



How to make DNA in your Kitchen!

The Children's Medical Research Institute conducts research into genetic diseases that affect both children and adults. Jeans for Genes® is our major fundraising event.

Try this activity, with adult supervision, for some fun on Jeans for Genes Day or during any science lesson!

What you need

- 2 glass bowls
- A small glass with straight sides
- Food processor
- Sieve
- Coffee filter papers
- Ice cold Isopropanol (Isopropanol is "rubbing alcohol" it can be found at pharmacies. Put it in the freezer to make it ice cold. It won't freeze solid)
- Salt
- Warm water
- Washing-up liquid
- 2 small strawberries
- Esky filled with ice
- Toothpicks
- Knife
- Chopping board

How to make DNA



1. Dissolve 1 teaspoon salt in 100ml warm water
2. Finely chop the strawberries *this separates the strawberry cells*
3. Place strawberries and salt water in processor and blend for a few minutes *salt helps the DNA precipitate*
4. Pour lumpy strawberry mixture into a bowl
5. Add a small squirt of washing-up liquid *soap destroys the cell membrane, releasing cell contents, like DNA*
6. Place the bowl in the Esky of ice (or in the fridge) for 5 minutes, stirring occasionally *ice slows down enzymes that would degrade DNA*
7. Place coffee filter paper in the sieve over a bowl
8. Pour strawberry mixture into the filter paper and collect the filtered liquid in the bowl
9. Pour some of the liquid into the small glass
10. Tilt glass and gently pour ice-cold isopropanol down the side of the beaker so it forms a layer on top of the juice *alcohol dehydrates the DNA causing it to precipitate*
11. Gently stir the top layer with a toothpick, but **do not mix** the two layers
12. Snotty looking white strands should form in the top layer-

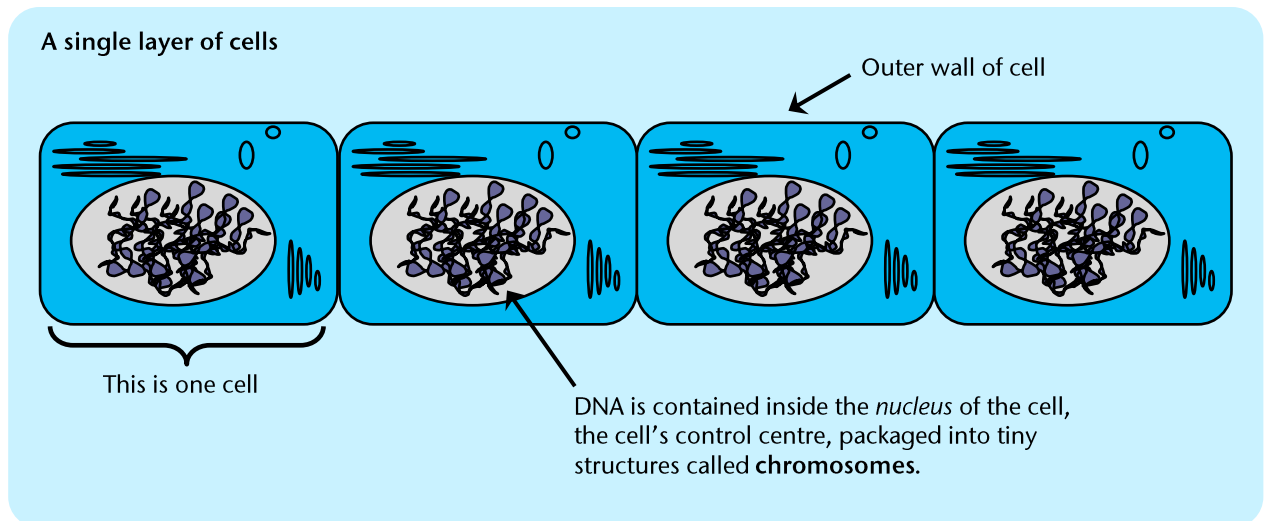
This is DNA!



So where did the DNA come from?

All living things contain DNA.

All living things are made of tiny building blocks called cells. We can't see them just using our eyes, but we would be able to see them if we looked under a microscope – your skin is made of layers of cells....strawberries are made of layers of cells too.



Inside all of our cells, and the cells of all living things - including strawberries - there is a collection of chromosomes.

Chromosomes are made of a very long strand of DNA. DNA is like a blueprint of instructions that tells our cells and our whole body how to work. Your DNA makes you human, a strawberry's DNA makes it a strawberry!

By chopping up the strawberry and using the washing-up liquid we have broken open the cells (washing-up liquid dissolves the outside of the cells) and released their contents, including the DNA, into the salty water.

By filtering the lumpy strawberry mixture we remove most of the rubbish that is left when the cells are broken up. The liquid that we keep contains the DNA.

DNA is normally far too small to see, even with a microscope. DNA is an incredibly thin but very long molecule.

Adding alcohol to the top of the strawberry juice causes the DNA molecules to clump together. Eventually, enough DNA clumps together so that we can actually see it!