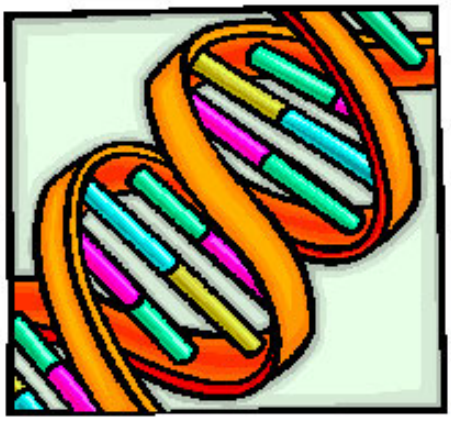
Banana DNA Extraction

What Do I Need?

- ½ peeled banana
- distilled water
- plastic sealable bag
- plastic cup
- shampoo
- table salt
- chilled isopropyl alcohol (90%)
- spoon
- coffee filter
- clear narrow tube or jar (such as a spice jar)
- Optional: bamboo skewer & capped tube



What Do I Do?

1. First you will need to put the ½ banana and ¼ c distilled water in the plastic bag, seal the bag and mash them to make your slurry.
2. In the plastic cup, mix a solution of 1 tsp. shampoo, 2 pinches of salt and 4 tsp. distilled water. Stir this solution slowly for about a minute until the shampoo dissolves in the water.
3. Now you will add 2 tsp. of the banana slurry to the soap solution and stir for five minutes.
4. Next, make a well with the coffee filter and place it in the empty cup. Do not let the filter touch the bottom of the cup. Pour in the liquid mixture and let it filter.
5. Fill the narrow tube with 2 tsp. of cold isopropyl alcohol. Very slowly, add ½ tsp. of the filtered banana mixture so that there are two layers of liquid.
6. Let the tube sit for 2-3 minutes without disturbing the solution. You will see the clear/white DNA precipitate into the alcohol layer.
7. If you wish to keep the DNA, remove it using a bamboo skewer (a twirling motion works best) and place it in a capped tube filled with alcohol.

What's Going On?

DNA is found in the cells of every living organism. It is incredibly small, but we can see it by extracting DNA and isolating chains of it.

The soap solution contains sodium laurel sulfate, which can break up fats and proteins. During the DNA extraction, the soap pulls apart the fats (lipids) and proteins that make up the membranes surrounding the cell and nucleus. Once these membranes are broken apart, the DNA is released from the cell. The salt enables the DNA strands to come together, or aggregate.

The DNA precipitates out of the solution when the alcohol is added. The alcohol separates the DNA from the other cell components, which are left behind in the water solution.