of Canada**  
<https://www.dairygoodness.ca/yogurt/the-history-of-yogurt>
2. **The Complete History of Yogurt Making, Yogurt In Nutrition Initiative for a Balanced Diet**  
<http://www.yogurtinnutrition.com/complete-history-yogurt-making>
3. **Yogurt, the Food of Ancient Nomads, Yogurt in Nutrition Initiative for a Balanced Diet**  
<http://www.yogurtinnutrition.com/yogurt-the-food-of-ancient-nomads>
4. **Ever Wonder about Yogurt?, Science World at TELUS World of Science**  
<https://www.scienceworld.ca/blog/ever-wonder-about-yogurt>
5. **Yogurt Production, Cornell Dairy Extension**  
<http://www.milkfacts.info/Milk%20Processing/Yogurt%20Production.htm>

## Resources

- **Yogurt**  
<https://www.usdairy.com/dairy-nutrition/products/yogurt>
- **What is Greek Yogurt?**  
<https://www.usdairy.com/news-articles/what-is-greek-yogurt>
- **Greeking Out for Greek Yogurt**  
<https://www.drink-milk.com/greeking-out-for-greek-yogurt>
- **Types of Yogurt You Should Know**  
<https://www.usdairy.com/news-articles/types-of-yogurt-you-should-know>
- **Virtual Dairy Farm Tour**  
<https://www.discoverundeniablydairy.com/virtual-field-trip>