



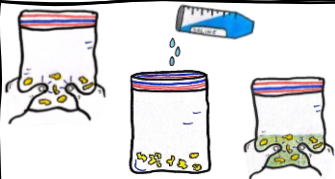
WHAT IS DNA AND WHERE CAN WE FIND IT?

You Will Need:

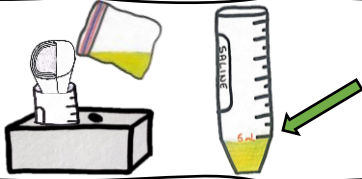
- Cardboard test-tube rack
- Plastic Pipette
- Eppendorf Tube (ethanol)
- Plastic Loop
- Filter Paper
- Plastic zip-lock bag
- Saline
- Soap
- Coloured Ethanol
- Banana Piece



1. Squash the banana in the plastic bag and mix with **SALINE**



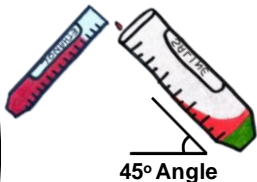
2. Filter the banana suspension through the filter paper to recover 5 mL of liquid



3. Add 1 mL of liquid soap to the cell suspension



4. Add slowly 10 mL of coloured ethanol to the cell suspension



5. Collect **DNA** with loop and transfer into a small tube



What Happens?

A stringy, bubbly material formed in the coloured ethanol layer. This is the banana **DNA**. This is scooped out using the plastic loop. **Congratulations!** You have **EXTRACTED DNA** from banana **Cells** and collected it in a tube!

Why does this happen?

1 **Mashing** the banana separates out the banana cells. **SALINE**, a mixture of salt in water, helps to clump the DNA together (step 1).

2 **Filtering** gets rid of the remaining big pieces of banana, to keep only the banana cells in saline (step 2).

4 **DNA** is **INSOLUBLE** in **ETHANOL**. This means it will not mix with it. Ethanol is a laboratory alcohol. After adding it, the DNA will float into the ethanol layer (step 4)!

3 The **CELL MEMBRANE** is made mostly out of fats.

In this experiment, the cell membrane is broken down using **soap** to release the DNA from the **NUCLEUS** contained in each banana cell (step 3)



Why is this important?

All living things are made up of **CELLS**. They are the **smallest unit of life** and cannot be seen with the naked eye. Scientists need microscopes to see them! Different parts inside a cell do different things. For example, **CELL MEMBRANE** keeps everything inside the cell and the **NUCLEUS** controls what the cell does. Inside the nucleus is an important **MOLECULE** called **DNA**, a short word for **DEOXYRIBONUCLEIC ACID** (sounds like 'DE-AWKS-SEE-RI-BO-NEW-CLAY-ICK ACID').



What do I need this for?

DNA acts like a set of instructions for the **CELL**. It tells the **CELL** how to grow and make what it needs to do its job and stay alive. Our **DNA** determines many things about us, such as our height, hair, eye and skin colour, the shape of our face, etc, but **DNA** does not control our personality or the things we like! Scientists can do many different things with **DNA**. For example, you can use **DNA** to help diagnose certain diseases, make vaccines or identify someone on a crime scene!



Did you know?

Humans are made up of **100 trillion** cells! There are around **200 types** of cells in the body that do different things, including blood cells, bone cells, and brain cells.

