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Moo-ving Milk

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YouTube *Learn more about this activity from the author at:* https://youtu.be/qosvAnNWN7q

A simple, yet impressive, science experiment that will teach Cloverbuds about the different varieties of milk.

What you will need:

- Small amount (approx. ½ cup) of different types of milk (whole, 2%, 1%, and/or skim)
- Water
- 4-5 disposable plastic plates (one for each type of milk and one for water)
- Few drops of cooking oil
- Food coloring (red, green, blue, yellow)
- Dishwashing liquid
- Colored caps from different types of milk (red, dark blue, light blue, pink, etc…)

Directions:

Start with one plate and pour in enough whole milk to cover the bottom. Have your Cloverbuds help you put 1-2 drops of each of the four food colors near the center of the plate. Explain that you are going to add a drop of dish detergent to the food coloring. ***What do the Cloverbuds think will happen?***

Add the detergent and watch as the colors begin to swirl around the pan. This will continue for several seconds. If there are any areas where the color concentrates again, you can add another drop of detergent and start the process over again. ***What could be causing the milk to move?***

Next, add water to another plate and put a few drops of cooking oil in the center. Talk to the Cloverbuds about how water and oil won't mix. Water likes to stay with water and oil likes to stay with oil. ***What do the Cloverbuds think will happen if you add detergent to the oil?***

Put a drop of dish detergent in the middle of the oil to show how it breaks up the oil and makes it move away from the detergent. Explain that dish detergent does the same thing when we use it to wash dishes. It breaks up the grease and oil left over from food and allows the water to wash it away.

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Thinking back to the milk experiment, what might be in the milk that would cause movement when the detergent was added? See if anyone can guess that there is oil (fat) in milk.

Using the different colored milk caps, explain that there are different types of milk at the store. All types of milk are nutritious and contain the same amount of calcium and other nutrients. The difference is in the amount of milk-fat they contain. Whole milk has about 3.5% milk-fat and has a thick, rich texture. Reduced-fat milk (2%) contains 2% milk-fat and low-fat milk (1%) has 1% milk-fat. Fat-free (skim) milk has just a trace of milk-fat. As the amount of milk-fat decreases, the consistency of the milk gets thinner. Skim milk may seem watery, but it doesn't have water added. It just has less milk-fat.

If the oil (fat) in milk is what caused the colors to move, what do the Cloverbuds think will happen if you use different types of milk in the experiment? Repeat the milk experiment using at least two other types of milk (2%, 1%, and/or skim). You should see less movement as the amount of milk-fat decreases.

Conclusion:

For healthy eating, it is recommended that we limit the amount of fats and oils in our diet. Eating too many fats and oils can sometimes cause health problems, such as heart disease. One way we can reduce the amount of fats in our diet is by drinking low-fat (1%) or fat-free (skim) milk.

Milk is a healthy drink choice and contains calcium and other important nutrients that our body needs. By choosing low-fat or fat-free milk, we can still get the nutrients that are good for us without getting the extra fat which may not be good for us. When we are shopping, looking at the color of the milk cap can help us find the low-fat or fat-free milk.