

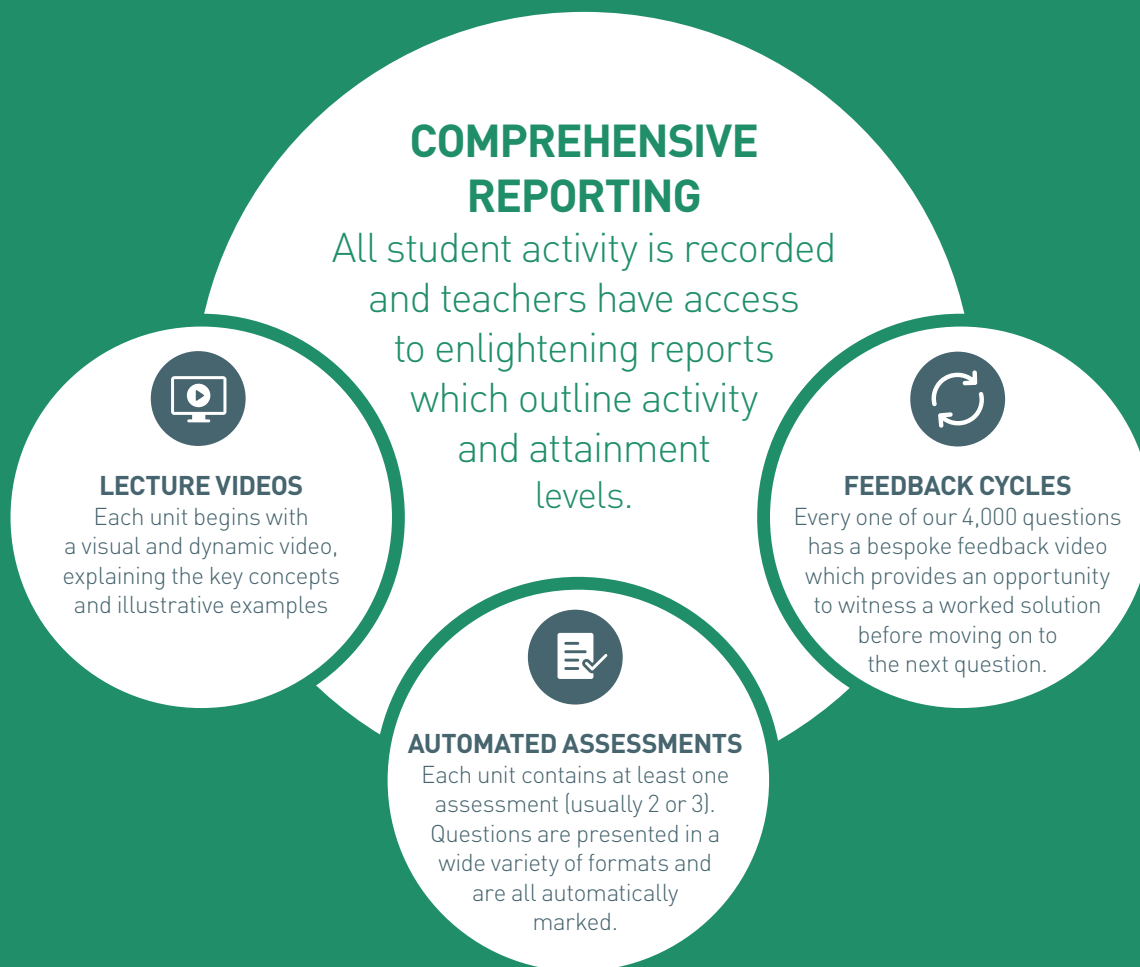
**EZY** SCIENCE

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

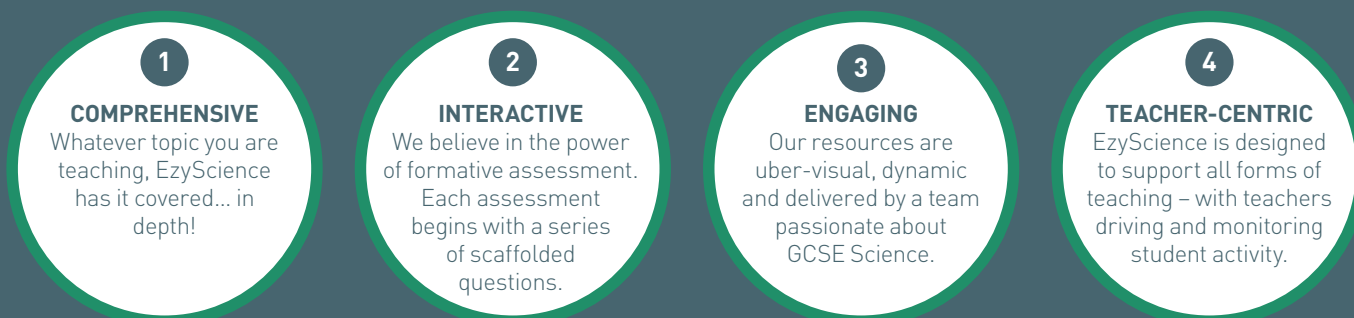
# GCSE COURSE GUIDE

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

# 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.

# EDEXCEL GCSE BIOLOGY

## COURSE OUTLINE

### SECTION 1 KEY CONCEPTS IN BIOLOGY

### SECTION 2 CELLS AND CONTROL

EX	= Experiment
L	= Lecture
A	= Assessment

#### Module 1 - Cell Structure

<b>1.1.1</b>	Eukaryotes and Prokaryotes	L
<b>1.1.2</b>	Cell Specialisation	L
<b>1.1a</b>	Cells	A
<b>1.2</b>	Microscopy	EX
<b>1.2a</b>	Microscopy	A
<b>1.2b</b>	Microscopy	A

#### Module 2 - Enzyme Action

<b>2.1</b>	Enzymes	L
<b>2.1a</b>	Enzymes	A
<b>2.2.1</b>	The Effect of pH on Enzymes (Theory and Method)	EX
<b>2.2.2</b>	The Effect of pH on Enzymes (Doing the Experiment)	EX
<b>2.2.3</b>	The Effect of pH on Enzymes (Analysing the Results)	EX
<b>2.2a</b>	The Effect of pH on Enzymes	A
<b>2.2b</b>	The Effect of pH on Enzymes	A
<b>2.3</b>	Food Tests	EX
<b>2.3a</b>	Food Tests	A
<b>2.3b</b>	Food tests	A
<b>2.4</b>	Calorimetry	L
<b>2.4a</b>	Calorimetry	A

#### Module 3 - Transport in Cells

<b>3.1.1</b>	Diffusion	L
<b>3.1.2</b>	Osmosis	L
<b>3.1.3</b>	Active transport	L
<b>3.1a</b>	Transport in Cells	A
<b>3.2.1</b>	Investigating Osmosis (Doing the Experiment)	EX
<b>3.2.2</b>	Investigating Osmosis (Analysing the Results)	EX
<b>3.2a</b>	Investigating Osmosis	A
<b>3.2b</b>	Investigating Osmosis	A
<b>2.3a</b>	Food Tests	A

#### Module 1 - Cell Division and Growth

<b>1.1</b>	Mitosis	L
<b>1.1a</b>	Mitosis	A
<b>1.2</b>	Growth in Organisms	L
<b>1.2a</b>	Growth in Organisms	A
<b>1.3</b>	Stems Cells	L
<b>1.3a</b>	Stems Cells	A

#### Module 2 - The Nervous System and the Eye

<b>2.1</b>	The Structure of the Brain	L
<b>2.1a</b>	The Structure of the Brain	A
<b>2.2</b>	Accessing and Treating the Brain	L
<b>2.2a</b>	Accessing and Treating the Brain	A
<b>2.3.1</b>	The Nervous System	L
<b>2.3.2</b>	Reflex Arcs	L
<b>2.3a</b>	The Nervous System	A
<b>2.4.1</b>	Structure of the Eye	L
<b>2.4.2</b>	Eye Defects	L
<b>2.4a</b>	The Eye	A

## SECTION 3 GENETICS

## SECTION 4 NATURAL SELECTION AND GENETIC MODIFICATION

### Module 1 - Reproduction

<b>1.1.1</b>	Sexual and Asexual Reproduction	L
<b>1.1.2</b>	Evaluating Sexual and Asexual Reproduction	L
<b>1.1a</b>	Sexual and Asexual Reproduction	A
<b>1.2</b>	Meiosis	L
<b>1.2a</b>	Meiosis	A

### Module 2 - DNA and Protein Synthesis

<b>2.1</b>	DNA and the Genome	L
<b>2.1a</b>	DNA and the Genome	A
<b>2.2</b>	Extracting DNA	L
<b>2.2a</b>	Extracting DNA	A
<b>2.3.1</b>	Protein Synthesis	L
<b>2.3.2</b>	Genetic Variants	L
<b>2.3a</b>	Protein Synthesis and Genetic Variants	A

### Module 3 - Genes

<b>3.1</b>		L
<b>3.1a</b>	Mendel's Work	A
<b>3.2.1</b>	Alleles	L
<b>3.2.2</b>	Genetic Diagrams	L
<b>3.2.3</b>	Sex Determination	L
<b>3.2a</b>	Genetics	A
<b>3.3</b>	ABO Blood Groups	L
<b>3.3a</b>	ABO Blood Groups	A
<b>3.4</b>	Sex-linked Genetic Disorders	L
<b>3.4a</b>	Sex-linked Genetic Disorders	A
<b>3.5</b>	Variation	L
<b>3.5a</b>	Variation	A
<b>3.6</b>	The Human Genome Project	L
<b>3.6a</b>	The Human Genome Project	A

### Module 1 - Natural Selection

<b>1.1</b>	Darwin and Wallace	L
<b>1.1a</b>	Darwin and Wallace	A
<b>1.2</b>	Evolution	L
<b>1.2a</b>	Evolution	A
<b>1.3.1</b>	Resistant Bacteria	L
<b>1.3.2</b>	Human Evolution	L
<b>1.3a</b>	Evidence for Evolution	A
<b>1.4</b>	The Pentadactyl Limb	L
<b>1.4a</b>	The Pentadactyl Limb	A
<b>1.5</b>	Classification	L
<b>1.5a</b>	Classification	A

### Module 2 - Genetic Modification

<b>2.1.1</b>	Selective Breeding	L
<b>2.1.2</b>	Genetic Engineering	L
<b>2.1a</b>	Selective Breeding and Genetic Engineering	A
<b>2.2</b>	The Process of Genetic Engineering	L
<b>2.2a</b>	The Process of Genetic Engineering	A
<b>2.3</b>	Tissue Culture	L
<b>2.3a</b>	Tissue Culture	A
<b>2.4</b>	GM and Agriculture	L
<b>2.4a</b>	GM and Agriculture	A

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

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#### Module 1 - Health and Diseases

<b>1.1</b>	Communicable and Non-Communicable Diseases	L
<b>1.1a</b>	Communicable and Non-Communicable Diseases	A
<b>1.2</b>	Pathogens and Common Infections	L
<b>1.2a</b>	Pathogens and Common Infections	A
<b>1.3</b>	The Lifecycle of a Virus	L
<b>1.3a</b>	The Lifecycle of a Virus	A

#### Module 2 - Plant Defences

<b>2.1</b>	Plant Defences	L
<b>2.1a</b>	Plant Defences	A
<b>2.2</b>	Detecting Plant Diseases	L
<b>2.2a</b>	Detecting Plant Diseases	A

#### Module 3 - Human Defences

<b>3.1</b>	Human Defence Systems	L
<b>3.1a</b>	Human Defence Systems	A
<b>3.2</b>	Immunisation	L
<b>3.2a</b>	Immunisation	A

#### Module 4 - Treating Disease

<b>4.1</b>	Antibiotics	L
<b>4.1a</b>	Antibiotics	A
<b>4.2</b>	Investigating Antiseptics and Antibiotics	EX
<b>4.2a</b>	Investigating Antiseptics and Antibiotics	A
<b>4.2b</b>	Investigating Antiseptics and Antibiotics	A
<b>4.2C</b>	Investigating Antiseptics and Antibiotics	A
<b>4.3</b>	The Development of New Drugs	L
<b>4.3a</b>	The Development of New Drugs	A
<b>4.3b</b>	The Development of New Drugs	A
<b>4.4</b>	Producing Monoclonal Antibodies	L
<b>4.4a</b>	Producing Monoclonal Antibodies	A
<b>4.5</b>	Uses of Monoclonal Antibodies	L
<b>4.5a</b>	Uses of Monoclonal Antibodies	A

#### Module 5 - Non-Communicable Disease

<b>5.1</b>	Lifestyle and Non-Communicable Disease	L
<b>5.1a</b>	Lifestyle and Non-Communicable Disease	A
<b>5.1b</b>	Lifestyle and Non-Communicable Disease	A
<b>5.2</b>	Cardiovascular Disease	L
<b>5.2a</b>	Cardiovascular Disease	A

## SECTION 6 PLANT STRUCTURES AND FUNCTIONS

## SECTION 7 ANIMAL COORDINATION

### Module 1 - Photosynthesis

<b>1.1.1</b>	The Photosynthesis Reaction	L
<b>1.1.2</b>	The Rate of Photosynthesis	L
<b>1.1a</b>	Photosynthesis	A
<b>1.2.1</b>	Graphs of Multiple Limiting Factors	L
<b>1.2.2</b>	Inverse Square Law	L
<b>1.2a</b>	Advanced Rate of Photosynthesis	A
<b>1.3.1</b>	Photosynthesis and Light Intensity (Doing the Experiment)	EX
<b>1.3.2</b>	Photosynthesis and Light Intensity (Analysing the Results)	EX
<b>1.3a</b>	Photosynthesis and Light Intensity	A
<b>1.3b</b>	Photosynthesis and Light Intensity	A

### Module 2 - Plant Tissues and Systems

<b>2.1</b>	Plant Tissues	L
<b>2.1a</b>	Plant Tissues	A
<b>2.2</b>	Transpiration and Translocation	L
<b>2.2a</b>	Transpiration and Translocation	A
<b>2.3</b>	Rate of Transpiration	L
<b>2.3a</b>	Rate of Transpiration	A
<b>2.4</b>	Plants in Extreme Environments	L
<b>2.4a</b>	Plants in Extreme Environments	A

### Module 3 - Plant Hormones

<b>3.1</b>	Control and Coordination in Plants	L
<b>3.1a</b>	Control and Coordination in Plants	A
<b>3.2</b>	Uses of Plant Hormones	L
<b>3.2a</b>	Uses of Plant Hormones	A

### Module 1 - Hormones

<b>1.1</b>	Human Endocrine System	L
<b>1.1a</b>	Human Endocrine System	A
<b>1.2</b>	Adrenaline and Thyroxine	L
<b>1.2a</b>	Adrenaline and Thyroxine	A
<b>1.3</b>	The Menstrual Cycle	L
<b>1.3a</b>	The Menstrual Cycle	A
<b>1.4</b>	Hormone Interactions	L
<b>1.4a</b>	Hormone Interactions	A
<b>1.5</b>	Contraception	L
<b>1.5a</b>	Contraception	A
<b>1.6</b>	Infertility Treatment	L
<b>1.6a</b>	Infertility Treatment	A

### Module 2 - Homeostasis

<b>2.1</b>	Homeostasis	L
<b>2.1a</b>	Homeostasis	A
<b>2.2</b>	Thermoregulation	L
<b>2.2a</b>	Thermoregulation	A
<b>2.3</b>	Vasoconstriction and Vasodilation	L
<b>2.3a</b>	Vasoconstriction and Vasodilation	A
<b>2.4</b>	Osmoregulation	L
<b>2.4a</b>	Osmoregulation	A
<b>2.5.1</b>	Blood Glucose Concentration	L
<b>2.5.2</b>	Diabetes	L
<b>2.5.3</b>	Obesity and Type 2 Diabetes	L
<b>2.5a</b>	Blood Glucose and Diabetes	A
<b>2.6</b>	Glucagon	L
<b>2.6a</b>	Glucagon	A
<b>2.7.1</b>	Structure of the Urinary System	L
<b>2.7.2</b>	Treating Kidney Failure	L
<b>2.7a</b>	The Urinary System	A
<b>2.8</b>	ADH	L
<b>2.8a</b>	ADH	A

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

### SECTION 8 EXCHANGE IN ANIMALS

### SECTION 9 ECOSYSTEMS AND MATERIAL CYCLES

EX	= Experiment
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Module 1 - Exchange and Transport in Animals		
<b>1.1</b>	Efficient Transport and Exchange	L
<b>1.1a</b>	Efficient Transport and Exchange	A
<b>1.2</b>	Factors Affecting Diffusion	L
<b>1.2a</b>	Factors Affecting Diffusion	A
<b>1.3</b>	The Heart and Blood Vessels	L
<b>1.3a</b>	The Heart and Blood Vessels	A
<b>1.4</b>	Blood	L
<b>1.4a</b>	Blood	A
<b>1.5</b>	Aerobic and Anaerobic Respiration	L
<b>1.5a</b>	Aerobic and Anaerobic Respiration	A
<b>1.6.1</b>	Investigating the Rate of Respiration (Doing the Experiment)	EX
<b>1.6.2</b>	Investigating the Rate of Respiration (Analysing the Results)	EX
<b>1.6a</b>	Investigating the Rate of Respiration in Living Organisms	A
<b>1.6b</b>	Investigating the Rate of Respiration in Living Organisms	A

Module 1 - Organisation in Ecosystems		
<b>1.1.1</b>	Communities	L
<b>1.1.2</b>	Abiotic Factors	L
<b>1.1.3</b>	Biotic Factors	L
<b>1.1a</b>	Ecosystems	A
<b>1.2.1</b>	Measuring a Population	EX
<b>1.2.2</b>	The Effect of Trees on a Daisy Population	EX
<b>1.2a</b>	Measuring the Sizes of Populations	A
<b>1.2b</b>	Measuring the Sizes of Populations	A
<b>1.3</b>	Feeding Relationships	L
<b>1.3a</b>	Feeding Relationships	A
<b>1.4.1</b>	Trophic levels	L
<b>1.4.2</b>	Pyramids of Biomass	L
<b>1.4.3</b>	Transfer of Biomass	L
<b>1.4a</b>	Biomass and Energy	A
Module 2 - Cycles and Biodiversity		
<b>2.1.1</b>	Carbon Cycle	L
<b>2.1.2</b>	Water Cycle	L
<b>2.1.3</b>	Nitrogen Cycle	L
<b>2.1a</b>	Carbon, Water and Nitrogen Cycles	A
<b>2.2</b>	Indicator Species	L
<b>2.2a</b>	Indicator Species	A
<b>2.3</b>	Decomposition	L
<b>2.3a</b>	Decomposition	A
<b>2.4.1</b>	Biodiversity	L
<b>2.4.2</b>	Human Impacts on Biodiversity	L
<b>2.4a</b>	Biodiversity	A
<b>2.5</b>	Food Security	L
<b>2.5a</b>	Food Security	A



EX = Experiment

L = Lecture

A = Assessment

#### Module 1 - Atoms and the Periodic Table

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	Relative Atomic Mass	L
1.2a	Relative Atomic Mass	A
1.3.1	History of the Periodic Table	L
1.3.2	The Periodic Table	L
1.3.3	Electronic Structure and the Periodic table	L
1.3a	The Periodic Table	A

#### Module 2 - Bonds

2.1.1	Ionic Bonding	L
2.1.2	Ionic Compounds	L
2.1a	Ionic Bonding and Compounds	A
2.2.1	Covalent Bonding	L
2.2.2	Covalent Substances	L
2.2a	Covalent Bonding and Substances	A
2.3	Metallic Bonding and Structures	L
2.3a	Metallic Bonding and Structures	A
2.4	Forms of Carbon	L
2.4a	Forms of Carbon	A

#### Module 3 - Chemical Calculations

3.1.1	Balanced Chemical Equations	L
3.1.2	Relative Formula Mass	L
3.1a	Equations and Formula Masses	A
3.2.1	Mass Changes	L
3.2.2	Chemical Measurements	L
3.2a	Mass Changes and Chemical Measurements	A
3.3	Empirical formulae	L
3.3a	Empirical formulae	A
3.4	Concentrations of Solutions	L
3.4a	Concentrations of Solutions	A
3.5.1	Moles	L
3.5.2	Masses of Reactants and Products	L
3.5.3	Using Moles to Balance Equations	L
3.4a	Moles	A

#### Module 1 - States of Matter and Mixtures

1.1	States of Matter	L
1.1a	States of Matter	A
1.2.1	Pure Substances and Mixtures	L
1.2.2	Separating Mixtures	L
1.2.3	Distillation	L
1.2a	Pure Substances and Mixtures	A
1.3	Chromatography	EX
1.3a	Chromatography	A
1.3b	Chromatography	A
1.4	Treating Water	L
1.4a	Treating Water	A

EX	= Experiment
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#### Module 1 - Energy Changes

<b>1.1</b>	Acids and Alkalis	L
<b>1.1a</b>	Acids and Alkalis	A
<b>1.2</b>	The pH Scale	L
<b>1.2a</b>	The pH Scale	A
<b>1.3</b>	Investigating Neutralisation	EX
<b>1.3a</b>	Investigating Neutralisation	A
<b>1.3b</b>	Investigating Neutralisation	A
<b>1.4</b>	Acids, Bases and Salts	L
<b>1.4a</b>	Acids, Bases and Salts	A
<b>1.5</b>	Making Soluble Salts	L
<b>1.5a</b>	Making Soluble Salts	A
<b>1.6</b>	Producing Soluble Salts	EX
<b>1.6a</b>	Producing Soluble Salts	A
<b>1.6b</b>	Producing Soluble Salts	A
<b>1.7</b>	Producing Insoluble Salts	L
<b>1.7a</b>	Producing Insoluble Salts	A

#### Module 2 - Electrolysis

<b>2.1</b>	Electrolysis of Molten Ionic Compounds	L
<b>2.1a</b>	Electrolysis of Molten Ionic Compounds	A
<b>2.2.1</b>	Electrolysis of Aqueous Solutions (Theory)	L
<b>2.2.2</b>	Electrolysis of Aqueous Solutions (Examples)	L
<b>2.2a</b>	Electrolysis of Aqueous Solutions	A
<b>2.3.1</b>	Electrolysis of Aqueous Copper Sulfate with Inert Electrodes	EX
<b>2.3.2</b>	Electrolysis of Aqueous Copper Sulfate with Copper Electrodes	EX
<b>2.3.3</b>	Analysis of Electrolysis of Aqueous Copper Sulfate with Copper Electrodes	EX
<b>2.3a</b>	Electrolysis of Aqueous Copper Sulfate	A
<b>2.3b</b>	Electrolysis of Aqueous Copper Sulfate	A
<b>2.4</b>	Oxidation, Reduction and Half Equations	L
<b>2.4a</b>	Oxidation, Reduction and Half Equations	A
<b>3.1</b>	Reversible Reactions and Dynamic Equilibria	L
<b>3.1a</b>	Reversible Reactions and Dynamic Equilibria	A
<b>3.2</b>	Factors Affecting Dynamic Equilibria	L

#### Module 1 - Reactivity of Metals

<b>1.1.1</b>	Reactivity	L
<b>1.1.2</b>	Displacement Reactions	L
<b>1.1a</b>	The Reactivity Series	A
<b>1.1b</b>	The Reactivity Series	A
<b>1.2</b>	Extraction of Metals	L
<b>1.2a</b>	Extraction of Metals	A
<b>1.3</b>	Biological Methods of Extracting Metals	L
<b>1.3a</b>	Biological Methods of Extracting Metals	A
<b>1.4</b>	Balancing Equations	L
<b>1.4a</b>	Balancing Equations	A
<b>1.5</b>	Oxidation and Reduction	L
<b>1.5a</b>	Oxidation and Reduction	A
<b>1.6</b>	Recycling and Life Cycle Assessments	L
<b>1.6a</b>	Recycling and Life Cycle Assessments	A

#### Module 2 - Reversible Reactions and Dynamic Equilibria

<b>2.1</b>	Reversible Reactions and Dynamic Equilibria	L
<b>2.1a</b>	Reversible Reactions and Dynamic Equilibria	A
<b>2.2</b>	Factors Affecting Dynamic Equilibria	L
<b>2.2a</b>	Factors Affecting Dynamic Equilibria	A

**SECTION 5**  
SEPARATE  
CHEMISTRY 1

**SECTION 6**  
GROUPS, RATES AND  
ENERGY CHANGES

**Module 1 - Transition Metals, Corrosion and Alloys**

<b>1.1</b>	Properties of Transition Metals	L
<b>1.1a</b>	Properties of Transition Metals	A
<b>1.2.1</b>	Corrosion	L
<b>1.2.2</b>	Electroplating	L
<b>1.2a</b>	Corrosion	A
<b>1.3</b>	Alloys	L
<b>1.3a</b>	Alloys	A

**Module 2 - Quantitative analysis**

<b>2.1</b>	Acid-Alkali Titrations	EX
<b>2.1a</b>	Acid-Alkali Titrations	A
<b>2.1b</b>	Acid-Alkali Titrations	A
<b>2.2.1</b>	Concentration and Molar Concentration	L
<b>2.2.2</b>	Titration Calculations	L
<b>2.2a</b>	Titration Calculations	A
<b>2.3</b>	Yields	L
<b>2.3a</b>	Yields	A
<b>2.4</b>	Calculating Theoretical Yields	L
<b>2.4a</b>	Calculating Theoretical Yields	A
<b>2.5</b>	Atom Economy	L
<b>2.5a</b>	Atom Economy	A
<b>2.6</b>	Reaction Pathways	L
<b>2.6a</b>	Reaction Pathways	A
<b>2.7</b>	Volumes of Gases	L
<b>2.7a</b>	Volumes of Gases	A

**Module 3 - Dynamic Equilibria and Cells**

<b>3.1</b>	The Haber process	L
<b>3.1a</b>	The Haber process	A
<b>3.2</b>	Fertilisers	L
<b>3.2a</b>	Fertilisers	A
<b>3.3.1</b>	Cells and Batteries	L
<b>3.3.2</b>	Fuel Cells	L
<b>3.3a</b>	Cells	A

**Module 1 - Groups in the Periodic Table**

<b>1.1.1</b>	Group 0	L
<b>1.1.2</b>	Group 1	L
<b>1.1.3</b>	Group 7	L
<b>1.1a</b>	Groups 0, 1 and 7	A

**Module 2 - Rates of Reaction**

<b>2.1</b>	Rates of Reaction	L
<b>2.1a</b>	Rates of Reaction	A
<b>2.2</b>	Calculating Rates of Reaction	L
<b>2.2a</b>	Calculating Rates of Reaction	A
<b>2.3.1</b>	Investigating Rates of Reaction (Concentration)	EX
<b>2.3.2</b>	Investigating Rates of Reaction (Temperature)	EX
<b>2.3a</b>	Investigating Rates of Reaction	A
<b>2.3b</b>	Investigating Rates of Reaction	A
<b>2.4.1</b>	Collision Theory and Activation Energy	L
<b>2.4.2</b>	Factors Affecting Rates of Reaction	L
<b>2.4.3</b>	Catalysts	L
<b>2.4a</b>	Factors Affecting Rates of Reaction	A

**Module 3 - Energy Changes**

<b>3.1</b>	Exothermic and Endothermic Reactions	EX
<b>3.1a</b>	Exothermic and Endothermic Reactions	A
<b>3.1b</b>	Exothermic and Endothermic Reactions	A
<b>3.2</b>	Reaction Profiles	L
<b>3.2a</b>	Reaction Profiles	A
<b>3.3</b>	Calculating Energy Changes	L
<b>3.3a</b>	Calculating Energy Changes	A

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Module 1 - Fuels and Earth Science		
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	Atmospheric Pollution	L
1.2a	Atmospheric Pollution	A
1.3.1	History of the Atmosphere	L
1.3.1	The Greenhouse Effect	L
1.3.2	Global Climate Change	L
1.3a	The Atmosphere	A

Module 1 - Energy Changes		
1.1	Chemical Tests for Ions	EX
1.1a	Chemical Tests for Ions	A
1.1b	Chemical Tests for Ions	A
1.2.1	Instrumental Methods	L
1.2.2	Flame Emission Spectroscopy	L
1.2a	Instrumental methods and Spectroscopy	A
Module 2 - Alkenes, Alcohols and Carboxylic Acids		
2.1.1	Structure of Alkenes	L
2.1.2	Reaction of Alkenes	L
2.1.3	Alcohols	L
2.1.4	Ethanol Production	L
2.1.5	Carboxylic Acids	L
2.1a	Alkenes, Alcohols and Carboxylic Acids	A
2.2	Alcohols and their use as Fuels	EX
2.2a	Alcohols and their use as Fuels	A
2.2b	Alcohols and their use as Fuels	A
Module 3 - Polymers, Nanoparticles and Materials		
3.1	Addition Polymerisation	L
3.1a	Addition Polymerisation	A
3.2	Condensation Polymerisation	L
3.2a	Condensation Polymerisation	A
3.3	Natural Polymers	L
3.3a	Natural Polymers	A
3.4.1	Uses of Polymers	L
3.4.2	Problems with Polymers	L
3.4a	Uses of Polymers	A
3.5.1	Nanoparticles	L
3.5.2	Uses of Nanoparticles	L
3.5a	Nanoparticles	A
3.6.1	Ceramics, Polymers and Composites	L
3.6.2	Comparing Materials	L
3.6a	Ceramics, Polymers and Composites	A

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#### Module 1 - Energy Changes

<b>1.1</b>	Scalars and Vectors	L
<b>1.1a</b>	Scalars and Vectors	A
<b>1.2</b>	Speed	L
<b>1.2a</b>	Speed	A
<b>1.3</b>	Distance-Time Graphs	L
<b>1.3a</b>	Distance-Time Graphs	A
<b>1.3b</b>	Distance-Time Graphs	A
<b>1.4</b>	Measuring Speed	L
<b>1.4a</b>	Measuring Speed	A

#### Module 2 - Acceleration and Velocity-Time Graphs

<b>2.1</b>	Acceleration	L
<b>2.1a</b>	Acceleration	A
<b>2.2</b>	$v^2 - u^2 = 2as$	L
<b>2.2a</b>	$v^2 - u^2 = 2as$	A
<b>2.3</b>	Velocity-Time Graphs and Acceleration	L
<b>2.3a</b>	Velocity-Time Graphs and Acceleration	A
<b>2.4</b>	Velocity-Time Graphs and Distance Travelled	L
<b>2.4a</b>	Velocity-Time Graphs and Distance Travelled	A

#### Module 3 - Newton's Laws of Motion

<b>3.1</b>	Newton's 1st Law of Motion	L
<b>3.1a</b>	Newton's 1st Law of Motion	A
<b>3.2</b>	Newton's 2nd Law of Motion	L
<b>3.2a</b>	Newton's 2nd Law of Motion	A
<b>3.3</b>	Gravity and Weight	L
<b>3.3a</b>	Gravity and Weight	A
<b>3.4.1</b>	Measuring Force and Acceleration	Ex
<b>3.4.2</b>	Force and Acceleration Experiment	Ex
<b>3.4.3</b>	Mass and Acceleration Experiment	Ex
<b>3.4a</b>	Investigating the Relationship Between Force, Mass and Acceleration	A
<b>3.4b</b>	Investigating the Relationship Between Force, Mass and Acceleration	A
<b>3.5</b>	Newton's 3rd Law of Motion	L
<b>3.5a</b>	Newton's 3rd Law of Motion	A
<b>3.6</b>	Circular Motion	L
<b>3.6a</b>	Circular Motion	A
<b>3.7</b>	Inertia	L
<b>3.7a</b>	Inertia	A

#### Module 4 - Momentum

<b>4.1</b>	Calculating Momentum	L
<b>4.1a</b>	Calculating Momentum	A
<b>4.2</b>	Newton's 2nd Law of Motion and Momentum	L
<b>4.2a</b>	Newton's 2nd Law of Motion and Momentum	A
<b>4.3</b>	Conservation of Momentum in Collisions	L
<b>4.3a</b>	Conservation of Momentum in Collisions	A

#### Module 5 - Stopping Distances

<b>5.1</b>	Reaction Time and Thinking Distance	L
<b>5.1a</b>	Reaction Time and Thinking Distance	A
<b>5.2</b>	Braking Distance	L
<b>5.2a</b>	Braking Distance	A
<b>5.3</b>	Stopping Distance	L
<b>5.3a</b>	Stopping Distance	A
<b>5.4</b>	Braking Distance and KE	L
<b>5.4a</b>	Braking Distance and KE	A

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Module 1 - Conservation of Energy		
<b>1.1</b>	Gravitational Potential Energy	L
<b>1.1a</b>	Gravitational Potential Energy	A
<b>1.2</b>	Kinetic Energy	L
<b>1.2a</b>	Kinetic Energy	A
<b>1.3</b>	Energy Transfers	L
<b>1.3a</b>	Energy Transfers	A
<b>1.4</b>	Energy Conservation, Dissipation and Efficiency	L
<b>1.4a</b>	Energy Conservation, Dissipation and Efficiency	A
<b>1.5.1</b>	Non-Renewable Energy Resources	L
<b>1.5.2</b>	Renewable Energy Resources	L
<b>1.5a</b>	Energy Resources	A
<b>2.3a</b>	Energy Resources	A

Module 1 - Electrical Quantities		
<b>1.1.1</b>	Transverse and Longitudinal Waves	L
<b>1.1.2</b>	Wavelength and Amplitude	L
<b>1.1.3</b>	Period and Frequency	L
<b>1.1.4</b>	$v = f$	L
<b>1.1a</b>	Waves	A
<b>1.2</b>	Change of Medium	L
<b>1.2a</b>	Change of Medium	A
<b>1.3</b>	Measuring the Speed of Waves	L
<b>1.3a</b>	Measuring the Speed of Waves	A
<b>1.4.1</b>	Measuring $v$ , $f$ and $\lambda$ for a Wave on a Wire	EX
<b>1.4.2</b>	Measuring $v$ , $f$ and $\lambda$ for a Wave on Water	EX
<b>1.4a</b>	Measuring Frequency, Speed and Wavelength	A
<b>1.4b</b>	Measuring Frequency, Speed and Wavelength	A
<b>1.5.1</b>	Waves at a Boundary	L
<b>1.5.2</b>	Reflection (Ray Diagrams)	L
<b>1.5.3</b>	Refraction (Ray Diagrams)	L
<b>1.5a</b>	Waves at a Boundary	A
<b>1.6</b>	Investigating Reflection and Refraction	EX
<b>1.6a</b>	Investigating Reflection and Refraction	A
<b>1.6b</b>	Investigating Reflection and Refraction	A

## SECTION 4 RADIOACTIVITY

## SECTION 5 RADIOACTIVITY

### Module 2 - Mechanical and EM Waves

2.1.1	Propagation and Detection of Sound Waves	L
2.1.2	Properties and Uses of Ultrasound	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 E.M. Waves	L
2.6.2	Radio Waves	L
2.6a	Effects of Wavelength and Speed on E.M. Waves and Radio Waves	A
2.7.1	Waves From Atoms and Nuclei	L
2.7.2	The Hazards of EM Radiation	L
2.7a	The Hazards of EM Radiation	A

### Module 3 - Lenses and Light

3.1.1	Convex Lenses	L
3.1.2	Concave Lenses	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

### 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

### Module 1 - Atoms and Radioactivity

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

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Module 1 - Types of Energy		
<b>1.1</b>	Energy Transfers and Work	L
<b>1.1a</b>	Energy Transfers and Work	A
<b>1.1b</b>	Energy Transfers and Work	A
<b>1.2</b>	Gravitational Potential Energy	L
<b>1.2a</b>	Gravitational Potential Energy	A
<b>1.3</b>	Kinetic Energy	L
<b>1.3a</b>	Kinetic Energy	A
<b>1.4</b>	Power	L
<b>1.4a</b>	Power	A
<b>1.5</b>	Energy Dissipation and Efficiency	L
<b>1.5a</b>	Energy Dissipation and Efficiency	A

Module 4 - Moments, Levers and Gears (Physics only)		
<b>1.1</b>	Introduction to Forces	L
<b>1.1a</b>	Introduction to Forces	A
<b>1.2</b>	Resultant Forces (Collinear)	L
<b>1.2a</b>	Resultant Forces (Collinear)	A
<b>1.2b</b>	Resultant Forces (Collinear)	A
<b>1.3</b>	Resultant Forces (Non-collinear)	L
<b>1.3a</b>	Resultant Forces (Non-collinear)	A
<b>1.3b</b>	Resultant Forces (Non-collinear)	A
<b>1.4</b>	Resolution of Forces	L
<b>1.4a</b>	Resolution of Forces	A

Module 2 - Moments, Levers and Gears (Physics only)		
<b>2.1.1</b>	Moments	L
<b>2.1.2</b>	The Principle of Moments	L
<b>2.1a</b>	Calculating Moments and the Principle of Moments	A
<b>2.2</b>	Levers and Gears	L
<b>2.2a</b>	Levers and Gears	A



## SECTION 8 ELECTRICITY AND CIRCUITS

Module 1 - Electrical Quantities		
<b>1.1.1</b>	Standard Circuit Diagram Symbols	L
<b>1.1.2</b>	Electrical Charge and Current	L
<b>1.1.3</b>	Energy, Charge and Potential Difference	L
<b>1.1.4</b>	Current, Resistance and Potential Difference	L
<b>1.1.5</b>	Applications of Thermistors and LDRs	L
<b>1.1a</b>	Circuit Quantities	A
<b>1.2.1</b>	Finding Resistance (General Principles)	EX
<b>1.2.2</b>	Finding Resistance (Resistance vs Length)	EX
<b>1.2.3</b>	Finding Resistance (Combinations)	EX
<b>1.2a</b>	Finding Resistance	A
<b>1.2b</b>	Finding Resistance	A
Module 2 - Circuits		
<b>2.1.1</b>	V-I Characteristic (Resistor)	EX
<b>2.1.2</b>	V-I Characteristic (Filament Lamp)	EX
<b>2.1.3</b>	V-I Characteristic (Diode)	EX
<b>2.1a</b>	V-I Characteristics	A
<b>2.1b</b>	V-I Characteristics	A
<b>2.2.1</b>	Series Circuits	L
<b>2.2.2</b>	Parallel Circuits	L
<b>2.2a</b>	Series and Parallel Circuits	A
Module 3 - Domestic Uses, Safety and Static Electricity		
<b>3.1.1</b>	Direct and Alternating PD	L
<b>3.1.2</b>	Mains Electricity	L
<b>3.1a</b>	Domestic Circuits	A
<b>3.2.1</b>	Electric Power	L
<b>3.2.2</b>	Electrical Energy Transfers	L
<b>3.2.3</b>	The National Grid	L
<b>3.2a</b>	Electrical Energy and Power	A
<b>3.3.1</b>	Static Electricity	L
<b>3.3.2</b>	Electric Fields	L
<b>3.3a</b>	Static Electricity and Electric Fields	A

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### Module 1 - Magnetic Forces and Fields

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

### Module 2 - Induced Potential and Transformers

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

### Module 1 - The Particle Model

<b>1.1.1</b>	Calculating density	L
<b>1.1.2</b>	The Particle Model and Density	L
<b>1.1.3</b>	Changes of State	L
<b>1.1a</b>	Density and State	A
<b>1.2</b>	Determining Density	EX
<b>1.2a</b>	Determining Density	A
<b>1.2b</b>	Determining Density	A
<b>1.3.1</b>	Internal Energy	L
<b>1.3.2</b>	Thermal Energy and Specific Heat Capacity	L
<b>1.3.3</b>	Specific Latent Heat	L
<b>1.3a</b>	Energy of Particles	A
<b>1.4</b>	Thermal Insulation	L
<b>1.4a</b>	Thermal Insulation	A
<b>1.5.1</b>	Thermal Properties of Water	EX
<b>1.5.2</b>	Thermal Properties of Water	EX
<b>1.5a</b>	Thermal Properties of Water	A
<b>1.5b</b>	Thermal Properties of Water	A

### Module 2 - Pressure in Gases

<b>2.1.1</b>	Particle Motion in Gases	L
<b>2.1.2</b>	Kelvin Scale and Absolute Zero	L
<b>2.1a</b>	Particle Motion in Gases and the Kelvin Scale	A
<b>2.2.1</b>	Pressure in Gases	L
<b>2.2.2</b>	$pV = \text{Constant}$	L
<b>2.2a</b>	$pV = \text{Constant}$	A
<b>2.3</b>	Increasing the Pressure of a Gas	L
<b>2.3a</b>	Increasing the Pressure of a Gas	A

## SECTION 11 FORCES AND MATTER

### Module 1 - Stretching Springs

<b>1.1</b>	Stretching and Bending	L
<b>1.1a</b>	Stretching and Bending	A
<b>1.2</b>	$F = ke$ (Theory)	L
<b>1.1a</b>	$F = ke$ (Theory)	A
<b>1.2</b>	Work Done in Stretching a Spring	L
<b>1.2a</b>	Work Done in Stretching a Spring	A
<b>1.3</b>	$F = ke$ Experiment (Doing the Experiment)	EX
<b>1.3a</b>	$F = ke$ Experiment (Analysing the Results)	EX
<b>1.4.1</b>	$F = ke$ Experiment (Calculating Work Done)	EX
<b>1.4.2</b>	$F = ke$ Experiment	A
<b>1.4.3</b>	$F = ke$ Experiment	A
<b>1.4a</b>	Thermal Insulation	L
<b>1.4b</b>	Thermal Insulation	A

### Module 2 - Pressure

<b>2.1</b>	$P = F/A$	L
<b>2.1a</b>	$P = F/A$	A
<b>2.2</b>	Atmospheric Pressure	L
<b>2.2a</b>	Atmospheric Pressure	A
<b>2.3</b>	$P = h g$	L
<b>2.3a</b>	$P = h g$	A
<b>2.4</b>	Upthrust in Fluids	L
<b>2.4a</b>	Upthrust in Fluids	A

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# 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.

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