DNA Extraction From Strawberries

Suggested Age / Grade Level	Concepts Covered	Duration
7-14 years old/ Grades 4-8	- Deoxyribonucleic Acid (DNA), structure, function and purpose in all living things.	45 minutes

Overview

DNA is the basic building block of life. It contains the instructions needed for organisms to develop, grow, survive, and reproduce. It's one long molecule that contains our genetic "code," or recipe. This recipe is the starting point for our development, but DNA's interaction with outside influences such as our lifestyle, environment, and nutrition ultimately form the human being. DNA allows for information to be passed from generation to generation in every living organism. The scientists behind its discovery such as Friedrich Miescher and Rosalind Franklin and several others paved the way for our understanding of this important part of life.

Learning Goals

- Understand the purpose, structure and history of DNA

Materials

- 1 cup water
- 1.5 teaspoon of salt
- 1-2 cup rubbing alcohol
- 1 glass cup
- 1 small ziplock (sandwich bag size)
- 1 popsicle stick
- ½ cup of dish soap
- 2-3 strawberries

Key terms

- DNA- A self-replicating material that's in every living organism. In simplest terms, it is a carrier of all genetic information.

- Heredity - The passing on of physical or mental characteristics genetically from one generation to another.
- Adenine- A nitrogenous base, this is a structure that is found in DNA
- Monomers - a molecule that can be bonded to other identical molecules to form a polymer.
- Polymers- Several monomers join together to create a polymer.
- Nucleotides- A compound consisting of a nucleoside linked to a phosphate group. Nucleotides form the basic structural unit of DNA.

Additional Setup Requirements

- Safety warning: this experiment uses rubbing alcohol.
- If the coffee filter breaks then use a metal strainer

Procedure

- Using 2-3 fresh strawberries mash them in a ziplock bag, in a separate glass add ½ a cup of water and 2 tbsp of soap and ½ tbsp of salt and mix.
- Next, add the mixture to the ziplock bag and gently mix them together. In a separate cup add a coffee filter and strain the mixture through it.
- Next, add an equal amount of rubbing alcohol to the strawberry mixture. Lastly, using a wooden stick extract the DNA.