DNA

Science Film Festival Knowledge Through Entertainment

FILM

Dandelion: The Ecological Footprint

Genetic Testing

KEY OBJECTIVES

1. **To know the initial process of DNA extraction and its chemical reactions through a simple experiment**

INTRODUCTION

All living things pass on information from one generation to the next using the same basic material, DNA. Does anybody here know what DNA stands for? DNA stands for deoxyribonucleic acid. Segments, or pieces, of DNA are called "genes". Genes contain information in DNA that tells living things to develop, grow, and function. Each gene determines our traits, such as our hair color, eye color, height, and so on. Just like us, banana plants have DNA in their cells which also control many of their features that make them unique.

TOPICS
Reproduction | heredity

KEYWORDS
DNA | genes | extraction

LEVEL
Primary School–University Students

RESOURCE TYPE
Experiment

INTENDED AUDIENCE SIZE
100–150 students in one session

MODE OF DELIVERY
Live online

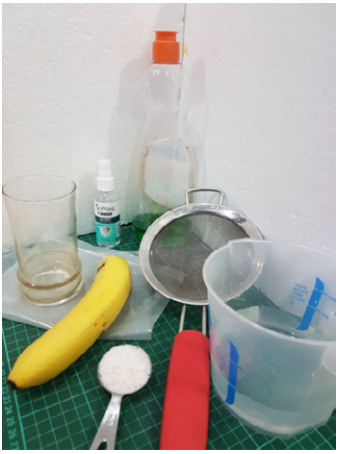
TIME FOR ACTIVITY
10 min.

GUIDING QUESTIONS

- What does DNA look like when we see it without a microscope?

MATERIALS/PREPARATION

- A piece of banana (½ banana)
- Resealable zip-top bag
- Dishwashing liquid (1 spoon)
- Salt (1 spoon)
- Glass (1)
- Warm water (½ cup)
- Alcohol solution (hand sanitizer) (refrigerated for a better result)
- A coffee filter or a sieve or a strainer (1)
- Wooden splint (1)



DNA

Science Film Festival Knowledge Through Entertainment

TASKS/PROCEDURE

1. Peel and halve the banana. Put the half banana into the resealable zip-top bag and close the bag.
2. Mash the banana until all lumps are gone.
3. Mix the mashed banana with warm water and salt; squeeze until thoroughly mixed.
4. Add one tablespoon of dishwashing liquid into the bag. Mix the mixture gently so that your mixture will not be too foamy.
5. Put a coffee filter or a sieve or a strainer in a glass.
6. Carefully pour the mixture and let it sit until all of the liquid drips down into the glass.
7. Remove the coffee filter or the sieve or the strainer and the contents.
8. Slowly pour the alcohol (hand sanitizer) into the glass.
9. Wait three minutes and observe the changes in the mix. You will see white strands precipitate in the boundary between the alcohol and the banana mixture. This is your banana DNA.
10. Spool the DNA onto your wooden splint.
11. Congratulations! You have just extracted the banana DNA.

FOSTERING DISCUSSIONS

1. What does the dishwashing liquid do?
2. What does the salt do?
3. What does alcohol do?
4. What does DNA look like? Describe it!
5. What does it feel like when you touch DNA?

POSSIBLE EXTENSIONS

By following the same procedures, you can also other fruits' DNA such as kiwis and strawberries!

AUTHORS AND SOURCES

Submitted by Anette Evifania and Pesta Sigalingging

→ askabiologist.asu.edu/activities/banana-dna