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What's That Food?

The Science of Food: Activity 1

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What's That Food? (activity and pre-assessment)

This activity's objectives are aligned with the National Science Education Standards, specifically those related to Science as Inquiry and Physical Science. This activity allows students to observe and describe samples from different food groups, make and record observations, make predictions, infer, and draw conclusions.

The following science concepts are addressed in this activity.

- Food comes in many forms.
- We require many servings of certain foods and very few of others.
- There is a lot to know about healthy eating.

Student Worksheets

Student pages in the teacher's guide are provided in English and in Spanish.

Reference

Moreno N., and B. Tharp. (2011). *The Science of Food: Teacher's Guide*. Fourth edition. Baylor College of Medicine. ISBN: 978-1-888997-76-7. Development of this student activity was supported, in part, by grant numbers R25 ES06932 and R2510698 from the National Institute of Environmental Health Sciences of the National Institutes of Health to Baylor College of Medicine.

Image Reference

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Key Words

food, pre-assessment, pre-test lesson, nutrition, calorie,

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Materials



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Materials

Divide the class into groups of 4 student each.

Per Student Group

- Sheet of white construction or chart paper, 9 in. x 12 in.
- 4 brown paper lunch bags with food item (see Setup)

Per Student

- Hand lens (or magnifier)
- Copy of "Healthy Eating" student sheet (revised to use MyPlate.gov graphics)

Setup

Each group of students will observe and describe a different food item. To prevent students from identifying the foods assigned to other groups, keep all food items inside brown paper bags. Create a set of four identical bags for each group of students (this will allow each student to make his/her own observations). For example, each student in Group 1 will receive a bag with one piece of macaroni. Select a different food type for each student group. (See Sample Setup chart in the teacher's guide.)

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Image Reference

Photo by Christopher Burnett and Michael Vu © Baylor College of Medicine.

Key Words

materials needed, materials list

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Science Safety Considerations

- Follow all instructions.
- Begin investigation only when instructed.
- Report accidents.
- Do not eat or drink during the experiment.
- Wash hands thoroughly after the investigation.



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Science Safety Considerations

Students always must think about safety when conducting science investigations. This slide may be used to review safety with your class prior to beginning the activity.

Safety first!

- Always school district and school science laboratory safety guidelines.
- Have a clear understanding of the investigation in advance.
- Practice any investigation with which you are not familiar before conducting it with the class.
- Make sure appropriate safety equipment, such as safety goggles, is available.
- Continually monitor the area where the investigation is being conducted.

References

1. Dean R., M. Dean, and L. Motz. (2003). *Safety in the Elementary Science Classroom*. National Science Teachers Association.
2. Moreno N., and B. Tharp. (2011). *The Science of Food Teacher's Guide*. Fourth edition. Baylor College of Medicine. ISBN: 978-1-888997-76-7. Development of this student activity was supported, in part, by grant numbers R25 ES06932 and R2510698 from the National Institute of Environmental Health Sciences of the National Institutes of Health to Baylor College of Medicine.

Key Words

science, classroom, safety, lab, laboratory, rules, safety signs,

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Energy for Our Bodies

- Do our bodies need fuel?
- What is the source of our bodies' energy?
- What in food helps our bodies to function every day?
- What are calories?
- How many calories do we need each day?



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Energy for Our Bodies

To focus students, ask *Do our bodies need fuel? Where does the body get the energy it needs?* Tell students that food gives your body the fuel and raw materials it needs each day. Just like a car needs gasoline, your body needs energy to move, think, and grow.

Ask, *What in food helps our bodies to function every day?* Tell students that food provides more than just energy. It supplies the building materials, such as proteins and minerals (like calcium), for muscles, bones and other body parts. Food also contains small amounts of other minerals and vitamins that help make energy available for muscles and the brain, and make other body functions possible.

Ask, *What are calories?* and *How many calories do we need each day?* Tell students that the usable energy you get from food is measured in calories. The more calories a food has, the more energy it can supply. A person's calorie requirements are based on his or her activities. The body stores extra calories as fat. Explain that in this activity, students will examine and report on a specific food item.

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Key Words

human, body, fuel, energy, calories,

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Let's Get Started

- Observe the food in your bag, using all of your senses EXCEPT taste.
- Think about how it feels, sounds, looks, and smells.
- Record your observations on construction paper.
- Each group will hang its list on the classroom wall.
- View the lists and decide what food is being described by each.



There are many kinds of foods. Each food contains different nutrients our bodies need.



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Let's Get Started

In this activity, which can be used as a pre-assessment of students' knowledge about nutrition and food needs, students will observe and describe different food item, based on the food's appearance and smell. Distribute a set of bags to each group, explaining that while students may recognize the food in their bags, they should not name it out loud. It will be a mystery food for other groups to identify, based on their observations and prior knowledge.

Ask students to observe the food in their bags, using all their senses except taste. Encourage students to use their hand lenses for closer observation. Ask, *How does your food feel, sound, look, and smell? Do you recognize this food? Do you eat this food? Do you think it is good for you? How much of this type of food do you need to eat daily? and Where does it come from?* Have each student make a list of his or her observations and anything specific that he or she knows about the food being observed. However, students should not name the food. Students should share their observations within their groups.

Each group's Reporter should list of all group observations on construction paper. Have group members take turns giving one observation at a time for the Reporter to record. Once one student shares an observation, any other group member with the same observation should check it off his or her list. This process will continue until all, or at least most, of the observations are added to each group's list.

Have Materials Managers place their groups' charts on the wall, where all students can view them. Students should view every chart and decide, based on the recorded

observations, what food is being described on each. They also should add any additional observations or information they have about that food.

Reference

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Image Reference

Photos of different foods courtesy of the Agricultural Research Service, USDA.
<http://en.wikipedia.org/wiki/File:Foods.jpg>

Key Words

lesson, experiment, food, 5 senses, feel, touch, sounds, hear, looks, see, smells, scent, odor,

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Let's Talk About It

- Which food was in each bag?
- Where does this food come from?
- To which food group or groups does the food belong?
- How many servings of this food should someone eat each day?
- What would you do before cooking or eating this food?
- Where would you store this food?



Wheat is a grain used to make bread products.



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Let's Talk About It

This activity teaches students that food comes in many forms, and that we need more servings of certain foods than others.

Lead a class discussion, based on the information on students' charts. Explain that all the foods observed and discussed are necessary, but that different amounts of each are recommended for optimum health. Conclude by using the Healthy Eating and Food Pyramid pages. Ask students to identify the food group to which each food belongs.

Have students work in their groups to create a menu for one day that includes appropriate numbers of servings from each food group.

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Image Reference

Microsoft Office Clip Art.

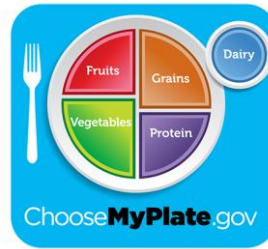
Key Words

lesson, experiment, food, food group, serving, servings, cooking, eating, food storage,

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The Science Behind Eating Healthy Food

- Eating healthy is important. Follow recommendations to get necessary nutrients.
- The main food groups are:
 - Grains
 - Vegetables
 - Fruits
 - Dairy
 - Protein (meat and beans)
- Be active! Try to get 60 minutes of physical activity each day.



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The Science Behind Eating Healthy Food

Discuss the importance of healthy eating habits. Carbohydrates, fats and proteins are our main sources of energy. Our bodies also need protein to maintain muscles and carry out many functions inside cells. We also need small amounts of vitamins and minerals. The best way to get our necessary nutrients without consuming too many calories is to follow the recommendations of a food pyramid or ChooseMyPlate.gov.

Notes

1. Oils are not a food group. However there are good sources of oils that are beneficial to the human body. Get your oils from fish, nuts and liquid oils, like corn oil, soybean oil or canola oil.
2. *The Science of Food Teacher's Guide* was revised to use the USDA MyPlate graphics. Please refer to the teacher's guide for more information.

Reference

1. ChooseMyPlate.gov. USDA. <http://myplate.gov/>
2. Moreno N., and B. Tharp. (2011). *The Science of Food: Teacher's Guide*. Fourth edition. Baylor College of Medicine. ISBN: 978-1-888997-76-7. Development of this student activity was supported, in part, by grant numbers R25 ES06932 and R2510698 from the National Institute of Environmental Health Sciences of the National Institutes of Health to Baylor College of Medicine.

Image Reference

1. ChooseMyPlate.gov illustration courtesy of the USDA: ChooseMyPlate.gov, USDA.
<http://myplate.gov/>
2. Food pyramid Illustration adapted From MyPyramid: Steps to a Healthier You.
<http://en.wikipedia.org/wiki/File:MyPyramidFood.svg>

Key Words

food, health, dairy, grains, vegetables, fruit, protein, meat, beans, myplate, food pyramid,

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