Fat Facts

3-5

S.3.2

Objectives	**Students will be able to:** • Identify foods containing solid fats and oils • Explain the differences between solid fats and oils • Name at least two risks of consuming excess solid fats • Apply the scientific method for research of fats in food
Standards Met	**6-MS-LS1** Planning and carrying out investigations that use multiple variables and provide evidence that meet the goals of an investigation. • Conduct an investigation to produce data to serve as the basis for evidence that meet the goals of an investigation.

Overview of Solid Fats and Oils

Did you know? We need fats for brain development and functioning; to keep our skin smooth and our hair shiny; to cushion and protect our organs from injury; and to regulate our body temperature. Fats also provide us with energy in the form of calories. They contain more than double the calories of carbohydrates and proteins. This is why we should be mindful about the portion size of the fat-rich foods that we eat.

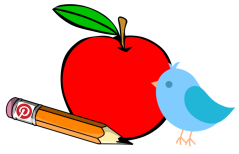
Fats are found in many foods from meat, to nuts, to salad dressings and even avocados. We can distinguish between two different types of fats in food: solid fats and oils. Solid fats are mainly found in animal sources, are usually solid at room temperature and don't contribute many health benefits. In fact, eating too many solid fats may increase heart disease risk. Examples of solid fats include meat fat, chicken fat, pork fat and dairy fat.

Oils are mainly found in plant sources such as vegetables oils, nuts and seeds. A non-plant source of oils include fatty fish and fish oil. Most oils are liquid at room temperature. Eating oil-rich foods in moderation may help lower heart disease risk. Examples of foods containing oils include peanut butter, avocado, olives, and salad dressings.

In general, it is recommended to keep fat intake between 20-35% of your daily total calorie intake. This estimate is based on a 2,000 calorie diet. Additionally, solid fats (also known as saturated fats) should not exceed 7% of your daily total calorie intake.

For more information on solid fats and oils, go to:

www.mentorprojectfiu.com



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Make The Connection

Materials

- Worksheet: Fat Facts for Grades 3-5
- Supplemental Material: What Are Fats?

Using the worksheet titled **"Fat Facts" for Grades 3-5**, help your students identify different sources of fats in the diet while applying the scientific method.

1

Ask your students what they have heard about fats. Point out the importance of fats in the diet and discuss their benefits. Explain the differences between solid fats and oils. Give examples of food sources of each type of fat (animals versus plants), mention the state of matter of fats at room temperature (solid versus liquid) and explain that solid fats pose a higher risk to health than oils when not eaten in moderation.

2

Next, introduce your students to the **scientific method.** Explain how the scientific method is a series of steps that every investigator follows to determine whether a hypothesis, or educated guess, is true or not. The first step of the scientific method is to determine the **problem** or question that is to be addressed. Second, formulate a **hypothesis** or educated guess of the answer to the original question. Third, define and carry out the **procedures** to find out whether or not the hypothesis is true. These procedures include a series of steps that often involve detailed research from validated scientific sources, experiments, etc. Then, collect the **data** from the investigation, organize it and interpret it as part of the **results.**

Lastly, draw your **conclusions** based on whether you proved or accepted the hypothesis, or whether you disproved or rejected the hypothesis. An alternative conclusion could be that you were unable to accept or reject the hypothesis. However, it is important to provide a reason or possible explanation as to why you reached such conclusion.

3

For more information about fats, refer to the "What Are Fats?" supplemental sheet. Do an overview of the **"Fat Facts" worksheet for grades 3-5.** Explain the activity and clarify any questions the students may have.

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Supplemental Material

For the Teacher: What Are Fats?

Fats are one of the six essential nutrients that make up a healthy diet. Fats give us energy, regulate our body temperature and support our health.

What Are Solid Fats?

Solid fats are fats that are usually solid at room temperature. They mainly come from animal foods. Solid fats contain more saturated fats and *trans* fats. Tropical oils, such as coconut oil, are also high in saturated fats. Saturated fats and *trans* fats tend to raise low-density lipoprotein cholesterol (LDL or "bad" cholesterol) levels in the blood, which in turn may increase the risk of heart disease.

What Are Oils?

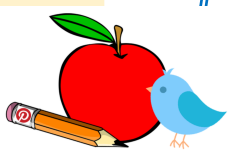
Oils are fats that are usually liquid at room temperature, like the vegetable oils used in cooking. Oils come from plant sources and from fish. Oils mostly contain unsaturated fats, which are classified into monounsaturated and polyunsaturated. Unsaturated fats help lower "bad" cholesterol and raise high-density lipoprotein cholesterol (HDL or "good" cholesterol), which in turn may help reduce the risk of heart disease.

Examples of Solid Fats

- Beef fat (tallow, suet)
- Butter
- Chicken fat
- Coconut oil
- Cream (including whipped cream)
- Hydrogenated oil
- Milk fat
- Palm kernel oil
- Palm oil
- Partially hydrogenated oil
- Pork fat (lard)
- Shortening
- Stick margarine

Examples of Oils

- Almonds
- Avocados
- Canola oil
- Cashews
- Corn oil
- Cottonseed oil
- Hazelnuts
- Mackerel
- Olive oil
- Olives
- Peanuts
- Safflower oil
- Salmon
- Sardines
- Sesame oil
- Soft margarine with no trans fats
- Soybean oil
- Sunflower seeds and oil
- Tuna
- Walnuts



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Name:_____ Date:_____

Fat Facts

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In-class Activity:

1) Think of four food items that you commonly have in your kitchen. E.g.: banana, cookies, peanut butter, etc.

2) Make a hypothesis or "educated guess" on which one of these four food items has the highest and the least amount of fat. E.g.: I hypothesize that cookies have the highest amount of fat and bananas have the least amount of fat.

3) Arrange all four food items in the table below from highest-to-lowest content of fat according to your hypothesis.

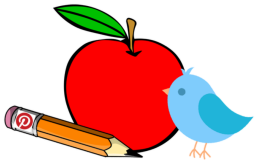
Hypothesis:_____

_____

_____

_____

Food Item #1 Highest in Fat	Food Item #2 2nd Highest in Fat	Food Item #3 2nd Lowest in Fat	Food Item #4 Lowest in Fat



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Home Activity:

1) You will conduct some research to find out whether or not your hypothesis was true. Check for the fat content per serving size for each of the four food items. You can either (1) check the nutrition facts label of each food or (2) research online for the fat content.

2) Next, rearrange the same food items in the table below according to your findings. Write down the amount of total fat of each food item.

Food Item #1 Highest in Fat	Food Item #2 2nd Highest in Fat	Food Item #3 2nd Lowest in Fat	Food Item #4 Lowest in Fat

3) What method(s) did you use to find your data? (Nutrition facts label, internet, etc.)

_____

_____

_____

4) After your research, do you accept or reject your hypothesis?

_____

_____

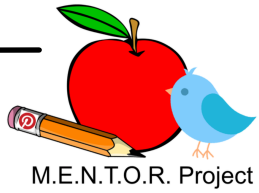
_____

5) Conclusion (What did you learn about fats? What other questions do you have?):

_____

_____

_____



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Answer Key

In-class Activity:

1) Think of four food items that you commonly have in your kitchen. E.g.: banana, cookies, peanut butter, etc.

2) Make a hypothesis or "educated guess" on which one of these four food items has the highest and the least amount of fat. E.g.: I hypothesize that cookies have the highest amount of fat and bananas have the least amount of fat.

3) Arrange all four food items in the table below from highest-to-lowest content of fat according to your hypothesis.

Hypothesis: I hypothesize that cookies have the highest amount of fat and bananas have the least amount of fat.

Food Item #1 Highest in Fat	Food Item #2 2nd Highest in Fat	Food Item #3 2nd Lowest in Fat	Food Item #4 Lowest in Fat
Chocolate Chip Cookie	Soda	Peanut Butter	Banana

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Home Activity:

1) You will conduct some research to find out whether or not your hypothesis was true. Check for the fat content per serving size for each of the four food items. You can either (1) check the nutrition facts label of each food or (2) research online for the fat content.

2) Next, rearrange the same food items in the table below according to your findings. Write down the amount of total fat of each food item.

Food Item #1 Highest in Fat	Food Item #2 2nd Highest in Fat	Food Item #3 2nd Lowest in Fat	Food Item #4 Lowest in Fat
Peanut Butter (16 grams)	Chocolate Chip Cookie (4.5 grams)	Banana (0.4 grams)	Soda (0 gram)

3) What method(s) did you use to find your data? (Nutrition facts label, internet, etc.)

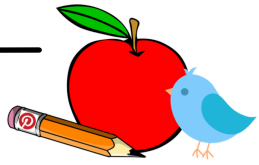
Anything from reading the nutrition facts label to researching online is valid.

4) After your research, do you accept or reject your hypothesis?

Considering that peanut butter turned out to be the food item highest in fat and that soda was the lowest in fat, I reject my hypothesis.

5) Conclusion (What did you learn about fats? What other questions do you have?):

Any reflection is valid.



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