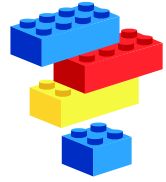


DNA Extraction

Have you used instructions to build a really cool LEGO set? It is amazing how all those different pieces are put together. People have instructions inside them called DNA that tell how to put all their pieces together. Try pulling out strawberry DNA in this experiment!

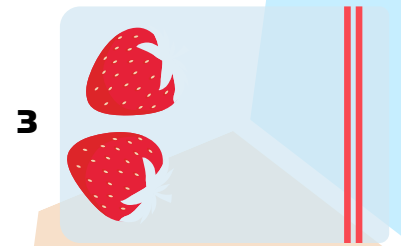


Materials:

- | | | | |
|------------------------------------|-----------------|-------------------|-----------------------------|
| • Resealable Quart Size Bag | • Dish Soap | • 2 Small Cups | • Toothpick or Skewer |
| • 2 Strawberries (Fresh or Frozen) | • Salt | • Rubbing Alcohol | • Measuring Spoons and Cups |
| | • Water | | |
| | • Coffee Filter | | |

Procedure:

1. If you are using frozen strawberries, let them thaw before starting the experiment.
2. Pull off any green leaves.
3. Place the strawberries in the resealable bag and seal it.
4. Smash the strawberries with your hands for about 2 minutes.
5. Add the following to one of the cups:
 - 1 Teaspoon of Salt
 - 2 Teaspoons of Dish Soap
 - $\frac{1}{2}$ Cup of WaterMix them together with as few bubbles as possible.
6. Open the bag with the smashed strawberries and pour in the soap solution you made in step 5. Then, seal the bag again.
7. Gently smash the strawberries and soap solution together in the bag. Try not to make a lot of bubbles.



DNA Extraction

8. Place the coffee filter in the other cup. Then, pour the strawberry mixture into the filter.
9. Twist and squeeze the filter so the liquid from the strawberry mixture is separated into the cup and the strawberry chunks are left in the filter.
10. Gently pour rubbing alcohol on top of the strawberry liquid in the cup until there is the same amount of rubbing alcohol and strawberry liquid.

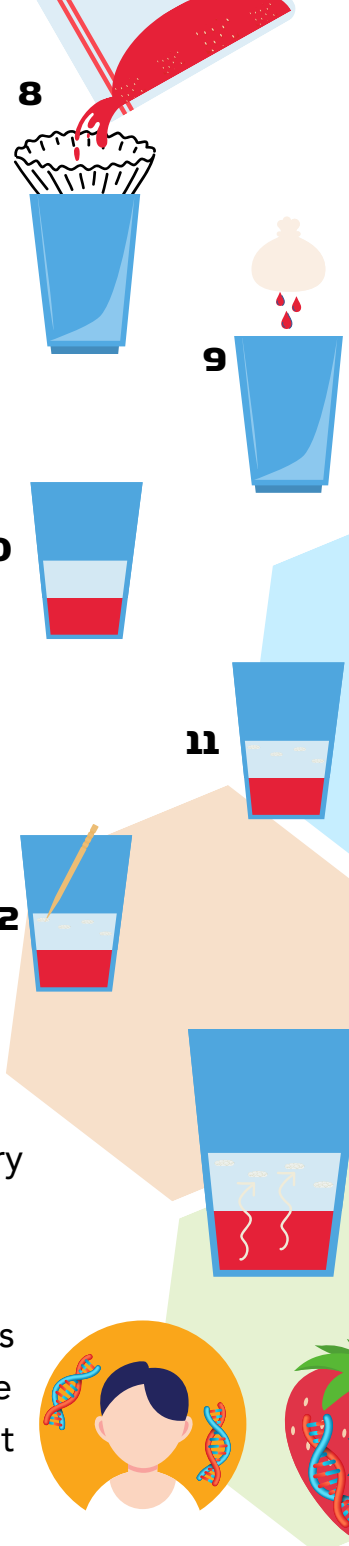
***Science Tip:** Pour the rubbing alcohol slowly down the side of the cup so it layers on top of the strawberry liquid.*

11. After a few seconds to a minute, you should start to see a white substance start floating in the top layer of rubbing alcohol.
12. Using the toothpick or skewer, try picking up the white strands. This is strawberry DNA!

WHAT'S HAPPENING?

A chemical reaction is when something starts as one thing and becomes something different. In this experiment, the strawberry liquid reacted with the dish soap and salt to separate the DNA. The rubbing alcohol pulled the strawberry DNA up.

People have 2 copies of their DNA in each cell, but strawberries have 8 copies of their DNA in each cell. Strawberries have more DNA to extract and form big clumps which is why you can see it without a microscope!



DID YOU KNOW?

A **molecular geneticist** is someone who studies DNA! If you liked exploring this activity, maybe molecular genetics is for you!

