

2010 Yr 9 Science Revision for Yearly Examination

TOPICS STUDIED

References for (Old Text – *new text*)

Unit 1: Forces at Work Ch 1

What is a simple machine? How do they work?

Identify common examples of 1st, 2nd and 3rd class levers

Define the advantages gained by machines like levers as force or speed multipliers

The use of inclined planes and their many adaptations.

Wheels and axles as force or speed multipliers

Machines that change speed and direction of a force e.g. crown wheel and pinion

Mechanical advantage (MA) and efficiency calculations for machines

MA of pulley systems

MA of gear systems

Compound machines, their positive and negative impacts e.g. the motor car

Unit 2: The Earth and its Resources Ch 8 Ch 3 and 6

The Earth's inner structure

Plate tectonics

Types of volcanoes, where found and why

Magma, lava, pillow lava, rock crystal size

Explain subduction, mid-ocean ridges, mountains, earthquakes

Types of folds and faults

Impacts of natural events e.g. earthquakes, cyclones...

Biotic and abiotic features of an ecosystem

Flow diagram of nutrient cycles in ecosystems e.g. carbon and nitrogen cycles

Energy Resources

How fossil fuels are formed, mined and used (coal, oil, gas)

Location of coal, oil and gas reserves in Australia

Interpret hydrocarbon length and physical state

Fractional distillation of crude oil

Uses of fossil fuels and derivatives

Negative impact of fossil fuels esp. greenhouse effect

Distinguish between renewable and non-renewable resources – economic viability

Issues of mining and the environment – case studies, impacts (EIS), ethics...

Impact of agriculture – soil degradation, salinity...

Unit 3: Materials and Energy Ch 4

Materials: synthetic and natural materials, polymers, monomers, polymerisation, plastics, thermosetting and thermosoftening plastics, nylon, polyester, petroleum, ceramics, porcelain, clay, essential oils, perfumes, metals, alloys, brass, bronze, stainless steel

Research one material, technology of its manufacture, its impacts, reasons to support research

Energy: Its ability to do work

Forms of energy- heat, light, electrical, gravitational potential energy, kinetic energy, elastic potential

How energy can be transformed into other forms

Electrochemistry

The atomic theory of matter – structure of the atom, electrons

Unit 5: Body Systems Ch 2, 3 and 9

Ch 1 and 2

Reproduction

- the biological need for sexual reproduction
- fusion of male and female gametes (sperm and egg in humans)
- the male and female reproductive system
- Process of ovulation and fertilisation
- The menstrual cycle and hormonal control
- Changes that take place in the embryo after fertilization
- Techniques used to prevent pregnancy

Reproductive Technology (optional)

- infertility and technologies such as IVF
- opinion and ethics of other reproductive technologies

Disease

- causes - infectious and non-infectious diseases
- the bodies three lines of defence, barriers, inflammation & WBC's, antibodies
- viral, bacterial and fungal pathogens
- common parasitic pathogens e.g. Tapeworm, liver fluke, tick, flea, amoeba
- immune response through vaccination
- non-infectious diseases
- importance of a balanced diet

Australia's Contribution to Medical Research

- contribution of Florey, Burnet and Doherty

Body Systems

- function of compounds in the body; proteins, fats, carbohydrates, water minerals, fibre
- relationship between cells, tissues, organs and systems in multicellular organisms
- brief overview of digestive system, circulatory system, lymphatic system, respiratory system and excretory system
- The Nervous System - how it functions
 - CNS and PNS
 - The reflex arc and neurons involved
 - Conscious vs. reflex responses
 - Structure and function of the brain
- The Endocrine System
 - Its mode of action and length of response compared to the NS
 - Important endocrine glands and the hormones produced