

Student learning outcome (SLO):

| | |
|---|---|
| <ul style="list-style-type: none"> • Elaborate the “Blue Print” of life. • Understand how children get characters of their parents. | <ul style="list-style-type: none"> • Identify in which part of the cell DNA is present. • Describe how DNA functions. • Briefly explain Watson and Crick model of DNA. |
|---|---|

Overview:

The main purpose of this lesson is to impart understanding of life’s fundamental building block and how this blue print for life passes in the next generations. It enables comprehension of genetic inheritance, evolution, and medical applications.

Introduction:

Lead the students in learning about,

‘Structure of DNA’.

‘Genetics Basics’

Video of the lecture can be shown to the students as well.

| | |
|---|---|
| https://youtu.be/o_-6JXLYS-k?si=GQK2afwwf2TIGse9 |  |
| https://youtu.be/mcEV3m9SG9M?si=1Di5qk1VvYXVKjz4 |  |

Keywords:

Blue print, adenine, guanine, cytosine, thymine, double helix, nucleotide, nucleocide, inheritance, genetic code, genes, chromosomes, replication, mutation

Material:

- Strawberries or bananas
- Microscope
- Tweezers

Activities:

1. DNA Extraction:

- Have students extract DNA from everyday items like strawberries or bananas. This simple experiment helps them visualize and understand the basic steps of DNA extraction.

2. DNA Model:

- Encourage students to build 3D models of DNA using materials like pipe cleaners, colored beads, and Styrofoam balls. This hands-on approach helps them grasp the structure of DNA molecules.

3. DNA Origami:

- Introduce the concept of DNA structure through origami. Provide templates or instructions for folding paper into the shape of the DNA double helix. This artistic activity can be both fun and educational.

Essential questions:

Before starting the lesson, ask some questions to explore the background knowledge of students:

1. What does DNA stand for?
2. Describe the shape of DNA molecule.
3. Name the four nitrogenous bases found in DNA.
4. What is the role of DNA in genetic inheritance?
5. What is a nucleotide?
6. How DNA replicate?
7. How does DNA contribute to the diversity of living organisms?
8. What are genes, and where are they located in the DNA molecule?