

## How to Extract DNA from Strawberries: Tips and Instructions

**Description:** Most of you have probably learned about DNA, but did you know it's possible to see it using just a handful of common household ingredients? This experiment will teach you how to extract, isolate, and then observe the DNA of strawberries within minutes.

### Materials:

- 1 bottle of 70% isopropyl alcohol (1 tsp will be removed)
- 6 tablespoons of water
- Small glass container (1/2 Cup capacity)
- Medium glass container (1 Cup capacity)
- 2 tsp Dawn dish soap
- ¼ tsp salt
- 1 strawberry
- 1 plastic zipper-lock bag
- Coffee filter or strainer
- Tweezers

### Instructions:

1. Put the 70% isopropyl alcohol in the freezer to chill while you prepare the rest of the experiment
2. Put 6 tablespoons of water into a medium glass container
3. Pour in 2 teaspoons of Dawn dish soap to the water
4. Add ¼ teaspoon of salt to the dish soap and water mixture. Stir until dissolved.

This creates the extraction mixture



5. Cut or pull the top of a strawberry off, and then place the strawberry into a zipper-lock bag.  
Pour in the extraction mixture. Squeeze as much of the air out as possible before sealing the bag
6. Mash the strawberry inside the bag, making sure not to leave any large chunks
7. Position a coffee filter or strainer over the clean, medium glass container. Pour in the mashed strawberry and extraction mixture solution. If using a coffee filter, gently squeeze the filter to get as much of the liquid into the container as possible, making sure that none of the strawberry chunks fall in. If using a strainer, gently press the chunks and liquid against the side of the strainer with a spoon to get as much of the liquid into the container as possible
8. Transfer the liquid to the smaller container to make the extraction process easier
9. Remove the isopropyl alcohol from the freezer and slowly add 1 teaspoon to the liquid in the small container, making sure not to mix the two. You should see two separate layers and white chunks of DNA
10. Gently use the tweezers to stir the top, isopropyl layer around, gathering the chunks of DNA together. You can then use the tweezers to grab the DNA



Tips: ***Where can I find isopropyl alcohol?***

Isopropyl alcohol (aka rubbing alcohol) can be purchased at any drug store, or even some grocery stores.

Tips: ***Can I use other types of dish soap?***

I first tried this with Ajax dish soap and was not able to isolate the strawberry DNA. I switched to Dawn and had success with all of the attempts, so I would recommend sticking to Dawn.

Tips: ***Can I use homegrown strawberries?***

I have tried this in the past and it was extremely difficult to get a noticeable amount of DNA. I highly suggest using store bought strawberries

**Activity Presenter – Alyssa Andrew:** Hi everyone! My name is Alyssa Andrew and I made the strawberry DNA extraction video you just watched. I'm a fourth-year student at Oregon State University majoring in Biology with the Pre-Veterinary Medicine option and a Chemistry minor. I am (virtually) graduating in June, but I will be back at OSU in Fall 2020 to get my Master's in Water Resources Science! I will be completing my thesis about agrivoltaics, which uses the same land for agricultural and solar energy purposes, and I'm very excited for this opportunity and to see where it takes me in the future! I hope you enjoy extracting your own strawberry DNA!

This activity was adapted from a lab found at:

<https://www.stevespanglerscience.com/lab/experiments/strawberry-dna/>

Other sources:

<https://www.yourgenome.org/facts/what-is-dna>

<https://www.whatisbiotechnology.org/index.php/science/summary/extraction/dna-extraction-isolates-dna-from-biological-material>