



High Touch High Tech[®]

Science Experiences That Come To You

Fat Testers

Ingredients & Supplies:

- 6" piece of brown paper bag
- 2 oz. cup of squeeze butter
- 2 oz. cup of cooking oil
- 2 oz. cup of regular cold cereal
- 2 oz. cup of fat free cold cereal
- 2 oz. cup of potato chips or cheese doodles
- Popsicle sticks
- Pencil

*You are not limited to the foods listed above. It may be fun to experiment with some of the snacks that you actually eat! Additional ideas for this experiment include: Ritz crackers, granola bars, goldfish crackers, popcorn and chocolate chip cookies.

Instructions:

1. Cut a 6" piece of brown paper bag and set aside.
2. Collect all of the food samples listed above.
3. Using your popsicle stick, mash each food sample into the piece of brown paper bag.
4. Observe the effect of each food on the brown paper. Foods containing fat will make the bag appear "wet" or translucent, meaning light can pass through it.
5. Using your pencil, make note above each testing area by writing the name of the food or drawing a small picture.
6. Now, you can compare the different samples and determine which foods are the fattiest and which ones have the least amount of fat!

The Science Behind It:

When fat (or oil) merges with the paper particles and the gaps between these particles (air), the "fatty" paper allows much more light to shine through. This experiment will help you to identify foods with a higher concentration of fats; therefore, helping you make healthier food choices.



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Fun FAT Facts!

Healthy fats are essential to good health

The human body uses fatty acids to do everything from building cell membranes to performing key functions in the brain, eyes, and lungs. The functions of fats include:

- **Brain** – Fats compose 60% of the brain and are essential to brain function, including learning abilities, memory retention and moods. Fats are especially important for pregnant women, since they are integral to fetal brain development.
- **Cells** – Fatty acids help your cells stay moveable and flexible, as well as being responsible for building cell membranes.
- **Heart** – 60% of our heart's energy comes from burning fats. Specific fats are also used to help keep the heart beating in a regular rhythm.
- **Nerves** – Fats compose the material that insulates and protects the nerves, isolating electrical impulses and speeding their transmission.
- **Lungs** – Lung surfactant, which requires a high concentration of saturated fats, enables the lungs to work and keeps them from collapsing.
- **Eyes** – Fats are essential to eye function.
- **Digestion** – Fats in a meal slow down the digestion process so the body has more time to absorb nutrients. Fats help provide a constant level of energy and also keep the body satiated for longer periods of time. Fat-soluble vitamins (A, D, E, and K) can only be absorbed if fat is present.
- **Organs** – Fats cushion and protect your internal organs.
- **Immune System** – Some fats ease inflammation, helping your metabolism and immune system stay healthy and functioning.

Monounsaturated fats

- Are liquid at room temperature and turn cloudy when kept in the refrigerator.
- Primary sources are plant oils like canola oil, peanut oil, and olive oil. Other good sources are avocados; nuts such as almonds, hazelnuts, and pecans; and seeds such as pumpkin and sesame seeds.
- People following traditional Mediterranean diets, which are very high in foods containing monounsaturated fats like olive oil; tend to have lower risk of cardiovascular disease.



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Polyunsaturated fats

- Are liquid at room temperatures as well as at cold temperatures.
- Primary sources are sunflower, corn, soybean, and flaxseed oils, and also foods such as walnuts, flax seeds, and fish.
- This fat family includes the Omega-3 group of fatty acids, which are anti-inflammatory and your body can't make. In addition, Omega-3 fats are found in very few foods.

Saturated fat

- Are usually solid at room temperature and have a high melting point.
- Primary sources are animal products including red meat and whole milk dairy products. Other sources are tropical vegetable oils such as coconut oil, palm oil and foods made with these oils. Poultry and fish contain saturated fat, but less than red meat.
- Saturated fat raises low-density lipoprotein (LDL or "bad") cholesterol that increases your risk of coronary heart disease (CHD).
- It is unnecessary to eat saturated fat sources since our bodies can produce all the saturated fat that we need when we consume enough of the good fats.

Trans Fats

- Trans fats are created by heating liquid vegetable oils in the presence of hydrogen gas, a process called hydrogenation. Partially hydrogenating vegetable oils makes them more stable and less likely to spoil, which is very good for food manufacturers – and very bad for you.
- Primary sources of trans fat are vegetable shortenings, some margarines, crackers, candies, cookies, snack foods, fried foods, baked goods, and other processed foods made with partially hydrogenated vegetable oils.
- Trans fat raises low-density lipoprotein (LDL or "bad") cholesterol that increases your risk of coronary heart disease (CHD), as well as lowering HDL, or good cholesterol.



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