

NAME: ..... DATE: .....



## LACKING LACTOSE: HOW JUST A GLASS CAN GIVE US GAS! ACTIVITY GUIDE

LISTEN:

<https://tinkercast.com/podcasts/lacking-lactose-how-just-a-glass-can-give-us-gas/>

### CRAFT: MILK PLASTIC

Did you know it's possible to turn milk into plastic? All you need to do is warm it up with a bit of vinegar. So, head into the kitchen, open the fridge and grab some milk!

### MATERIALS:

- 1 cup milk
- 4 tablespoons vinegar
- Microwave-safe bowl
- Strainer
- Paper towels
- Cookie cutter (or a jar lid)
- Permanent markers

### WOW-TO:

Step 1: Add 1 cup of milk to a microwave-safe bowl.

Step 2: Microwave the milk for 90 seconds.

Step 3: Mix in 4 tablespoons of vinegar and stir for 60 seconds.

Step 4: Pour through a strainer and press out all the milk. Use a paper towel to get the last drops of milk through the strainer.

Step 5: Pour out what is left behind in the strainer onto a clean sheet of paper towel.

Step 6: Fill your cookie cutter with the milk plastic mixture you just made.

Step 7: Leave your plastic mixture in the cookie cutter and let it set for 48 hours.

Step 8: Decorate your milk plastic with markers!

NAME: ..... DATE: .....

## EXPERIMENT: MAGIC MILK

This kitchen science experiment comes together easily using common household items. It's easy to set up and fun to do over and over and over again!

### MATERIALS:

- Shallow dish or bowl
- Whole milk (it must be full-fat milk)
- Liquid food coloring (the more colors the better)
- Cotton swabs
- Dishwashing liquid

### WOW-TO:

Step 1: Pour a thin layer of milk into your dish. Make sure the entire bottom is covered with milk.

Step 2: Add a few drops of food coloring all over the layer of milk, leaving some space between each drop. Be sure to use at least 3 different colors and 3-4 drops of each color!

Step 3: Dip the end of a cotton swab into the dishwashing liquid.

Step 4: Now dip the soapy cotton swab into the food coloring in the milk. Press down in one spot and hold it for about 15 seconds. Observe what happens.

Step 5: Move the cotton swab to another spot and repeat.

Step 6: Watch as the colors dance across the surface of the milk, creating a beautiful swirl design.

### What in the Wow happened?

Milk is made up of water, vitamins, minerals, proteins and fats. When the dishwashing liquid touches the milk, it reacts with the fats in the milk. The soap molecules from the dishwashing liquid are trying to attach to the fat molecules in the milk, which causes movement in the liquid as the molecules in the fat and soap bond together and expel the water and food coloring.

NAME: ..... DATE: .....

## WOWING ME NOW:

While listening to this episode, what made you say, "Wow!"?  
Was it the theory that we may have developed the ability to tolerate milk because of a  
famine? Was it something else? Draw a picture of what is wowing you now.

## THE LACKING LACTOSE:

### HOW JUST A GLASS CAN GIVE US GAS! BOOKLIST

What questions came up for you while listening to this episode? Let your curiosity lead you to a local library or bookstore to explore these titles on milk.

[Milk and Juice: A Recycling Romance](#), by Meredith Crandall Brown (4-8). An unlikely romance between two cartons in the fridge is threatened when one of them gets recycled. Fiction.

[The Milk Makers](#), by Gail Gibbons (4-8). Dairy milk is traced from production to store shelf. Nonfiction.

[Digestion: The Musical](#), by Adam Rex (6-9). Candy gets her big break when she's swallowed whole and travels a human body's digestive tract, taking a starring role in a scientifically accurate rhyming musical with a pooptastic ending. Fiction.

[Sugar in Milk](#), by Thrity Umrigar (6-9). A comforting story of finding space in a new place – and a reminder to make room for others. Fiction.

[Fortunately, the Milk](#), by Neil Gaiman (6+). A father who stepped out to buy milk relates an outlandish adventure of alien abduction and space travel to his skeptical children in this hilarious read-aloud. Fiction.