

Experiment with Fat

Background: In this activity, children do an experiment and take data to compare the amount of fat in different foods. They will learn a simple way to test whether a food has a lot of fat in it or not. There are two different types of fat. Visible fat is fat that you can see, like butter, margarine, oil and trimmings from meat. Invisible fat is fat that is present in food that may be invisible to the eye, like fat in eggs, fish, dairy products, sweets and baked goods. Fat is a major source of energy. 1 gram of fat provides 9 calories (energy), whereas 1 gram of carbohydrates or 1 gram of protein provides only 4 grams of calories. Fat is an essential nutrient, but not all fat is created equal. Unsaturated fat is healthier than saturated fat of trans fat, which tend to raise blood cholesterol and increase risk of heart disease. Check nutritional labels to find fat sources.

Materials

- Food items (see Data Table)
- Cutting board and knife
- Data Table
- Pencil
- Brown paper bags
- Marker
- Timer
- Ruler

Procedure

Set-up:

1. Slice the food items into pieces if necessary. Make sure each piece of a certain food item is roughly the same.
2. If you want to be more precise, you could even measure out each food item to make sure they are all the same ounces, but size shouldn't really affect your results since the comparisons will be between foods with little to no fat and foods with a lot of fat.

What to do:

1. Give each student a brown paper bag, the Data Table, a pencil, a marker and a ruler.
2. Have each student divide their brown paper bag into 9 squares with their marker and label each square with a different food.
3. Give each student every food item listed on the Data Table.
4. Have each student place each food item in the corresponding square and start the timer.
5. Let the food sit on the paper bag for about 5-10 minutes.
6. Ask the students to take the food off the bags and fill out columns 1-3 on the Data Table.



7. Let the paper bags dry for approximately 30 minutes or all day.
8. Have the students record their observations in columns 4-5. Describe any stains left on the paper.
9. Now have the students compare their predictions to the actual results.

Questions to Ask

- Based on the paper bag test, which foods contained fat? Fat does not evaporate like the water found in the fruits and vegetables. So the foods with fat left stains.
- Which foods have invisible fats in them? Most fruits and vegetables do not contain any fat and therefore do not leave a stain; but cheese, mates, and baked goods have invisible fat, and therefore leave a stain similar to the stain left by butter, which is visible fat.
- Which vegetable contained fat? Do you think it contained saturated or unsaturated fat? The paper bag test does not demonstrate the differences between trans fat, saturated fat and unsaturated fat. Saturated fat is fat contained in animal products like meat, dairy products, and butter. Unsaturated fat is fat or oil contained in plant products like vegetable oil, nuts, olives, or fatty fish like salmon.

Resources

- <http://kidshealth.org/> is a great website for kids to learn more about health education
- <http://www.mypyramid.gov/> has a lot of great nutrition education resources
- <http://playnormous.com/> has a lot of great interactive nutrition games
- Fueling the Teen Machine by Ellen Shanley MBA RD CD-N, Colleen Thompson

Power Science Lab

Paper Bag Test Data Table

Food item	Description of food item	Prediction of stain on paper (after 30 min.)	Description of stain on the paper (after 30 min.)	Size of stain (cm.)
Apple				
Avocado				
Beans				
Butter				
Cereal				
Cheese				
Hard-boiled Egg White				
Lettuce				
Potato Chips				
Tofu				

