

## **Curriculum Content**

### **Content Semester 1**

#### **Term 1**

##### **P15. Radioactivity**

- 15.1 Detection of radioactivity
- 15.2 Characteristics of the three kinds of emission
- 15.3 Radioactive decay
- 15.4 Half-life
- 15.5 Safety precautions
- 15.6 The nuclear atom
- 15.7 Isotopes

##### **B1. Characteristics of living organisms**

##### **B2. Cells**

- 2.1 Cell Structure
- 2.2 Movement in and out of cells

##### **B4. Nutrients**

- 4.1 Nutrients
- 4.2 Plant Nutrition
- 4.3 Animal Nutrition

##### **B5. Transportation**

- 5.1 Transport in Plants
- 5.2 Transport in Humans

##### **B6. Respiration**

- 6.1 Aerobic and anaerobic respiration

##### **B7. Co-ordination and response**

- 7.1 Nervous control in humans
- 7.4 Homeostasis

##### **B8. Reproduction**

- 8.1 Asexual and sexual reproduction
- 8.2 Sexual reproduction in plants

##### **B9. Inheritance**

- 9.1 Chromosomes and genes
- 9.2 Cell Division
- 9.3 Monohybrid inheritance
- 9.4 Variation and selection

#### **Term 2**

##### **P1. Motion**

##### **P2. Matter and forces**

- 2.1 Mass and Weight
- 2.2 Density
- 2.3 Effects of Forces
- 2.4 Pressure

##### **P3. Energy, work and power**

- 3.1 Energy

3.2 Energy resources

3.3 Work

3.4 Power

**P4. Simple kinetic molecular model of matter**

4.1 States of matter

4.2 Molecular model

4.3 Evaporation

4.4 Pressure changes

**P5. Matter and thermal properties**

5.1 Thermal expansion of solids, liquids and gases

5.2 Thermal capacity

5.3 Melting and boiling

**P6. Transfer of thermal energy**

6.1 Conduction

6.2 Convection

6.3 Radiation

6.4 Consequences of energy transfer

**P7. Waves**

7.1 General wave properties

**P8. Light**

8.1 Reflection of light

8.2 Refraction of light

8.3 Thin converging lens

8.4 Dispersion of light

**P9. Electromagnetic spectrum**

**P10. Sound**

**P11. Magnetism**

**P12. Electricity**

12.3 Current, electromotive force and potential difference

12.5 Electrical energy

12.6 Dangers of electricity

**P13. Electric circuits**

13.1 Circuit diagrams

13.2 Series and parallel circuits

13.3 Action and use of circuit components

**P14. Electromagnetic effects**

14.1 Electromagnetic induction

14.2 a.c. generator

14.3 Transformer

14.4 The magnetic effect of a current

14.5 Force on a current-carrying conductor

14.6 d.c. motor

## **SUBJECT EQUIPMENT**

Students must bring the following equipment to every lesson: work book, writing equipment – pens, pencil, ruler, etc., and a scientific calculator.

## **Assessment objectives**

The three assessment objectives in Co-ordinated Sciences are:

A Knowledge with understanding

B Handling information and problem solving

C Experimental skills and investigations

A description of each assessment objective follows.

## A Knowledge with understanding

Students should be able to demonstrate knowledge and understanding in relation to:

- scientific phenomena, facts, laws, definitions, concepts and theories
  - scientific vocabulary, terminology and conventions (including symbols, quantities and units)
  - scientific instruments and apparatus, including techniques of operation and aspects of safety
  - scientific quantities and their determination
  - scientific and technological applications with their social, economic and environmental implications
- The curriculum content defines the factual material that candidates may be required to recall and explain. Questions testing this will often begin with one of the following words: *define, state, describe, explain or outline*.

## B Handling information and problem solving

Students should be able, using words or other written forms of presentation (i.e. symbolic, graphical and numerical), to:

- locate, select, organise and present information from a variety of sources
- translate information from one form to another
- manipulate numerical and other data
- use information to identify patterns, report trends and draw inferences
- present reasoned explanations for phenomena, patterns and relationships
- make predictions and hypotheses
- solve problems

These skills cannot be precisely specified in the curriculum content, because questions testing such skills are often based on information which is unfamiliar to the candidate. In answering such questions, candidates are required to use principles and concepts in the syllabus and apply them in a logical, deductive manner to a new situation. Questions testing these skills will often begin with one of the following words: *discuss, predict, suggest, calculate or determine*.

Syllabus aims and assessment objectives

14 Cambridge IGCSE Co-ordinated Sciences (Double Award) 0654. Syllabus for examination 2016.

## C Experimental skills and investigations

Students should be able to:

- use techniques, apparatus and materials (including the following of a sequence of instructions where appropriate)
- make and record observations, measurements and estimates
- interpret and evaluate experimental observations and data
- plan investigations and/or evaluate methods, and suggest possible improvements (including the selection of techniques, apparatus and materials)

### ASSESSMENT TIMETABLE

TASK	DUE DATE	WEIGHTING
Assignment 1	Week 7	25%
Exam 1	Week 9	25%
Assignment 2	Week 13	25%
Exam 2	Exam Week	25%

## **CHEATING AND DISHONEST PRACTICE**

The integrity of the College's assessment system relies upon all involved acting in accordance with the highest standards of honesty and fairness. Any departure from such standards will be viewed very seriously. Accordingly:

- Plagiarism - claiming authorship of someone else's work (intentionally or otherwise) - is a serious misdemeanour, and attracts severe penalties.
- Students are required to acknowledge the source of all material that is incorporated into their own work.
- Students may not submit the same item for assessment in more than one unit, unless specific agreement has been reached with the class teacher.

**Executive Teacher:** Ruth Edge

**Class Teacher:** James Hall

**Date:** / 2 / 19