

# STRAWBERRY DNA *Extraction*

## Ingredients

1 frozen strawberry  
50 ml (~1/4 cup) fresh pineapple juice  
12.5 ml (2½ teaspoons) 75% alcohol  
151 proof rum works great!

## Items Needed

1 ziplock bag  
Measuring spoons, measuring cup  
Strainer  
Glass  
1 Q-tip  
Alcohol-filled vial

## Instructions

1. Place 1 frozen strawberry in a ziplock bag and seal.
2. Using your palm, gently crush the strawberry while thawing it with your body heat.
3. Measure 50 milliliters (a little less than ¼ cup) of fresh pineapple juice and add it to the strawberry pulp in the bag.
4. Thoroughly mix and continue crushing to combine the strawberry mash and pineapple juice.
5. Strain the strawberry-pineapple juice pulp into the measuring cup.
6. Discard the strawberry pulp and transfer 50 milliliters of the strained liquid to the glass.
7. Measure 12.5 milliliters (2½ teaspoons) of cold 151 proof rum (or other 75% alcohol).
8. Carefully pour the rum into the glass on top of the strawberry juice, making sure to pour it down the side of the glass: the rum should form a distinct layer floating on top of the strawberry-pineapple mixture.
9. Observe the white threads that appear in the alcohol near the boundary between the alcohol and the strawberry layer—this is strawberry DNA!
10. Use a Q-tip to collect a sample of the DNA and add it to an alcohol-filled vial for preservation. You can use rubbing alcohol or rum.

**Optional:** Mix a cocktail with the remaining rum-strawberry-pineapple juice!

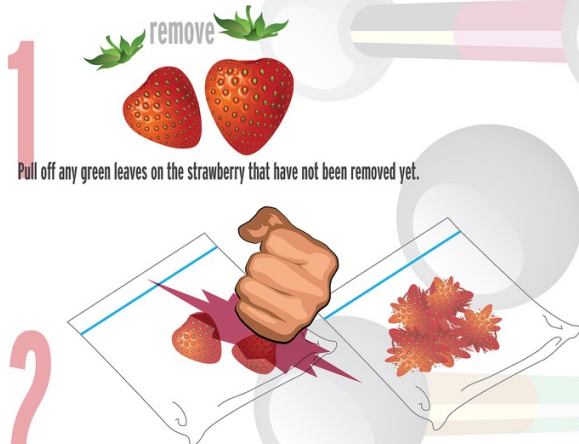
# How to Extract DNA from a Strawberry



Cells are the basic unit of life and make up all plants, animals and bacteria. Deoxyribonucleic acid, or DNA, is the molecule that controls everything that happens in the cell. DNA contains instructions that direct the activities of cells and, ultimately, the body. This activity will demonstrate how DNA can be isolated from a strawberry using common household materials.

<https://www.youtube.com/watch?v=h0pu4iH5B4>

What you will need:

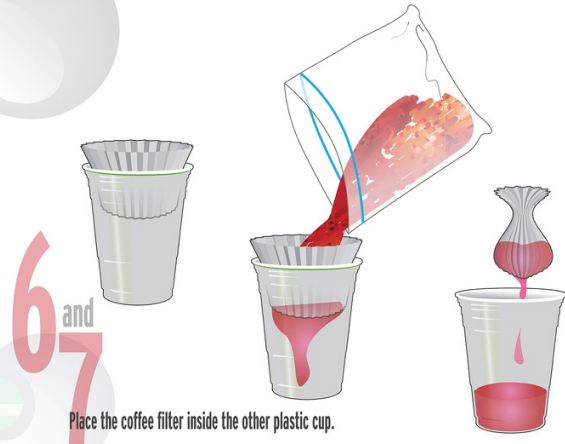


1

Pull off any green leaves on the strawberry that have not been removed yet.

2

Put the strawberries into the plastic bag, seal it and gently smash it for about two minutes. Completely crush the strawberries. This starts to break open the cells and release the DNA.



6 and 7

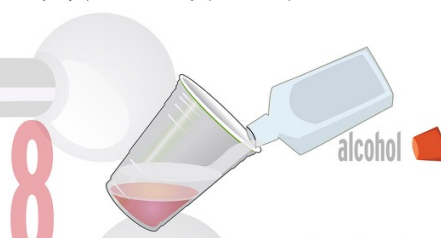
Place the coffee filter inside the other plastic cup.

Open the bag and pour the strawberry liquid into the filter. You can twist the filter just above the liquid and gently squeeze the remaining liquid into the cup.



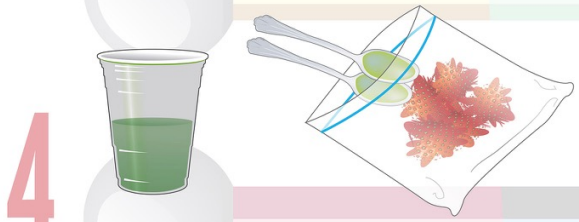
3

In a plastic cup, make your DNA extraction liquid: mix together 2 teaspoons of detergent, 1 teaspoon of salt and 1/2 cup of water.



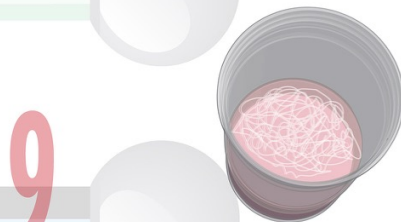
8

Next, pour down the side of the cup an equal amount of cold rubbing alcohol as there is strawberry liquid. Do not mix or stir. You have just isolated the DNA from the rest of the material contained in the cells of the strawberry.



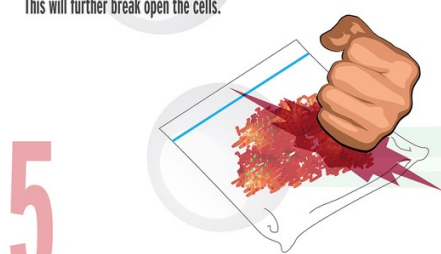
4

Add 2 teaspoons of the DNA extraction liquid into the bag with the strawberries. This will further break open the cells.



9

Within a few seconds, watch for the development of a white cloudy substance (DNA) in the top layer above the strawberry extract layer.



5

Reseal the bag and gently smash for another minute (avoid making too many soap bubbles).



10

Tilt the cup and pick up the DNA using a plastic coffee stirrer or wooden stick.



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GENOME UNLOCKING LIFE'S CODE