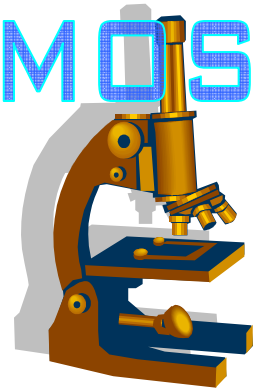
MOSCROP SCIENCE



Applications of Science

It is expected that students will:

• evaluate dangers in particular procedures and equipment, taking responsibility for safety
• relate the limitations of techniques and instruments to the accuracy and reliability of an investigation
• describe some important scientific discoveries that resulted from scientists applying their knowledge and creativity to explore unexpected events
• devise appropriate methods of presenting information
• analyse data and conclusions that may be subject to bias
• describe the interactions between scientific developments and the beliefs and values of society
• identify and consider ethical implications of scientific investigations
• analyse costs and benefits of alternatives in resolving socioscientific issues

Cells

It is expected that students will:

• relate organelles to their function within the cell
• distinguish between cells based on their different structures and functions
• describe factors that limit cell size
• compare the changes that occur during the stages of a cell's development
• describe the ways in which viruses and bacteria can affect cell functioning
• assess the factors that can affect fetal development
• compare and contrast asexual and sexual reproduction

Genetics

It is expected that students will:

• relate the genetic code to the assembly of different proteins
• apply the principles that govern the inheritance of traits to solve problems involving simple Mendelian genetics
• summarize factors that may lead to different types of mutations
• distinguish among positive, neutral, and negative effects of various mutations
• analyse implications of current and emerging biomedical, genetic, and reproductive technologies

Chemicals and Reactions

It is expected that students will:

• research and illustrate the development of our understanding of the structure of matter from early times to the present
• describe the arrangement of subatomic particles (electrons, protons, neutrons)

in elements
• distinguish among atoms, isotopes, and ions
• explain how chemical and physical characteristics of substances are due to differences in the bonding of their constituent parts
• demonstrate a knowledge of chemical formulae and balanced chemical equations
• give evidence for and classify the following chemical reactions: synthesis, decomposition, replacement, and acid-base

Electricity and Magnetism
It is expected that students will:
• state the relationships between charged objects
• demonstrate how electricity results from the movement of charged particles such as electrons and ions
• describe the interactions between magnetism and electricity and relate these to common devices
• use apparatus to determine the relationships between current, voltage, and resistance in different types of circuits
• relate power and energy to common electrical devices
• describe the distribution and safety considerations of electricity from its generated source to its use within the home
• apply knowledge and data to make recommendations for reducing energy Waste

Radioactivity
It is expected that students will:
• summarize the characteristics of the major components of the electromagnetic spectrum
• differentiate among the following major decay products: alpha and beta particles, gamma rays
• compare and contrast fusion and fission reactions and their use in energy production
• describe technological applications of radiation
• evaluate the effects of radiation on living organisms

Earth Forces
It is expected that students will:
• compare a variety of techniques used to learn about the earth
• use fossil evidence to illustrate how life forms change over time
• compare techniques used for establishing geological time scales
• identify major factors responsible for earthquakes, volcanic eruptions, mountain building, and formation of ocean ridges
• identify evidence that supports the theory of plate tectonics
• assess impacts of volcanoes and earthquakes on the environment