Long Term Plan Science 2025-2026 Green

Year	HT1 7 weeks	HT 2 7 weeks	HT 3 6 weeks	HT 4 6 weeks	HT 5 6 weeks	HT 6 8 weeks
Careers	Ultrasound technician	Game Developer	Fire Fighter	Microbiologist	Pharmacologist	Research Scientist
KS3 Blue	**Reproduction and puberty** 1. Female reproduction 2. Male reproduction 3. Puberty 4. Fertilisation and contraception 5. foetus development 6. smoking and pregnancy 7. plant reproduction 8. fertilisation and seed dispersal	**Physics: How do forces make things happen?** **Lessons in unit** 1. What forces do & The different kinds of forces 2. Measuring forces 3. Balanced and unbalanced forces (using force arrow diagrams) 4. Friction 5. Reducing friction: practical 6. Energy 7. Transferring energy **Physics: How does the Earth fit into the Universe?** **Lessons in unit** 1. The spinning Earth & Our solar system 2. Stars, galaxies and the universe 3. Heating by the Sun 4. Earth's tilt & Seasons on Earth 5. Changing ideas about Earth	**Chemistry: What are things made of?** **Lessons in unit** 1. Solid and liquid states 2. Melting: particle model 3. Melting: melting points and freezing points 4. Particle model of substances in the gas state 5. Boiling and condensing 6. Changes of state: energy and evaporation **Chemistry: How can substances be made and changed?** **Lessons in unit** 1. Characteristics of chemical reactions 2. Conservation of mass and balanced symbol equations 3. Chemical reactions: oxidation & combustion 4. Chemical reactions: decomposition	**Biology: What are living things and what are they made of?** **Lessons in unit** 1. The common processes of all living organisms 2. Observing cells with a light microscope 3. Preparing and observing a microscope slide 4. Animal cell structures and their functions 5. Plant cell structures and their functions 6. Multicellular and unicellular organisms 7. Specialised cells are adapted for their functions 8. Catch up lesson **Biology: Digestion** **Lessons in unit** 1. The parts of the human digestive system 2. Digestion and enzymes 3. Digestion practical 4. Catch up lesson	**Physics: How do forces make things happen?** **Lessons in unit** 1. Calculating speed 2. Measuring speed: practical 3. Measuring speed accurately 4. Reading distance-time graphs 5. Interpreting distance-time graphs 6. Changing speed 7. Newton's first law 8. Streamlining 9. Comparing the speeds of different parachutes	**Chemistry: How can we explain changes in the air, land and oceans?** **Lessons in unit** 1. Inside rock 2. Rocks and minerals 3. Types of rocks 4. Structure of Earth 5. Tectonic plates 6. Igneous rock 7. Metamorphic rock **Inquiry based learning project**

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Year	HT1 7 weeks	HT 2 7 weeks	HT 3 6 weeks	HT 4 5 weeks	HT 5 6 weeks	HT 6 8 weeks
Careers	Politician	Dietician/Nutritionist	Conservationist	Chemist	Railway Track Welder	Researcher
KS3 Green	**Using Science to Investigate the World** 1. Understand the scientific method 2. Explore types of scientific evidence 3. Learn about variables in scientific research 4. Design a simple experiment 5. Conduct the experiment 6. Analyse experimental data 7. Understand the concept of scientific theories 8. Evaluate scientific research 9. Discuss the impact of science on society 10. Discover famous scientists and their contributions 11. Develop a scientific argument 12.Catch up lesson - Reflect on the learning and	**Lifestyles** 1. Understand the basic components of a healthy lifestyle. 2. Explore the human skeletal system. 3. Learn about muscular system. 4. Investigate the cardiovascular system. 5. Discuss respiratory health. 6. Examine the impact of exercise on health. 7. Analyse the importance of a balanced diet. 8. Sexual reproduction?. 9. Learn about the nervous system. 10. Investigate hormonal balance and health (sexual education) + mental health. 11. Understanding health information (contraception focus). 12. Catch up lesson	**Plants and Wildlife** 1. Introduction to plants and wildlife, pupil questions, MRS GREN 2. Structure of plant 3. Photosynthesis and importance of light 4. Plant reproduction (asexual and sexual) 5. Coloured water and plant experiment 6. Ecosystems and food chains 7. Adaptations of plants and animals to their environments 8. Catch up and revision 9. Assessment 10 and 11. Interactions between humans, plants and animals. Research project. 12. Catch up/ Reflection/ Review	**Introduction to chemicals in the world around us** 1. Chemicals as matter 2. Acids Alkalis and the pH scales 3. Every day Acids and Alkalis 4. Neutralisation 5. Mid Point assessment 6. Red Cabbage indicator practical 7. Metals 8. More Metals 9. Chemists in Society 10. Assessment and Catch up	**Atoms, Elements and Matter** 1. Atoms, Elements and Compounds 2. Elements, Compounds and Mixtures 3. Structure of the Atom 4. Chemical Formulae 5. States of Matter 6. Mid Point Assessment and Catch Up 7. Melting and Freezing 8. Evaporation, Condensation and Sublimation 9. Gas Pressure 10. Diffusion 11. Exothermic and Endothermic reactions 12. Assessment and Catch up	1. What is Science and Why Does It Matter? 2. How Did the Scientific Revolution Change the World? 3. How Do Forces Make Things Move? 4. How Can We Measure Speed and Motion? 5. How Does Electricity Work? 6. How Can Magnets and Electromagnets Be Useful? 7. How Do Germs Spread and How Can We Stop Them? 8. Assessment and Catch Up 9. How Has Public Health Improved Our Lives? 10. How Does Variation Help Living Things Survive? 11. How Do Scientists Classify Living Things? 12. What Is Radioactivity and How Is It Used?

	understand next steps					13. What Is Inside an Atom? 14. How Did Scientists Discover DNA? 15. How Is Science Shaping Our Future? 16. Assessment and Catch Up

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Year	HT1 7 weeks 21 Lessons	HT 2 7 weeks 21 Lessons	HT 3 6 weeks 18 Lessons	HT 4 5 weeks 15 lessons	HT 5 6 weeks 18 lessons	HT 6 8 weeks 24 Lessons
Careers	**Microbiologist**	**Medical professional**	**Optician**	**Blood Donor/Phlebotomist**	**DNA Analyst**	**Geneticists**
Y10 GCSE Biology	4.1 Cell Biology (12)	4.3 Infection control (6) 4.4 Bioenergetics (5)	4.5 Homeostasis (12)	4.2 Organisation (12)	4.6 Inheritance (20)	4.6 Inheritance (20)
	Cell Structure 1) 4.1.1.1 Intro to cells, Eukaryotes and prokaryotes Scale / calculations/ centi/milli/micro/nano 2) 4.1.1.2 Animal vs plant cells Label and explain 3) 4.1.1.5 Microscopy Development over time Calculations – real size / image size. Magnification 4) RP – Microscope – Draw and label plant and animal cells 5) 4.1.1.4 Cell differentiation – in early life / throughout life e.g. repair and replace. 4.1.1.3 Specialised cells – Sperm, nerve, muscle, root hair, xylem, phloem	**Communicable diseases** 1) 4.3.1.1 Communicable diseases How diseases are caused by viruses, bacteria, protists and fungi How spread can be reduced / prevented Pathogen spread – water / air/ contact Bacteria and virus reproduction / poisons 2) 4.3.1.2 Viral diseases Measles HIV Tobacco mosaic 4.3.1.3 Bacterial 4.3.1.4 Fungal 4.3.1.5 Protist 3) 4.3.1.6 Human Defence Skin / nose / trachea/ bronchi/ stomach Phagosytosis Antibody production	1) 4.5.1 Homeostasis Define Response to external / internal changes Blood glucose Body Temp Water levels Control Systems – receptors, control centres, effectors 4.5.2 Nervous System CNS – Stimulus-receptor- coordinator – effector- response 2) RP - Reaction times 3) 4.5.2.2 The Brain Identify key parts and describe function 4.5.2.3 The Eye Structure / function 4) 4.5.2.3 The Eye contd Structure / function 5) 4.5.2.4 Control of body temperature	1) Principles of Organisation 4.2.1 Organisation principles Cells/ Tissues/ Organs etc 4.2.2.1 Digestive system as example of organ system 2) Digestion and Enzymes 4.2.2.1 Digestive system Enzymes (temp/ PH) Lock and Key Amalyse, protease, lipase, Carbohydrase, bile Role of dig enzymes 3) Food Tests Required Practical RP Qualitative reagents - Enzymes, benedicts	1)Meiosis 4.6.1.1 Sexual and Asexual reproduction Meiosis Sperm and egg cell fusion Pollen and egg cells 4.6.1.2 Meiosis 2) Asexual and Sexual reproduction 4.6.1.3 Advantages and disadvantages of Sexual and Asexual reproduction 3) Revision 4) Low Stakes Mock 5) Low Stakes Mock 6)Mock Review	**Adaptations independence and competition** 1) 4.7.1.1 Communities 4.7.1.2 4.7.1.3 Abiotic and Biotic factors 2) 4.7.1.4 Adaptations **Organisation of an ecosystem** 3) 4.7.2.1 Levels of organisation 4) RP – Distribution of Organisms 5) 4.7.2.2 How materials are cycled 6) 4.7.2.3 Decomposition

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	6) Catch up 6) 4.1.1.6 Culturing Microorganisms Cell division Bacteria growth Describe How to prepare uncontaminated culture using aseptic technique Cal cross sectional area Cal Number of bacteria 7) RP – Antiseptics or antibiotics on bacterial growth using agar plates **Cell division** 8) 4.1.2.1 Chromosomes Nucleus housing chromosomes DNA Molecules Genes 4.1.2.2 Mitosis and cell cycle Cell division 9) 4.1.2.3 Stem Cells Function in embryos, adults and plants Cloning of stem cells Treatment – diabetes/ paralysis **Transport in cells** 10) 4.1.3.1 Diffusion	Antitoxsin production 4) 4.3.1.7 Vaccination How prevent illness Schedules 4.3.1.8 Antibiotics and painkillers Use / benefits / Issues Virus' and antibiotics 5) 4.3.1.8 Discovery of antibiotics History Tests 6) 4.3.3.1 Detection and identification of plant diseases 7) 4.3.3.2 plant defence responses **4.4 Bioenergetics** 8) 4.4.1.1 Photosynthesis Rate of P/S 9) RP Light intensity on rate pf P/S 10) 4.4.1.3 Use of glucose from P/S 11) 4.4.2.1 Aerobic vs anaerobic respiration Similarities / differences Word equations	6) Catch up and revision 7) Assessment **Hormonal Coordination** 8) 4.5.3.1 Endocrine System Identify the position of different parts and function 9) 4.5.3.2 Blood Glucose control Control system Type 1 Diabetes Type 2 Diabetes 10) 4.5.3.3 Water and Nitrogen balance 11) Catch up 12) 4.5.3.4 Hormones in Reproduction Describe hormones involved Puberty Oestrogen Testosterone FSH 13) 4.5.3.5 Contraception Evaluate different methods	4) RP Effect of PH on rate of reaction of amylase 5) The Heart 4.2.2.2 Heart and Structure and function of heart, lungs 6) Blood vessels Arteries / veins/ capillaries 7) Components of Blood 4.2.2.3 Blood Function of each component Photos of different types of cell 8) Assessment and Catch up 9) Cardiovascular health 4.2.2.4 Coronary Heart Disease – non-communicable disease What it is inc valves Adv/Dis of treating with drugs Transplant 10) Health Issues 4.2.2.5 Health Issues	7) DNA and the Genome 4.6.1.4 DNA and the genome 4.6.1.5 DNA structure 8) Genetic Inheritance 4.6.1.6 Genetic inheritance 4.6.1.7 Inherited disorders 4.6.1.8 Sex Determination 9) Variation and Evolution 4.6.2.1 Variation 4.6.2.2 Evolution 10) Selective breeding and Genetic engineering 4.6.2.3 Selective breeding 4.6.2.4 Genetic engineering 11) The Theory of Evolution 4.6.3.1 Theory of evolution	7) RP Temp on rate of decay **Biodiversity and the effect of human interaction on ecosystems** 8) 4.7.4.1 Trophic levels 4.7.4.2 Pyramids of biomass 4.7.4.3 Transfer of biomass 9) Mid Point assessment and Catch up lesson 10) 4.7.3.1 Biodiversity &4.7.3.6 Maintaining Biodiversity 11) 4.7.3.2 Waster management and 4.7.3.3 Land use 12) 4.7.3.4 Deforestation & 4.7.3.5 Global Warming 13) 4.7.5.1 Factors affecting food security 14) 4.7.5.2 Farming techniques 15) 4.7.5.3 Sustainable fisheries

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	Factors impacting rate of diffusion temp, membrane, concentration Calculate surface area ratios 11) 4.1.3.2 Osmosis Describe/ explain RP – Salt or sugar solutions – plant issue 12) 4.1.3.3 Active Transport	Yeast – fermentation 12) 4.4.2.2 Response to exercise HR, BR, Breath Vol Insufficient oxygen 4.4.2.3 Metabolism	14) 4.5.4.1 Plant Hormones – control and coordination 15) RP Effect of light or gravity on seedlings 16) Catch up and Revision 17) Assessment 18) Reflect and review	Health and disease Define health Communicable vs non communicable diseases Different types of disease and their impact e.g. on immune system, viruses and cancers, allergies, depression / mental health Graphs, tables, data, correlations 11) Effect of Lifestyles 4.2.2.6 Effect of lifestyle on non-communicable Impact of these on finances/ humans at individual, communication, national, global scale Risk factors Causal mechanisms 12) Cancer 4.2.2.7 Cancer Describe Benign tumours Malignant tumours Risk factors 13) Plant Tissues 4.2.3.1 Plant tissue 4.2.3.2 Plant organ systems	12) Understanding genetics 13) Fossils and Extinction 4.6.3.4 Evidence of evolution 4.6.3.5 Fossils 4.6.3.6 Extinction 14) Classification of Living things 4.6.3.7 Resistant Bacteria 4.6.4 classification of living organisms 15) Speciation and Cloning 4.6.3.2 Speciation 4.6.2.5 Cloning 16) Review and Assess 17) Assessment Improvement Lesson 18) Inheritance Showcase Lesson	16) 4.7.5.4 Role of biotechnology 17) Catch up and Revision Lesson 18) Assessment Lessons 19-24 Revision: 1. Cell Biology Revision and Required Practical Skills 2. Organisation Revision: Digestion, Enzymes and Circulation 3. Infection and Response / Bioenergetics Revision 4. Homeostasis and Response Revision 5. Inheritance, Variation and Evolution Revision 6. Ecology Revision, Exam Technique and Catch Up

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				14) Plant Organ Systems 4.2.3.2 Plant organ systems **15) assessment and catch up**		

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Year	HT1 7 weeks 21 Lessons	HT 2 7 weeks 21 Lessons	HT 3 6 weeks 18 Lessons	HT 4 5 weeks 15 Lessons	HT 5 6 weeks 18 lessons	HT6 1 WEEK BEFORE EXAM 3 weeks post exam
Careers	**Microbiologist**	**Medical professional**	**Optician**	**DNA Analysis**	Zoo Keeper	
Y11	4.1 Cell Biology	4.2 Organisation 4.3 Infection control	4.4 Bioenergetics 4.5 Homeostasis	4.6 Inheritance	4.7 Ecology	
	Cell Structure 1) 4.1.1.1 Intro to cells, Eukaryotes and prokaryotes Scale / calculations/ centi/milli/micro/nano 2) 4.1.1.2 Animal vs plant cells Label and explain 3) 4.1.1.5 Microscopy Development over time Calculations – real size / image size. Magnification 4) RP – Microscope – Draw and label plant and animal cells 5) 4.1.1.4 Cell differentiation – in early life / throughout life e.g. repair and replace. 4.1.1.3 Specialised cells – Sperm, nerve, muscle, root hair, xylem, phloem 6) Catch up	**4.2 Organisation** 1) 4.2.1 Organisation principles Cells/ Tissues/ Organs etc 4.2.2.1 Digestive system as example of organ system 2) 4.2.2.1 Digestive system Enzymes (temp/ PH) Lock and Key Amalyse, protease, lipase, Carbohydrase, bile Role of dig enzymes 3) RP Qualitative reagents - Enzymes, benedicts 4) RP Effect of PH on rate of reaction of amylase 5) 4.2.2.2 Heart and Blood vessels Structure and function of heart, lungs Arteries / veins/ capillaries 6) 4.2.2.3 Blood Function of each component Photos of different types of cell	**4.4 Bioenergetics** 1) 4.4.1.1 Photosynthesis Rate of P/S RP Light intensity on rate pf P/S 2) 4.4.1.3 Use of glucose from P/S 3) 4.4.2.1 Aerobic vs anaerobic respiration Similarities / differences Word equations Yeast – fermentation 4.4.2.2 Response to exercise HR, BR, Breath Vol Insufficient oxygen 4.4.2.3 Metabolism 4) Catch up and Assessment **4.5 Homeostasis**	**Reproduction** 1)Meiosis 4.6.1.1 Sexual and Asexual reproduction Meiosis Sperm and egg cell fusion Pollen and egg cells 4.6.1.2 Meiosis 2) Asexual and Sexual reproduction 4.6.1.3 Advantages and disadvantages of Sexual and Asexual reproduction 3) Revision 4) Mock 5) Mock	**Adaptations independence and competition** 1) 4.7.1.1 Communities 4.7.1.2 4.7.1.3 Abiotic and Biotic factors 2) 4.7.1.4 Adaptations **Organisation of an ecosystem** 3) 4.7.2.1 Levels of organisation 4) RP – Distribution of Organisms 5) 4.7.2.2 How materials are cycled 6) 4.7.2.3 Decomposition	**Targeted revision from mock feedback**

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	6) 4.1.1.6 Culturing Microorganisms Cell division Bacteria growth Describe How to prepare uncontaminated culture using aseptic technique Cal cross sectional area Cal Number of bacteria 7) RP – Antiseptics or antibiotics on bacterial growth using agar plates **Cell division** 8) 4.1.2.1 Chromosomes Nucleus housing chromosomes DNA Molecules Genes 4.1.2.2 Mitosis and cell cycle Cell division 9) 4.1.2.3 Stem Cells Function in embryos, adults and plants Cloning of stem cells Treatment – diabetes/ paralysis **Transport in cells** 10) 4.1.3.1 Diffusion Factors impacting rate of diffusion temp, membrane, concentration Calculate surface area ratios 11) 4.1.3.2 Osmosis	7) 4.2.2.4 Coronary Heart Disease – non-communicable disease What it is inc valves Adv/Dis of treating with drugs Transplant 8) 4.2.2.5 Health Issues Health and disease Define health Communicable vs non communicable diseases Different types of disease and their impact e.g. on immune system, viruses and cancers, allergies, depression / mental health Graphs, tables, data, correlations 9) 4.2.2.6 Effect of lifestyle on non-communicable Impact of these on finances/ humans at individual, communication, national, global scale Risk factors Causal mechanisms 10) 4.2.2.7 Cancer Describe Benign tumours Malignant tumours Risk factors 11) 4.2.3.1 Plant tissue 4.2.3.2 Plant organ systems	5) 4.5.1 Homeostasis Define Response to external / internal changes Blood glucose Body Temp Water levels Control Systems – receptors, control centres, effectors 4.5.2 Nervous System CNS – Stimulus-receptor- coordinator – effector- response 6) RP - Reaction times 7) 4.5.2.2 The Brain Identify key parts and describe function 4.5.2.3 The Eye Structure / function 8) 4.5.2.3 The Eye contd Structure / function 9) 4.5.2.4 Control of body temperature 10) Catch up / assessment **Hormonal Coordination**	6) DNA and the Genome 4.6.1.4 DNA and the genome 4.6.1.5 DNA structure 7) Genetic Inheritance 4.6.1.6 Genetic inheritance 4.6.1.7 Inherited disorders 4.6.1.8 Sex Determination 8) Variation and Evolution 4.6.2.1 Variation 4.6.2.2 Evolution 9) Selective breeding and Genetic engineering 4.6.2.3 Selective breeding 4.6.2.4 Genetic engineering 10) The Theory of Evolution 4.6.3.1 Theory of evolution 11) Understanding genetics	7) RP Temp on rate of decay **Biodiversity and the effect of human interaction on ecosystems** 8) 4.7.4.1 Trophic levels 4.7.4.2 Pyramids of biomass 4.7.4.3 Transfer of biomass 9) Mid Point assessment and Catch up lesson 10) 4.7.3.1 Biodiversity &4.7.3.6 Maintaining Biodiversity 11) 4.7.3.2 Waster management and 4.7.3.3 Land use 12) 4.7.3.4 Deforestation & 4.7.3. 5 Global Warming 13) 4.7.5.1 Factors affecting food security 14) 4.7.5.2 Farming techniques 15) 4.7.5.3 Sustainable fisheries	

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	Describe/ explain RP – Salt or sugar solutions – plant issue 12) 4.1.3.3 Active Transport	12) 4.2.3.2 Plant organ systems **Communicable diseases** 1) 4.3.1.1 Communicable diseases How diseases are caused by viruses, bacteria, protists and fungi How spread can be reduced / prevented Pathogen spread – water / air/ contact Bacteria and virus reproduction / poisons 2) 4.3.1.2 Viral diseases Measles HIV Tobacco mosaic 4.3.1.3 Bacterial 4.3.1.4 Fungal 4.3.1.5 Protist 3) 4.3.1.6 Human Defence Skin / nose / trachea/ bronchi/ stomach Phagosytosis Antibody production Antitoxsin production 4) 4.3.1.7 Vaccination How prevent illness Schedules 4.3.1.8 Antibiotics and painkillers Use / benefits / Issues Virus' and antibiotics	11) 4.5.3.1 Endocrine System Identify the position of different parts and function 12) 4.5.3.2 Blood Glucose control Control system Type 1 Diabetes Type 2 Diabetes 13) 4.5.3.3 Water and Nitrogen balance 14) 4.5.3.4 Hormones in Reproduction Describe hormones involved Puberty Oestrogen Testosterone FSH 15) 4.5.3.5 Contraception Evaluate different methods 16) 4.5.4.1 Plant Hormones – control and coordination 17) RP Effect of light or gravity on seedlings 18) Review / Assess	12) Fossils and Extinction 4.6.3.4 Evidence of evolution 4.6.3.5 Fossils 4.6.3.6 Extinction 13) Classification of Living things 4.6.3.7 Resistant Bacteria 4.6.4 classification of living organisms 14) Speciation and Cloning 4.6.3.2 Speciation 4.6.2.5 Cloning 15) Review and Assess	16) 4.7.5.4 Role of biotechnology 17) Catch up and Revision Lesson 18) Assessment	

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		5) 4.3.1.8 Discovery of antibiotics History Tests 6) 4.3.3.1 Detection and identification of plant diseases 7) 4.3.3.2 plant defence responses				

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Year 10 and 11 Long term plan for 2026-27

	HT1	HT2	HT3	HT4	HT5	HT6
	Sept- Oct	Nov-Dec	Jan – Feb	Feb -March	April-May	June-July
	6-7 weeks	6-7 weeks	5-6 weeks	5-6 weeks	4-5 weeks	6-7 weeks
	18 lessons	18 lessons	15 lessons	15 lessons	12 lessons	18 lessons
Year10	Projects/ Intro 4.4 Bioenergetics (5)	4.1 Cell Biology (12)	4.2 Organisation (12)	4.5 Homeostasis (12)	4.6 Inheritance (20)	4.6 Inheritance (20) 4.3 Infection control (6)
Year 11	4.7 Ecology (19)	Review/ recap: 4.1 Cell Biology (12) 4.3 Infection control (6)	Review / Recap: 4.2 Organisation (12) 4.4 Bioenergetics (5)	Review/ recap: 4.5 Homeostasis (12) 4.6 Inheritance (20)	Revision	