

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.

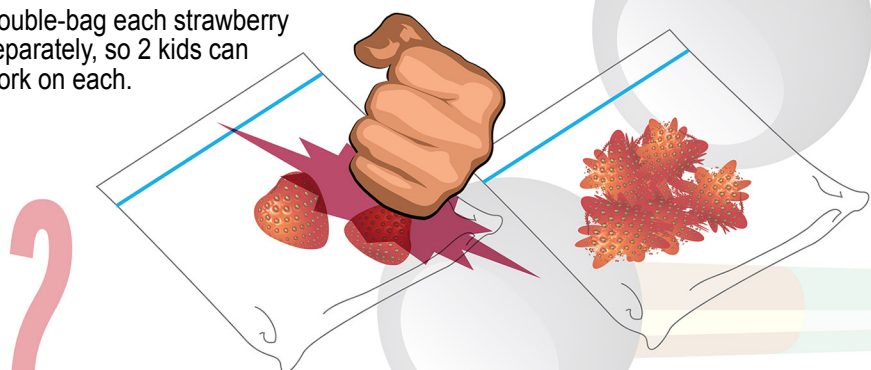
<https://www.youtube.com/watch?v=h0pu4IN5Bh4>

What you will need:



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

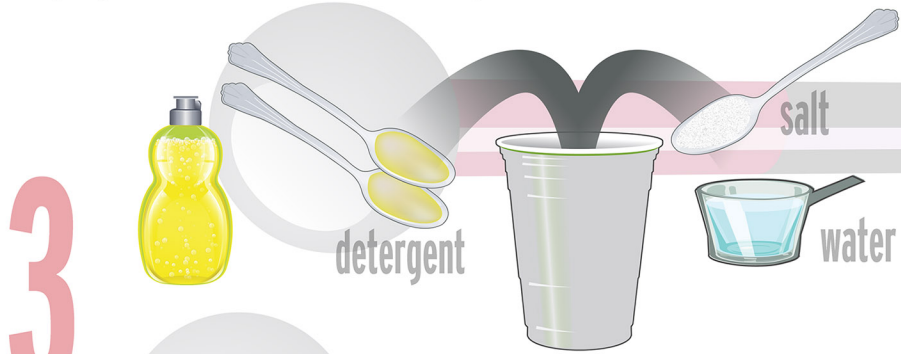
Double-bag each strawberry separately, so 2 kids can work on each.



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 a funnel, 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.

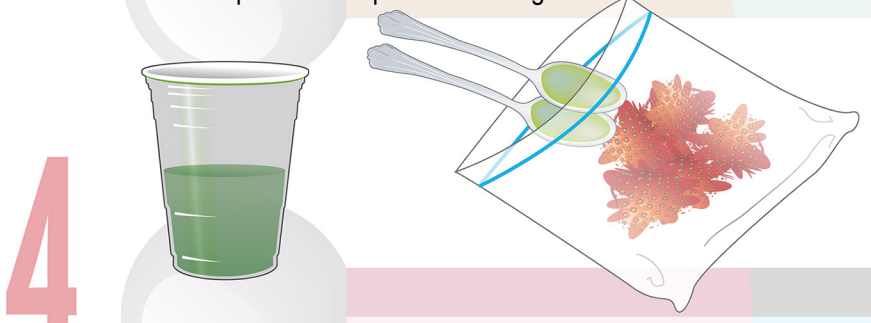


3 In a plastic cup, make your DNA extraction liquid: mix together 2 teaspoons of detergent, 1 teaspoon of salt and 1/2 cup of water. The detergent breaks up the oily membranes surrounding the cell. The salt helps knock off proteins binding to the DNA.

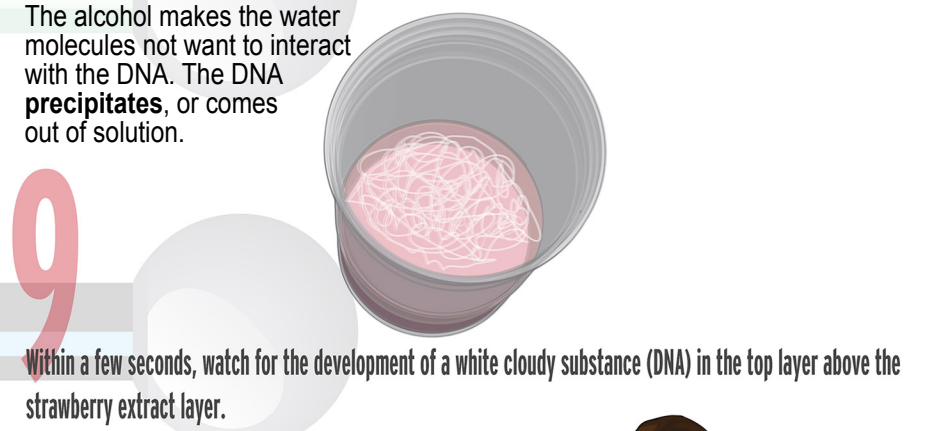


8 Next, pour down the side of the cup an equal amount of cold rubbing alcohol as there is strawberry liquid. Do not mix or stir. You have just isolated the DNA from the rest of the material contained in the cells of the strawberry.

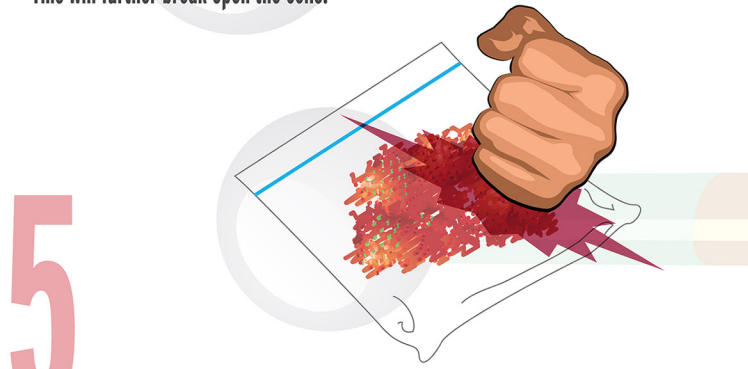
The alcohol makes the water molecules not want to interact with the DNA. The DNA **precipitates**, or comes out of solution.



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.