

Stars and Us

Fill in the circle by the correct answer. Then write the answers to numbers 3, 4, and 5.

1. A star's appearance can _____.
 (A) indicate its age
 (B) indicate who discovered it
 (C) reveal its name
 (D) give clues about the telescope
2. Hubble depends on _____ to obtain clear deep-space images.
 (A) light in Earth's atmosphere
 (B) light released from interstellar objects
 (C) Proxima Centauri and Barnard's Star
 (D) darkness emanating from Earth's surface
3. Would you rather study a Hubble image than one from another telescope?
 Why or why not?

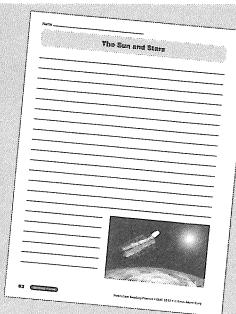
4. Explain why stars differ in appearance.

5. If you could invent one tool to study stars, what would it be, and what would it do?

Write About the Topic

Use the Writing Form to write about what you read.

Is it important for astronomers to study stars? Write an argument for why or why not. Use details from the text.



Extraordinary Food, Ordinary Math

Level 1

Words to Know list, Reading Selection, and Reading Comprehension questions

Giant Snack, Giant Equation

Fill in the circle by the correct answer.

Giant Snack, Giant Equation

People do things that are really weird.
They make giant versions of their snacks, like making a giant sandwich or a giant bowl of cereal.
It's also weird that they only eat about everything.

Giant Snack

What if you wanted to eat a giant version of your favorite food? Well, people have done it! In 2012, two British brothers made a giant meal, including 1000 eggs (about 100 pounds) and 1000 bacon strips (about 100 pounds).
The previous year, a man from India ate a meal weighing 12,234 kg and measured 1.8 meters wide.
The previous largest person was a man from India who weighed 22,000 pounds (10,000 kg).

There have been other giant foods, including a giant mealworm, peanut butter sandwiches, and the biggest hamper ever made.
But what if you wanted to eat a giant serving of mashed potatoes? Suppose you wanted to eat a giant serving of mashed potatoes that weighed 100 pounds.
How many cups of mashed potatoes would you need to cook?

Using Maths to Make a Giant Potato

When you want to make one big meal, then they'll consider the size of each ingredient.
Suppose you wanted to make a giant meal.
Suppose a 2-pound (0.9 kg) meal requires 1000 grams of meat.
To make a 100-pound (45.4 kg) meal, you would need to multiply the amount of meat by 100.
They could use 100 pounds of meat for the original recipe.
plus 99 more pounds of meat.

Small Meal Recipe (1 pound)	Giant Meal Recipe (100 pounds)
15 oz (425 g) shredded cheese	15,000 oz (42,500 g)
9 oz (250 g) bacon	9,000 oz (25,000 g)
12 oz (340 g) ham	12,000 oz (34,000 g)

One giant meal would be needing even more ingredients.
A giant meal would need 100 times as much meat, bread, and dough, cheese, and syrup to feed 100 people.
So, if you wanted to make a giant meal, you would need 100 times as much meat, bread, cheese, and syrup.
You would also need 100 times as much bacon, ham, and dough.
And you would need 100 times as much bacon, ham, and dough.

Extraterrestrial Food

Ordinary Earth

Level 2 ■ ■

Words to Know list, Reading Selection, and Reading Comprehension questions

Level 3 ■ ■ ■

Words to Know list, Reading Selection, and Reading Comprehension questions

<p>Name _____</p> <p>Math Is a Chef's Friend</p> <p>Fill in the circles by the correct answer.</p> <p>Math Is a Chef's Friend</p> <p>Most keepers have fun with the process of baking and cooking. Use these math skills to quickly prepare a batch of delicious cookies. Have you ever thought about how much it would take to make a giant version of a food? Check out the following activities to find out.</p> <p>Grand Foods Are Awesome!</p> <p>Chefs often make very large items when making certain foods for parties. In 2012, two Italian bakers created the largest pizza ever made. They used 35,500 pounds of flour, 30,000 pounds of cheese, 10,000 eggs, 1000 pounds of meat, and 1000 pounds of toppings to make this giant pizza. It measured 130 feet (40 m) wide.</p> <p>One of the world's largest pizzas was made in 2011. It weighed 10,000 pounds of flour, 10,000 pounds of cheese, 10,000 eggs, 1000 pounds of meat, and 1000 pounds of toppings. This pizza was made in 2012 using three kinds of cheeses, two kinds of meat, and 1000 toppings. The cooks who made that pizza figure that they can do it again. How do the cooks think that figure came up? Can you figure it out?</p> <p>How Much Do It?</p> <p>Math is important when a chef prepares a meal. A chef must know a lot about math to make sure that each dish has the right amount of ingredients with a good taste. For example, when a chef is recipe for a meal, he or she must multiply all of the measurements. For example, if a recipe calls for 1 cup of onions on each row, 20 rows of onions would be needed. If a recipe calls for 1/2 cup of each ingredient in the original recipe, then the amount of each ingredient in the giant food would be doubled. For example, if there is one onion in each meal, it would be a good idea to double the amount of onions in each meal. It would also be a good idea to figure the time and temperature in each meal, as well as the amount of water needed to cook the food.</p> <p>Regular-Sized Pizza Recipe</p> <p>Regular-Sized Pizza Recipe</p> <p>1 pound (454 g) flour 1/2 cup (113 g) sugar 1/2 cup (113 g) milk 1 cup (237 g) butter or margarine 1 1/2 cups (355 g) shredded cheese 1/2 cup (113 g) tomato sauce 1/2 cup (113 g) olives</p> <p>Extraordinary Food Delivery Math BBB</p> <p>1/2 cup (113 g) flour 1/2 cup (113 g) sugar 1/2 cup (113 g) milk 1 cup (237 g) butter or margarine 1 1/2 cups (355 g) shredded cheese 1/2 cup (113 g) tomato sauce 1/2 cup (113 g) olives</p> <p>Answers</p> <p>1. 1000 2. 1000 3. 1000 4. 1000 5. 1000 6. 1000 7. 1000 8. 1000 9. 1000 10. 1000</p> <p>Answers</p> <p>1. 1000 2. 1000 3. 1000 4. 1000 5. 1000 6. 1000 7. 1000 8. 1000 9. 1000 10. 1000</p> <p>Words to Know</p> <p>math is a chef's friend calories sodium glucose numerical estimation ratios equation</p>
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Assemble the Unit

Reproduce and distribute one copy for each student:

- Visual Literacy page: Extraordinary Food, Ordinary Math, page 91
 - Level 1, 2, or 3 Reading Selection and Reading Comprehension page and the corresponding Words to Know list
 - Graphic Organizer of your choosing, provided on pages 180–186
 - Writing Form: Extraordinary Food, Ordinary Math, page 92

Introduce the Topic

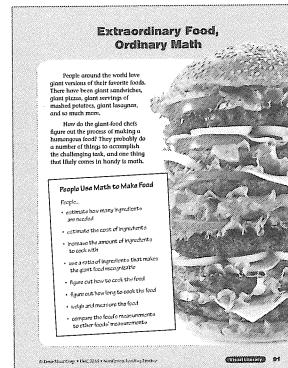
Read aloud and discuss the Extraordinary Food, Ordinary Math photo and list. Explain that math is an essential part of enjoying giant foods and food challenges because it's math and measurements that make the food extraordinary.

Read and Respond

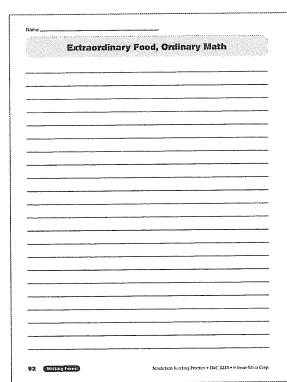
Form leveled groups and review the Words to Know lists with each group of students. Instruct each group to read their selection individually, in pairs, or as a group. Have students complete the Reading Comprehension page for their selection.

Write About the Topic

Read aloud the leveled writing prompt for each group. Tell students to use the Graphic Organizer to plan their writing. Direct students to use their Writing Form to respond to their prompt.



Visual Literacy



Writing Form

Extraordinary Food, Ordinary Math

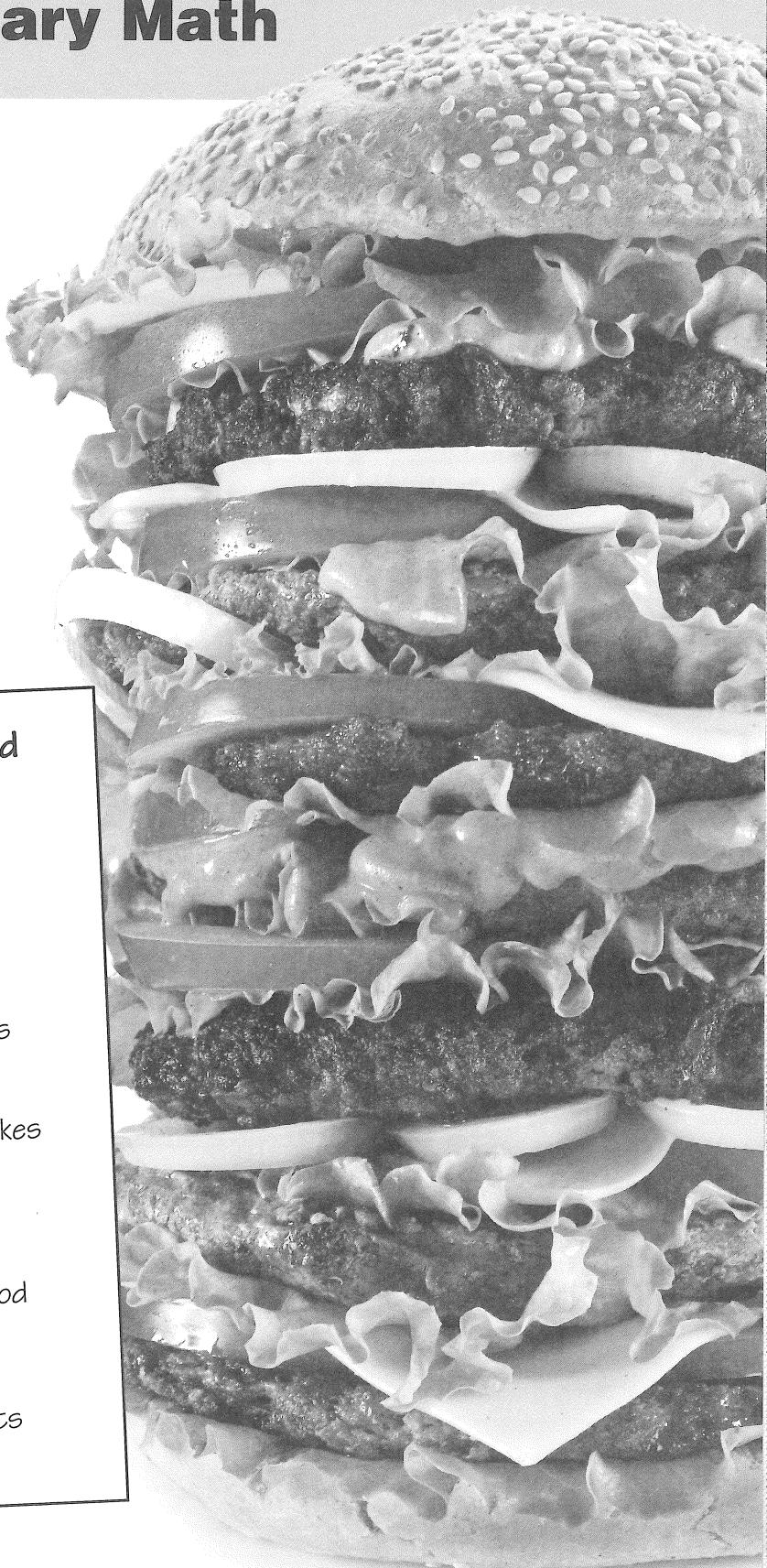
People around the world love giant versions of their favorite foods. There have been giant sandwiches, giant pizzas, giant servings of mashed potatoes, giant lasagnas, and so much more.

How do the giant-food chefs figure out the process of making a humongous food? They probably do a number of things to accomplish the challenging task, and one thing that likely comes in handy is math.

People Use Math to Make Food

People...

- estimate how many ingredients are needed
- estimate the cost of ingredients
- increase the amount of ingredients to cook with
- use a ratio of ingredients that makes the giant food recognizable
- figure out how to cook the food
- figure out how long to cook the food
- weigh and measure the food
- compare the food's measurements to other foods' measurements



Extraordinary Food, Ordinary Math

Words to Know

Giant Snack, Giant Equation

unique
gigantic
humongous
trough
operations
resemble
percentages

Words to Know

Calculating a Food Win

extraordinary
competitions
humongous
participants
timekeepers
spiciest
surpass

Words to Know

Math Is a Chef's Friend

colossal
samosa
gigantic
numeric
essential
ratios
equation

**Extraordinary Food,
Ordinary Math ■■**

**Extraordinary Food,
Ordinary Math ■■■**

**Extraordinary Food,
Ordinary Math ■■■■**



Giant Snack, Giant Equation

People do unique things to set world records, and making gigantic foods is one of them. Making a humongous snack isn't only about cooking skills, it's also about math skills.

Giant Foods

What if you could have a gigantic serving of your favorite food? Well, pizza lovers in Italy got just that. In 2012, five Italian chefs made the largest pizza the world had ever seen. They used many ingredients, including 19,800 pounds (8,981 kg) of flour and 8,800 pounds (3,992 kg) of tomato sauce. In total, the pizza weighed 51,200 pounds (23,224 kg) and measured 130 feet (40 m) wide. The previous largest pizza was made in 1990 in South Africa and weighed 27,000 pounds (12,247 kg).



There have been other giant foods, including a giant meatball, peanut butter cup, and hot dog. One of the biggest burgers weighed over 2,000 pounds (900 kg) and contained over 50 pounds (27 kg) of lettuce. And a giant serving of nachos was once served in an 80-foot-long (24-meter-long) trough. It had 4,689 pounds (2,127 kg) of chips, cheese, and meat.

Using Math to Make Giant Foods

Imagine that some chefs are trying to make the largest pizza ever. First, they'd consider the size of the current largest pizza. Then, they'd use a normal-sized pizza recipe for reference. Suppose a 2-pound (0.9 kg) ball of dough can create a 20-inch (51-cm) crust. The chefs could use this information to multiply the measurements and estimate the amount of ingredients needed for the giant pizza. They could use math operations to determine how long to cook the giant pizza based on the cooking time for the original recipe.

Normal Pizza Recipe in Ounces/Grams	Giant Pizza Recipe in Ounces/Grams
15 oz. dough (425 g)	15,000 oz. dough (425,243 g)
9 oz. sauce (255 g)	9,000 oz. sauce (255,146 g)
12 oz. cheese (340 g)	12,000 oz. cheese (340,194 g)

One challenge would be creating even ratios of ingredients (tomato sauce, dough, cheese, and toppings) between the normal pizza's ingredients and the giant pizza's. For example, if a normal pizza's dough and sauce have a ratio of 5:3 as in the recipe above, then the ratio of dough and sauce in the giant pizza needs to be 5:3, as well. Otherwise, the giant result might not resemble pizza at all! The chefs would probably use fractions or percentages to determine how to divide the work and use addition to calculate the pizza's total weight.

Giant Snack, Giant Equation

Fill in the circle by the correct answer. Then write the answers to numbers 3, 4, and 5.

1. Math is used in the area of giant foods to _____.
Ⓐ measure and compare foods
Ⓑ study a chef's skills
Ⓒ use as much food as possible
Ⓓ share food with the world
2. Details about the specific portions in a recipe _____.
Ⓐ reveal when the giant food will expire
Ⓑ aren't helpful for other chefs who want to make giant foods
Ⓒ help us understand why the chefs chose to make this food
Ⓓ would be useful for a chef trying to make a giant portion
3. How could the steps of making a giant pizza be applied to making other giant foods?

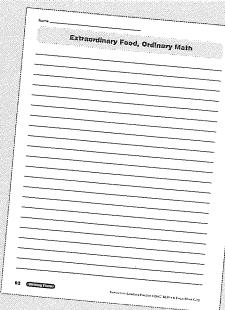
4. Which math operations do you think are most useful when making a giant food?

5. Are weight and measurement an important part of this text? Explain why or why not.

Write About the Topic

Use the Writing Form to write about what you read.

Describe some of the possible outcomes if there wasn't an equal ratio of ingredients between the giant and normal pizzas.



Calculating a Food Win

People do unique things to make headlines, including making extraordinary foods, competing in food competitions, and taking on food challenges. While these events are lighthearted, they wouldn't happen without basic math skills.

Giant Foods

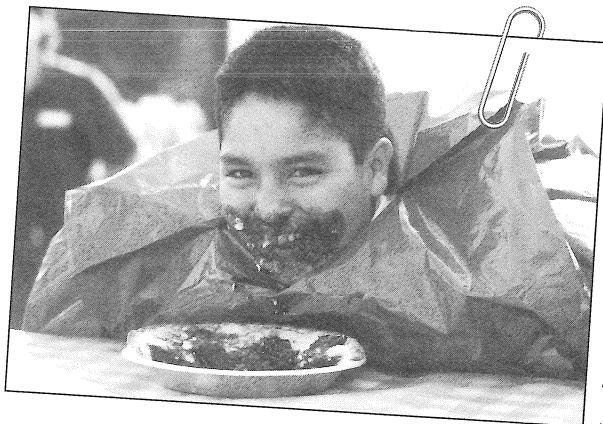
People love to see humongous versions of their favorite foods. In 2012, five chefs in Italy made the largest pizza the world had ever seen. They used many ingredients, including 19,800 pounds (8,981 kg) of flour and 8,800 pounds (3,992 kg) of tomato sauce. In total, the pizza weighed 51,200 pounds (23,224 kg)! The pizza measured 130 feet (40 m) wide and took up half a warehouse. To make a giant food, chefs have to start with a recipe and use math operations such as multiplication to adjust the ingredients to make a giant version. If they make mistakes, their giant foods could turn out to be giant disasters. Giant foods are a big investment, considering the amount of ingredients the chefs have to buy and the number of people needed to make the foods.

Timed Food-Eating Competitions

Food competitions have become popular over the years, and some of them are timed. In some, participants compete against each other to see who can eat a meal the fastest. Other times, competitors race against the clock, with limited time to finish the meal. Either way, there are usually timekeepers and judges to monitor the time and the amount of food eaten. Understanding time and decimals is extremely important in these competitions, because the difference between a victory and a loss could depend on a fraction of a second. For example, a timekeeper needs to know whether 30.2 seconds is a faster time than 30.8 seconds.

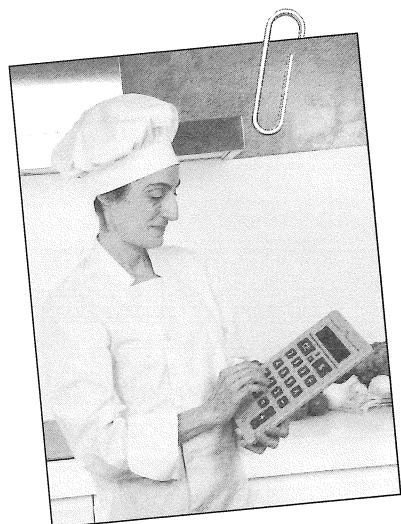
Food Challenges

A food challenge is when participants compete against themselves. There are different kinds of challenges. Sometimes people try to eat the hottest, spiciest food possible. Other times, they try to eat as much food as they can to surpass amounts that other challengers are eating. While the eaters are challenging themselves, the chefs are challenging themselves, too. They must figure out how to make their spicy foods even spicier by multiplying ingredients and adjusting their recipes. This is when calculators and measuring cups become important tools in a kitchen.



This competitor has to eat as much pie as he can within a certain time limit.

Joseph Sohm / Shutterstock.com



Calculating a Food Win

Fill in the circle by the correct answer. Then write the answers to numbers 3, 4, and 5.

1. The chefs of giant foods and food challenges probably use math to _____.
Ⓐ taste their food as they are cooking it
Ⓑ adjust recipes to make foods larger or hotter
Ⓒ receive attention for setting a new world record
Ⓓ adjust their uniforms for the difficult task
2. Mark the food-eating competitor's time that is the fastest.
Ⓐ 2.04
Ⓑ 2.07
Ⓒ 2.47
Ⓓ 2.49
3. List anything related to math that a chef would do when making the largest pizza ever.

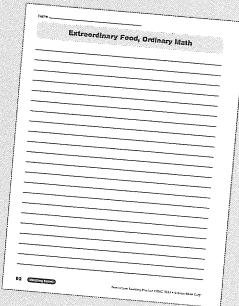
4. How could math skills help a competitive eater in a timed competition?

5. Explain the steps a chef could take to figure out how much it costs to make a giant food.

Write About the Topic

Use the Writing Form to write about what you read.

Would food competitions and food records be possible without using math? Write an argument explaining why or why not.



Math Is a Chef's Friend

Most people are familiar with the process of following a recipe. Even those who don't cook can probably prepare a bowl of cereal or a sandwich. Have you ever thought about what it would take to make a giant version of a food? Chefs around the world do it, and math is an important part of the process.

Giant Foods Are Measured with Math

Chefs worldwide have been making colossal foods for years. In 2012, five Italian chefs made the largest pizza the world had ever seen. They used 19,800 pounds (8,981 kg) of flour and 8,800 pounds (3,992 kg) of tomato sauce. In total, the pizza weighed 51,200 pounds (23,224 kg) and measured 130 feet (40 m) wide.

One of the world's biggest burgers weighed over 2,000 pounds (900 kg) and contained over 50 pounds (27 kg) of lettuce and 19 pounds (8.6 kg) of pickles. In Britain, a giant samosa was made in 2012 using three sacks of potatoes, one sack of onions, 30 bags of peas, and more. So, how do the giant-food chefs figure out how to make these gigantic snacks?

How Chefs Do It

Math is important when chefs adjust a recipe, especially when making a giant food. They begin with a goal-size for the giant food and estimate the amount of ingredients needed. One way to do this is to start with a recipe for regular portions and multiply all of the measurements, or numeric values, by an amount such as 20. It's essential that the ratios between ingredients in the original recipe are equal to the ratios of ingredients in the giant food's recipe. Imagine the outcome if a chef's goal was to make the world's biggest pizza, but she increased only the amount of tomato sauce. It would be a pool of tomato sauce! In addition to adjusting recipe amounts, a chef needs an equation to figure the time and temperature in order to properly cook the giant food.

Regular-Sized Pizza Recipe

Regular-Sized Pizza Recipe

1 pound (0.45 kg) dough	1 bell pepper
1 cup (237 g) tomato sauce	2 ounces (57 g) mushrooms
1 1/2 Tbsp. (22 mL) olive oil	1 tomato
10 ounces (283 g) cheese	2 cloves garlic

