

Biology Paper 1 Topics

Cell Biology

- Eukaryotes
- Prokaryotes
- Animal cells
- Plant cells
- Bacteria cells
- Archaea
- Size of cells and sub cellular structures (organelle)
- Specialised cell adaptations and functions
- Cell differentiation
- Electron microscopes
- Mitosis and the cell cycle
- Stem cells and meristems
- Cloning
- Diffusion
- Osmosis
- Active transport
- Standard form
- Metres, millimetres, and micrometres
- Microscope magnification calculation
- Size and scale from diagram

Organisation

- Organisation of Cells, tissues, organs, systems
- Digestive system
- Enzymes of digestion
- Enzyme rate of reaction graphs
- Enzyme rate calculations
- Heart structure
- Blood flow calculations
- Lung structure
- Blood vessels structure and function
- Blood cells
- Cardiovascular diseases cause and treatments
- Lifestyle factors that affect diseases
- Non-communicable disease
- Cancer
- Structure of a plant leaf
- Phloem, xylem, stomata
- Translocation
- Transpiration
- Root hair cells

Infection and response

- Communicable diseases
- Pathogens
- Virus examples – measles, HIV, TMV
- Bacterial examples – Salmonella, Gonorrhoea
- Fungus example – rose black spot
- Protist example - malaria
- Non-specific defences
- Immune system defences
- Vaccinations
- Antibiotics
- Painkillers
- Penicillin discovery
- Drug trial and placebos

Bioenergetics

- Photosynthesis
- Photosynthesis limiting factors and rates of reaction
- Use of glucose in plants
- Aerobic Respiration
- Anaerobic respiration
- Use of energy from respiration
- Response to exercise
- Metabolism

Required practical activities

- Using a light microscope with magnification and scale calculations
- Investigating the effect of concentration on the mass of plant tissues
- Reagent tests for carbohydrates (Benedict's and iodine), lipids and proteins (Biuret)
- Investigating the effect of pH on rate of amylase enzyme action
- Investigating the effect of light intensity on the rate of photosynthesis