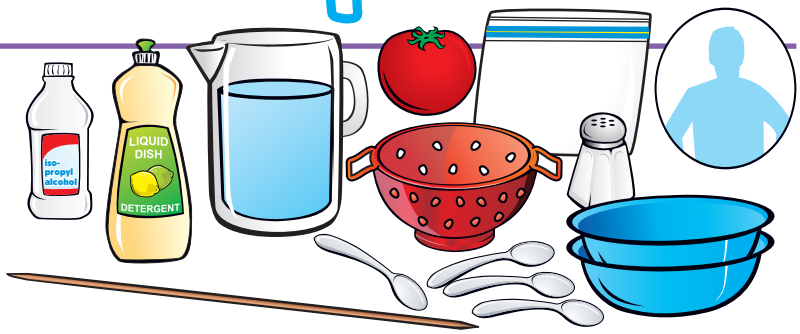
THE HOME LAB

Gene Goop

AS SEEN ON OUR YOUTUBE CHANNEL
MadScienceGroup

What you need:

- Adult helper
- Tomato
- Isopropyl alcohol
- Water
- Salt
- Dish soap
- Re-sealable plastic bag
- Strainer
- 2 Bowls
- 4 Tablespoons
- Craft stick or wooden skewer



Safety note: Do NOT drink the experiment at any time!

What you do:

Step 1: Have your adult helper place the isopropyl alcohol in the freezer.

Step 2: Wash and dry the tomato, remove its stem and then place the tomato into the re-sealable bag.

Step 3: Add ¼ tablespoon of salt, seven tablespoons of water, and one tablespoon of dish soap to the re-sealable bag.

Step 4: Remove as much air as possible from the bag and then seal it closed.

Step 5: Use your hands to squeeze the bag until the tomato is completely squashed. This should take about five minutes.

Step 6: Place a strainer on the bowl. Pour the contents of the bag through the strainer into the bowl. Use a spoon to push all the liquid through the strainer.

Step 7: Rinse the strainer and strain the tomato solution again into another bowl.

Step 8: Have your adult helper take the isopropyl alcohol out of the freezer. Have your helper gently add four tablespoons of the cold isopropyl alcohol to the bowl.

Step 9: You should see strands and clumps form after a minute. That's the tomato's DNA! How long a strand can you lift up with the craft stick?

What's going on:

You extracted DNA! DNA is the part of your body that holds the instructions on how to make... you! DNA looks like long strings twisted into tight coils. Every cell in your body has a copy of your DNA. We can get DNA out by bursting the cells. Cells are like little bags made up of fatty layers called membranes. The water, salt and soap mixture act as a DNA extraction solution. The soap dissolves the fatty membrane. The salt removes anything that may be attached to the DNA, such as proteins. The DNA uncoils in the extraction solution. It mixes with the alcohol and clumps up. The fat and proteins stay in the salty, soapy part of the mixture. You can use a craft stick to pick up the clumped up DNA!

Now try this:

Try extracting DNA from other soft fruits like strawberries, kiwis, bananas, or plums. From which fruit can you get the most DNA?

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