



SCIENCE

LABORATORY

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EXPLORATORY QUESTION: What cheese will mold the fastest? Does moisture affect mold growth?

PROJECT GOAL: We will conduct a controlled experiment using the scientific method on our three different cheeses. Hypothesize and conduct research for three weeks to a month and write a conclusion.

STEP 1 Lets go over some basics of a controlled Scientific Experiment before we get started:

HYPOTHESIS: A predicted outcome made before conducting your experiment

SCIENTIFIC CONTROL: An experiment designed to lessen the effects of other variables other than the independent variable

INDEPENDENT VARIABLE: This variable is one that is changed by the scientist, that's you!

DEPENDENT VARIABLE: This is the variable that changes in response to the independent variable

STEP 2 You are going to be using three cheeses, two pieces per cheese. One cut of cheese will sit in a dry dish and the second will sit on top of a paper towel that you will be moistening with water.

The cheese you are not adding water to is your CONTROL

The INDEPENDENT VARIABLE here is the water you will be adding

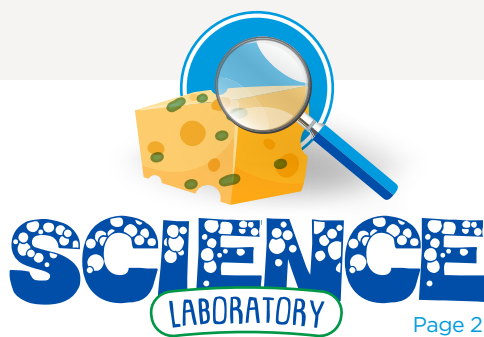
The DEPENDENT VARIABLE is the difference in potential mold growth that may occur from the water you are adding.

Come up with a **HYPOTHESIS** before you start. Write out which cheese you think will grow mold fastest between the three different cheeses and your thoughts on why. You are making this up, it doesn't need to be right, the experiment will teach you. Also include in your hypothesis which cheese will grow mold fastest, the one without moisture or the one you'll be adding water to.

STEP 3 Gather your materials. Cut out 3 circles (all the size of your small dishes) and place three round paper towel shapes in three dishes. Line up your dishes so there's one without a paper towel and one with a paper towel for each of your cheeses. You should have six total. Make labels for each cheese. I.e. Cheddar #1 and #2 and so on. Make #1 your control and #2 the one you'll be adding water to.

SUPPLIES NEEDED:

- ✓ 3 different cheeses.
Try to have them vary in texture i.e. one soft cheese and one harder cheese. 2 cuts per cheese cut into the same sizes
- ✓ 6 small plates
- ✓ Paper towels
- ✓ Scissors
- ✓ Water
- ✓ Paper and pen to record findings
- ✓ Ruler with centimeters to measure mold
- ✓ Magnifying glass
- ✓ Eye dropper (you can use a measuring spoon if you don't have an eye dropper)
- ✓ **OPTIONAL:**
Phone camera to record progress, colored pencils to make drawings of findings




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STEP 4 Create a sheet to record your data on. You could make a spreadsheet on your computer or draw it out. Graph paper could be useful here. Make a list of your #1 and #2 cheeses on one side and room to record results observed for three to four weeks.

STEP 5 Use your eye dropper or small measuring spoon ($\frac{1}{4}$ teaspoon or less) and add water to each paper towel in the dishes. Make sure you use the same amount on each.

STEP 6 Take your three different kinds of cheese and cut two slices per cheese. Make them all the same size. Place one in the control small dish and one on the dish with the wet paper towel. Place the dishes on a tray in a place that won't be disturbed where you can come by and make your observations daily.

STEP 7 Check on your experiment every day and record your findings. Use your magnifying glass to see if there's any mold. What color is the mold, measure how high the mold is using your ruler with centimeters. Every few days add the same amount of water to each of the paper towels in the small dishes to keep it moist.

 **OPTIONAL:** Record your data by taking pictures that you could later use in your report or draw some of your findings

STEP 8 After 3 to 4 weeks. Look at all of the data you recorded and write up your conclusions. Some things to think about: Which cheese developed mold the fastest? Did the cheeses with moisture added to them mold faster? Here you can include some pictures if you took them. For example what was the mold development after Week 1, week 2, week 3

STEP 9 Look at your hypothesis and look at your findings. Was your hypothesis correct? Write your conclusion based on your findings over your month of hard work!

