Name _____ Date _____ Block _____

# DNA EXTRACTION: Banana

**Background:** The long, thick fibers of DNA store the information for the functioning of the chemistry of life. DNA is present in every cell of plants and animals. The DNA found in banana cells can be extracted using common, everyday materials. We will use salt to break up protein chains that bind around the nucleic acids. The Dawn dish soap dissolves the lipid (fat) part of the banana cell wall and nuclear membrane, giving us access to the DNA inside.

## Pre-lab questions

1. What do you think the DNA will look like?
   _____
   _____
2. Where is DNA found? _____
3. How could DNA that is extracted from a human be used? (Name 3 ways)
   a. _____
   b. _____
   c. _____

## Materials

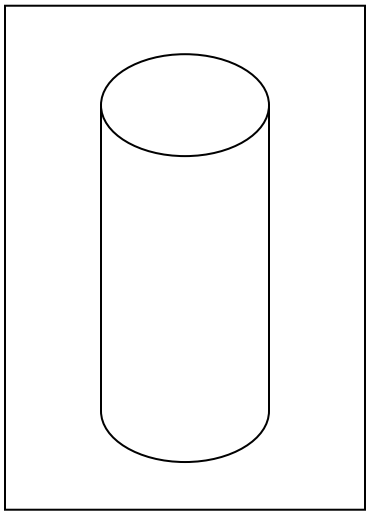
| | |
|---|---|
| Two 5 oz. plastic cups | blender |
| Plastic spoon | #2 Cone coffee filters |
| Distilled water | dishwashing detergent |
| 2 Bananas | table salt |
| plastic transfer pipette | 95% ethanol |
| small tube with cap | ice and bucket |

**Method** Read and follow the directions VERY CAREFULLY!!! ☺

- Add two bananas (peeled) and one cup (250ml) of distilled water to a blender. Blend for 15 to 20 seconds, until the solution is in a slurry. **(This step will be performed by the teacher!!)**
- In one of the 5 oz. plastic cups make a solution of 1 teaspoon of dishwashing detergent and two pinches of table salt. Add 20ml (4 teaspoons) of distilled water. Dissolve the salt and shampoo by stirring slowly with the plastic spoon to avoid foaming.
- To the solution from step 2, add two heaping teaspoons of the banana slurry from step one. Slowly stir the solution for 5-10 minutes.
- Place a #2 coffee filter inside of the 5oz. plastic cup. Fold the coffee filter's edge around the cup so that the filter does not touch the bottom of the cup.
- Now filter the mixture from step three by pouring it into the filter and let the solution drain for several minutes until there is approximately 5 ml (covers the bottom of the cup) of the filtrate.
- Obtain a tube, from the bucket of ice, filled half full of the cold ethanol.
- Fill the plastic pipette with solution from step four and add it to the alcohol.
- Let the solution sit for 2 to 3 minutes without disturbing it!! *It is important not to shake the tube.*

**Results:**
Describe the suspension in the tube.

Draw and label the ethanol suspension.



**Analysis and Conclusions**

1. Describe the appearance of the DNA. _____

   _____

2. What was the purpose of the salt solution used in the beginning step?

   _____

   _____

3. When you do dishes at home, what happens when you put dish soap in a bowl or pan with a lot of grease (fat) in it? _____

   _____

4. Why, then, was the detergent added to the banana mixture?

   _____

5. Why do you think it might be important for scientists to be able to remove the DNA from an organism?_____

   _____

6. Is there DNA in your food? _____ How do you know? _____

   _____