

# Lab: Fats and Starches

1 pts ec  
printing

**Materials:** Iodine solution, Vegetable oil, food items, brown bag, goggles, brown bag

## Fat or Starch?

Starches are a type of complex carbohydrate. Starches turn dark blue when an iodine solution is dropped on the. Most animal fats are **circle one:** (saturated or unsaturated) lipids & are **circle one:** (solid or liquid) at room temperature, whereas most vegetable oils are **circle one:** (saturated or unsaturated) lipids & are **circle one:** (solid or liquid) at room temperature. Both types of fats are essential in our diets.

**Hypothesis:** Which foods contain starch and which foods contain fats? Write your prediction in the data table.

## **Procedures**

1. Obtain the 6 foods from your teacher.
2. Draw 6 boxes on your brown bag & label with the 6 types of food.
3. Place a drop of vegetable oil in a corner of the paper. Hold the paper up to the light. *Foods with fat leave a transparent grease spot like this on brown paper.*
4. Rub the bread in its "box". Did it leave a grease mark? Hold it up to the light to check. Record yes or no.
5. Repeat step 4 for each food item.
6. Place the food item in its labeled box. Place 2-3 drops of iodine solution on each food.
7. Did the iodine turn the food a weird color like black or purple? Record yes or no in the table.
8. *Cleanup:* Throw away the food and paper.

## **Data and Observations**

Food Item	FAT		STARCH	
	Predict (yes or no)	Result (yes or no)	Predict (yes or no)	Result (yes or no)
Bread				
Cheese				
Egg White				
Raw potato				
Bacon				
Potato Chip				

## **Analysis** (1 point each)

1. Which food(s) contained starch but not fat? \_\_\_\_\_
2. Which food(s) contained fat but not starch? \_\_\_\_\_
3. Which food(s) contained both starch and fat? \_\_\_\_\_
4. Which food(s) contained neither starch nor fat? \_\_\_\_\_
5. Do you think these results are accurate? Explain why or why not.

## **Conclusion (6 pts): What did you learn? Minimum 6 sentences:**

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## Making Butter

A colloid is an interesting substance. It has properties of both solutions and suspensions. Colloidal particles are not heavy enough to settle out, so they remain evenly dispersed throughout the mixture. In this activity, you will make butter- a very familiar colloid- and observe the characteristics that classify butter as a colloid.

### Materials:

a marble , a small clear, container with a lid, heavy cream, a stopwatch

### Procedure:

1. Fill the container with heavy cream, and place a marble inside. Put the lid tightly on the container.
2. Shake the container for 10 minutes with breaks every 2 minutes to record your observations.
3. When you see, hear or feel any changes inside the container, note the time and what the change was.
4. After 10 minutes of shaking, you should have a lump of “butter” surrounded by liquid inside the container.  
Describe both the butter and the liquid in detail.
5. Let the container sit for about 10 minutes. Observe the butter and liquid again, and record your observations.

### Data Table: 18 pts

2 minutes	_____
4 minutes	_____
6 minutes	_____
8 minutes	_____
10 minutes	_____
20 minutes	_____

### Analysis: (9pts)

1. When you noticed the change in the container, what did you think was happening at that point? 1 pt

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2. Based on your observations, explain why butter is classified as a colloid 1 pt

\_\_\_\_\_

3. What kind of mixture is the liquid that is left behind? Explain. 1 pt

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4. Why do fats provide so much energy? (this may require some research) 3 pts

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**Conclusion:** What did you learn? 3 sentences: 3 pts \_\_\_\_\_

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