A STEM in the Park Take Home Activity

STEM in the PARK

Science, Technology, Engineering, and Mathematics

Isolate your own DNA

What You Need

- Gatorade sports drink (preferably lemon-lime)
- Bottle of clear shampoo
- Bottle of isopropyl alcohol (ice cold – so refrigerate it first)
- Stirring stick
- Small clear cup (4-6oz)

What To Do

1 Take a small cup with about a tablespoon of light colored Gatorade and swish it around in your mouth. Do not swallow the Gatorade. Spit the Gatorade back into the cup.

2 Add 1 tsp of a 50% dilution of clear shampoo (no conditioner). Stir, being careful not to create bubbles.

3 Carefully and slowly layer on top a tablespoon of alcohol.

Continued on back

Observe...

Wait a few minutes. Now, what do you see? The white, stringy material at the interface between the alcohol and the Gatorade - shampoo mixture. ***That's your DNA!***

Learn...

Your DNA determines how you look, what blood type you have, even your tendency to get some diseases. Almost every cell in your body contains the same DNA and same genes. Each chromosome is made of a single, long strand of DNA. If the DNA from the 46 chromosomes in one cell of your body could be laid out end-to-end, it would measure 6 feet. In this activity, you isolated your very own DNA from your cheek cells. You broke away the membranes surrounding the cells and nuclei, and then precipitated the DNA in order to see it. Research laboratories use a similar procedure to isolate and study DNA from different organisms.

Investigate...

Try this same experiment on every member of your family and observe the results. Does the DNA look the same or different every time?

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