

EZY SCIENCE

FOR STUDENTS
STUDYING FOR
EXAMINATIONS BY
THE **AQA** EXAM BOARD

GCSE COURSE GUIDE

**EzyScience provides full content
coverage including all required practicals**

©2018 EzyEducation Ltd

All rights reserved under international copyright conventions. No part of this document may be reproduced or utilised in any form or by any means electronic or mechanical, including photocopying, recording, or by any information storage and retrieval system, without permission in writing from the owner.

CONTENTS

Our Model	4
Potential Uses	5

EZY BIOLOGY

AQA GCSE Biology – Course outline

Section 1 Cell Biology	6
Section 2 Organisation	6
Section 3 Infection & Response	7
Section 4 Bioenergetics	7
Section 5 Homeostasis and Response	8
Section 6 Inheritance, Variation and Evolution	9
Section 7 Ecology	9

EZY CHEMISTRY

EzyChemistry AQA Course outline

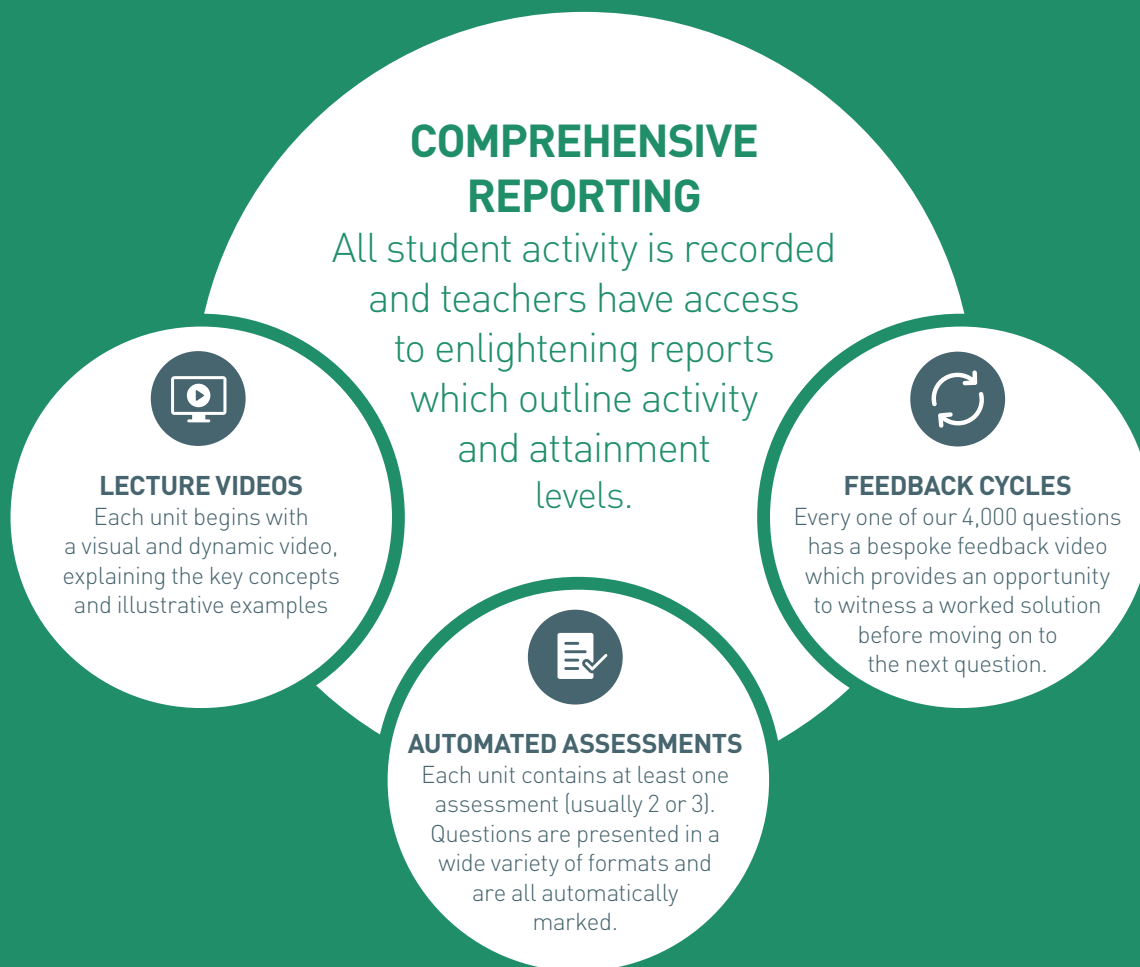
Section 1 Atomic Structure	10
Section 2 Bonding and Structures	10
Section 3 Quantitative Chemistry	11
Section 4 Chemical Changes	11
Section 5 Physical Chemistry	12
Section 6 Organic Chemistry	12
Section 7 Chemical Analysis	13
Section 8 Atmospheric Chemistry	13
Section 9 Using Resources	13

EZY PHYSICS

AQA GCSE Physics – Course outline

Section 1 Energy	14
Section 2 Electricity	14
Section 3 Particle Model of Matter	15
Section 4 Atomic Structure	15
Section 5 Forces	16-17
Section 6 Waves	18
Section 7 Magnetism and Electromagnetism	19
Section 8 Space Physics	19
About Us	20

OUR MODEL



WHEN CREATING EZYSCIENCE, WE WANTED EVERY VIDEO AND ASSESSMENT TO ADHERE TO 4 KEY PRINCIPLES:



POTENTIAL USES

EzyScience is designed to put teachers in charge and be used to support a wide variety of approaches. Here are just some examples:



AUTOMATED ASSESSMENTS

With over 300 assessments, covering the entire course, you can set plenty of work every week as you teach the syllabus.



FLIPPED LEARNING

Use EzyScience to support flipped classrooms and blended learning. Know for sure whether or not students have completed their preparations.



MONITORING & INTERVENTION

Use our comprehensive reports to monitor student completion and identify problem areas to focus on in class.



PARENTS' EVENINGS

Print off our automated reports and hand them out at Parents' Evenings. Easy to evidence student effort and attainment levels.



REVISION TOOL

EzyScience is the ideal revision tool. When exams approach, students have 24/7 access to resources covering every single topic in depth.

SECTION 1 CELL BIOLOGY

SECTION 2 ORGANISATION

EX	= Experiment
L	= Lecture
A	= Assessment

Module 1 - Cell Structure and Division

1.1.1	Eukaryotes and Prokaryotes	L
1.1.2	Cell Specialisation and Differentiation	L
1.1a	Cells	A
1.2	Microscopy	EX
1.2a	Microscopy	A
1.2b	Microscopy	A
1.3.1	Chromosomes, Mitosis and the Cell Cycle	L
1.3.2	Stem Cells	L
1.3a	Cell Division and Stem cells	A

Module 2 - Culturing Microorganisms

2.1	Investigating Antiseptics and Antibiotics	EX
2.1a	Investigating Antiseptics and Antibiotics	A
2.1b	Investigating Antiseptics and Antibiotics	A
2.1c	Investigating Antiseptics and Antibiotics	A

Module 3 - Transport in Cells

3.1.1	Diffusion	L
3.1.2	Rate of Diffusion	L
3.1.3	Osmosis	L
3.1.4	Active Transport	L
3.1a	Transport in Cells	A
3.2.1	Investigating Osmosis (Doing the Experiment)	EX
3.2.2	Investigating osmosis (Analysing the Results)	EX
3.2a	Investigating Osmosis	A
3.2b	Investigating Osmosis	A

Module 1 - Principles of Organisation and the Digestive System

1.1	Principles of Organisation	L
1.1a	Principles of Organisation	A
1.2.1	Enzymes	L
1.2.2	The Human Digestive System	L
1.2a	Digestion	A
1.3.1	The Effect of pH on Enzymes (Theory and Method)	EX
1.3.2	The Effect of pH on Enzymes (Doing the Experiment)	EX
1.3.3	The Effect of pH on Enzymes (Analysing the Results)	EX
1.3a	The Effect of pH on Enzymes	A
1.3b	The Effect of pH on Enzymes	A
1.4	Food Tests	EX
1.4a	Food Tests	A
1.4b	Food Tests	A

Module 2 - The Circulatory System

2.1	The Heart and Blood Vessels	L
2.1a	The Heart and Blood Vessels	A
2.2	Blood	L
2.2a	Blood	A
2.3	Cardiovascular Disease	L
2.3a	Cardiovascular Disease	A

Module 3 - Health Issues

3.1	Health Issues	L
3.1a	Health Issues	A
3.2	Lifestyle and Non-Communicable Disease	L
3.2a	Lifestyle and Non-Communicable Disease	A
3.2b	Lifestyle and Non-Communicable Disease	A
3.3	Cancer	L
3.3a	Cancer	A

Module 4 - Plant Tissues, Organs and Systems

4.1	Plant Tissues	L
4.1a	Plant Tissues	A
4.2	Transpiration and Translocation	L
4.2a	Transpiration and Translocation	A
4.3	Rate of Transpiration	L
4.3a	Rate of Transpiration	A

SECTION 3
INFECTION
& RESPONSE

Module 1 - Communicable Diseases		
1.1	Communicable Diseases	L
1.1a	Communicable Diseases	A
1.1b	Communicable Diseases	A
1.2	Causes of Disease	L
1.2a	Causes of Disease	A
Module 2 - Defence Against Disease		
2.1	Human Defence System	L
2.1a	Human Defence System	A
2.2	Vaccination	L
2.2a	Vaccination	A
2.2b	Vaccination	A
2.3	Antibiotics and Painkillers	L
2.3a	Antibiotics and Painkillers	A
2.4	The Development of New Drugs	L
2.4a	The Development of New Drugs	A
2.4b	The Development of New Drugs	A
Module 3 - Monoclonal Antibodies		
3.1	Producing Monoclonal Antibodies	L
3.1a	Producing Monoclonal Antibodies	A
3.2	Uses of Monoclonal Antibodies	L
3.2a	Uses of Monoclonal Antibodies	A
Module 4 - Plant Diseases		
4.1	Detection and Identification of Plant Diseases	L
4.1	Detection and Identification of Plant Diseases	A
4.2	Plant Defence Responses	L
4.2	Plant Defence Responses	A

SECTION 4
BIOENERGETICS

Module 1 - Communicable Diseases		
1.1.1	The Photosynthesis Reaction	L
1.1.2	The Rate of Photosynthesis	L
1.1a	Photosynthesis	A
1.2.1	Graphs of Multiple Limiting Factors	L
1.2.2	Inverse Square Law	L
1.2.3	Enhancing Greenhouse Conditions	L
1.2a	Advanced Rate of Photosynthesis	A
1.3.1	Photosynthesis and Light Intensity (Doing the Experiment)	EX
1.3.2	Photosynthesis and Light Intensity (Analysing the Results)	EX
1.3a	Photosynthesis and Light Intensity	A
1.3b	Photosynthesis and Light Intensity	A
1.4	Uses of Glucose from Photosynthesis	L
1.4a	Uses of Glucose from Photosynthesis	A
Module 2 - Respiration		
2.1	Aerobic and Anaerobic Respiration	L
2.1a	Aerobic and Anaerobic Respiration	A
2.2.1	Response to Exercise	L
2.2.2	Metabolism	L
2.2a	Exercise and Metabolism	A
2.3	Oxygen Debt	L
2.3a	Oxygen Debt	A

Each unit contains a lecture video and at least 1 (usually 2 or 3) assessments.

EX	= Experiment
L	= Lecture
A	= Assessment

Module 1 - Cell Structure and Division

1.1	Homeostasis	L
1.1a	Homeostasis	A
1.2	Thermoregulation	L
1.2a	Thermoregulation	A
1.3	Human Endocrine System	L
1.3a	Human Endocrine System	A
1.4.1	Blood Glucose Concentration	L
1.4.2	Diabetes	L
1.4a	Blood Glucose and Diabetes	A
1.5	Glucagon	L
1.5a	Glucagon	A
1.6.1	Osmoregulation	L
1.6.2	The Kidneys	L
1.6.3	Treating Kidney Failure	L
1.6a	The Kidneys and Water Balance	A
1.7	ADH	L
1.7a	ADH	A
1.8	Adrenaline and Thyroxine	L
1.8a	Adrenaline and Thyroxine	A

Module 2 - The Nervous System and The Eye

2.1.1	The Nervous System	L
2.1.2	Reflex Arcs	L
2.1a	The Nervous System	A
2.2	Human Reaction Time	EX
2.2a	Human Reaction Time	A
2.2b	Human Reaction Time	A
2.3	The Structure of the Brain	L
2.3a	The Structure of the Brain	A
2.4	Accessing and Treating the Brain	L
2.4a	Accessing and Treating the Brain	A
2.5.1	Eye Structure and Adapting to Light	L
2.5.2	Accommodation and Eye Defects	L
2.5a	The Eye	A

Module 3 - Hormones in Human Reproduction

3.1	Reproductive Hormones	L
3.1a	Reproductive Hormones	A
3.2	Hormone Interactions	L
3.2a	Hormone Interactions	A
3.3	Contraception	L
3.3a	Contraception	A
3.4	Infertility Treatment	L
3.4a	Infertility Treatment	A

Module 4 - Plant Hormones

4.1	Control and Coordination in Plants	L
4.1a	Control and Coordination in Plants	A
4.2	Light Intensity and Plant Growth	EX
4.2a	Light Intensity and Plant Growth	A
4.2b	Light Intensity and Plant Growth	A
4.3	Uses of Plant Hormones	L
4.3a	Uses of Plant Hormones	A

SECTION 6 INHERITANCE, VARIATION AND EVOLUTION

Module 1 - Reproduction		
1.1	Sexual and Asexual Reproduction	L
1.1a	Sexual and Asexual Reproduction	A
1.2	Evaluating Sexual and Asexual Reproduction	L
1.2a	Evaluating Sexual and Asexual Reproduction	A
1.3	Meiosis	L
1.3a	Meiosis	A
Module 2 - DNA and the Genome		
2.1	DNA and the Genome	L
2.1a	DNA and the Genome	A
2.2	DNA Structure	L
2.2a	DNA Structure	A
2.3.1	Protein Synthesis	L
2.3.2	Mutations	L
2.3a	Protein Synthesis and Mutations	A
Module 3 - Genetic Inheritance		
3.1.1	Alleles	L
3.1.2	Genetic Diagrams	L
3.1.3	Sex Determination	L
3.1a	Genetics	A
3.2	Inherited Disorders	L
3.2a	Inherited Disorders	A

Module 4 - Variation and Evolution		
4.1	Variation	L
4.1a	Variation	A
4.2	Evolution	L
4.2a	Evolution	A
4.3.1	Selective Breeding	L
4.3.2	Genetic Engineering	L
4.3a	Selective Breeding and Genetic Engineering	A
4.4	The Process of Genetic Engineering	L
4.4a	The Process of Genetic Engineering	A
4.5	Cloning	L
4.5a	Cloning	A
Module 5 - Understanding Evolution and Genetics		
5.1	Mendel's Work	L
5.1a	Mendel's Work	A
5.2.1	Darwin and Wallace	L
5.2.2	Speciation	L
5.2a	Developing the Theory of Evolution	A
5.3.1	Fossils	L
5.3.2	Resistant Bacteria	L
5.3a	Evidence for Evolution	A
5.4	Classification	L
5.4a	Classification	A

SECTION 7 ECOLOGY

Module 1 - Adaptations, Interdependence and Competition		
1.1.1	Communities	L
1.1.2	Abiotic Factors	L
1.1.3	Biotic Factors	L
1.1a	Ecosystems	A
1.2	Adaptations	L
1.2a	Adaptations	A
Module 2 - Organisation of an Ecosystem		
2.1.1	Measuring a Population	EX
2.1.2	The Effect of Trees on a Daisy Population	EX
2.1a	Measuring the Sizes of Populations	A
2.1b	Measuring the Sizes of Populations	A
2.2	Feeding Relationships	L
2.2a	Feeding Relationships	A
2.3.1	Trophic Levels	L
2.3.2	Pyramids of Biomass	L
2.3.3	The Transfer of Biomass	L
2.3a	Biomass	A
Module 3 - Cycles and Biodiversity		
3.1.1	The Carbon Cycle	L
3.1.2	The Water Cycle	L
3.1a	Carbon and Water Cycles	A
3.2	Decomposition	L
3.2a	Decomposition	A
3.3	Temperature and the Rate of Decay of Milk	EX
3.3a	Temperature and the Rate of Decay of Milk	A
3.3b	Temperature and the Rate of Decay of Milk	A
3.4	Impact of Environmental Change	L
3.4a	Impact of Environmental Change	A
3.5.1	Biodiversity	L
3.5.2	Waste Management and Land Use	L
3.5.3	Destruction of Habitats	L
3.5.4	Global Warming	L
3.5.5	Human Impacts on Biodiversity	L
3.5a	Human interactions with ecosystems	A
3.6.1	Food Security	L
3.6.2	Farming and Fishing	L
3.6.3	Biotechnology	L
3.6a	Food Production	A

Each unit contains a lecture video and at least 1 (usually 2 or 3) assessments.

EX	= Experiment
L	= Lecture
A	= Assessment

Module 1 - Atoms and the Periodic Table

1.1.1	Atoms, Elements and Compounds	L
1.1.2	Mixtures	L
1.1a	Elements, Compounds and Mixtures	A
1.2.1	Atomic Structure	L
1.2.2	Mass number, Atomic Number and Isotopes	L
1.2.3	The Development of the Model of the Atom	L
1.2a	The Atom	A
1.3	Relative Atomic Mass	L
1.3a	Relative Atomic Mass	A
1.4.1	History of the Periodic Table	L
1.4.2	The Periodic Table	L
1.4.3	Electronic Structure and the Periodic table	L
1.4a	The Periodic Table	A

Module 2 - Groups of the Periodic Table

2.1.1	Group 0	L
2.1.2	Group 1	L
2.1.3	Group 7	L
2.1a	Groups 0, 1 and 7	A
2.2	Properties of the Transition Metals	L
2.2a	Properties of the Transition Metals	A

Module 1 - Bonding, Structure and Properties

1.1	States of Matter	L
1.1a	States of Matter	A
1.2.1	Ionic Bonding	L
1.2.2	Ionic Compounds	L
1.2a	Ionic Bonding and Compounds	A
1.3.1	Covalent Bonding	L
1.3.2	Covalent Substances	L
1.3a	Covalent Bonding and Substances	A
1.4	Metallic Bonding and Structures	L
1.4a	Metallic Bonding and Structures	A
1.5	Forms of Carbon	L
1.5a	Forms of Carbon	A
1.6.1	Nanoparticles	L
1.6.2	Uses of Nanoparticles	L
1.6a	Nanoparticles	A

SECTION 3 QUANTITATIVE CHEMISTRY

SECTION 4 CHEMICAL CHANGES

Module 1 - Chemical Equations

1.1.1	Balanced Chemical Equations	L
1.1.2	Relative Formula Mass	L
1.1a	Equations and Formula Masses	A
1.2.1	Mass Changes	L
1.2.2	Chemical Measurements	L
1.2a	Mass Changes and Chemical Measurements	A
1.3.1	Moles	L
1.3.2	Masses of Reactants and Products	L
1.3.3	Using Moles to Balance Equations	L
1.3a	Moles	A
1.4	Concentration of Solutions	L
1.4a	Concentration of Solutions	A

Module 2 - Chemical Calculations

2.1	Yields	L
2.1a	Yields	A
2.2	Calculating Theoretical Yields	L
2.2a	Calculating Theoretical Yields	A
2.3	Atom Economy	L
2.3a	Atom Economy	A
2.4	Reaction Pathways	L
2.4a	Reaction Pathways	A
2.5	Concentration in mol/dm ³	L
2.5a	Concentration in mol/dm ³	A
2.6	Volumes of Gases	L
2.6a	Volumes of Gases	A

Module 1 - Reactivity of metals

1.1	Reactions of Metals	L
1.1a	Reactions of Metals	A
1.2.1	Reactivity	L
1.2.2	Displacement Reactions	L
1.2a	The Reactivity Series	A
1.2b	The Reactivity Series	A
1.3	Extraction of Metals	L
1.3a	Extraction of Metals	A
1.4	Balancing Equations	L
1.4a	Balancing Equations	A
1.5	Oxidation and Reduction	L
1.5a	Oxidation and Reduction	A

Module 2 - Reactions of acids

2.1	Acids and Metals	L
2.1a	Acids and Metals	A
2.2	Neutralisation and Salt Production	L
2.2a	Neutralisation and Salt Production	A
2.3	Salt Production	EX
2.3a	Salt Production	A
2.3b	Salt Production	A
2.4	The pH Scale and Neutralisation	L
2.4a	The pH Scale and Neutralisation	A
2.5	Titrations	EX
2.5a	Titrations	A
2.5b	Titrations	A
2.6.1	Concentration and Molar Concentration	L
2.6.2	Titration Calculations	L
2.6a	Titration Calculations	A
2.7	Strong and Weak Acids	L
2.7a	Strong and Weak Acids	A

Module 3 - Electrolysis

3.1	Electrolysis of Molten Ionic Compounds	L
3.1a	Electrolysis of Molten Ionic Compounds	A
3.2	Electrolysis of Aqueous Solutions	L
3.2a	Electrolysis of Aqueous Solutions	A
3.3	Electrolysis of Aqueous Solutions (Experiment)	EX
3.3a	Electrolysis of Aqueous Solutions (Experiment)	A
3.3b	Electrolysis of Aqueous Solutions (Experiment)	A
3.4	Half Equations	L
3.4a	Half Equations	A
2.7a	Strong and Weak Acids	A

Each unit contains a lecture video and at least 1 (usually 2 or 3) assessments.

EX	= Experiment
L	= Lecture
A	= Assessment

Module 1 - Energy Changes

1.1	Exothermic and Endothermic reactions	EX
1.1a	Exothermic and Endothermic Reactions	A
1.1b	Exothermic and Endothermic Reactions	A
1.2	Reaction Profiles	L
1.2a	Reaction Profiles	A
1.3	Calculating Energy Changes	L
1.3a	Calculating Energy Changes	A
1.4.1	Cells and Batteries	L
1.4.2	Fuel cells	L
1.4a	Cells	A

Module 2 - Rates of reaction

2.1	Rates of Reaction	L
2.1a	Rates of Reaction	A
2.2	Calculating Rates of Reaction	L
2.2a	Calculating Rates of Reaction	A
2.3.1	Investigating Rates of Reaction (Collecting Gas)	EX
2.3.2	Investigating Rates of Reaction (Formation of a Precipitate)	EX
2.3a	Investigating Rates of Reaction	A
2.3b	Investigating Rates of Reaction	A
2.4.1	Collision Theory and Activation Energy	L
2.4.2	Factors Affecting Rates of Reaction	L
2.4.3	Catalysts	L
2.4a	Factors Affecting Rates of Reaction	A

Module 3 - Reversible reactions

3.1	Reversible Reactions and Dynamic Equilibria	L
3.1a	Reversible Reactions and Dynamic Equilibria	A
3.2	Factors Affecting Dynamic Equilibria	L
3.2a	Factors Affecting Dynamic Equilibria	A

Module 1 - Organic Compounds

1.1.1	Hydrocarbons	L
1.1.2	Alkanes	L
1.1.3	Crude Oil	L
1.1.4	Cracking	L
1.1a	Crude Oil and Hydrocarbons	A
1.2.1	Alkenes	L
1.2.2	Reactions of Alkenes	L
1.2.3	Alcohols	L
1.2.4	Carboxylic Acids	L
1.2a	Alkenes, Alcohols and Carboxylic Acids	A

Module 2 - Polymers

2.1	Addition Polymerisation	L
2.1a	Addition Polymerisation	A
2.2.1	Condensation Polymerisation	L
2.2.2	Amino Acids	L
2.2a	Condensation Polymerisation and Amino acids	A
2.3	Natural Polymers	L
2.3a	Natural Polymers	A
2.4.1	Uses of Polymers	L
2.4.2	Problems with Polymers	L
2.4a	Uses of Polymers	A

SECTION 7
CHEMICAL
ANALYSIS

Module 1 - Pure Substances and Mixtures

1.1.1	Pure Substances and Mixtures	L
1.1.2	Formulations	L
1.1a	Pure Substances and Formulations	A
1.2	Chromatography	EX
1.2a	Chromatography	A
1.2b	Chromatography	A

Module 2 - Chemical Tests

2.1	Testing for Gases	L
2.1a	Testing for Gases	A
2.2	Chemical Tests for Ions	EX
2.2a	Chemical Tests for Ions	A
2.2b	Chemical Tests for Ions	A
2.3.1	Instrumental Methods	L
2.3.2	Flame Emission Spectroscopy	L
2.3a	Instrumental Methods and Spectroscopy	A

SECTION 8
ATMOSPHERIC
CHEMISTRY

Module 1 - Reactivity of metals

1.1.1	History of the Atmosphere	L
1.1.2	The Greenhouse Effect	L
1.1.3	Global Climate Change	L
1.1a	The Atmosphere	A
1.2	Atmospheric Pollution	L
1.2a	Atmospheric Pollution	A

SECTION 9
USING
RESOURCES

Module 1 - Using the Earth's Resources

1.1	Sustainability	L
1.1a	Sustainability	A
1.2	Potable Water and Waste Water Treatment	L
1.2a	Potable Water and Waste Water Treatment	A
1.3	Potable Water	EX
1.3a	Potable Water	A
1.4	Biological Methods of Extracting Metals	L
1.4a	Biological Methods of Extracting Metals	A
1.5	Recycling and Life Cycle Assessments	L
1.5a	Recycling and Life Cycle Assessments	A

Module 2 - Using materials

2.1	Corrosion	L
2.1a	Corrosion	A
2.2	Alloys	L
2.2a	Alloys	A
2.3.1	Ceramics, Polymers and Composites	L
2.3.2	Comparing Materials	L
2.3a	Ceramics, Polymers and Composites	A

Module 3 - The Haber process and NPK fertilisers

3.1	The Haber Process	L
3.1a	The Haber Process	A
3.2	NPK Fertilisers	L
3.2a	NPK Fertilisers	A

Each unit contains a lecture video and at least 1 (usually 2 or 3) assessments.

SECTION 1 ENERGY

SECTION 2 ELECTRICITY

EX	= Experiment
L	= Lecture
A	= Assessment

Module 1 - Energy and Energy Transfers

1.1	Principles of Energy	L
1.1a	Principles of Energy	A
1.2	Kinetic Energy	L
1.2a	Kinetic Energy	A
1.3	Elastic Potential Energy	L
1.3a	Elastic Potential Energy	A
1.4	Gravitational Potential Energy	L
1.4a	Gravitational Potential Energy	A
1.5	Power	L
1.5a	Power	A
1.6	Thermal Energy	L
1.6a	Thermal Energy	A
1.7	Finding the Specific Heat Capacity	EX
1.7a	Finding the Specific Heat Capacity	A
1.7b	Finding the Specific Heat Capacity	A

Module 2 - Energy Dissipation, Efficiency and Resources

2.1.1	Energy Dissipation	L
2.1.2	Efficiency	L
2.1a	Energy Dissipation and Efficiency	A
2.2	Thermal Insulators	EX
2.2a	Thermal Insulators	A
2.2b	Thermal Insulators	A
2.3.1	Non-Renewable Energy Resources	L
2.3.2	Renewable Energy Resources	L
2.3a	Energy Resources	A

Module 1 - Electrical Quantities

1.1.1	Standard Circuit Diagram Symbols	L
1.1.2	Electrical Charge and Current	L
1.1.3	Energy, Charge and Potential Difference	L
1.1.4	Current, Resistance and Potential Difference	L
1.1.5	Applications of Thermistors and LDRs	L
1.1a	Circuit Quantities	A
1.2.1	Finding Resistance (General Principles)	EX
1.2.2	Finding Resistance (Resistance vs Length)	EX
1.2.3	Finding Resistance (Combinations)	EX
1.2a	Finding Resistance	A
1.2b	Finding Resistance	A

Module 2 - Circuits

2.1.1	V-I Characteristic (Resistor)	EX
2.1.2	V-I Characteristic (Filament Lamp)	EX
2.1.3	V-I Characteristic (Diode)	EX
2.1a	V-I Characteristics	A
2.1b	V-I Characteristics	A
2.2.1	Series Circuits	L
2.2.2	Parallel Circuits	L
2.2a	Series and Parallel Circuits	A

Module 3 - Domestic Uses, Safety and Static Electricity

3.1.1	Direct and Alternating PD	L
3.1.2	Mains Electricity	L
3.1a	Domestic Circuits	A
3.2.1	Electric Power	L
3.2.2	Electrical Energy Transfers	L
3.2.3	The National Grid	L
3.2a	Electrical Energy and Power	A
3.3.1	Static Electricity	L
3.3.2	Electric Fields	L
3.3a	Static Electricity and Electric Fields	A

SECTION 3
PARTICLE MODEL
OF MATTER

SECTION 4
ATOMIC
STRUCTURE

Module 1 - The Particle Model

1.1.1	Calculating Density	L
1.1.2	The Particle Model and Density	L
1.1.3	Changes of State	L
1.1a	Density and State	A
1.2	Determining Density	EX
1.2a	Determining Density	A
1.2b	Determining Density	A
1.3.1	Internal Energy	L
1.3.2	Thermal Energy and Specific Heat Capacity	L
1.3.3	Specific Latent Heat	L
1.3a	Energy of Particles	A

Module 2 - Pressure in Gases

2.1	Particle Motion in Gases	L
2.1a	Particle Motion in Gases	A
2.2.1	Pressure in Gases	L
2.2.2	$pV = \text{Constant}$	L
2.2a	$pV = \text{Constant}$	A
2.3	Increasing the Pressure of a Gas	L
2.3a	Increasing the Pressure of a Gas	A

Module 1 - Atoms and Radioactivity

1.1.1	Atomic Structure	L
1.1.2	Mass Number, Atomic Number and Isotopes	L
1.1.3	The Development of the Model of the Atom	L
1.1a	The Atom	A
1.2.1	Radioactive Decay and Activity	L
1.2.2	Natures and Properties of Nuclear Radiations	L
1.2.3	Nuclear Equations	L
1.2.4	Half-lives	L
1.2a	Radioactive Decay	A

Module 2 - Hazards and Uses of Radioactive Emissions

2.1	Radioactive Contamination	L
2.1a	Radioactive Contamination	A
2.2.1	Background Radiation	L
2.2.2	Uses of Radioactivity	L
2.2.3	Hazards of Radioactivity	L
2.2a	Hazards and Uses of Radioactivity	A
2.3.1	Nuclear Fission	L
2.3.2	Nuclear Fusion	L
2.3a	Nuclear Fission and Fusion	A

Each unit contains a lecture video and at least 1 (usually 2 or 3) assessments.

EX	= Experiment
L	= Lecture
A	= Assessment

Module 1 - Forces and Their Interactions

1.1	Scalar and Vector Quantities	L
1.1a	Scalar and Vector Quantities	A
1.2	Introduction to Forces	L
1.2a	Introduction to Forces	A
1.3	Gravity	L
1.3a	Gravity	A
1.4	Resultant Forces (Co-linear)	L
1.4a	Resultant Forces (Co-linear)	A
1.4b	Resultant Forces (Co-linear)	A
1.5	Resultant Forces (Non Co-Linear)	L
1.5a	Resultant Forces (Non Co-Linear)	A
1.5b	Resultant Forces (Non Co-Linear)	A
1.6	Resolution of Forces	L
1.6a	Resolution of Forces	A

Module 2 - Work Done and Energy Transfer

2.1	Work Done and Energy Transfer	L
2.1a	Work Done and Energy Transfer	A
2.1b	Work Done and Energy Transfer	A

Module 3 - Forces and Elasticity

3.1	Stretching and Bending	L
3.1a	Stretching and Bending	A
3.2	$F = ke$ Theory	L
3.2a	$F = ke$ Theory	A
3.3.1	$F = ke$ Experiment (Doing the Experiment)	EX
3.3.2	$F = ke$ Experiment (Analysing the Results)	EX
3.3a	$F = ke$ Experiment	A
3.3b	$F = ke$ Experiment	A
3.4	Work Done in Stretching a Spring	L
3.4a	Work Done in Stretching a Spring	A

Module 4 - Moments, Levers and Gears (Physics only)

4.1	Calculating Moments and the Principle of Moments	L
4.1a	Calculating Moments and the Principle of Moments	A
4.2	Levers and Gears	L
4.2a	Levers and Gears	A

Module 5 - Pressure and Pressure Differences in Fluids

5.1	$P = F/A$	L
5.1a	$P = F/A$	A
5.2	$P = h g$	L
5.2a	$P = h g$	A
5.3	Atmospheric Pressure	L
5.3a	Atmospheric Pressure	A

Module 6 - Motion

6.1	Distance, Displacement, Speed and Velocity	L
6.1a	Distance, Displacement, Speed and Velocity	A
6.2	Calculating Speed	L
6.2a	Calculating Speed	A
6.3	Distance-Time Graphs	L
6.3a	Distance-Time Graphs	A
6.4	D-T Graphs with Accelerated Motion	L
6.4a	D-T Graphs with Accelerated Motion	A

Module 7 - Velocity and Acceleration

7.1	Acceleration	L
7.1a	Acceleration	A
7.2	Velocity-Time Graphs	L
7.2a	Velocity-Time Graphs	A
7.3	Measuring Distance Using V-T Graphs	L
7.3a	Measuring Distance Using V-T Graphs	A
7.4	$v^2 - u^2 = 2as$	L
7.4a	$v^2 - u^2 = 2as$	A

Module 8 - Newton's Laws of Motion		
8.1	Newton's 1st Law	L
8.1a	Newton's 1st Law	A
8.2	Newton's 2nd Law (Theory)	L
8.2a	Newton's 2nd Law (Theory)	A
8.3.1	Measuring Force and Acceleration	EX
8.3.2	Force and Acceleration Experiment	EX
8.3.3	Mass and Acceleration Experiment	EX
8.3a	Newton's 2nd Law (Experiment)	A
8.3b	Newton's 2nd Law (Experiment)	A
8.4	Inertia	L
8.4a	Inertia	A
8.5	Newton's 3rd Law	L
8.5a	Newton's 3rd Law	A
8.6	Falling Objects and Terminal Velocity	L
8.6a	Falling Objects and Terminal Velocity	A
8.7	Explaining Terminal Velocity Using V-T Graphs	L
8.7a	Explaining Terminal Velocity Using V-T Graphs	A
2.2a	$pV = \text{Constant}$	A
2.3	Increasing the Pressure of a Gas	L
2.3a	Increasing the Pressure of a Gas	A

Module 9 - Braking		
9.1	Reaction Time and Thinking Distance	L
9.1a	Reaction Time and Thinking Distance	A
9.2	Braking Distance	L
9.2a	Braking Distance	A
9.3	Stopping Distance	L
9.3a	Stopping Distance	A
9.4	Interpreting Stopping Distance Graphs (Physics Only)	L
9.4a	Interpreting Stopping Distance Graphs (Physics Only)	A
Module 10 - Momentum		
10.1	Momentum	L
10.1a	Momentum	A
10.2	Conservation of Momentum	L
10.2a	Conservation of Momentum	A
10.3	Advanced Momentum Calculations	L
10.3a	Advanced Momentum Calculations	A
10.4	Changes in Momentum	L
10.4a	Changes in Momentum	A
10.5	Momentum and Safety	L
10.5a	Momentum and Safety	A

Each unit contains a lecture video and at least 1 (usually 2 or 3) assessments.

EX	= Experiment
L	= Lecture
A	= Assessment

Module 1 - Properties of Waves		
1.1.1	Transverse and Longitudinal Waves	L
1.1.2	Wavelength and Amplitude	L
1.1.3	Period and Frequency	L
1.1.4	$v = f$	L
1.1a	Waves	A
1.2	Change of Medium	L
1.2a	Change of Medium	A
1.3	Measuring the Speed of Waves	L
1.3a	Measuring the Speed of Waves	A
1.4.1	Measuring v , f and λ for a Wave on a Wire	EX
1.4.2	Measuring v , f and λ for a Wave on Water	EX
1.4a	Measuring Frequency, Speed and Wavelength	A
1.4b	Measuring Frequency, Speed and Wavelength	A
1.5.1	Waves at a Boundary	L
1.5.2	Reflection (Ray Diagrams)	L
1.5a	Waves at a Boundary	A
1.6	Investigating Reflection and Refraction	EX
1.6a	Investigating Reflection and Refraction	A
1.6b	Investigating Reflection and Refraction	A

Module 2 - Mechanical and EM Waves		
2.1.1	Propagation and Detection of Sound Waves	L
2.1.2	Properties and Uses of Ultra-sound	L
2.1.3	Seismic Waves	L
2.1.4	Echo Sounding	L
2.1a	Mechanical Waves	A
2.2.1	The Electromagnetic Spectrum	L
2.2.2	The Uses and Applications of E.M. Waves	L
2.2a	The Electromagnetic Spectrum	A
2.3.1	Investigating the Emission of IR	EX
2.3.2	Investigating the Absorption of IR	EX
2.3a	Investigating the Absorption and Emission of IR	A
2.3b	Investigating the Absorption and Emission of IR	A
2.4	The Emission of IR and Temperature	L
2.4a	The Emission of IR and Temperature	A
2.5	Thermal Equilibrium and IR	L
2.5a	Thermal Equilibrium and IR	A
2.6.1	Effects of Wavelength and Speed on EM Waves	L
2.6.2	Radio Waves	L
2.6a	Effects of Wavelength and Speed on EM Waves and Radio waves	A
2.7.1	Waves from Atoms and Nuclei	L
2.7.2	The Hazards of E.M. Radiation	L
2.7a	The Hazards of E.M. Radiation	A

Module 3 - Lenses and Light		
3.1.1	Convex Lenses	L
3.1.2	Concave Lenses	L
3.1.3	Magnification	L
3.1a	Lenses	A
3.2.1	Wavelength and Colour	L
3.2.2	Specular and Diffuse Reflection	L
3.2.3	The Colours of Opaque Objects	L
3.2.4	Filters	L
3.2a	Visible Light	A

SECTION 7
MAGNETISM AND
ELECTROMAGNETISM

SECTION 8
SPACE
PHYSICS

Module 1 - Magnetic Forces and Fields

1.1.1	Permanent and Induced Magnetism	L
1.1.2	Magnetic Fields	L
1.1a	Magnetic Fields	A
1.2.1	The Magnetic Fields Around Wires	L
1.2.2	The Magnetic Fields Around Solenoids	L
1.2.3	Electromagnetic Devices	L
1.2a	Electromagnetism	A
1.3.1	Fleming's Left Hand Rule	L
1.3.2	$F = BIL$	L
1.3.3	The Electric Motor	L
1.3a	The Electric Motor	A

Module 2 - Induced Potential and Transformers

2.1.1	The Size of an Induced Potential	L
2.1.2	The Direction of an Induced Potential	L
2.1.3	Uses of the Generator Effect: Alternators	L
2.1.4	Uses of the Generator Effect: Dynamos	L
2.1.5	Microphones	L
2.1.6	Loudspeakers	L
2.1a	Induced Potential and the Generator Effect	A
2.2.1	Structure and Action of a Transformer	L
2.2.2	Turns Ratio Equation	L
2.2a	Transformers and the Turns Ratio Equation	A
2.3.1	Step-up and Step-down Transformers	L
2.3.2	Input and Output Currents	L
2.3a	Transformers	A

Module 1 - Space Physics

1.1.1	The Structure and Location of the Solar System	L
1.1.2	Natural and Artificial Satellites	L
1.1.3	The Life Cycle of a Star	L
1.1a	Solar System, Stars and Satellites	A
1.2.1	Red-shift	L
1.2.2	The Big Bang Theory	L
1.2.3	New Ideas	L
1.2a	Red-Shift and the Big Bang	A

Each unit contains a lecture video and at least 1 (usually 2 or 3) assessments.

ABOUT US

With a wealth of real-life teaching experience, the EzyScience team are passionate about helping teachers improve student grades through the use of technology.



PETER JORDAN

Peter Jordan founded EzyEducation after becoming frustrated at the lack of meaningful digital learning aids available whilst teaching economics at The Portsmouth Grammar School. Before entering the classroom, Peter had several senior marketing roles within the financial services sector, including at Old Mutual Wealth and Scottish Widows.



MARK SIMPSON

Mark leads the development of the Science courses at EzyEducation. He holds a BSc (Hons) in Applied Mathematics and Physics and has been teaching for over 34 years. Mark spent 11 years as Head of Science at Wavell school, where he was responsible for the development of the school's internal digital science resources.

Our excellent support team are on-hand to support you and will make setting up and using EzyScience a breeze.

Email us at info@ezyeducation.co.uk or give us a call on 01329 285415.



EZYEDUCATION LTD,
UNIT 7, DARTMOUTH BUILDINGS,
FORT FAREHAM BUSINESS ESTATE,
NEWGATE LANE, FAREHAM, PO14 1AH
TEL: 01329 285 415
info@ezyeducation.co.uk
www.ezyeducation.co.uk