

Cereal Box Redesigns



Grades: Middle School

Subject: Health, Math, Creativity, Science

Time: Two to three 50-minute class periods

* **Standards:** Students will...

Health Standard 6: Understand essential concepts about nutrition and diet.

Benchmark #1: Understand how eating properly can help to reduce health risks (in terms of anemia, dental health, osteoporosis, heart disease, cancer, malnutrition).

Health Standard 7: Know how to maintain and promote personal health.

Benchmark #3: Know strategies and skills that are used to attain personal health goals (e.g., maintaining an exercise program, making healthy food choices).

Math Standard 1: Use a variety of strategies in the problem-solving process.

Benchmark #1: Understand how to break a complex problem into simpler parts or use a similar problem type to solve a problem.

Benchmark #7: Construct informal logical arguments to justify reasoning processes and methods of solutions to problems (i.e., uses informal deductive methods).

Math Standard 4: Understand and applies basic and advanced properties of the concepts of measurement.

Benchmark #6: Select and uses appropriate units and tools, depending on degree of accuracy required, to find measurements for real-world problems.

Visual Art Standard 3: Know a range of subject matter, symbols, and potential ideas in the visual arts.

Benchmark #1: Know how visual, spatial, and temporal concepts integrate with content to communicate intended meaning in one's artworks.

Benchmark #2: Know different subjects, themes, and symbols (through context, value, and aesthetics) which convey intended meaning in artworks.

Art Connections Standard 1: Understand connections among the various art forms and other disciplines.

Benchmark #4: Know how various concepts and principles are used in the arts and disciplines outside the arts (e.g., balance, shape, pattern).

Objectives: Students will be able to...

- Demonstrate an understanding of nutrition and diet.
- Examine nutrition labels.
- Apply basic math skills and problem solving strategies to other disciplines.
- Demonstrate an understanding of the art concept, emphasis.

Materials:

- Cereal Boxes (a healthy cereal like Cheerios, Fiber One, and Kashi Go Lean and unhealthy cereal like Raisin Bran Crunch, Cinnamon Toast Crunch, and Chex Multigrain)
- Rulers
- Clear Tape
- Roll of White Paper (large enough to wrap a cereal box like a present)
- Pencils and Erasers
- Markers
- “Breakfast Cereal: Healthy or Unhealthy in Disguise?” worksheet provided below
- “Breakfast Cereal Redesign Initial Sketch” worksheet provided below

Overview: Studies show that breakfast is the most important meal of the day. It is our first opportunity to make a healthy meal choice. Skipping breakfast often causes us to over compensate by eating more calories later on in the day than we would if we ate breakfast. A healthy breakfast should contain between 400 and 500 calories and contain fiber and some protein. Fiber and protein, like those found in cereal, can help curb our hunger and keep us full and satisfied throughout the day. However, many of these cereals obtain over 40% of their caloric content from sugar. In order to maintain a healthy diet, cereal shouldn't have more than 25% percent of calories from sugar. Excess amounts of sugar, gets stored as fat in the body, and can lead to health problems such as weight gain and diabetes. To calculate the percentage of calories in a cereal that comes from sugar, multiply the number of grams of sugar per serving by four (because there are four calories per gram of sugar). Next, divide that answer (calories from sugar) by the total number of calories per serving. Then multiply that number by 100 to get the percentage.

One of the main causes of sugary cereal consumption is misleading package design. Some cereals say that they are healthy by emphasizing the high fiber and nutrients they contain, while actually containing up to 20 grams of sugar. That's like drinking a half a can of soda for breakfast if you consume the recommended portion size. By examining the food labels and package designs more closely, we can make healthier choices.

Kid Speak: Cereal is a great choice for a healthy breakfast. It helps keep us feeling full throughout the day. However, not all cereals are good for us. Some are unhealthy cereals in disguise. Companies alter package design to emphasize some of the healthy things in the cereal or use fun designs, so we don't notice the unhealthy things like sugar in the cereal. By looking at food labels and package designs, we can make healthier food choices.

Eco-Fact: Forty-nine percent of Americans eat cereal for breakfast, contributing to 2.7 billion boxes of cereal being sold every year.

Procedure:**Introduction:**

1. Show students the front of a box of cereal that seems healthy, but is high in sugar like Raisin Bran Crunch and ask the students: What do you notice first on the box? Accept all answers and make a list on the board.
2. Ask the class if they see a pattern in the answers? Then explain that package designers use an art term called *emphasis* to make us notice certain things first.
3. Ask students: Why do you think you noticed the things listed on the board first? Explain that package designers emphasize things, or make you notice them first, by making things really big, using bright colors, creating interesting shapes, or by placing things in the center.
4. Ask the class: Do you think this cereal is a healthy breakfast choice? Explain that although this cereal seems healthy, and has a fun package design, it actually contains 20 grams of sugar. That is like drinking a half a can of soda for breakfast.
5. Explain that today we will be examining cereal package designs to help us decide if the cereal is a healthy choice or not. Then next class we will be re-designing the package design to make the cereal box reflect its ingredients. For example, Raisin Bran has lots of sugar; we could redesign the package to let

buyers know it is not a healthy choice by replacing the delicious looking cereal in the bowl, with a bowl of sugar.

Initial Activity:

1. Explain that we will be working in groups today, to uncover the truth about our cereals. Your group's goal is to determine if the cereal is a healthy or unhealthy choice. Everyone will be receiving a cereal box, and the worksheet: "Breakfast Cereal: Healthy Choice or Unhealthy in Disguise?" Examine the cereal box and answer the questions as best you can.
2. Explain that we will be focusing on how much fiber and sugar the cereal has. In order to maintain a healthy diet, cereal **shouldn't have more than 25% percent of calories from sugar**. Excess amounts of sugar, gets stored as fat in the body, and can lead to health problems such as weight gain and diabetes.

To calculate the percentage of calories in a cereal that comes from sugar, follow these steps:

- Multiply the number of grams of sugar per serving by four (because there are four calories per gram of sugar).
- Next, divide that answer (calories from sugar) by the total number of calories per serving.
- Then multiply that number by 100 to get the percentage.

Here is an example of this calculation from Kellogg's Cornflakes:

- It contains two grams of sugar per serving. To calculate how many calories that is, multiply the two grams of sugar by four. The answer should be eight.
- Then divide that answer, by the total number of calories per serving. In this case, the number of calories per serving is 100. Eight divided by 100 is .08.
- To get the percentage, multiply that answer by 100. The percentage of calories from sugar in Kellogg's Cornflakes would then be 8%.

A cereal should also contain **at least five grams of fiber or more**. Fiber helps keep you full and satisfied throughout the day.

3. Split the class into groups of two to four students.
4. Have students help hand out materials: one worksheet per group, one pencil, and one cereal box (half the groups will receive a healthy cereal like Cheerios, Fiber One, and Kashi Go Lean. The other half will receive an unhealthy cereal like Raisin Bran Crunch, Cinnamon Toast Crunch, and Chex Multigrain).
5. Students will complete the "Breakfast Cereal: Healthy or Unhealthy in Disguise?" worksheet (provided below.)
6. Have a class discussion:
 - What cereals were healthy and which ones were not ?
 - How did you decide if a cereal can be called healthy or unhealthy?
 - If some of these cereals aren't a healthy choice, then why does the packaging make it seem healthier than it is? (Explain that package designs can be misleading in order for companies to sell the product.)

Cereal Box Redesign Activity:

1. Explain that we will now be re-designing the cereal boxes to reflect their ingredients. Healthy cereal boxes will be made to look even healthier, and unhealthy cereal boxes will be made to look unhealthy.
2. Ask the class: How do you think you could redesign your cereal box to make it seem unhealthy? Also ask: What things would you emphasize, or make more noticeable, and what things would you de-emphasize, or make less noticeable?
3. Ask students: How do you think you could redesign your cereal box to make it seem healthier? Also ask: What things would you emphasize, or make more noticeable and what things would you de-emphasize, or make less noticeable?
4. Hand each group the "Breakfast Cereal Redesign Initial Sketch" worksheet. Students will discuss their ideas with their group members, and then draw their initial sketch on the worksheet.
5. Once their designs are complete, demonstrate how to wrap the cereal box with white paper and clear tape (like a present) and then draw their designs on the box with pencil using a ruler for areas like the nutrition label and text. Then the box can be colored in with marker.

6. Have students help pass out the rest of the materials: one large sheet of white paper (enough to cover the cereal box), tape, pencils, erasers, and markers per group. It can take between one and two class periods for students to finish the box, depending on the classes pace.

Closing Activity:

1. Once students have completed their boxes, have each group present their box to the class. They can describe what their cereal is, whether it is a healthy or unhealthy choice, and the design choices they made such as what they emphasized, and de-emphasized.
2. Groups can also talk about what challenges they faced, and how they overcame those challenges.

Adaptations:

- To make the lesson easier, the class can use computers to create the text, including the nutrition label, and glue them on the box. Instead of drawing the designs, students can find pictures in magazines, or use paper cut outs and glue them on the box as well.
- To make the lesson more challenging, students can construct the box itself out of cardboard. After constructing the box, students can sketch on the design, and use paint instead of markers.

Extensions:

- Students can examine other food labels in their kitchens and decide whether they are healthy or unhealthy and share their findings with the class.
- Students can create ads for their new cereal design. It can be as simple as a jingle or marketing song, or as advanced as creating a commercial using a video camera.
- For tips on dietary guidelines and healthy eating habits visit the [USDA Food Pyramid](#).

GEF Community: Join the GEF Community online. Students can share their projects with the GEF Community. In addition, students can discuss how they will choose healthy food in the future.

**Breakfast Cereal:
Healthy, or Unhealthy?**

Directions: Examine the cereal box your group has been given. Locate the nutrition label and fill out the questions below. Your goal is to decide if the cereal is a healthy or unhealthy choice. Remember, a healthy cereal choice shouldn't have more than 25% of its calories from sugar, and contains at least five grams of fiber or more.



1. Name of the cereal _____
2. Where was the nutrition label located? _____
3. Was it easy to find? Why? _____
4. What is the suggested serving size? _____
5. How many calories per serving does it list? _____
6. How many grams of sugar does it have? _____
7. To find the % of calories from sugar per serving multiply the # of grams per serving by 4 grams of sugar per serving _____
8. Divide the answer above by the number of calories per serving. (See answer in step 5 for numbers of calories per serving) calories from sugar _____
9. To find the percentage of calories from sugar, multiply the answer above by 100 % of calories from sugar per serving _____
10. How much fiber does the cereal have? _____
11. How much protein does the cereal have? _____
12. Does it have any other vitamins or minerals listed? if so, list them _____
13. Do you think this cereal would make a healthy choice for breakfast? Explain your answer _____

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Name: _____

Cereal Box Redesign Sketch

Front	Back	Left Right	

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1. Click on the image above
2. Click on the small "print" icon at the top left of the lesson
3. Make sure your "Page Scaling" is set to "Fit to Printable Area"
4. Click "OK" and your lesson will be printed!

Click on the second icon from the print button to save your lesson to your computer.

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