

# Presenting Peppers

## Math



### Overview

Students will collect, record, and compare data for the nutritional information for a variety of peppers and other fruits and vegetables, using tables, charts, and graphs. Students will measure servings using volume and weight. Student will analyze data and apply the concept of ratios to compare quantities of nutrients contained in a serving-size of peppers. Students will create an infographic representing their findings to share with younger students to promote better nutrition.

### Goals

To increase students' understanding of the nutritional value of a variety of peppers through analyzing data. Practice finding percents of a quantity as a rate per 100. To practice using ratios of nutritional content/constant unit of measure and compare them with different, more familiar foods.

### Activities

Prep and Chop peppers. Measure weight and volume. Sample different varieties of peppers. Research and explore the nutritional content of peppers (and other vegetables and fruits) with online and/or printed resources. Compare and contrast flavor and nutrition of different colored varieties of peppers.

### Materials Needed

- access to internet (or printed nutrition articles)
- access to a washing station to prep peppers and wash hands
- paper & pencil
- gram scale
- measuring cups: 1 cup & ½ cup
- knife and cutting board
- a variety of peppers
- small paper bowls or containers.

### Time Needed

One to three class periods of 45 minutes or longer

### GA Standards

Understand ratio concepts and use ratio reasoning to solve problems.

MGSE6.RP.1 Understand the concept of a ratio and use ratio language to describe a ratio relationship between two quantities.

MGSE6.RP.3 Use ratio and rate reasoning to solve real-world and mathematical problems, e.g., by reasoning about tables of equivalent ratios, tape diagrams, double number line diagrams, or equations.

MGSE6.RP.3c Find a percent of a quantity as a rate per 100 (e.g. 30% of a quantity means 30/100 times the quantity); given a percent, solve problems involving finding the whole given a part and the part given the whole.

MGSE6.RP.3d Given a conversion factor, use ratio reasoning to convert measurement units within one system of measurement and between two systems of measurements (customary and metric); manipulate and transform units appropriately when multiplying or dividing quantities.

MGSE7.RP.2b Identify the constant of proportionality (unit rate) in tables, graphs, equations, diagrams, and verbal descriptions of proportional relationships.



**GEORGIA ORGANICS**

**Middle School 6th-8th**

**Math**

**🕒 1-3 class periods**

[farmtoschool.georgiaorganics.org](http://farmtoschool.georgiaorganics.org)

**#pepperpalooza**

# Peppery Prose

## Math



### Objectives

To understand ratio concepts and use ratio reasoning to solve problems. To compare data based on rates and ratios. To understand the difference between measuring by weight and by volume, using standard and metric systems. To understand the concept of nutritional value by portion/serving sizes of peppers. To practice recording data and presenting it in tables, charts, and graphs. Evaluate the nutritional value of peppers.

### Outline

**Engage:** Guide students in preparing peppers for eating and measuring. Measure out typical serving-size portions of different types of peppers by weight and volume.

**Explore:** Gather and record data for the nutritional value of peppers from scientific articles (online or printed) into a table. Record data in table provided using ratios of nutrient value to a constant rate such as 100 grams of peppers. Plot results of online research on graphs or charts.

**Explain:** Why accurate measurement and data recording are important. How does recording and presenting data help us make good nutritional choices? (Could also be combined with research from Panoply of Peppers or Peppery Prose Lesson.)

**Extend:** Research the nutritional value of other commonly consumed fruits and vegetables and add this information to the table. Include in charts and graphs with peppers. Create an infographic to share with other students.

**Evaluate:** Use the data collected and presented in your students' tables, charts, and graphs to compare the different nutritional value of peppers with common fruits and vegetables in students' diets. Share the infographic with younger students to promote healthier diets.

### Lesson Plan

**Engage:** Guide students in preparing peppers for eating by washing the peppers and removing seeds, and for measuring by chopping them into small pieces, separated by type. Discuss what a reasonable serving-size of peppers would be. Measure out serving-size portions of different types of peppers using both the gram scale and measuring cups. (Hint: Most articles refer to pepper nutritional content per 100 grams. You will want to establish a constant serving-size unit of measure, such as 100 grams. You could also use 1 cup of chopped peppers if gram scales are not available.) Discuss the difference in accuracy between measuring by weight and volume with a food like chopped peppers and which is most practical.

**Explore:** Explore the nutritional value of peppers through guided information gathering from scientific articles (online or printed). Record your data on the table below (or a similar one) in grams and milligrams. Students can also use their collective research from the Panoply of Peppers or Peppery Prose lessons. Research and record RDA (Recommended Daily Allowance) numbers as well, for each vitamin and mineral, as a point of reference. Create tables, charts, and graphs to display the data. Plot the results of your nutrition research on tables, charts, and graphs. Discuss the best recording and presentation methods to ensure accurate data sharing. Use a consistent ratio within each graph (such amount of nutrient per 100 grams or other serving size.)

**Explain:** Why is accurate data recording important? Discuss which types of visual representation are most helpful for displaying this type of information.

**Extend:** Compare the nutritional value of different colors/types of peppers, being sure to use a constant ratio (amount per 100 grams or amount per cup.) Compare peppers with commonly consumed fruits and vegetables. Which have the highest nutritional value? Create an infographic to share with other students.



**GEORGIA ORGANICS**

**Middle School 6th-8th**

**Math**

**1-3 class periods**

[farmtoschool.georgiaorganics.org](http://farmtoschool.georgiaorganics.org)

[#pepperpalooza](https://twitter.com/pepperpalooza)

# Presenting Peppers

## Math



### Lesson Plan continued

**Evaluate:** Using the graphs created by the class, compare the different nutritional values of fruits, vegetables, and different types of peppers. Evaluate how many servings of each would be required to meet the RDA of each nutrient. Answer questions like:

- ‘How could you incorporate eating peppers in your weekly diet?’
- ‘How many servings of peppers would you need to eat daily to achieve the RDA of each nutrient?’
- ‘What are the health benefits of the nutrients in peppers?’

Summarize your findings and include these in the infographic to share with other/younger students to promote healthier diets.

### Articles/Resources

<https://www.webmd.com/diet/peppers-health-benefits>

<https://www.healthline.com/nutrition/foods/bell-peppers>

<https://www.medicalnewstoday.com/articles/bell-peppers#vitamin-c>

<https://www.verywellfit.com/bell-pepper-nutrition-facts-calories-and-health-benefits-4119789>

<https://health.clevelandclinic.org/red-pepper-benefits/>

<https://www.bbcgoodfood.com/howto/guide/top-5-health-benefits-of-peppers>



**GEORGIA ORGANICS**

Middle School 6th-8th

Math

🕒 1-3 class periods

[farmtoschool.georgiaorganics.org](http://farmtoschool.georgiaorganics.org)

#pepperpalooza

Name: \_\_\_\_\_



# Nutrition Table for Presenting Peppers Activity

Record the value of each nutrient for the food items on the table using milligrams or grams.

Be sure to write mg for measurements in milligrams and g for measurements in grams.

When comparing quantities, be sure to use the same unit of measure.

Establish a ratio/rate by choosing a constant quantity of the food item for each measurement and record in top left box (such as 100 grams or 1 cup). Record the amount of each nutrient contained in this quantity of food.

For example: Green peppers contain 80.4 mg of vitamin C/100 grams.

Nutrients per										
RDA for each nutrient										
Food items										
Green Pepper										
Yellow Pepper										
Orange Pepper										
Red Pepper										
Banana Pepper										
Jalapeños										
Other pepper										
Carrot										
Orange										
Apple										
Banana										



**GEORGIA ORGANICS**

Middle School 6th-8th

Math

🕒 1-3 class periods

[farmtoschool.georgiaorganics.org](http://farmtoschool.georgiaorganics.org)

#pepperpalooza



# Research Guide for Panoply of Peppers

## Lesson

List several of the healthy components (vitamins, minerals, antioxidants) peppers contain:

Choose 3-5 pepper types and 3 vitamins/minerals contained in peppers to explore. Write them in the chart below.

Research how much of the following components can be found in various peppers and record. Use a constant unit of measure.

Pepper Type	Fiber	Vitamin/Mineral	Vitamin/Mineral	Vitamin/Mineral

For one of the components above, explore the health benefits, (including possible disease prevention.) Record at least three to five benefits on the lines below. Prepare to discuss.



# Presenting Peppers

## Math



### Pepper Nutritional Component-Specific Research

Research the nutritional component (vitamin/mineral/antioxidant/etc.) \_\_\_\_\_.  
Complete the table below. List the benefits this component has on overall health and disease prevention, how much of the component is contained in a serving of peppers, and how many servings per week are desirable.

Component:	Amount per unit of measure:	Number of servings/week desired:
<b>Benefit 1</b>		
<b>Benefit 2</b>		
<b>Benefit 3</b>		
<b>Benefit 4</b>		

Draw conclusions as to the number of servings and benefit of the nutritional component above.

What, if any, drawbacks/potential negative effects of consuming peppers did you discover?



**GEORGIA ORGANICS**

Middle School 6th-8th

Math

🕒 1-3 class periods

[farmtoschool.georgiaorganics.org](http://farmtoschool.georgiaorganics.org)

#pepperpalooza