

Year 12 Transitions Programme 2021

Biology

DNA and the Genetic Code

In living organisms nucleic acid (DNA and RNA) have important roles and functions related to their properties. The sequence of bases in the DNA molecule determines the structure of the proteins, including enzymes.

The double helix and its four bases store the information that is passed from generation to generation. The sequence of the base pairs adenine, thymine, guanine, and cytosine tell the ribosomes in the cytoplasm how to construct amino acids into polypeptides and produce every characteristic that we see. DNA can mutate leading to diseases, including cancer, and sometimes anomalies in the genetic code are passed from parents to babies in disease such as cystic fibrosis, or can be developed in unborn foetuses such as Down's syndrome.

Read the information on the following websites and videos, make some notes of key ideas:

- [BBC Bitesize: Structure of DNA](#)
- [S-cool: DNA and the Genetic Code TED:](#)
- [Where do Genes come from?](#)
- [TED: The Twisting Tale of DNA](#)

Task: Produce a display on DNA and the Genetic code - it can be hand drawn or made on PowerPoint or Publisher. Include:

- Pictures/diagrams
- Definitions of: gene, chromosome, DNA and RNA
- Describe the structure and function of DNA and RNA Explain how
- DNA is copied in our body

Extension: Outline some of the problems that occur with DNA replication and what the consequence of this might be.