1. **Question**: How can we extract DNA from a banana?
2. **Hypothesis**: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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1. **Materials**: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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1. **Procedure**:
2. Mix ½ teaspoon of salt, 1/3 cup (80mL) of water, and 1 tablespoon of dishwashing detergent in a beaker. Set the mixture aside. This is your extraction liquid.
3. Line the funnel with the filter paper, and put the funnel's tube into another beaker.
4. Put the banana in the plastic bag and push out all the extra air. Seal it tightly.
5. With your fingers, squeeze and smash the banana for 2 minutes.
6. Add 3 tablespoons of the extraction liquid you made in Step 2 to the banana in the bag. Push out all the extra air and reseal the bag. **The liquid detergent will help break the banana cells open allowing the DNA to spill out. The salt helps create an environment where the different strands of DNA can gather together in a clump making it easier for you to see them.**
7. Squeeze the banana mixture with your fingers for 1 minute.
8. Pour the banana mixture from the bag into the funnel. Let it drip into the beaker until there is no liquid left in the funnel.
9. Throw away the filter paper and the banana pulp inside. Pour the contents of the glass into the test tube so it is 1/4 full.
10. Add one squirt of cold rubbing alcohol down into the test tube. **The alcohol should form a layer on top of the kiwi liquid. (Don't let the alcohol and banana liquid mix. The DNA collects between the two layers!) DNA does not dissolve in alcohol. When alcohol is added to the mixture, the rest of the mixture, except for the DNA, stays in solution, while the DNA precipitates out into the alcohol layer—that’s the gooey clear/white stuff you can collect with a skewer or other thin rod.**
11. Look at your test tube. The white, stringy structure is DNA containing banana genes
12. **Results-** Make a drawing of your test tube. Make sure to include and label the alcohol layer and the DNA you extracted
13. **Conclusion. Answer all of following in at least one paragraph. Use complete sentences.**
14. What is DNA and why is it important?
15. Where is DNA found?
16. Describe the DNA of a banana (based on what you saw in this experiment)
17. What role did the dishwashing detergent, salt and cold rubbing alcohol play in the extraction of DNA?
18. What did you learn?