Middle Years Science

Curriculum Content

St. Mark's Middle Years Science program has been carefully planned to ensure that the curriculum content taught at this level will successfully lead our students into the **Pure Science program** for Cambridge IGCSE, as opposed to **Co-ordinated Science program**. An integration of our 2-year Science curriculum framework provides a solid foundation for further stages of education in Cambridge IGCSE Pure Sciences in Year 9 and 10.

The curriculum framework covers four content areas: **scientific enquiry, biology, chemistry and physics**. Scientific enquiry is about considering ideas, evaluating evidence, planning investigative work, and recording and analysing data. The scientific enquiry objectives underpin biology, chemistry and physics, which are focused on developing confidence and interest in scientific knowledge. The Scientific enquiry objectives underpin Biology, Chemistry and Physics, which are focused on developing confidence and interest in scientific knowledge. Environmental awareness and some history of science are also incorporated.

Year 7 and 8 Curriculum Content

Topic	Content
The Scientific Endeavour	• What is Science? • How is Scientific Knowledge Derived? – Attitudes in Science • How is Scientific Knowledge Derived? – The Scientific Method • How does Science and Technology Affect our Lives? • Safety Practices during Scientific Investigations
Exploring Diversity of Matter by Its Physical Properties	• Physical Properties of Matter • Density
Exploring Diversity of Matter by Its Chemical Composition	• Chemical Composition of Matter • What are Elements? • What are Compounds? • What are Mixtures?

Topic	Content
Exploring Diversity of Matter Using Separation Techniques	• Separating Mixtures • Obtaining Drinking Water from Non-potable Water
Understanding Diversity of Organisms	• The Variety of Life • The Importance of Biodiversity • Classifying and Identifying Organisms Using Dichotomous Keys
Model of Cells – The Basic Units of Life	• What are Cells? • What is Inside a Typical Cell? • Forming a Multi-cellular Organism • Division of Labor
Model of Matter – The particulate Nature of Matter	• Using the Particulate Nature of Matter as a Model • Models of States of Matter • Models of Expansion and Contraction • Models of Changes in State
Model of Matter – Atoms and Molecules	• The Atom • Using Models to Represent Atoms • Using a Model to Represent the Structure of an Atom • The Molecule
Ray Model of Light	• What s Light? • Reflection • Refraction • Dispersion of Light • Colors
Transport Systems in Organisms	• The Need for a Transport System • Transport System in Plants • Transport System in Humans
Human Digestive System	• Why is the Digestive System Important? • The Human Digestive System • Digestive Enzymes
Human Sexual Reproductive System	• Human Sexual Reproductive System • Sexual Reproduction • Premarital Sex and Abortion • Birth Control Methods

Topic	Content
Electrical Systems	• Flow of Electricity • Effects on an Electric Current • Household Electricity
Interactions Through the Application of Forces	• Types of Forces • Measuring Force • Effects of Forces • What is Pressure?
Energy and Work Done	• Energy and Work Done • Energy Changes • Sources of Energy
Transfer of Sound Energy Through Vibrations	• What Causes Sound? • How We Hear Sound • How Does Sound Vary? • Sound and Society
Effects of Heat and Its Transmission	• Expansion and Contraction of Matter • Effects of Expansion and Contraction • Movement of Heat
Chemical Changes	• Chemical Changes as Result of Interactions • Types of Chemical Changes • Types of Chemical Changes – Interaction between Matter • Movement of Atoms during Chemical Reactions • Effects of Chemical Changes – Friends or Foes?
Interaction Within Ecosystems	• Ecosystems • Energy Flow in an Ecosystem • Decomposers • Conserving the Environment