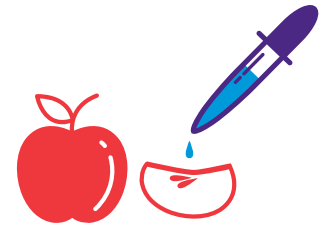


ACTIVITY 3 FOOD EXPERIMENTS



QUICK SUMMARY

In this activity, you and your family will explore how to eat nutritiously as you perform experiments that investigate carbohydrates and fats.

GET STARTED

Begin by singing along together to the *Stay Healthy* music video, and encourage your family to pay extra attention to the lyrics.

Then reread the first verse aloud:

I got one body, I'm going to treat it right.
That means working out and going to sleep at night.
When my stomach's hungry, I've got to feed it life.
Saying no to that junk food, I'm **eating right**.

Ask: What do you think it means to *eat right*? Discuss your thoughts as a family and then read on!

LEARN WHY

In a nutshell, eating right means that you eat a varied and healthy diet. When you consume a variety of healthy foods, you get the nutrients that you need to grow, be active, feel good, and reduce your risk of noncommunicable diseases.

Noncommunicable diseases (or NCDs) are diseases that are not contagious. They are normally caused by lifestyle choices such as poor nutrition and lack of exercise, but they can also be influenced by genetic, physiological, and environmental factors. Type 2 diabetes, high blood pressure, and heart disease are three of the most common NCDs.

INCLUSION IDEAS:

- **To help foster discussion among all members of your family, you may incorporate these tips throughout this activity:**
 - Utilize leading questions or fill-in-the-blank statements to support family members who require assistance to participate in discussions.
 - If a family member has a difficult time responding, provide examples of how to answer or provide choice responses (e.g., "Would you ____ or ____?")
 - Allow more response time for family members with alternative forms of communication (e.g., icon communication, communication device, sign language).
 - Allow options for how answers are shared (e.g., written, verbal) Have other family members go first to model an appropriate answer to this question.

In addition to water, the nutrients that our bodies need to be healthy are vitamins and minerals, protein, carbohydrates, and fat.

- **Vitamins and minerals** are nutrients that help our bodies work properly. They help with everything from supporting our growth to boosting our immune system and helping our organs and cells perform as they should.
- **Protein** is a nutrient that helps us grow, as well as build, repair, and maintain our body tissue.
- **Carbohydrates (or carbs)** are used by our bodies and brains for energy. We need carbohydrates to stay alert and active. There are two main types of carbohydrates: simple and complex. Simple carbohydrates are made of sugar that can be broken down quickly in the body and should be eaten in moderation. Complex carbs, also called starches, are made up of chains of sugar molecules. Complex carbs that are high in fiber are healthiest because they take longer to digest, don't spike our blood sugar, and can even help manage our cholesterol.
- **Fat** is a nutrient that comes in three main forms: unsaturated, saturated, and trans. Unsaturated fats, in moderation, are good for your heart. They give us energy and can even help our bodies absorb vitamins. The other two types of fat are not as healthy. Too many saturated fats (which are mainly found in meat and dairy products) and trans fats (which are processed, artificial fats) should be avoided. These fats are linked to high cholesterol and noncommunicable diseases.

APPLY

Today, your family will focus on carbohydrates and fats as you investigate the nutritional value of different foods in your kitchen.

To start, pull out a variety of foods from your cabinets, fridge, and/or pantry. Try to include at least a few foods mentioned in the *Stay Healthy* music video, such as apples, brown rice (cooked), and/or spinach. Other foods to look

INCLUSION IDEAS:

- Ask your family to restate the two types of carbohydrates and examples of each to ensure they understand the information
- When asking questions, allow for different types of responding
 - Non-vocal responses: (e.g., “Raise your hand if you think chocolate is a simple carbohydrate.”)
 - Choices (e.g., “Do you think asparagus is a simple or complex carbohydrate?”)

INCLUSION IDEAS:

- Ask your family to restate the three types of fats and examples of each to ensure they understand the information
- When asking questions, allow for different types of responding
 - Non-vocal responses (e.g., “Raise your hand if you think french fries contain trans fat.”)
 - Choices (e.g., “Do you think almonds are a saturated, unsaturated, or trans fat?”)

INCLUSION IDEAS:

- If you have family members that may lack motivation to engage, allow them to choose which foods they would like to include
- You can print pictures and sort them into the chart instead of writing

for include baked goods, bread, pasta (cooked), cereal, cheese, potatoes, or any other non-liquid food that your family eats regularly.

Once you have selected at least ten different foods, record them in your Food Testing Chart. Then, follow the steps below to begin.

Testing Part 1: Carbohydrates

You'll need:

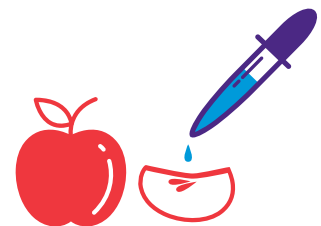
- The foods you selected
- [Potassium iodide solution](#) (which can be purchased at a pharmacy or online)
- Spoon or dropper for the iodide solution, if not already included
- Plate, tray, or paper towel to place the foods on

Directions:

As you read in the *Learn Why* section, complex carbohydrates (or starch) are made up of chains of sugar molecules. Simple carbohydrates are made up of single sugar molecules. Because of this, it takes the body longer to break down complex carbohydrates.

Curious which foods in your kitchen are complex carbs? Let's find out!

1. Place a small piece of each food you selected in front of you. If you selected a fruit or vegetable for testing, cut a slice that includes the inside of the produce and not just the skin.
2. Place a drop or two of the potassium iodide solution on each food and observe what happens to the solution's color. If the iodine solution comes in contact with starch, its color will change to a dark blue. This means that this food is a complex carbohydrate! If no starch is present, its color will stay the same.
3. Record your results on your Food Testing Chart.
4. For any foods that *are* complex carbohydrates, find out if it also contains dietary fiber. You may do this by looking at its nutrition facts label or by performing a quick Internet search*. Then fill out the "Carb Research" column with the number of fiber grams in one serving (if any). If the food is not a complex carbohydrate, you may leave this column blank.



*A quick Internet search using "food name", "brand name (if applicable)", and "nutrition facts label" should help you quickly find what you're looking for.

Testing Part 2: Fats

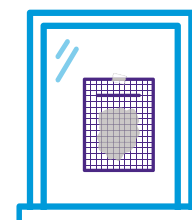
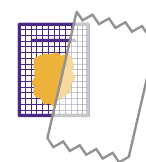
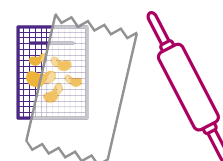
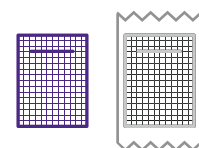
You'll need:

- The foods you selected (about ½ cup of each)
- Wax paper
- Graph paper (included as a printable with this activity), at least 10 sheets
- Pen or marker
- Rolling pin
- Tape

Directions:

Now let's investigate which foods in your kitchen contain fat by testing each food's grease level. **Grease** is fat that is partially melted, so if a food item is greasy, it's one way to tell that it contains a high fat content!

1. Begin by labeling every piece of graph paper with a different food item.
2. Then, tear a piece of wax paper that is roughly the same size as the graph paper.
3. Choose one food to begin. Break the food into small pieces and spread about ½ cup of it evenly over its corresponding piece of graph paper. (If you selected a fruit or vegetable, it will be best to cut it into many small pieces.)
4. Cover the food with the wax paper, and use your hands and/or the rolling pin to slowly crush the food between the two pieces of paper.
5. Once crushed, let the food sit for a minute. Then carefully remove the food from both pieces of paper.
6. Tape the graph paper to a bright window. Do you see any stains? Let it hang there as you move on to the next step.
7. If the wax paper is still intact, clean it so it can be reused. If not, cut a new piece. Then continue Steps 3–6 with each type of food that you selected.
8. When all foods have been tested, wait at least thirty more minutes. This will give any water that has been crushed out of the food a chance to evaporate from the graph paper. (The fat will stay behind!)
9. Then observe the translucent grease stains*, if any, that remain on each piece of graph paper. Count the number of graph paper squares that each stain covers and record the number on your Food Testing Chart. Which food was the greasiest? Which food was the least greasy?



*Tip: You are *not* looking for colored food stains. For instance, strawberries may leave behind a red stain! Instead, you are looking for clear stains left behind by grease.

10. Now, let's do a little research to verify your results. (Because, while grease is a great indicator of fat, it is possible for non-greasy foods to contain fats too.)

For each food item that you tested, look at its nutrition facts label *or* perform a quick Internet search* to confirm if it has fat. If it does, also look at what kind(s) of fat the food contains. Nutrition facts labels are required to state how much unsaturated, saturated, and trans fat each food has. Once you have found the breakdown, fill out the “Fat Research” column of your Food Testing Chart.

*A quick Internet search using “food name”, “brand name (if applicable)”, and “nutrition facts label” should help you quickly find what you're looking for.

11. Discuss: Do you notice any connections between the foods that left grease stains and the type of fat they contain?

REVIEW THE RESULTS

A healthy, nutritious diet helps us grow, maintain a healthy body weight, boost our immune system, and prevent against noncommunicable diseases.

Analyze the data in your food testing chart as you discuss the questions below:

- Out of all of your complex carbs, which food(s) contained the most fiber? Remember: the more fiber a complex carb has, the healthier it is!
- Which foods contain unsaturated fats? Remember: Unsaturated fats are heart-healthy fats that are an important part of a balanced diet.
- Which foods contain saturated or trans fats? Remember: Saturated fats and trans fats are unhealthy fats that we should try to avoid.

LOOKING FORWARD

Apply these results as you discuss how your family can eat more nutritiously. Consider:

- Which foods are healthy to include as part of a varied, balanced diet?
- Which foods are best to avoid?
- Based on what your family likes to eat and the food you can normally find in your kitchen, what can you family do to eat more nutritiously?

Once you have discussed these ideas together, use the *Stay Healthy* Tips page to either record your tips. For instance: What high-fiber complex carbs could you eat more of? Is there a greasy snack food that your family should try to eat less of? Or, can you try to eat more avocados since they contain unsaturated fat? If you're feeling creative, you may also write a new personalized verse to add to the *Stay Healthy* song!

Then hang your tips or song verse somewhere in your kitchen so your family will remember what you've learned today as you make food choices in the future.

FOOD TESTING CHART

Food	Complex Carb? <i>(circle yes or no)</i>	Carb Research: <i>If it is a complex carb, how many grams of fiber (if any) does one serving contain?</i>	Grease Present? <i>(circle yes or no)</i>	If so, how many squares?	Fat Research: <i>What kind of fat, if any, does this food contain? (saturated fat, unsaturated fat, trans fat)</i>
	Yes No		Yes No		
	Yes No		Yes No		
	Yes No		Yes No		
	Yes No		Yes No		
	Yes No		Yes No		
	Yes No		Yes No		
	Yes No		Yes No		
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