

Combined Science (Trilogy)

Exam Board: AQA (trilogy)

Biology

1. Cells Biology: Cells, Organelles, Cell Division,
2. Organisation: Systems of the body, movement of materials
3. Infection and Response: the immune system, drug development, diseases in plants
4. Bioenergetics: Respiration and Photosynthesis
5. Homeostasis and response: Sugar balance, water balance, the eye, reproduction
6. Genetics, Variation and Inheritance: theories of evolution, genetic diagrams
7. Ecology: Recycling materials, sustainability, biodiversity

Chemistry

1. Atomic Structure and the periodic table: groups, atoms, and history
2. Bonding, structure and the properties of matter: Ionic, Covalent, metallic bonding
3. Quantitative Chemistry: Moles and calculations
4. Chemical Changes: Metal reactions and electrolysis
5. Energy Changes: Types of reactions
6. The rate and extent of chemical change: Collision theory and calculating rate
7. Organic Chemistry: Hydrocarbons, Polymerisation
8. Chemical Analysis: Testing for different substances
9. Chemistry of the Atmosphere: Climate changes and the atmospheric gases
10. Using resources: Water, fertilisers and use of different resources

Physics

1. Energy: Types of energy, efficiency, resources
2. Electricity: Circuits, Power
3. Particle Model: States of Matter
4. Radiation: Types of radiation, fusion, fission
5. Forces: Speed, Acceleration, Newton's Laws
6. Waves: Electromagnetic spectrum, types of wave
7. Electromagnetism: Compasses, field lines, electromagnets

Exam information

Biology Paper 1- 16.7%- Topics 1-4

75 minutes

70 marks

Biology Paper 2- 16.7%- Topics 5-7

75 minutes

70 marks

Chemistry Paper 1- 16.7%- Topics 1-5

75 minutes

70 marks

Chemistry Paper 2- 16.7%- Topics 6-10

75 minutes

70 marks

Physics Paper 1- 16.7%- Topics 1-4

75 minutes

70 marks

Physics Paper 2- 16.7%- Topics 5-7

75 minutes

70 marks

All papers will have multiple choice questions, closed short answer questions and more extended response. Students will also be expected to know the required practicals.

Some equations need to be memorised as not all are given, attached is the equations that students are expected to know.

Revision guides are available from school at a discounted price of £9.15. These include a workbook and cover all three components of the combined science course. Payment for these must be via parentpay and they will be given to students in lessons.

Biology

Exam Board: AQA Biology

1. Cells Biology: Cells, Organelles, Cell Division,
2. Organisation: Systems of the body, movement of materials
3. Infection and Response: the immune system, drug development, diseases in plants
4. Bioenergetics: Respiration and Photosynthesis
5. Homeostasis and response: Sugar balance, water balance, the eye, reproduction
6. Genetics, Variation and Inheritance: theories of evolution, genetic diagrams
7. Ecology: Recycling materials, sustainability, biodiversity

Paper 1- 50%- Topics 1-4

105 minutes

100 marks

Paper 2- 50%- Topics 5-7

105 minutes

100 marks

All papers will have multiple choice questions, closed short answer questions and more extended response. Students will also be expected to know the required practicals.

Revision guides are available from school at a discounted price of £4.05. These include a workbook and cover all the Biology content. Payment for these must be via parentpay and they will be given to students in lessons.

Chemistry

Exam Board: AQA Chemistry

1. Atomic Structure and the periodic table: groups, atoms, and history
2. Bonding, structure and the properties of matter: Ionic, Covalent, metallic bonding
3. Quantitative Chemistry: Moles and calculations
4. Chemical Changes: Metal reactions and electrolysis
5. Energy Changes: Types of reactions
6. The rate and extent of chemical change: Collision theory and calculating rate
7. Organic Chemistry: Hydrocarbons, Polymerisation
8. Chemical Analysis: Testing for different substances
9. Chemistry of the Atmosphere: Climate changes and the atmospheric gases
10. Using resources: Water, fertilisers and use of different resources

Paper 1- 50%- Topics 1-5

105 minutes

100 marks

Paper 2- 50%- Topics 6-10

105 minutes

100 marks

All papers will have multiple choice questions, closed short answer questions and more extended response. Students will also be expected to know the required practicals.

Revision guides are available from school at a discounted price of £4.05. These include a workbook and cover all the Chemistry content. Payment for these must be via ParentPay and they will be given to students in lessons.

Physics

Exam Board: AQA Physics

1. Energy: Types of energy, efficiency, resources
2. Electricity: Circuits, Power
3. Particle Model: States of Matter
4. Radiation: Types of radiation, fusion, fission
5. Forces: Speed, Acceleration, Newton's Laws
6. Waves: Electromagnetic spectrum, types of wave
7. Electromagnetism: Compasses, field lines, electromagnets
8. Space: The solar system, Stars

Paper 1- 50%- Topics 1-4

105 minutes

100 marks

Paper 2- 50%- Topics 5-8 (this paper may also draw on ideas from topic 1 and 2)

105 minutes

100 marks

All papers will have multiple choice questions, closed short answer questions and more extended response. Students will also be expected to know the required practicals.

Some equations need to be memorised as not all are given, attached is the equations that students are expected to know.

Revision guides are available from school at a discounted price of £4.05. These include a workbook and cover all the Physics content. Payment for these must be via ParentPay and they will be given to students in lessons.

Equations to recall and use:

Equation number	Word equation	Symbol equation
1	weight = mass × gravitational field strength (g)	$W = m g$
2	work done = force × distance (along the line of action of the force)	$W = F s$
3	force applied to a spring = spring constant × extension	$F = k e$
4	moment of a force = force × distance (normal to direction of force)	$M = F d$
5	pressure = $\frac{\text{force normal to a surface}}{\text{area of that surface}}$	$p = \frac{F}{A}$
6	distance travelled = speed × time	$s = v t$
7	acceleration = $\frac{\text{change in velocity}}{\text{time taken}}$	$a = \frac{\Delta v}{t}$
8	resultant force = mass × acceleration	$F = m a$
9 HT	momentum = mass × velocity	$p = m v$
10	kinetic energy = $0.5 \times \text{mass} \times (\text{speed})^2$	$E_k = \frac{1}{2} m v^2$
11	gravitational potential energy = mass × gravitational field strength (g) × height	$E_p = m g h$
12	power = $\frac{\text{energy transferred}}{\text{time}}$	$P = \frac{E}{t}$
13	power = $\frac{\text{work done}}{\text{time}}$	$P = \frac{W}{t}$
14	efficiency = $\frac{\text{useful output energy transfer}}{\text{total input energy transfer}}$	
15	efficiency = $\frac{\text{useful power output}}{\text{total power input}}$	
16	wave speed = frequency × wavelength	$v = f \lambda$
17	charge flow = current × time	$Q = I t$
18	potential difference = current × resistance	$V = I R$
19	power = potential difference × current	$P = V I$
20	power = (current) ² × resistance	$P = I^2 R$
21	energy transferred = power × time	$E = P t$
22	energy transferred = charge flow × potential difference	$E = Q V$
23	density = $\frac{\text{mass}}{\text{volume}}$	$\rho = \frac{m}{V}$