

Cambridge IGCSE Sciences - Co-ordinated (9-1) 0973 Syllabus Breakdown & Weekly Lesson Plan

Important Note: This is a **Double Award** qualification earning two grades (9-9, 8-8, etc.). The syllabus covers Biology, Chemistry, and Physics in separate sections, with content equivalent to approximately two-thirds of each separate science.

Assessment Structure (Extended Tier: Grades 9-9 to 5-5)

Compulsory Papers:

- **Paper 2:** Multiple Choice (Extended), 45 min, 40 marks, **30% weighting**
- **Paper 4:** Theory (Extended), 2 hours, 120 marks, **50% weighting**
- **Paper 5 or 6:** Practical or Alternative to Practical, 1h 30m or 2h, 60 marks, **20% weighting**

Assessment Objectives:

- **AO1 Knowledge with understanding:** 50%
 - **AO2 Handling information and problem-solving:** 30%
 - **AO3 Experimental skills and investigations:** 20%
-

Topic Weightings & Time Allocation

Science Area	Topics	Weighting	Weeks Allocated
Physics (P1-P6)	6 topics	~33%	5.5 weeks
Chemistry (C1-C12)	12 topics	~33%	5 weeks
Biology (B1-B19)	19 topics	~33%	5.5 weeks
Practical Skills & Revision	Integrated	-	2 weeks

Detailed 16-Week Lesson Plan

WEEK 1-2: PHYSICS - MOTION, FORCES & ENERGY (P1)

Week 1: Kinematics & Forces

- Day 1: Physical quantities, measurement, scalars vs vectors, speed vs velocity
- Day 2: Distance-time & speed-time graphs, calculating gradients and area

- Day 3: Acceleration, motion equations, Newton's First and Second Laws
- Day 4: Past paper practice: Motion calculations (Paper 2)
- Day 5: **Practical**: Investigating motion using ticker tape or light gates
- Day 6: Past paper review: Graph interpretation and error analysis

Week 2: Energy, Work, Power & Forces

- Day 1: Energy stores (kinetic, potential, chemical, thermal), conservation of energy
- Day 2: Work done, power, efficiency calculations, energy resources
- Day 3: Forces, friction, air resistance, Newton's Third Law, momentum
- Day 4: Past paper practice: Energy and force problems (Paper 4)
- Day 5: **Practical**: Investigating energy efficiency or Hooke's Law
- Day 6: Past paper review: Force diagrams and calculations

WEEK 3: PHYSICS - THERMAL PHYSICS & WAVES (P2-P3)

Week 3: Thermal Physics & Waves

- Day 1: Kinetic particle theory, states of matter, thermal expansion, conduction/convection/radiation
- Day 2: Specific heat capacity, latent heat, pressure in gases
- Day 3: Wave properties, electromagnetic spectrum, applications and dangers
- Day 4: Past paper practice: Thermal physics calculations
- Day 5: **Practical**: Measuring specific heat capacity or investigating wave properties
- Day 6: Past paper review: Wave equation applications

WEEK 4: PHYSICS - LIGHT, SOUND & ELECTRICITY (P3-P4)

Week 4: Light, Sound & Electricity

- Day 1: Light - reflection, refraction, total internal reflection, lenses, ray diagrams
- Day 2: Sound - properties, speed, ultrasound, applications
- Day 3: Electricity - current, voltage, resistance, Ohm's Law, series/parallel circuits
- Day 4: Past paper practice: Optics and electricity questions

- Day 5: **Practical**: Investigating refraction or I-V characteristics
 - Day 6: Past paper review: Circuit analysis errors
-

WEEK 5: PHYSICS - MAGNETISM, NUCLEAR & SPACE (P4-P6)

Week 5: Magnetism, Nuclear Physics & Space

- Day 1: Magnetism, electromagnets, electromagnetic induction, generators
 - Day 2: Nuclear physics - atomic structure, radioactivity, half-life, safety
 - Day 3: Space physics - Solar System, stars, life cycle, galaxies, Big Bang theory
 - Day 4: Past paper practice: Electromagnetism and nuclear questions
 - Day 5: **Practical**: Simulating radioactive decay or analyzing astronomical data
 - Day 6: Past paper review: Half-life graph interpretation
-

WEEK 6-8: CHEMISTRY - FUNDAMENTALS & STRUCTURE (C1-C4)

Week 6: Particulate Nature & Atoms

- Day 1: States of matter, particle theory, diffusion, changes of state
- Day 2: Elements, compounds, mixtures, separation techniques
- Day 3: Atomic structure, isotopes, electron arrangement
- Day 4: Past paper practice: Particle theory questions
- Day 5: **Practical**: Chromatography or distillation
- Day 6: Past paper review: Separation method selection

Week 7: Bonding & Stoichiometry

- Day 1: Ionic, covalent, metallic bonding, structure-property relationships
- Day 2: Moles, molar mass, formulas, percentage composition
- Day 3: Electrolysis, products at electrodes, applications
- Day 4: Past paper practice: Bonding and mole calculations
- Day 5: **Practical**: Electrolysis of aqueous solutions
- Day 6: Past paper review: Ionic equation writing

Week 8: Energy & Chemical Reactions

- Day 1: Energy changes, exothermic/endothermic reactions, activation energy
 - Day 2: Rate of reaction, factors, collision theory, catalysts
 - Day 3: Redox reactions, oxidation and reduction
 - Day 4: Past paper practice: Energy and rate questions
 - Day 5: **Practical**: Investigating temperature on reaction rate
 - Day 6: Past paper review: Rate graph analysis
-

WEEK 9-10: CHEMISTRY - ACIDS, PERIODIC TABLE & METALS (C7-C9)

Week 9: Acids, Bases & Periodic Table

- Day 1: Acids, bases, salts, pH scale, neutralization
- Day 2: Periodic Table trends, groups, reactivity patterns
- Day 3: Air and water, pollutants, climate change, acid rain
- Day 4: Past paper practice: Acid calculations and periodic trends
- Day 5: **Practical**: Titration or salt preparation
- Day 6: Past paper review: Salt formation mistakes

Week 10: Metals & Organic Chemistry

- Day 1: Metals - properties, extraction, reactivity series, corrosion
 - Day 2: Alkanes, alkenes, alcohols, polymers, organic reactions
 - Day 3: Experimental techniques - titration, chromatography, analysis
 - Day 4: Past paper practice: Metal extraction and organic questions
 - Day 5: **Practical**: Testing for unsaturation or polymer properties
 - Day 6: Past book review: Organic reaction conditions
-

WEEK 11-12: BIOLOGY - CELLS, TRANSPORT & NUTRITION (B1-B7)

Week 11: Cells & Transport

- Day 1: Cell structure (plant, animal, bacterial), organelles, functions
- Day 2: Diffusion, osmosis, active transport, surface area to volume ratio
- Day 3: Enzymes - action, specificity, temperature/pH effects

- Day 4: Past paper practice: Cell structure and transport questions
- Day 5: **Practical:** Investigating osmosis or enzyme activity
- Day 6: Past paper review: Osmosis vs active transport confusion

Week 12: Nutrition & Transport in Plants

- Day 1: Plant nutrition - photosynthesis, leaf structure, factors affecting rate
- Day 2: Human nutrition - balanced diet, digestive system, enzymes
- Day 3: Transport in plants - xylem, phloem, transpiration, translocation
- Day 4: Past paper practice: Photosynthesis and transport questions
- Day 5: **Practical:** Testing for starch or investigating transpiration
- Day 6: Past paper review: Photosynthesis equation errors

WEEK 13-14: BIOLOGY - TRANSPORT, DISEASES & COORDINATION (B9-B13)

Week 13: Transport in Animals & Diseases

- Day 1: Circulatory system, heart structure, blood vessels, blood composition
- Day 2: Diseases and immunity - pathogens, transmission, immunity, vaccination
- Day 3: Gas exchange in humans - breathing system, effects of exercise
- Day 4: Past paper practice: Circulatory system and disease questions
- Day 5: **Practical:** Investigating heart rate or lung function
- Day 6: Past paper review: Heart structure identification

Week 14: Respiration, Coordination & Homeostasis

- Day 1: Respiration - aerobic, anaerobic, oxygen debt
- Day 2: Coordination - nervous system, reflexes, hormones, homeostasis
- Day 3: Reproduction - asexual and sexual, human and plant
- Day 4: Past paper practice: Respiration and coordination questions
- Day 5: **Practical:** Investigating reaction time or respiration
- Day 6: Past paper review: Reflex arc diagram errors

WEEK 15: INHERITANCE, VARIATION & ECOSYSTEMS (B15-B19)

Week 15: Inheritance, Variation & Human Impact

- Day 1: Inheritance - chromosomes, genes, mitosis, meiosis, monohybrid inheritance
 - Day 2: Variation and selection - mutation, natural selection, selective breeding
 - Day 3: Human influences on ecosystems - conservation, pollution, habitat destruction
 - Day 4: Past paper practice: Genetics problems and ecosystem questions
 - Day 5: **Practical**: Modeling inheritance or analyzing ecological data
 - Day 6: Past paper review: Punnett square errors
-

WEEK 16: INTENSIVE PAST PAPER PRACTICE & EXAM PREPARATION

Week 16: Mock Exams & Final Preparation

- Day 1: **Full Paper 2 mock** (Multiple Choice, 45 min) + immediate review
 - Day 2: **Full Paper 4 mock** (Theory, 2h) + extended answer marking
 - Day 3: **Full Paper 6 mock** (Alternative to Practical, 1h 30m) + skills review
 - Day 4: Error analysis: Identify weak science areas from mocks
 - Day 5: Targeted revision of weakest 3 topics across all sciences
 - Day 6: Exam technique, time management, confidence building
-

Past Paper Integration Strategy

1. **Topic-wise practice**: After each sub-topic, assign 3-5 past paper questions from topic compilations
2. **Weekly mixed practice**: Every week includes one full paper section (Paper 2, 4, or 6)
3. **Practical skills**: Integrate Paper 6 style questions with every practical investigation
4. **Calculator vs non-calculator**: Alternate practice between Paper 2 (non-calc) and Paper 4 (calc) styles
5. **Cumulative testing**: Every 2 weeks, mixed questions from all sciences covered to date

Key Resources:

- **Syllabus**: Official 0973 syllabus for 2025-2027
- **Past papers**: 2019-2024 series (Papers 2, 4, 6)
- **Practical skills**: Cambridge Co-ordinated Science Practical Workbook

- **Calculator:** Scientific calculator required for Papers 4 and 6
- **Double award focus:** Remember students earn two grades - ensure balanced preparation across all three sciences

Exam Tips:

- **Time management:** Paper 4 is 2 hours with 120 marks (1 min per mark)
- **AO1 focus:** 50% of marks are for knowledge and understanding - memorize key definitions and processes
- **AO2 focus:** 30% for problem-solving - practice applying concepts to unfamiliar contexts
- **AO3 focus:** 20% for practical skills - master describing experimental methods and evaluating results
- **Common pitfalls:** Confusing respiration with breathing, mixing up reaction types, misreading graph scales, forgetting units in calculations