

## Grade 5 Homework:

### Seeing Your DNA Experiment!!!

Instructions: Do the experiment this experiment at home. This is part of our study about cells. Ask help from your parents or an adult to do the experiment. Write your findings and explanations in your portfolio.

#### What You Need:

- **Small paper cups** (You want the smallest sized cups.)
- **1 bottle of colorless sports drink** (You can also use a strong salt water solution, but “Lemon Ice” flavored Gatorade tastes better — and you can use the leftovers for refreshments after the lab!)
- **Liquid dish soap** (You want to use the lightest color or colorless brand you can find)
- **A few drops of pineapple juice or grapefruit juice.**
- **1 long toothpick.**
- **Alcohol** (You can use regular rubbing alcohol, but if you can find 91-percent isopropyl alcohol at the drugstore get that. The closer to 100-percent alcohol you use, the better this will work.)
- **Narrow container with a lid** (You can use a test tube with a stopper if you have one. You could also use a small jar like you buy spices in. Make sure it is clean and dry.)

### **What to Do:**

1. 24 hours before you start, put the alcohol in the kitchen freezer. Don't worry, it won't freeze, but it should be ice cold before you do your experiment.



2.

Get a sports drink that is light color or colorless.

When you are ready, take a good mouthful of sports drink and vigorously swish it around in your mouth like mouth wash. Keep going for at least 2 minutes. This takes some stamina — it's harder than it sounds, to swish for that long! It also helps if you scrape the insides of your cheeks a little with your teeth. No blood, please; we are after the DNA from your cheek cells, not your blood type!

3. Spit the sports drink and cheek cell solution into a small paper cup, then pour it into your test tube or spice jar until it is about one-third full.

4. Add liquid dish soap until your container is about half full. Put the lid on and mix the contents by rocking the container and turning it upside down several times. Be gentle, your goal is to mix the contents but to avoid causing bubbles from the soap.

5. Add a few drops of pineapple juice or grapefruit solution. Repeat the gentle mixing.



6.

Gently add alcohol to the solution.

Now it's time to get that icy cold alcohol out of the freezer. Take the lid off of your cheek cell solution and tilt the container in one hand. Use your other hand to ***very gently*** trickle a small amount of alcohol down the inside of the jar so that the alcohol forms a layer floating on top of the cell solution. Return the container to its upright position and set it aside for 1 minute.

7. After a minute, look carefully at the place where the alcohol makes a layer floating on top of the cheek cell solution. You should see a band of white gooey material suspended between the liquid layers. Gently put the skewer down into the container so that the tip touches this material. Carefully twirl the skewer in one direction only; if you are lucky the stuff will wind around the skewer so that you can lift it out through the alcohol layer to look more closely.
8. Behold your own DNA!

**Questions to explore:**

- *Do you get more DNA from using your cheeks, the fruit, the leaves or the seeds? Why do you think this is so?*
- *What do you have in common with a banana?*
- *What happens if the alcohol isn't cold?*
- *Are there any steps you can leave out of the procedure and still get results?*
- *How is the experience of doing the experiment at home?*