

FOR STUDENTS STUDYING FOR EXAMINATIONS BY THE EDEXCEL EXAM BOARD

GCSE COURSE GUIDE

EzyScience provides full content coverage including all required practicals

Developed by • EZY edtech

OUR MODEL

COMPREHENSIVE REPORTING

All student activity is recorded and teachers have access to enlightening reports which outline activity and attainment levels.

LECTURE VIDEOS

Each unit begins with a visual and dynamic video, explaining the key concepts and illustrative examples

FEEDBACK CYCLES

Every one of our 4,000 questions has a bespoke feedback video which provides an opportunity to witness a worked solution before moving on to the next question.



AUTOMATED ASSESSMENTS

Each unit contains at least one assessment (usually 2 or 3). Questions are presented in a wide variety of formats and are all automatically marked.

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

COMPREHENSIVE

Whatever topic you are teaching, EzyScience has it covered... in depth!

INTERACTIVE

2

We believe in the power of formative assessment. Each assessment begins with a series of scaffolded questions.

3

ENGAGING Our resources are uber-visual, dynamic and delivered by a team passionate about GCSE Science.

4

TEACHER-CENTRIC EzyScience is designed to support all forms of teaching – with teachers driving and monitoring student activity.

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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

EX = Experiment

L = Lecture A = Assessment

SECTION 1 KEY CONCEPTS IN BIOLOGY

Module 1 - Cell Structure

Mout	ne I - Cell Structure	
1.1.1	Eukaryotes and Prokaryotes	L
1.1.2	Cell Specialisation	L
1.1a	Cells	А
1.2	Microscopy	EX
1.2a	Microscopy	А
1.2b	Microscopy	А
Modu	Ile 2 - Enzyme Action	
2.1	Enzymes	L
2.1a	Enzymes	А
2.2.1	The Effect of pH on Enzymes (Theory and Method)	EX
2.2.2	The Effect of pH on Enzymes (Doing the Experiment)	EX
2.2.3	The Effect of pH on Enzymes (Analysing the Results)	EX
2.2a	The Effect of pH on Enzymes	А
2.2b	The Effect of pH on Enzymes	А
2.3	Food Tests	EX
2.3a	Food Tests	А
2.3b	Food tests	А
2.4	Calorimetry	L
2.4a	Calorimetry	А
Modu	ıle 3 - Transport in Cells	
3.1.1	Diffusion	L
3.1.2	Osmosis	L
3.1.3	Active transport	L
3.1.3 3.1a	Active transport Transport in Cells	L
	•	
3.1a	Transport in Cells Investigating Osmosis	A
3.1a 3.2.1	Transport in Cells Investigating Osmosis (Doing the Experiment) Investigating Osmosis	A EX
3.1a 3.2.1 3.2.2	Transport in Cells Investigating Osmosis (Doing the Experiment) Investigating Osmosis (Analysing the Results)	A EX EX
3.1a 3.2.1 3.2.2 3.2a	Transport in Cells Investigating Osmosis (Doing the Experiment) Investigating Osmosis (Analysing the Results) Investigating Osmosis	A EX EX

SECTION 2 CELLS AND CONTROL

Modu	Ile 1 - Cell Division and Growth	
1.1	Mitosis	L
1.1a	Mitosis	А
1.2	Growth in Organisms	L
1.2a	Growth in Organisms	А
1.3	Stems Cells	L
1.3a	Stems Cells	A
Modu	Ile 2 - The Nervous System and	
the E	ye	
2.1	The Structure of the Brain	L
2.1a	The Structure of the Brain	А
2.2	Accessing and Treating the Brain	L
2.2a	Accessing and Treating the Brain	А
2.3.1	The Nervous System	L
2.3.2	Reflex Arcs	L
2.3a	The Nervous System	А
2.4.1	Structure of the Eye	L
2.4.2	Eye Defects	L
2.4a	The Eye	А



SECTION 3 GENETICS

Module 1 - Reproduction

Mout	lie I - Reproduction	
1.1.1	Sexual and Asexual Reproduction	L
1.1.2	Evaluating Sexual and Asexual Reproduction	L
1.1a	Sexual and Asexual Reproduction	A
1.2	Meiosis	L
1.2a	Meiosis	А
Modu	ıle 2 - DNA and Protein Synthesis	;
2.1	DNA and the Genome	L
2.1a	DNA and the Genome	А
2.2	Extracting DNA	L
2.2a	Extracting DNA	А
2.3.1	Protein Synthesis	L
2.3.2	Genetic Variants	L
2.3a	Protein Synthesis and Genetic Variants	А
	Genetic variants	
Modu	ile 3 - Genes	
Modu 3.1		L
		L
3.1	ıle 3 - Genes	
3.1 3.1a 3.2.1	i <mark>le 3 - Genes</mark> Mendel's Work	A
3.1 3.1a 3.2.1	I <mark>le 3 - Genes</mark> Mendel's Work Alleles Genetic Diagrams	A L
3.1 3.1a 3.2.1 3.2.2	I <mark>le 3 - Genes</mark> Mendel's Work Alleles Genetic Diagrams	A L L
3.1 3.1a 3.2.1 3.2.2 3.2.3	Ile 3 - Genes Mendel's Work Alleles Genetic Diagrams Sex Determination	A L L
3.1 3.1a 3.2.1 3.2.2 3.2.3 3.2.3	Mendel's Work Alleles Genetic Diagrams Sex Determination Genetics	A L L A
3.1 3.1a 3.2.1 3.2.2 3.2.3 3.2a 3.3	Alleles Genetic Diagrams Sex Determination Genetics ABO Blood Groups	A L L A
3.1 3.1a 3.2.1 3.2.2 3.2.3 3.2a 3.3 3.3a	Alleles Genetic Diagrams Sex Determination Genetics ABO Blood Groups ABO Blood Groups	A L L A L
3.1 3.1a 3.2.1 3.2.2 3.2.3 3.2a 3.3 3.3a 3.4	Alleles Genetic Diagrams Sex Determination Genetics ABO Blood Groups ABO Blood Groups Sex-linked Genetic Disorders	A L L A L A
3.1 3.1a 3.2.1 3.2.2 3.2.3 3.2a 3.3 3.3a 3.4 3.4a	Alleles Genetic Diagrams Sex Determination Genetics ABO Blood Groups ABO Blood Groups Sex-linked Genetic Disorders Sex-linked Genetic Disorders	A L L A L A
3.1 3.1a 3.2.1 3.2.2 3.2.3 3.2a 3.3 3.3a 3.4 3.4a 3.5	Alleles Genetic Diagrams Sex Determination Genetics ABO Blood Groups ABO Blood Groups Sex-linked Genetic Disorders Sex-linked Genetic Disorders	A L L A L A L L
3.1 3.1a 3.2.1 3.2.2 3.2.3 3.2a 3.3 3.3a 3.4 3.4a 3.5 3.5a	Alleles Genetic Diagrams Sex Determination Genetics ABO Blood Groups ABO Blood Groups Sex-linked Genetic Disorders Sex-linked Genetic Disorders Variation	A L L A L A L A

SECTION 4 NATURAL SELECTION AND GENETIC MODIFICATION

Modu	ıle 1 - Natural Selection	
1.1	Darwin and Wallace	L
1.1a	Darwin and Wallace	А
1.2	Evolution	L
1.2a	Evolution	А
1.3.1	Resistant Bacteria	L
1.3.2	Human Evolution	L
1.3a	Evidence for Evolution	А
1.4	The Pentadactyl Limb	L
1.4a	The Pentadactyl Limb	А
1.5	Classification	L
1.5a	Classification	А
Modu	Ile 2 - Genetic Modification	
	ile 2 - Genetic Modification Selective Breeding	L
2.1.1		L
2.1.1	Selective Breeding	
2.1.1 2.1.2	Selective Breeding Genetic Engineering Selective Breeding and	L
2.1.1 2.1.2 2.1a	Selective Breeding Genetic Engineering Selective Breeding and Genetic Engineering The Process of Genetic	L
2.1.1 2.1.2 2.1a 2.2	Selective Breeding Genetic Engineering Selective Breeding and Genetic Engineering The Process of Genetic Engineering The Process of Genetic	L A L
2.1.1 2.1.2 2.1a 2.2 2.2a	Selective Breeding Genetic Engineering Selective Breeding and Genetic Engineering The Process of Genetic Engineering The Process of Genetic Engineering	L A L A
2.1.1 2.1.2 2.1a 2.2 2.2a 2.3	Selective Breeding Genetic Engineering Selective Breeding and Genetic Engineering The Process of Genetic Engineering The Process of Genetic Engineering Tissue Culture	L A L A

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L

А

SECTION 5 HEALTH, DISEASE AND MEDICINES

Modu	ule 1 - Health and Diseases	
1.1	Communicable and Non-Communicable Diseases	L
1.1a	Communicable and Non-Communicable Diseases	A
1.2	Pathogens and Common Infections	L
1.2a	Pathogens and Common Infections	A
1.3	The Lifecycle of a Virus	L
1.3a	The Lifecycle of a Virus	А
Modu	ıle 2 - Plant Defences	
	ale 2 - Plant Defences	
2.1	Plant Defences	L
	Plant Defences	L A
2.1	Plant Defences	_
2.1 2.1a	Plant Defences Plant Defences	A
2.1 2.1a 2.2 2.2a	Plant Defences Plant Defences Detecting Plant Diseases	A
2.1 2.1a 2.2 2.2a	Plant Defences Plant Defences Detecting Plant Diseases Detecting Plant Diseases	A
2.1 2.1a 2.2 2.2a Modu	Plant Defences Plant Defences Detecting Plant Diseases Detecting Plant Diseases Jale 3 - Human Defences Human Defence Systems	A L A
2.1 2.1a 2.2 2.2a Modu 3.1	Plant Defences Plant Defences Detecting Plant Diseases Detecting Plant Diseases Jale 3 - Human Defences Human Defence Systems	A L A

Module 4 - Treating Disease

Modi	ile 4 - Treating Disease	
4.1	Antibiotics	L
4.1a	Antibiotics	А
4.2	Investigating Antiseptics and Antibiotics	EX
4.2a	Investigating Antiseptics and Antibiotics	А
4.2b	Investigating Antiseptics and Antibiotics	А
4.2C	Investigating Antiseptics and Antibiotics	А
4.3	The Development of New Drugs	L
4.3a	The Development of New Drugs	А
4.3b	The Development of New Drugs	А
4.4	Producing Monoclonal Antibodies	L
4.4a	Producing Monoclonal Antibodies	А
4.5	Uses of Monoclonal Antibodies	L
4.5a	Uses of Monoclonal Antibodies	Α
Modu	ule 5 - Non-Communicable Dise	ase
5.1	Lifestyle and Non-Communicable Disease	L
5.1a	Lifestyle and Non-Communicable Disease	A
5.1b	Lifestyle and Non-Communicable Disease	А
5.2	Cardiovascular Disease	L
5.2a	Cardiovascular Disease	А



SECTION 6 PLANT STRUCTURES AND FUNCTIONS

Modu	ıle 1 - Photosynthesis	
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
1.2a	Advanced Rate of Photosynthesis	A
1.3.1	Photosynthesis and Light Intensity (Doing the Experiment)	E)
1.3.2	Photosynthesis and Light Intensity (Analysing the Results)	E)
1.3a	Photosynthesis and Light Intensity	A
1.3b	Photosynthesis and Light Intensity	A
Modu	ule 2 - Plant Tissues and Systems	
2.1	Plant Tissues	L
2.1a	Plant Tissues	A
2.2	Transpiration and Translocation	L
2.2a	Transpiration and Translocation	A
2.3	Rate of Transpiration	L
2.3a	Rate of Transpiration	A
2.4	Plants in Extreme Environments	L
2.4a	Plants in Extreme Environments	A
Modu	ıle 3 - Plant Hormones	
3.1	Control and Coordination in Plants	L
3.1a	Control and Coordination in Plants	A
3.2	Uses of Plant Hormones	L
3.2a	Uses of Plant Hormones	A

SECTION 7 ANIMAL COORDINATION

Module 1 - Hormones

	Inc 1 Hormones	
1.1	Human Endocrine System	L
1.1a	Human Endocrine System	А
1.2	Adrenaline and Thyroxine	L
1.2a	Adrenaline and Thyroxine	А
1.3	The Menstrual Cycle	L
1.3a	The Menstrual Cycle	А
1.4	Hormone Interactions	L
1.4a	Hormone Interactions	А
1.5	Contraception	L
1.5a	Contraception	А
1.6	Infertility Treatment	L
1.6a	Infertility Treatment	А
Modu	ıle 2 - Homeostasis	
2.1	Homeostasis	L
2.1a	Homeostasis	А
2.2	Thermoregulation	L
2.2a	Thermoregulation	А
2.3	Vasoconstriction and Vasodilation	L
2.3a	Vasoconstriction and Vasodilation	А
2.4	Osmoregulation	L
2.4a	Osmoregulation	А
2.5.1	Blood Glucose Concentration	L
2.5.2	Diabetes	L
2.5.3	Obesity and Type 2 Diabetes	L
2.5a	Blood Glucose and Diabetes	А
2.6	Glucagon	L
2.6a	Glucagon	А
2.7.1	Structure of the Urinary System	L
2.7.2	Treating Kidney Failure	L
2.7a	The Urinary System	А
2.8	ADH	L
2.8a	ADH	А

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SECTION 8 EXCHANGE IN ANIMALS

Module 1 - Exchange and Transport in Animals	
Efficient Transport and	

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

SECTION 9 ECOSYSTEMS AND MATERIAL CYCLES

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



EZYCHEMISTRY EDEXCEL COURSE OUTLINE

ΕX	= Experiment

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SECTION 1 KEY CONCEPTS

1.1.1Atomic StructureI1.1.2Mass Number, Atomic Number and IsotopesI1.1.3Mass Number, Atomic MassI1.1.4The Development of the Model of the AtomI1.1.9Relative Atomic MassI1.2Relative Atomic MassI1.3.1History of the Periodic TableI1.3.2The Periodic TableI1.3.3Electronic Structure and the Periodic TableI1.3.4Ine Periodic TableI1.3.5Ine Periodic TableI1.3.6ConcompoundsI2.1.1Ionic BondingI2.1.2Covalent Bonding and CompoundsI2.1.3Covalent Bonding and CompoundsI2.1.4Covalent Bonding and SubstancesI2.1.5Metallic Bonding and SubstancesI2.1.6Covalent Bonding and SubstancesI2.1.7Forms of CarbonI2.1.8Metallic Bonding and StructuresI2.1.9Metallic Bonding and StructuresI2.1.1Forms of CarbonI3.1.2Relative Formula MassI3.1.3Balanced Chemical EquationsI3.1.4Guations and FormulaI3.1.5Relative Formula MassI3.1.6Mass Changes and ChemicalI3.1.7Mass Changes and ChemicalI3.1.8Empirical formulaeI3.1.9Empirical formulaeI3.10<	Modu	ıle 1 - Atoms and the Periodic Ta	ble
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2.3StructuresL2.3aMetallic Bonding and StructuresA2.4Forms of CarbonL2.4aForms of CarbonAModule 3 - Chemical CalculationsL3.1.1Balanced Chemical EquationsL3.1.2Relative Formula MassL3.1aEquations and Formula MassesA3.2.1Mass ChangesL3.2.2Chemical MeasurementsL3.3Empirical formulaeA3.3Empirical formulaeA3.4Concentrations of SolutionsA3.5.1MolesL3.5.2Masses of Reactants and ProductsL3.5.3Using Moles to Balance EquationsL	2.2a		А
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3.4Concentrations of SolutionsL3.4aConcentrations of SolutionsA3.5.1MolesL3.5.2Masses of Reactants and ProductsL3.5.3Using Moles to Balance EquationsL	3.3	Empirical formulae	L
3.4aConcentrations of SolutionsA3.5.1MolesL3.5.2Masses of Reactants and ProductsL3.5.3Using Moles to Balance EquationsL	3.3a	Empirical formulae	А
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3.5.2 Masses of Reactants and ProductsL 3.5.3 Using Moles to Balance EquationsL	3.4a	Concentrations of Solutions	А
3.5.2ProductsL3.5.3Using Moles to Balance EquationsL	3.5.1	Moles	L
S.S.S Equations	3.5.2		L
3.4a Moles A	3.5.3	5	L
	3.4a	Moles	А

STATES OF MATTER AND MIXTURES

Modu	ıle 1 - States of Matter and Mixtι	ires
1.1	States of Matter	L
1.1a	States of Matter	А
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	А
1.3	Chromatography	EX
1.3a	Chromatography	А
1.3b	Chromatography	А
1.4	Treating Water	L
1.4a	Treating Water	А



EZYCHEMISTRY EDEXCEL COURSE OUTLINE

EX = ExperimentL = LectureA = Assessment

SECTION 3 CHEMICAL CHANGES

Modu	ıle 1 - Energy Changes	
1.1	Acids and Alkalis	L
1.1a	Acids and Alkalis	А
1.2	The pH Scale	L
1.2a	The pH Scale	А
1.3	Investigating Neutralisation	ΕX
1.3a	Investigating Neutralisation	А
1.3b	Investigating Neutralisation	А
1.4	Acids, Bases and Salts	L
1.4a	Acids, Bases and Salts	А
1.5	Making Soluble Salts	L
1.5a	Making Soluble Salts	А
1.6	Producing Soluble Salts	EX
1.6a	Producing Soluble Salts	А
1.6b	Producing Soluble Salts	А
1.7	Producing Insoluble Salts	L
1.7a	Producing Insoluble Salts	А
Modu	ıle 2 - Electrolysis	
2.1	Electrolysis of Molten Ionic Compounds	L
2.1a	Electrolysis of Molten Ionic Compounds	A
2.2.1	Electrolysis of Aqueous Solu- tions (Theory)	L
2.2.2	Electrolysis of Aqueous Solu- tions (Examples)	L
2.2a	Electrolysis of Aqueous Solu- tions	A
2.3.1	Electrolysis of Aqueous Copper Sulfate with Inert Electrodes	EX
2.3.2	Electrolysis of Aqueous Copper Sulfate with Copper Electrodes	EX
2.3.3	Analysis of Electrolysis of Aqueous Copper Sulfate with Copper Electrodes	EX
2.3a	Electrolysis of Aqueous Copper Sulfate	A
2.3b	Electrolysis of Aqueous Copper Sulfate	A
2.4	Oxidation, Reduction and Half Equations	L
2.4a	Oxidation, Reduction and Half Equations	A
3.1	Reversible Reactions and Dynamic Equilibria	L
3.1a	Reversible Reactions and Dynamic Equilibria	A
3.2	Factors Affecting Dynamic Equilibria	L

SECTION 4 EXTRACTING METALS

Modu	Ile 1 - Reactivity of Metals	
1.1.1	Reactivity	L
1.1.2	Displacement Reactions	L
1.1a	The Reactivity Series	А
1.1b	The Reactivity Series	А
1.2	Extraction of Metals	L
1.2a	Extraction of Metals	А
1.3	Biological Methods of Extracting Metals	L
1.3a	Biological Methods of Extracting Metals	A
1.4	Balancing Equations	L
1.4a	Balancing Equations	А
1.5	Oxidation and Reduction	L
1.5a	Oxidation and Reduction	А
1.6	Recycling and Life Cycle Assessments	L
1.6a	Recycling and Life Cycle Assessments	A
Modu	Ile 2 - Reversible Reactions and	
Dyna	mic Equilibria	
2.1	Reversible Reactions and Dynamic Equilibria	L
2.1a	Reversible Reactions and Dynamic Equilibria	А
2.2	Factors Affecting Dynamic Equilibria	L
2.2a	Factors Affecting Dynamic Equilibria	А



SECTION 5 SEPARATE CHEMISTRY 1

Modu and A	ıle 1 - Transition Metals, Corrosi Illoys	on
1.1	Properties of Transition Metals	L
1.1a	Properties of Transition Metals	А
1.2.1	Corrosion	L
1.2.2	Electroplating	L
1.2a	Corrosion	А
1.3	Alloys	L
1.3a	Alloys	А
Modu	ıle 2 - Quantitative analysis	
2.1	Acid-Alkali Titrations	EX
2.1a	Acid-Alkali Titrations	А
2.1b	Acid-Alkali Titrations	А
2.2.1	Concentration and Molar Concentration	L
2.2.2	Titration Calculations	L
2.2a	Titration Calculations	А
2.3	Yields	L
2.3a	Yields	А
2.4	Calculating Theoretical Yields	L
2.4a	Calculating Theoretical Yields	А
2.5	Atom Economy	L
2.5a	Atom Economy	А
2.6	Reaction Pathways	L
2.6a	Reaction Pathways	А
2.7	Volumes of Gases	L
2.7a	Volumes of Gases	А
Modu	ıle 3 - Dynamic Equilibria and Ce	ells
3.1	The Haber process	L
3.1a	The Haber process	А
3.2	Fertilisers	L
3.2a	Fertilisers	А
3.3.1	Cells and Batteries	L
3.3.2	Fuel Cells	L
3.3a	Cells	А

SECTION 6 GROUPS, RATES AND ENERGY CHANGES

Modu	Ile 1 - Groups in the Periodic Tak	ole
1.1.1	Group 0	L
1.1.2	Group 1	L
1.1.3	Group 7	L
1.1a	Groups 0, 1 and 7	А
Modu	Ile 2 - Rates of Reaction	
2.1	Rates of Reaction	L
2.1a	Rates of Reaction	А
2.2	Calculating Rates of Reaction	L
2.2a	Calculating Rates of Reaction	Α
2.3.1	Investigating Rates of Reaction (Concentration)	EX
2.3.2	Investigating Rates of Reaction (Temperature)	EX
2.3a	Investigating Rates of Reaction	А
2.3b	Investigating Rates of Reaction	А
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
Modu	ıle 3 - Energy Changes	
3.1	Exothermic and Endothermic Reactions	EX
3.1a	Exothermic and Endothermic Reactions	A
3.1b	Exothermic and Endothermic Reactions	A
3.2	Reaction Profiles	L
3.2a	Reaction Profiles	Α
3.3	Calculating Energy Changes	L
3.3a	Calculating Energy Changes	А

EZYCHEMISTRY EDEXCEL COURSE OUTLINE

ΕX	= Experiment
L	= Lecture
Α	= Assessment

SECTION 7 FUELS AND EARTH SCIENCE

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	А
1.2	Atmospheric Pollution	L
1.2a	Atmospheric Pollution	А
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	А

SEPARATE CHEMISTRY 2

Module 1 - Energy Changes

Mout	ile 1 - Energy Changes	
1.1	Chemical Tests for lons	EX
1.1a	Chemical Tests for lons	А
1.1b	Chemical Tests for lons	А
1.2.1	Instrumental Methods	L
1.2.2	Flame Emission Spectroscopy	L
1.2a	Instrumental methods and Spectroscopy	A
	Ile 2 - Alkenes, Alcohols and	
2.1.1	oxylic Acids	L
2.1.1	Structure of Alkenes Reaction of Alkenes	L
2.1.2	Alcohols	L
		_
	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	А
2.2b	Alcohols and their use as Fuels	Α
	ıle 3 - Polymers, Nanoparticles Aaterials	
		L
and M	laterials	L
and N 3.1	Addition Polymerisation	
and M 3.1 3.1a	Addition Polymerisation Addition Polymerisation	A
and N 3.1 3.1a 3.2	Addition Polymerisation Addition Polymerisation Condensation Polymerisation	A L
and N 3.1 3.1a 3.2 3.2a	Addition Polymerisation Addition Polymerisation Condensation Polymerisation Condensation Polymerisation	A L A
and N 3.1 3.1a 3.2 3.2a 3.3	Addition Polymerisation Addition Polymerisation Condensation Polymerisation Condensation Polymerisation Natural Polymers	A L A L
and N 3.1 3.1a 3.2 3.2a 3.3 3.3a	Addition Polymerisation Addition Polymerisation Condensation Polymerisation Condensation Polymerisation Natural Polymers Natural Polymers	A L A L
and N 3.1 3.1a 3.2 3.2a 3.3 3.3a 3.4.1	Addition Polymerisation Addition Polymerisation Condensation Polymerisation Condensation Polymerisation Natural Polymers Natural Polymers Uses of Polymers	A L A L A
and N 3.1 3.1a 3.2 3.2a 3.3 3.3a 3.4.1 3.4.2	Addition Polymerisation Addition Polymerisation Condensation Polymerisation Condensation Polymerisation Natural Polymers Natural Polymers Uses of Polymers Problems with Polymers	A L A L L L
and N 3.1 3.1a 3.2 3.2a 3.3 3.3a 3.4.1 3.4.2 3.4a	Addition Polymerisation Addition Polymerisation Condensation Polymerisation Condensation Polymerisation Natural Polymers Natural Polymers Uses of Polymers Problems with Polymers Uses of Polymers	A L A L L L L
and N 3.1 3.1a 3.2a 3.3a 3.3a 3.4.1 3.4.2 3.4a 3.5.1	Addition PolymerisationAddition PolymerisationAddition PolymerisationCondensation PolymerisationCondensation PolymerisationNatural PolymersNatural PolymersUses of PolymersProblems with PolymersUses of PolymersNanoparticles	A L A L L A L
and N 3.1 3.1a 3.2a 3.3a 3.3a 3.4.1 3.4.2 3.4a 3.5.1 3.5.2	Addition PolymerisationAddition PolymerisationAddition PolymerisationCondensation PolymerisationCondensation PolymerisationNatural PolymersNatural PolymersUses of PolymersProblems with PolymersUses of PolymersNanoparticlesUses of Nanoparticles	A L A L L L A L L
and N 3.1 3.1a 3.2a 3.3a 3.3a 3.4.1 3.4.2 3.4a 3.5.1 3.5.2 3.5a 3.6.1	AddetialsAddition PolymerisationAddition PolymerisationCondensation PolymerisationCondensation PolymerisationNatural PolymersNatural PolymersUses of PolymersProblems with PolymersUses of PolymersNanoparticlesUses of NanoparticlesNanoparticlesCeramics, Polymers and	A L A L L L L L A
and N 3.1 3.1a 3.2a 3.3a 3.3a 3.4.1 3.4.2 3.4a 3.5.1 3.5.2 3.5a 3.6.1	Addition PolymerisationAddition PolymerisationAddition PolymerisationCondensation PolymerisationCondensation PolymerisationNatural PolymersNatural PolymersUses of PolymersProblems with PolymersUses of PolymersNanoparticlesUses of NanoparticlesNanoparticlesCeramics, Polymers and Composites	A L A L L L L A L L



L = Lecture

A = Assessment

SECTION 1 MOTION AND FORCES

Modu	ıle 1 - Energy Changes	
1.1	Scalars and Vectors	L
1.1a	Scalars and Vectors	А
1.2	Speed	L
1.2a	Speed	А
1.3	Distance-Time Graphs	L
1.3a	Distance-Time Graphs	А
1.3b	Distance-Time Graphs	А
1.4	Measuring Speed	L
1.4a	Measuring Speed	А
	Ile 2 - Acceleration and	
	ity-Time Graphs	
2.1	Acceleration	L
2.1a	Acceleration	Α
2.2	$v^2 - u^2 = 2as$	L
2.2a	$v^2 - u^2 = 2as$	Α
2.3	Velocity-Time Graphs and Acceleration	L
2.3a	Velocity-Time Graphs and Acceleration	А
2.4	Velocity-Time Graphs and Distance Travelled	L
2.4a	Velocity-Time Graphs and Distance Travelled	A
Modu	ıle 3 - Newton's Laws of Motion	
3.1	Newton's 1st Law of Motion	L
3.1a	Newton's 1st Law of Motion	А
3.2	Newton's 2nd Law of Motion	L
3.2a	Newton's 2nd Law of Motion	А
3.3	Gravity and Weight	L
3.3a	Gravity and Weight	А
3.4.1	Measuring Force and Accel- eration	Ex
3.4.2	Force and Acceleration Exper- iment	Ex
3.4.3	Mass and Acceleration Exper- iment	Ex
3.4a	Investigating the Relationship Between Force, Mass and Acceleration	A
3.4b	Investigating the Relationship Between Force, Mass and Acceleration	A
3.5	Newton's 3rd Law of Motion	L

Module 4 - Momentum

4.1	Calculating Momentum	L
4.1a	Calculating Momentum	А
4.2	Newton's 2nd Law of Motion and Momentum	L
4.2a	Newton's 2nd Law of Motion and Momentum	А
4.3	Conservation of Momentum in Collisions	L
4.3a	Conservation of Momentum in Collisions	А
Mod	Ile 5 - Stopping Distances	
mout	ale 5 - Stopping Distances	
5.1	Reaction Time and Thinking Distance	L
	Reaction Time and Thinking	L A
5.1	Reaction Time and Thinking Distance Reaction Time and Thinking	-
5.1 5.1a	Reaction Time and Thinking Distance Reaction Time and Thinking Distance	A
5.1 5.1a 5.2	Reaction Time and Thinking Distance Reaction Time and Thinking Distance Braking Distance	A L
5.1 5.1a 5.2 5.2a	Reaction Time and Thinking Distance Reaction Time and Thinking Distance Braking Distance Braking Distance	A L A
5.1 5.1a 5.2 5.2a 5.3	Reaction Time and Thinking Distance Reaction Time and Thinking Distance Braking Distance Braking Distance Stopping Distance	A L A L
5.1 5.1a 5.2 5.2a 5.3 5.3a	Reaction Time and Thinking Distance Reaction Time and Thinking Distance Braking Distance Braking Distance Stopping Distance Stopping Distance	A L A L A



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

3.6 Circular Motion

3.6a Circular Motion

Inertia

3.7a Inertia

3.7

3.5a Newton's 3rd Law of Motion

А

L

A L

А

EX= ExperimentL= Lecture

A = Assessment

SECTION 2 CONSERVATION OF ENERGY

Modu	ule 1 - Conservation of Energy	
1.1	Gravitational Potential Energy	L
1.1a	Gravitational Potential Energy	А
1.2	Kinetic Energy	L
1.2a	Kinetic Energy	А
1.3	Energy Transfers	L
1.3a	Energy Transfers	А
1.4	Energy Conservation, Dissipation and Efficiency	L
1.4a	Energy Conservation, Dissipation and Efficiency	A
1.5.1	Non-Renewable Energy Resources	L
1.5.2	Renewable Energy Resources	L
1.5a	Energy Resources	А
2.3a	Energy Resources	А

SECTION 3 WAVES, LIGHT AND THE EM SPECTRUM

Module 1 - Electrical Quantities

mout		
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	А
1.2	Change of Medium	L
1.2a	Change of Medium	А
1.3	Measuring the Speed of Waves	L
1.3a	Measuring the Speed of Waves	А
1.4.1	Measuring v, f and for a Wave on a Wire	EX
1.4.2	Measuring v, f and for a Wave on Water	EX
1.4a	Measuring Frequency, Speed and Wavelength	A
1.4b	Measuring Frequency, Speed and Wavelength	А
1.5.1	Waves at a Boundary	L
1.5.2	Reflection (Ray Diagrams)	L
1.5.3	Refraction (Ray Diagrams)	L
1.5a	Waves at a Boundary	А
1.6	Investigating Reflection and Refraction	EX
1.6a	Investigating Reflection and Refraction	A
1.6b	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	А
2.2.1	The Electromagnetic Spectrum	L
2.2.2	The Uses and Applications of E.M. Waves	L
2.2a	The Electromagnetic Spectrum	Α
2.3.1	Investigating the Emission of IR	EX
2.3.2	Investigating the Absorption of IR	ΕX
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	Α
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	Α
Modu	ıle 3 - Lenses and Light	
3.1.1	Convex Lenses	L
3.1.2	Concave Lenses	L
3.1a	Lenses	А
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

Module 1 - Atoms and Radioactivity L 1.1.1 Atomic Structure **1.1.2** Mass Number, Atomic Number L and Isotopes **1.1.3** The Development of the L Model of the Atom 1.1a The Atom А L 1.2.1 Radioactive Decay and Activity Natures and Properties of 1.2.2 L Nuclear Radiations 1.2.3 Nuclear Equations L 1.2.4 Half-lives L 1.2a Radioactive Decay А Module 2 - Hazards and Uses of Radioactive Emissions 2.1 Radioactive Contamination L 2.1a Radioactive Contamination А 2.2.1 Background Radiation L 2.2.2 Uses of Radioactivity L 2.2.3 Hazards of Radioactivity L Hazards and Uses of Radio-2.2a А activity 2.3.1 Nuclear Fission L

L

А

2.3.2 Nuclear Fusion

2.3a Nuclear Fission and Fusion

Module 1 - Atoms and Radioactivity 1.1.1 Gravitational Field Strength L **1.1.2** The Structure and Location of L the Solar System 1.1.3 Natural and Artificial Satellites L 1.1.4 The Life Cycle of a Star L Solar System, Stars and 1.1 А Satellites 1.2.1 Red-shift L Steady-State and Big Bang 1.2.2 L Theories 1.2.3 New Ideas L 1.2a Red-Shift and the Big Bang А

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

А

EX= ExperimentL= LectureA= Assessment

SECTION 6 ENERGY – FORCES DOING WORK

Modu	ule 1 - Types of Energy	
1.1	Energy Transfers and Work	L
1.1a	Energy Transfers and Work	А
1.1b	Energy Transfers and Work	А
1.2	Gravitational Potential Energy	L
1.2a	Gravitational Potential Energy	А
1.3	Kinetic Energy	L
1.3a	Kinetic Energy	А
1.4	Power	L
1.4a	Power	А
1.5	Energy Dissipation and Efficiency	L
1.5a	Energy Dissipation and Efficiency	A

SECTION 7 FORCES AND THEI<u>R EFFECTS</u>

Module 4 - Moments, Levers and Gears(Physics only)1.1Introduction to Forces

1.1	Introduction to Forces	L	
1.1a	Introduction to Forces	А	
1.2	Resultant Forces (Collinear)	L	
1.2a	Resultant Forces (Collinear)	А	
1.2b	Resultant Forces (Collinear)	А	
1.3	Resultant Forces (Non-collinear)	L	
1.3a	Resultant Forces (Non-collinear)	А	
1.3b	Resultant Forces (Non-collinear)	А	
1.4	Resolution of Forces	L	
1.4a	Resolution of Forces	А	
Module 2 - Moments, Levers and Gears (Physics only)			
2.1.1	Moments	L	
2.1.2	The Principle of Moments	L	
2.1a	Calculating Moments and the Principle of Moments	А	
2.2	Levers and Gears	L	
2.2a	Levers and Gears	А	



SECTION 8 ELECTRICITY AND CIRCUITS

Modu	Ile 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)	ΕX
1.2.2	Finding Resistance (Resistance vs Length)	ΕX
1.2.3	Finding Resistance (Combinations)	E>
1.2a	Finding Resistance	A
1.2b	Finding Resistance	A
Modu	ıle 2 - Circuits	
2.1.1	V-I Characteristic (Resistor)	E>
2.1.2	V-I Characteristic (Filament Lamp)	ΕX
2.1.3	V-I Characteristic (Diode)	ΕX
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
	ule 3 - Domestic Uses, Safety and : Electricity	k
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

ΕX	= Experiment
L	= Lecture
А	= Assessment

SECTION 9 MAGNETISM AND ELECTROMAGNETISM

Modu	ıle 1 - Magnetic Forces and Field	s
1.1.1	Permanent and Induced Magnetism	L
1.1.2	Magnetic Fields	L
1.1a	Magnetic Fields	А
1.2.1	The Magnetic Fields Around Wires	L
1.2.2	The Magnetic Fields Around Solenoids	L
1.2a	Electromagnetism	А
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	А
	ıle 2 - Induced Potential and formers	
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	А
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	А

SECTION 10 PARTICLE MODEL

Module 1 - The Particle Model

Moar	ile 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	А
1.2	Determining Density	EX
1.2a	Determining Density	А
1.2b	Determining Density	А
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	А
1.4	Thermal Insulation	L
1.4a	Thermal Insulation	А
1.5.1	Thermal Properties of Water	ΕX
1.5.2	Thermal Properties of Water	ΕX
1.5a	Thermal Properties of Water	А
1.5b	Thermal Properties of Water	А
Modu	ıle 2 - Pressure in Gases	
2.1.1	Particle Motion in Gases	L
2.1.2	Kelvin Scale and Absolute Zero	L
2.1a	Particle Motion in Gases and the Kelvin Scale	A
2.2.1	Pressure in Gases	L
2.2.2	pV = Constant	L
2.2a	pV = Constant	А
2.3	Increasing the Pressure of a Gas	L
2.3a	Increasing the Pressure of a Gas	A



SECTION 11 FORCES AND MATTER

Modu	ıle 1 - Stretching Springs	
1.1	Stretching and Bending	L
1.1a	Stretching and Bending	А
1.2	F = ke (Theory)	L
1.1a	F = ke (Theory)	А
1.2	Work Done in Stretching a Spring	L
1.2a	Work Done in Stretching a Spring	A
1.3	F = ke Experiment (Doing the Experiment)	EX
1.3a	F = ke Experiment (Analysing the Results)	EX
1.4.1	F = ke Experiment (Calculating Work Done)	EX
1.4.2	F = ke Experiment	А
1.4.3	F = ke Experiment	А
1.4a	Thermal Insulation	L
1.4b	Thermal Insulation	А
Modu	ıle 2 - Pressure	
2.1	P = F/A	L
2.1a	P = F/A	А
2.2	Atmospheric Pressure	L
2.2a	Atmospheric Pressure	А
2.3	P = h g	L
2.3a	P = h g	А
2.4	Upthrust in Fluids	L
2.4a	Upthrust in Fluids	А



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