

Part 1- Extracting DNA from saliva (or Strawberry or Banana)

What do I need?

- 1- A glass or see through cup
- 2- Table salt
- 3- Tap water
- 4- Washing-up liquid (detergent)
- 5- Saliva or you can use a strawberry or banana if you prefer!
- 6- Kitchen strainer (for fruit option)
- 7- Plastic zip lock bag (for fruit option)
- 8- A cocktail stick, toothpick or skewer – to gather the DNA strands together
- 9- Alcohol containing hand sanitiser or rubbing alcohol
- 10- A grown-up to help you

What do I do?

Step 1 – Collect your saliva in the glass. To do so, gargle with a mouthful of water for 1 minute and then spit the water into the glass **-OR-** You can use a strawberry or banana instead. Just mix the fruit with some water in a plastic zip lock bag and mash it up. Make sure the fruit is mashed up really good! Then pour the liquid from the bag through the strainer into the glass.

Step 2 – Add between 5 and 10 drops of detergent into the glass. Mix the detergent and saliva by moving the glass in circles (swirl).

- Note: Be gentle and try not to make too many bubbles.

Step 3 – Add a small amount (a pinch) of salt and swirl again for about 30 seconds to mix all of the materials.

- Note: Be gentle and try not to make too many bubbles.

Step 4 – Finally, pour about the same amount of hand sanitiser into the glass as there is water and wait a few minutes for the solution to become clear.

- Note: Pour the hand sanitiser down the side of the glass so it gently enters the liquid at the bottom.

Step 5 – Wait one minute then dip the cocktail stick into the liquid and carefully lift up the strands of DNA. **(Save this for Part 2 of the experiment)**

What did you see?

What does the DNA look like?

Is it what you expected?

Conclusions:

Congratulations! You have successfully taken DNA out of your saliva (or banana or strawberry). By doing this, you are clumping all the single strands of DNA together which allows you to see them. As a forensic biologist, I do this all the time, just with special tools.

Part 2- Transfer and persistence of DNA

What do I need?

- 1- Cocktail stick containing strands of DNA
- 2- A piece of paper (any kind)
- 3- A grown-up to help you

What do I do?

Step 1 – Use the end of the cocktail stick to remove the strands of DNA from the glass.

Step 2 – Gently rub the wet end of the cocktail stick on your finger until your finger is wet.

Step 3 – Then take your finger and place it (wet side down) on the piece of paper.

Step 4 – Take your finger and touch the paper in another spot. Repeat this step as many times as you want.

Step 5 – Wash your hands using soap and water

What did you see?

What happened to the paper when your wet finger touched it?

What happened to your finger when it touched the paper?

What happens to the paper if you leave the paper on the table for a few hours?

How long does it take for your finger markings to disappear?

Conclusions:

Congratulations! You have transferred, or moved, DNA from one spot to another. In this experiment you moved the DNA from your finger to the piece of paper when you touch it. The more times you touched the paper the less of a mark your finger leaves, this is because over many touches your finger loses DNA on the paper. This transfer of DNA happens every time you touch something, even if you don't notice it, and is what many forensic biologists want to understand. In my research I look at how DNA moves from item to item (like from your finger to the paper) and how long the DNA will stay on different items, this is called persistence.