

Solve the Facts

3-5

M.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

Standards Met

- **MP.2.** Reason abstractly and quantitatively.
- **3.NBT.** Use place value understanding and properties of operations to perform multi-digit arithmetic.
- **NF.5.5.** Apply and extend previous understandings of multiplication and division to multiply and divide fractions.

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 we eat.

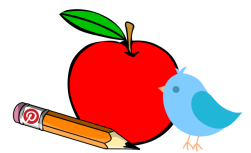
Fats are found in many foods from meat, to nuts, to salad dressings and even avocados. We can distinguish between two different types of fats in food: solid fats and oils. Solid fats are mainly found in animal sources, are usually solid at room temperature and don't contribute many health benefits. In 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 vegetable 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: “Solve the Facts” for Grades 3-5
- Supplemental Material: “What Are Fats?”

Using the worksheet titled **“Solve the Facts” for Grades 3-5**, help your students recognize different types of fats and their health effects while practicing math problems.

Talk to your students about the different types of fats. Solid fats have saturated fats that are SOLID at room temperature and oils have unsaturated fats that are LIQUID at room temperature. Solid fats mostly come from animal sources, with the exception of coconut oil and palm oil. Oils mostly come from plant sources, with the exception of fish like salmon and tuna.



The beneficial oils are omega-3, omega-6, and omega-9. These are healthy because they lower the risk of heart disease. Solid fats increase the risk of heart disease.

Refer to the reference sheet titled “What Are Fats?” to show the students some examples of solid fats and oils.

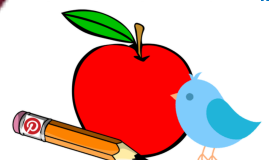


After teaching your students about fats, redirect the lecture to a math review of multiplication and division of fractions, and order of operations (PEMDAS: parentheses, exponents, multiplication and division, and addition and subtraction).

Write some practice problems on the board and encourage participation from your students to solve the problems. As a class, go over the work shown on the board and solve the problems step-by-step. Make sure the students feel comfortable solving these types of math problems.

Finally, merge the nutrition lecture and the math lecture by doing an overview of the **“Solve the 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?

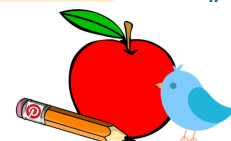
Oils are fats that are usually liquid at room temperature, like the vegetable oils used in cooking. Oils come from plant sources and from fish. Oils mostly contain unsaturated fats, which are classified into monounsaturated and polyunsaturated. Unsaturated fats help lower “bad” cholesterol and raise 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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USDA United States Department of Agriculture National Institute of Food and Agriculture

FIU

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Name: _____ Date: _____

Solve the Facts

1) Solve the following math problems to match the letters with the answers in the following page.

3-5

A → $\frac{2}{4} \times 6 =$

M → $(56 \div 7) \times 4 =$

D → $21 \times 3 =$

N → $\frac{1}{2} \div \frac{1}{4} =$

E → $\frac{3}{4} \div \frac{1}{8} =$

O → $148 \div 4 =$

G → $24 \div 3 =$

R → $10 \div 2 + 4 =$

H → $\frac{1}{2} \times 8 =$

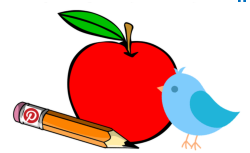
S → $\frac{3}{6} \times 20 =$

I → $8 + 2 \times 6 =$

T → $12 \times 4 =$

L → $5 \times (10 - 2) + 3 =$

U → $66 \div 6 =$



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Solve the Facts

Show your work:

3-5

A →

M →

D →

N →

E →

O →

G →

R →

H →

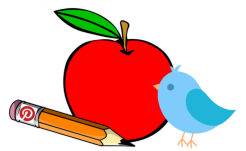
S →

I →

T →

L →

U →



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Name: _____ Date: _____

Solve the Facts

3-5

2) Fill in the blanks using the letters obtained from the previous math problems.

1) Coconut oil is a $\frac{\quad}{10} \frac{\quad}{37} \frac{\quad}{43} \frac{\quad}{12} \frac{\quad}{63}$ fat obtained from a plant source.

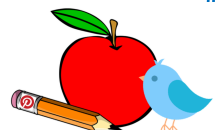
2) Monounsaturated and polyunsaturated fats are the healthy components found in $\frac{\quad}{37} \frac{\quad}{12} \frac{\quad}{43} \frac{\quad}{10}$.

Some of these fats are known as $\frac{\quad}{37} \frac{\quad}{32} \frac{\quad}{6} \frac{\quad}{8} \frac{\quad}{3}$ 3, 6, and 9.

3) $\frac{\quad}{2} \frac{\quad}{11} \frac{\quad}{48} \frac{\quad}{10}$ and $\frac{\quad}{10} \frac{\quad}{6} \frac{\quad}{6} \frac{\quad}{63} \frac{\quad}{10}$ are a great source of healthy oils.

4) Most solid fats come from $\frac{\quad}{3} \frac{\quad}{2} \frac{\quad}{12} \frac{\quad}{32} \frac{\quad}{3} \frac{\quad}{43}$ sources.

5) Eating too much solid fats can lead to $\frac{\quad}{4} \frac{\quad}{6} \frac{\quad}{3} \frac{\quad}{9} \frac{\quad}{48}$ disease.



Name: _____ Date: _____

Solve the Facts

1) Solve the following math problems to match the letters with the answers in the following page.

3-5

ANSWER KEY

A → $\frac{2}{4} \times 6 = \frac{12}{4} = 3$

M → $(56 \div 7) \times 4 = 32$

D → $21 \times 3 = 63$

N → $\frac{1}{2} \div \frac{1}{4} = \frac{4}{2} = 2$

E → $\frac{3}{4} \div \frac{1}{8} = \frac{24}{4} = 6$

O → $148 \div 4 = 37$

G → $24 \div 3 = 8$

R → $10 \div 2 + 4 = 9$

H → $\frac{1}{2} \times 8 = \frac{8}{2} = 4$

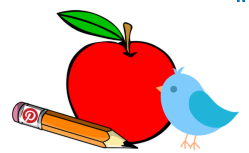
S → $\frac{3}{6} \times 20 = \frac{60}{6} = 10$

I → $8 + 2 \times 6 = 20$

T → $12 \times 4 = 48$

L → $5 \times (10 - 2) + 3 = 43$

U → $66 \div 6 = 11$



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Name: _____ Date: _____

Solve the Facts

2) Fill in the blanks using the letters obtained from the previous math problems.

3-5

ANSWER KEY

1) Coconut oil is a S O L I D fat obtained from a plant source.
10 37 43 12 63

2) Monounsaturated and polyunsaturated fats are the healthy components found in O I L S.
37 20 43 10

Some of these fats are known as O M E G A 3, 6, and 9.
37 32 6 8 3

3) N U T S and S E E D S are a great source of healthy oils.
2 11 48 10 10 6 6 63 10

4) Most solid fats come from A N I M A L sources.
3 2 20 32 3 43

5) Eating too much solid fats can lead to H E A R T disease.
4 6 3 9 48

