

WHAT ARE WE INVESTIGATING?

How much cleaner are your hands after washing them?

MATERIALS:

- Ziplock Bags
- Slices of Bread
- Soap to wash your hands
- Sharpie
- Strive Academy's Engineering Design Process Handout (found at www.striveacademy.org)
- Pencil or Pen

EXTENSION:

- * Add more variables - repeat the experiment trying different brands of bread or different types of bread (white vs wheat, etc.).
- * Add some math - use a ruler to measure how much mold growth you have each day. DO NOT OPEN THE BAGS - do this through the bags.

Why We Wash Our Hands!

DIRECTIONS:

1. Gather all of your materials. Our materials are just suggestions - feel free to add other things too!
2. On your handout (found at www.striveacademy.org), fill in the title of your experiment (Why We Wash Our Hands!).
3. On your handout, fill in your hypothesis. You want to answer the question: How much dirtier do you think your hands are before you wash them with soap and water?
4. On your handout, sketch a design of your experimental setup. You will be touching the bread with your hands and then putting each piece into its own ziplock bag. Feel free to use color and label the materials that you will be using!
5. Label each of the 3 ziplock bags with a sharpie - Control, Dirty, Clean.
6. Without touching the first piece of bread, place it into the "Control" bag. You can do this using tongs or a paper towel. The control is important to use as a comparison. Be sure to seal the bag.
7. Without washing your hands, touch the second piece of bread all over with your hands. Place this piece in the bag labeled "Dirty". Be sure to seal the bag.
8. Wash your hands with soap and water for 20 seconds (sing the ABCs in your head while washing). Dry your hands and touch the third piece of bread all over with your hands. Place this piece in the bag labeled "Clean". Be sure to seal the bag.
9. Under "Data Collection/Observation", draw a picture of what your experiment looks like all set up. Feel free to use color!
10. Leave the sealed bags in a cool, dry place. After 24 hours, under "Results", write "1 Day" and draw what each piece of bread looks like. Repeat this step each day but do NOT open the bags. After a few days, you can throw the bags away.
11. Answer the "Analysis" questions on your handout:
 - Which slice of bread got moldy first? On which day did this happen?
 - Which slice of bread grew the most mold throughout the experiment?
 - Which slice of bread grew the least mold throughout the experiment?

**** Try the extension activities on the first page for more fun! ****