

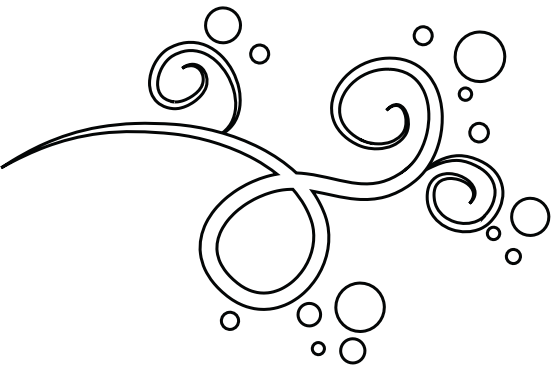
The logo for STEM SPARK features the word "STEM" in red and "SPARK" in orange. The letter "A" in "SPARK" is replaced by a stylized orange flame. A thin orange line extends from the top of the letter "K" to a small orange starburst.

# STEM SPARK

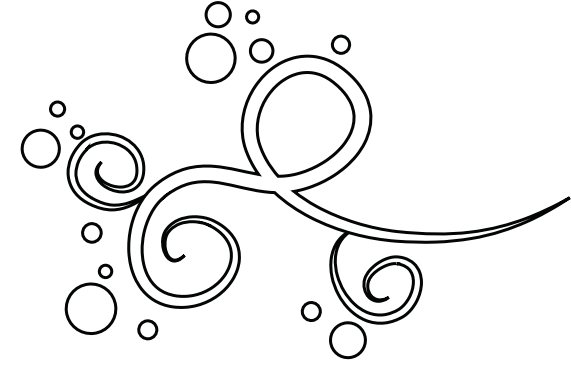
Presents

## Milk Art:

## Chemistry in Action



# Milk Art!



Milk art happens when the fat in milk reacts with the soap. The soap traps all the fat causing the colors to swirl as the fat separates from water. The more fat a milk has, the longer it will take for the swirling to stop!

In this experiment, you are going to explore which types of milk contain the most fat using milk art!

## My hypothesis:

**Whole/ 2% / skim** milk has the most fat.

**Whole/ 2% / skim** milk has the least fat.

# Material Exploration:

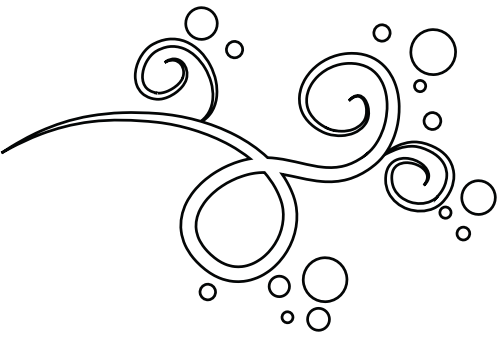
I See...

I Smell...

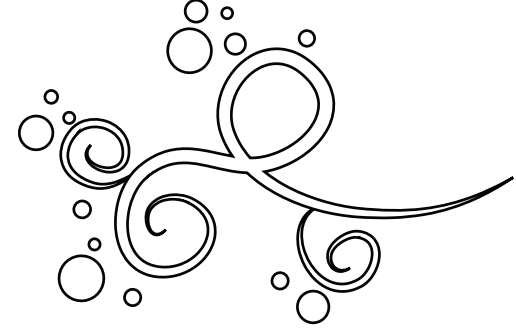
I Taste...

I Feel...





# Milk Art



Milk • Dish Soap • Food Coloring • Cotton Swabs

Observations

Time:

Whole



2%



Skim

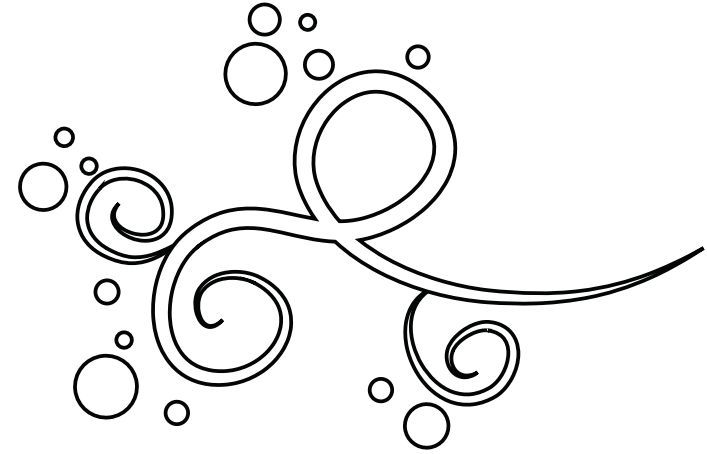


Observation grid with dashed lines for recording data.

# My conclusion:

**Whole/ 2% / skim** milk has the most fat.

**Whole/ 2% / skim** milk has the least fat.



# I learned:

Milk art happens when \_\_\_\_\_ fat reacts with \_\_\_\_\_.  
The soap traps all the \_\_\_\_\_ causing the colors to swirl  
and make art. Because the \_\_\_\_\_ milk took the longest to  
stop swirling, I know it has the \_\_\_\_\_ fat.

## Word Bank:

milk

soap

whole

2%

skim

most

least

# Science Extension!



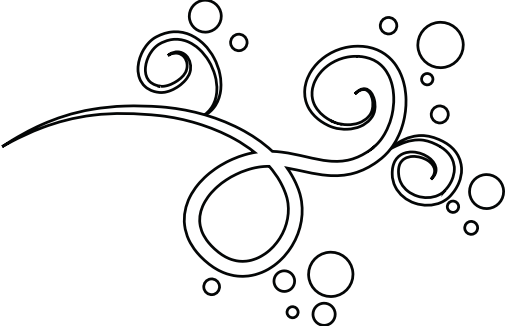
There are many types of milk. Each type contains different amounts of nutrients, including fats! Try this experiment again comparing the effects of soap on almond milk, coconut milk, and oat milk.

Can you figure out which milk has the highest and lowest fat content using milk art?

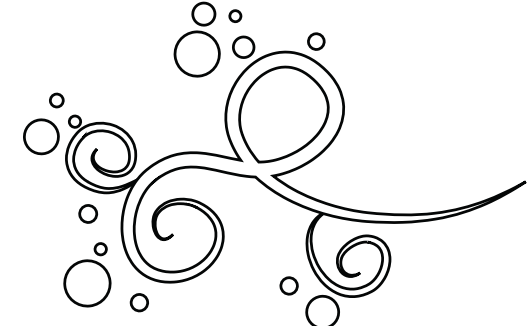
## My hypothesis:

I think **almond/coconut/oat** milk will have the most fat.

I think **almond/coconut/oat** milk will have the least fat.



# Milk Art

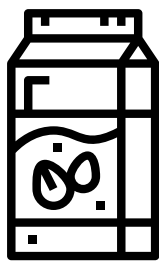


Milk • Dish Soap • Food Coloring • Cotton Swabs

Observations

Time:

1



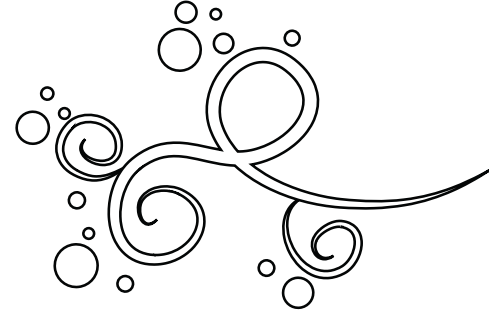
2



3



A large rectangular area for notes, bounded by a vertical zigzag line on the left and a vertical zigzag line on the right. Two horizontal zigzag lines divide the space into three rows, corresponding to the numbered steps. The area is currently blank.



## My conclusion:

I found **almond/coconut/oat** milk has the most fat.

I found **almond/coconut/oat** milk has the least fat.

## I learned:

This experiment can be done with many types of **milks/ sodas**.

Milks have different amounts of **fats/ proteins**. The amount of fat a milk has changes how much the soap **reacts/ dances** with it.

## STEM—Spark Stumper:

Try this experiment with hot, room-temperature, and cold milk.

I predict **hot/room-temperature/cold** will react the **fastest/ slowest**.

**Hot/room-temperature/cold** reacted the **fastest/ slowest**.