

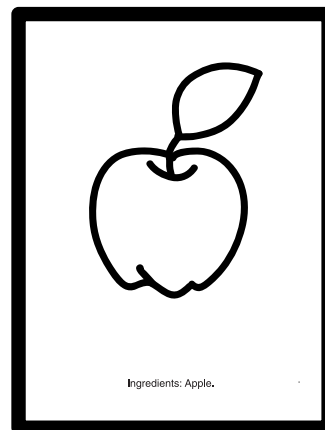
LETTER TO PARENTS

Cut here and paste onto school letterhead before making copies.

SCIENCE NEWS

Dear Parents,

Our class is beginning a new science unit using the **FOSS Food and Nutrition Module**. We will be investigating what food is, what it is made of, and how several nutrient groups contribute to good, healthful nutrition. Children will learn about fats, sugars, proteins, and vitamins and ways of testing for some of these nutrients in food. They will have an opportunity to use their knowledge about foods to plan lunch menus that conform to guidelines for total number of calories and for the number of calories contributed by different nutrients. And we'll become familiar with the labels on food and the kinds of information provided for the consumer.



Your child will be conducting experiments that use common foods. I may be asking you to send small samples of foods to school for this purpose. The foods might include items such as a handful of breakfast cereal, a spoonful of peanut butter, a piece of fruit, or a couple of cookies. We are also assembling a collection of empty food containers of all kinds. We are especially interested in the list of ingredients and nutritional information contained on the food packages. Please save a few containers for our “food market.”

Watch for the home/school connection sheets I will be sending home with your child. These suggest ways for the whole family to investigate interesting aspects of food and nutrition.

You might find as a result of our investigations in the **Food and Nutrition Module** that your family’s dinner conversation will actually focus on the meal! If you have any questions or comments, or have family and/or cultural traditions involving food that you would like to share with the class, please drop me a note or come in and visit our class. We are looking forward to many weeks of exciting investigations with food and nutrition.

Comments _____

PROJECT IDEAS

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- Research who discovered vitamin C and what was learned about it.
- Find a test for starch in foods and use it to analyze a product.
- Who was the first scientist to discover that a substance in food could affect people's health?
- Determine the percentage of sugar in a product.
- Why did parents have their children take cod-liver oil?
- Why do athletes "carbo load" before a competition?
- Will eating carrots help you see in the dark?
- What foods do astronauts eat in space and how do they prepare them?
- What is the food pyramid and how can it be used to guide our food choices?
- Do vegetarians meet all their nutritional needs without eating any meat?
- Does chocolate have nutritional value?
- Pick a favorite fast-food restaurant and decide if you think their food is healthy.
- Pick a country and research its customs surrounding food and eating.
- Research breads around the world. Find out about the history of bread and the use of yeast in bread making.
- Pick a favorite food and research how it was first introduced into the American diet.
- Find out the most popular foods in America and analyze their nutritional value.
- Find out more about what the Native Americans taught the Pilgrims about food.
- Research traditions surrounding food, like why certain foods are served on certain holidays or special family gatherings in your family.
- Select a food to test for fat, sugar, acid, and vitamin C.
- Find out what happens to vitamin C with heat, exposure to air, or exposure to cold.

Name _____

Date _____

PROJECT PROPOSAL

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1. What is the question or the project that you are proposing?

2. What materials or references will you need to complete the project?

3. What steps will you follow to complete the project?

Name _____

Date _____

PRESENTATION GUIDELINES

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You will have exactly 3 minutes to present your project to the class. In those 3 minutes you should answer these questions.

- What were you trying to find out (your question)?
- What materials or references did you need to do your project?
- What procedure did you follow to complete your project?
- What did you learn from doing your project?

When you begin speaking, you will see the *green card* held up for 2 1/2 minutes. When you see the *yellow card*, you have 30 seconds left. When you see the *red card*, it means you can finish your sentence, but you must stop within the next few seconds.

Practice your presentation so you will be sure it is at least 2 1/2 minutes long, but not more than 3 minutes long. Be sure you have included all of the information asked for above.

Name _____

Date _____

PRESENTATION GUIDELINES

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Name _____

Date _____

MATH EXTENSION—PROBLEM OF THE WEEK**INVESTIGATION 1: FAT TEST**

Ms. Cote’s class conducted the fat test using 3-g samples of ten foods. After 2 days they measured the size of the grease spots. Here are the results.

Food tested	Size of grease spot		
Potato chips	60 cm ²	100%	300 cm ²
Peanut butter	53 cm ²	90%	270 cm ²
Crackers	21 cm ²	80%	240 cm ²
Walnut	30 cm ²	70%	210 cm ²
Cream cheese	15 cm ²	60%	180 cm ²
Jelly	3 cm ²	50%	150 cm ²
Margarine	102 cm ²	40%	120 cm ²
Hot dog	22 cm ²	30%	90 cm ²
Mayonnaise	165 cm ²	20%	60 cm ²
Banana	2 cm ²	10%	30 cm ²

For comparison the class did a fat test with 3 g of pure fat. After 2 days the grease spot was 300 cm².

Calculate the percentage of fat in each of the ten foods. Show all your work. Use the back of this paper if you need more room to record your percentages.

HINT: You can use the percentage bar above to help you figure out the fat percentages. For instance, a food that produced a grease spot of 150 cm² would be 50% fat.

Name _____

Date _____

MATH EXTENSION—PROBLEM OF THE WEEK

INVESTIGATION 2: THE SUGAR TEST

A Fair Share

Carol invited seven of her girlfriends to a party. She had 12 brownies. How many brownies did each girl get if everyone got a fair share?

Later Carol's mother brought 9 more brownies to the party. The girls shared these equally, too. This time how many brownies did each person get?

How many brownies did each person eat altogether?

A Sticky Problem

Laura has three kinds of candy in her bag for a total of 19 pieces of candy. The three kinds are gummy squirrels, mints, and chocolate drops. She has twice as many gummy squirrels as mints. She has three more chocolate drops than mints. She has one gummy squirrel more than the number of chocolate drops. How many of each kind of candy does Laura have?

Name _____

Date _____

MATH EXTENSION—PROBLEM OF THE WEEK**INVESTIGATION 3: THE ACID TEST**

Jason's class was testing fruit drinks for vitamin C. They found out how many drops of each drink were needed to neutralize 10 ml of indophenol indicator.

Orange drink	Drops	Percentage of RDA
Standard vitamin C	20 drops	
Instant orange drink	49 drops	
Canned orange drink	5 drops	
Frozen orange juice	7 drops	
Orange soda	50 drops	
Fresh orange juice	9 drops	

They wanted to figure out what percentage of their vitamin-C RDA (recommended daily allowance) each drink provided. They knew that 175 ml of standard vitamin-C solution provided exactly one RDA. When they tested the standard vitamin-C solution with indophenol, they found that 20 drops neutralized 10 ml of indophenol indicator.

Calculate (or estimate) the percentage of RDA in one serving of the fruit drinks that were tested in Jason's class.

HINT: If an orange drink requires only half as many drops as the standard vitamin-C solution to turn the indicator clear, that drink has twice as much vitamin C, or 200% of the RDA in one serving.

Figure out the percentages for the fruit drinks Jason's class tested.

Name _____

Date _____

MATH EXTENSION—PROBLEM OF THE WEEK**INVESTIGATION 4: FREE LUNCH**

Hannah and Emma were in the school environmental studies club. They were in charge of trail snacks for the Saturday field trip. They knew the hike was fairly strenuous, so they wanted to get as much energy as possible out of the snacks. Energy = calories, so they made a scouting trip to the store and copied nutritional information from five products that looked pretty good. Below is the information they came home with.

Product	Grams of carbohydrate	Grams of protein	Grams of fat	Cost of package
Rock-Hard Trail Bar (50 g)	44	4	2	\$0.75
Peanut-Butter Yums (400 g)	240	80	80	\$2.50
ChocoChip Cookies (300 g)	240	20	40	\$2.50
Gritty Grain Bar (30 g)	20	4	6	\$0.40
Granny's Oat Cookies (450 g)	430	8	12	\$2.75

Which snack product should they buy in order to get the most calories for their money? Put the snacks in order from best calorie value to the worst calorie value.

REMEMBER: 1 g of carbohydrate = 4 calories

1 g of protein = 4 calories

1 g of fat = 9 calories

Name _____

Date _____

HOME/SCHOOL CONNECTION

INVESTIGATION 1: THE FAT TEST

How much fat was in your dinner?

Materials

- Brown paper bag
 - Waxed paper
 - Tape
- a. Cut a brown paper bag into about 7-cm squares.
 - b. Label each square with the name of one of the foods you had for dinner.
 - c. Take a very small sample of each food that was served. Rub or squash it on the paper square with its name. If it's a liquid, put a few drops on the square.
 - d. Put the food papers on waxed paper. Let the squares stand for a couple of days.
 - e. Hold each square up to a light and show your family.

Discuss with your family the fat content of the meal. Write down if you think your meal contained a healthy amount of fat or if it contained too much fat. If you think your meal contained too much fat, discuss how you might adjust the meal to lower the fat content.

Name _____

Date _____

HOME/SCHOOL CONNECTION

INVESTIGATION 2: SUGAR TEST

Here's a sugar test for you and your family to try at home. This test will give you a chance to feel one effect of sugar.

You need a partner and a pinch of sugar.

Stand with your arms at your sides, palms of your hands facing out. The backs of your hands should be resting against your legs.

Have your partner take hold of your wrists and pull your arms away from your body. You should try to prevent your arms from being lifted up. It may or may not be possible for your partner to pull your arms up. Try this now. Did you notice how you were able to tighten up your muscles and resist the pull?

Now do the same thing again. But first, put a small pinch of sugar on your tongue and swallow it. Have your partner pull up on your arms again. What happened? Were you able to produce more resistance? Less resistance? About the same resistance? It's an experiment to help you judge your ability to use those upper-arm muscles with and without a little blast of sugar. Explain, or at least describe, the results below.

Try this sugar-charged experiment with another family member or friend who is stronger than you are, someone whose arm you couldn't possibly pull away. See if you can do it when they've put that pinch of sugar on their tongue. Write down what happened below.

Name _____

Date _____

HOME/SCHOOL CONNECTION

INVESTIGATION 3: THE ACID TEST

Listed below are the names of some essential vitamins. Some vitamins are known by name rather than a letter or number. Learn to recognize these names on package labels so you can tell exactly what's in the foods you eat. Look on the packages of the foods you eat in one day. Start with a cereal box in the morning.

Use this chart to record the vitamin data on the foods you eat in one day. Five vitamins are listed already; you need to add the other vitamins you find.

What did you notice about the vitamin content in the foods you ate?

What foods contained vitamin C?

Did you notice any similarities between the foods that contained the same vitamins?

Do you think you got the right amount of vitamins in your foods?

Vitamin	Did you eat some today?
Ascorbic acid (vitamin C)	
Folic acid (B group)	
Niacin (B group)	
Riboflavin (B group)	
Thiamine (B group)	