

GRADE 10 | 2024

Life Sciences: Biodiversity and Classification

Life Sciences

CAPS ALIGNED

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1. Biodiversity

Biodiversity refers to the variety of life on Earth. It includes genetic diversity, species diversity, and ecosystem diversity.

KEY POINT: South Africa is one of the world's 17 megadiverse countries, with more than 100,000 species of plants, animals, and micro-organisms.

2. Classification of Organisms

Taxonomy is the science of classifying organisms. The hierarchy of classification (from broadest to most specific):

FORMULA: Domain > Kingdom > Phylum > Class > Order > Family > Genus > Species

Memory: Dear King Philip Came Over For Good Soup

3. The Five Kingdoms

- Monera (Prokaryotes): bacteria and blue-green algae; no nucleus
- Protista: single-celled eukaryotes (amoeba, paramecium)
- Fungi: decomposers; cell walls of chitin (mushrooms, yeast, moulds)
- Plantae: multicellular; photosynthetic; cell walls of cellulose
- Animalia: multicellular; heterotrophic; no cell wall

4. Viruses

Viruses are NOT classified as living organisms because they cannot reproduce independently - they need a host cell.

- Structure: protein coat (capsid) surrounding DNA or RNA
- Reproduction: viral DNA/RNA is injected into host cell and uses host machinery
- Examples: HIV, influenza, COVID-19, tobacco mosaic virus

5. Dichotomous Keys

A dichotomous key is a tool that helps identify organisms by answering a series of yes/no questions about observable characteristics.