



Kiwifruit DNA Extraction Guide

This activity aims to encourage collaboration between parents and children, as well as shape basic knowledge of DNA and why scientists are interested in it. It is not expected that parents know the answers to these questions, but rather this is a guide to what questions to ask and to encourage families to follow up on answers together.

Questions can be asked about what you see and about the science behind these observations. Here is a list of examples, but feel free to explore further ideas as you do the activity. Sometimes you might want to try the extraction again with something changed – this is the start of experimenting!

1. How will you know when all the salt is dissolved?
2. Where do you think the salt goes when it dissolves?
3. What else do we often dissolve during our daily lives?
4. Why do we mash up the kiwifruit? *Describe how the squashed kiwifruit looks.*
5. What do you think the salt is doing?
6. What is dishwashing liquid generally used for? How does it work?
7. What is the dishwashing liquid doing to the cells?
8. Why does soap not do this to our bodies when we are washing?
9. *Describe what the mixture looks like now.*
10. What does the filter do? What else do we filter in our daily lives?
11. Why do we use cold alcohol? What would happen if we used alcohol that was not cold?
12. Why do you think the alcohol (Methylated Spirits) forms a layer on the top?
13. What other liquids do this?
14. After waiting 5 minutes, describe what you see in the alcohol layer.
15. What words could you use to describe the DNA?
16. Where is the rest of the kiwifruit now?
17. How does it make you feel to have extracted real DNA?
18. What could a scientist do with this DNA?
19. What other things at home could you extract DNA from?

All living things are made up of cells, and these contain DNA. Can we see cells? Why not? Remember that DNA is information which tells the cells how to work, and is also the



blueprint for how to build another you. Most cells in your body have a complete set of this information. Your cells originally got the information from your Mum and Dad.

When you add the salt and dishwashing liquid mixture to the smashed kiwifruit, the soap helped open up the kiwifruit cells, releasing the DNA into solution. This does not happen to our bodies because our skin has a layer of waxy dead cells on the outside that helps protect the other cells.

The salt helps create an environment where the different DNA strands could gather and clump, making it easier for you to see them.

After you add the cold Methylated Spirits to the filtered kiwifruit liquid, the alcohol should have separated the DNA out of the mixture while the rest of the solution stays in the bottom layer. You should see the white/clear gooey DNA strands in the alcohol layer as well as between the two layers. The bubbles form as the alcohol warms up and gas is released.

A single strand of DNA is extremely tiny, too tiny to see with the naked eye, but because the DNA clumps up in this activity we are able to see just how much of it the kiwifruit has when the contents of all of the cells are combined. Try the extraction method on different things and see if you get more or less DNA from these items.