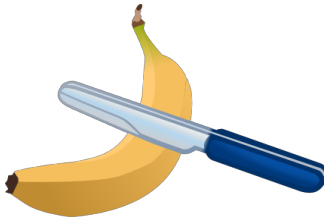
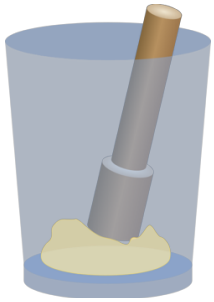
Extracting DNA from a banana

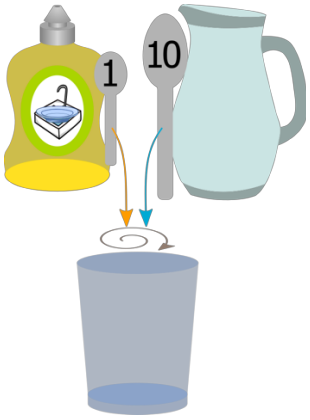
Authors: Victor Sojo, Aishwaria Lohi | **References:** youtu.be/ew9-YGrgpWo | bit.ly/2AJmwqI v02



1. Chop the banana
Cut half of a banana (ripe is better), and peel it. Then chop it finely. Transfer it to cup #1 where you will mash it. You may eat the other half ☺

2. Mash it very well
Use a pestle if you have one, otherwise a spoon will do. Spend a few minutes doing this. We need to make sure the tissues of the banana are broken down well.



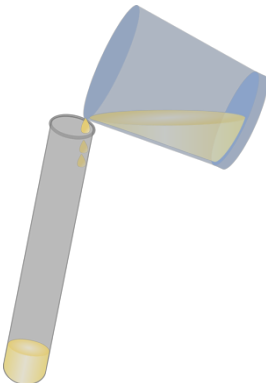


3. Make "lysis" solution
DNA is trapped deep inside the cells of the banana. We need to break it free (this is called "cell lysis", breaking the cell). In cup #2, mix about 1 teaspoon of washing up liquid (or liquid soap) and some 10 tablespoons of water (no need to be too exact here).

4. Add the lysis solution and mix very well
Pour the lysis solution onto the banana paste, and mix very well, for at least 5 minutes. You can use the pestle again if you have it, otherwise the spoon again

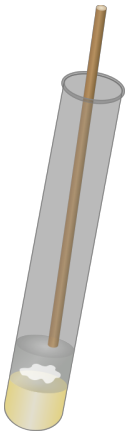
5. Filter the solution
Using a sieve (sifter/strainer) with a fine mesh, extract the liquid into cup #3. You can also use a coffee filter, or a funnel with a layer or two of toilet or kitchen tissue.

6. Transfer to a tall transparent container
The ideal container would be a big test tube, but if you don't have one, try to get the thinnest glass jar you can find.



7. Extract the DNA
Lean the container to around 45º and add alcohol at the top, letting it flow down the walls slowly. About a finger in height is enough. Almost immediately, you will see a white slime at the interface. That's DNA! It "precipitates" because the water in which it was dissolved goes with the alcohol instead.

8. Fish the DNA out
Using a stick appropriate to the shape of your container, try to fish out the DNA. Note that this is <u>not</u> pure DNA, it has RNA, proteins, and a lot of other things. We would need to purify it with professional reagents if we wanted to analyse it. You can try a similar method with tomatoes, strawberries, and even saliva! (starting at step 3).
We recommend that you now do the *DNA & Genetics* activity.



Materials, samples and reagents

- Banana (or tomato, strawberries)
- Alcohol (as pure as you can find)
- Washing-up liquid (soap)
- Water
- 3 cups or small glasses
- Knife (doesn't have to be sharp)
- Teaspoon &
- Tablespoon
- Pestle (optional)
- Sieve/sifter (or coffee filter)
- Test tube (or tall thin glass/jar)
- Saliva (optional)