



LATHOM
HIGH SCHOOL

Glenburn Road, Skelmersdale, Lancashire WN8 6JN

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Headteacher: Mrs J M Galbraith

Curriculum Overview

Science

Year 7

HT1	HT2	HT3	HT4	HT5	HT6
<p>Safety How Science Works Activities Baseline Testing Setting</p> <p>Knowledge</p> <p>Variables Prediction Valid testing Risk Assessment Accuracy Precision Plotting Graphs Types of Error Range of Data</p> <p>Key Skills</p> <p>Effective planning of an investigation. Identification of a hypothesis, using scientific knowledge to make predictions.</p> <p>Carrying out practical work to collect, record and present data.</p> <p>Analyse patterns in data.</p> <p>Evaluate data and method.</p>	<p>Unit 1 Forces P1 Unit 5 Matter P1 Unit 8 Organisms P1</p> <p>Knowledge</p> <p>Unit 1 Identification of Forces Measurement of Force Balanced/Unbalanced Speed, Distance, Time Gravity Unit 5 Particles, States of Matter, Changes of State, Diffusion, Gas Pressure, Mixtures and Separation of Mixtures. Unit 8 Levels of Organisation, The Skeleton, Joints, Muscles, Cells, Diffusion</p> <p>Key Skills</p> <p>Investigating different Independent Variables Using measuring equipment effectively. Selecting methods to display data. Identify control variables Calculation of means</p>	<p>Complete HT2 Units Unit 2 Electromagnets P1 Unit 6 Reactions P1 Unit 9 Ecosystems P1</p> <p>Knowledge</p> <p>Unit 2 Potential Difference, Resistance, Series and Parallel Circuits, Current, Charge Unit 6 Acids and Alkalis, pH, Neutralisation, Making Salts, Metals and Non Metals, Reactivity of Metals Unit 9 Food Chains/Webs, Ecosystems, Competition, Flowers, Pollination, Germination, Growth, Seed Dispersal.</p> <p>Key Skills</p> <p>Identification of hazards. Writing a question linking variables. Identifying patterns in data. Carry out methods carefully and consistently.</p>	<p>Unit 2 Electromagnets P1 Unit 6 Reactions P1 Unit 9 Ecosystems P1</p> <p>Knowledge</p> <p>Unit 2 Potential Difference, Resistance, Series and Parallel Circuits, Current, Charge Unit 6 Acids and Alkalis, pH, Neutralisation, Making Salts, Metals and Non Metals, Reactivity of Metals Unit 9 Food Chains/Webs, Ecosystems, Competition, Flowers, Pollination, Germination, Growth, Seed Dispersal.</p> <p>Key Skills</p> <p>Identification of hazards. Writing a question linking variables. Identifying patterns in data. Carry out methods carefully and consistently.</p>	<p>Complete HT 4 Units Unit 3 Energy P1 Unit 7 Earth P1 Unit 10 Genes P1</p> <p>Knowledge</p> <p>Unit 3 Food and Fuels, Energy Resources, Power, Conservation of Energy, Dissipation. Unit 7 Earth Structure, Types of Rock, The Rock Cycle, Ceramics, The Night Sky, The Solar System, Earth & Moon Unit 10 Variation, Adaptation, Adolescence, Reproductive Systems, Fertilisation, Foetus Development, Menstrual Cycle</p> <p>Key Skills</p> <p>Discuss ethical, social and economic issues. Graphing data relating to variation. Write in a style to fit purpose and audience. Appropriate and accurate use of scientific vocabulary.</p>	<p>Unit 3 Energy P1 Unit 7 Earth P1 Unit 10 Genes P1</p> <p>Knowledge</p> <p>Unit 3 Food and Fuels, Energy Resources, Power, Conservation of Energy, Dissipation. Unit 7 Earth Structure, Types of Rock, The Rock Cycle, Ceramics, The Night Sky, The Solar System, Earth & Moon Unit 10 Variation, Adaptation, Adolescence, Reproductive Systems, Fertilisation, Foetus Development, Menstrual Cycle</p> <p>Key Skills</p> <p>Discuss ethical, social and economic issues. Graphing data relating to variation. Write in a style to fit purpose and audience. Appropriate and accurate use of scientific vocabulary.</p>

Year 8

HT1	HT2	HT3	HT4	HT5	HT6
<p>Unit 3 Energy P1 Unit 7 Earth P1 Unit 4 Waves P1</p> <p>Knowledge Unit 3 Food and Fuels, Energy Resources, Power, Conservation of Energy, Dissipation. Unit 7 Earth Structure, Types of Rock, The Rock Cycle, Ceramics, The Night Sky, The Solar System, The Earth and The Moon Unit 4 Sound Waves, The Ear and Hearing, Light, The Eye, Colour</p> <p>Key Skills Identify risks and hazards. Discuss ethical, social and economic issues. Appropriate and accurate use of scientific vocabulary. Use measuring equipment correctly Carry out a method carefully and consistently</p>	<p>Complete HT1 Units Unit 1 Forces P2 Unit 5 Matter P2 Unit 8 Organisms P2</p> <p>Knowledge Unit 1 Friction, Stretching, Turning Forces, Pressure in Fluids, Stress on Solids Unit 5 Elements, Atoms, Compounds, Formulae, Polymers, The Periodic Table. Unit 8 Breathing and Gas Exchange, Drugs, Alcohol, Smoking, Food, Digestion and Diet</p> <p>Key Skills Drawing appropriate line(s) of best fit. Plan methods and decide how to control variables. Identify patterns in data. Identify further questions arising from investigations Identify risks and hazards</p>	<p>Unit 1 Forces P2 Unit 5 Matter P2 Unit 8 Organisms P2</p> <p>Knowledge Unit 1 Friction, Stretching, Turning Forces, Pressure in Fluids, Stress on Solids Unit 5 Elements, Atoms, Compounds, Formulae, Polymers, The Periodic Table. Unit 8 Breathing and Gas Exchange, Drugs, Alcohol, Smoking, Food, Digestion and Diet</p> <p>Key Skills Drawing appropriate line(s) of best fit. Plan methods and decide how to control variables. Identify patterns in data. Identify further questions arising from investigations Identify risks and hazards</p>	<p>Unit 2 Electromagnets P2 Unit 6 Reactions P2 Unit 9 Ecosystems P2</p> <p>Knowledge Unit 2 Magnetism, Electromagnetism, Using Electromagnets. Unit 6 Atoms, Combustion, Thermal Decomposition, Mass Conservation, Endo and Exothermic Reactions Unit 9 Respiration, Biotechnology, Leaves, Photosynthesis, Plant Minerals</p> <p>Key Skills Identify risks and hazards. Design a table for data being gathered. Make a conclusion and explain it. Analyse strengths and weaknesses in an enquiry. Devise a hypothesis. Identify sources of random and systematic error</p>	<p>Complete HT4 Units Unit 3 Energy P2 Unit 7 Earth P2 Unit 10 Genes P2</p> <p>Knowledge Unit 3 Work, Energy and Machines, Temperature, Energy Transfer Unit 7 Global Warming, The Carbon Cycle, Climate Change, Extracting Metals, Recycling Unit 10 Natural Selection, Extinction, Biodiversity, Inheritance, DNA, Genetics</p> <p>Key Skills Suggest ways to improve a method and minimise errors. Identify patterns in data. Evaluate claims. Identify a pattern in data from a results table or bar chart.</p>	<p>Complete HT5 Units Unit 4 Waves P2</p> <p>Knowledge Unit 4 Sound Waves, Water Waves and Energy. Radiation and Energy, Modelling Waves</p> <p>Key Skills Use scientific vocabulary accurately and use appropriate units. Record observations using scientific words. Use a model to explain observations around wave behaviour.</p>

Year 9

HT1	HT2	HT3	HT4	HT5	HT6
<p>Unit 4 P2 Waves Working Scientifically</p> <p>Knowledge Unit 4 Sound Waves, Water Waves and Energy. Radiation and Energy, Modelling Waves <i>Working Scientifically</i> Hypothesis. Theories. Models Communication, Ethics, Issues, Risk Assessment, Designing Investigations, Collecting Data, Presenting Data, Units and Equations, Drawing Conclusions, Evaluation</p> <p>Key Skills Use scientific vocabulary accurately and use appropriate units. Record observations using scientific words. Use a model to explain observations around wave behaviour.</p>	<p>Maths Skills Key Ideas Practical Skills</p> <p>Knowledge <i>Maths Skills</i> Significant Figures, Decimal Places, Unit Conversion, Prefixes, Standard Form, <i>Key Ideas</i> Cells, Atoms, Elements and Compounds, Kinetic Theory, Forces, Energy. <i>Practical Skills</i> Microscopy Making Salts Specific Heat Capacity Osmosis Electrolysis Resistance Key Skills Developing numerical skills as prep for KS4. Key Practical Skills Observing Cells using light microscope. Use of appropriate separation techniques. Use of appropriate electrical equipment. Accurate/precise temperature readings.</p>	<p>Practical Skills</p> <p>Knowledge Food Tests Temperature Changes Density Enzymes Rates of Reaction Force and Extension Photosynthesis Chromatography</p> <p>Key Practical Skills Appropriate use of reagents to test foods. Accurate/precise temperature readings. Determining volume of regular/irregular shaped objects. Use of a water bath, accurate time measurement. Development of observational skills. Accurate use of an appropriate Newtonmeter. Accurate determination of gas volume. Precise measurements in chromatography (R_f values)</p>	<p>Practical Skills</p> <p>Knowledge Reaction Time Water Purification Acceleration Field Investigations. Waves Radiation and Absorption</p> <p>Key Practical Skills Accurate time measurement. Volume, mass and temperature measurement. Accurate measurements of length, mass and time. Use of sampling techniques to estimate population. Accurate measurement of wavelength and period to determine frequency and wave speed.</p>	<p>Cells Foundation Energy Foundation Atomic Structure Foundation</p> <p>Knowledge <i>Cells Foundation</i> Cells, Microscopy, DNA, Mitosis, Diffusion, Active Transport, Exchanging Surfaces <i>Energy Foundation</i> Energy Stores, Kinetic Energy, Potential Energy, Specific Heat Capacity, Energy Resources <i>Atomic Structure Foundation</i> Elements, Compounds Separation Electronic Structure, The periodic Table, Groups 1,7 + 0 Key Skills Use of models to describe/explain movement in/out of cells. Use of/rearrangement of formulae, units and very small/large numbers. Explaining element properties using knowledge of electronic structure.</p>	<p>Cells Foundation Energy Foundation Atomic Structure Foundation</p> <p>Knowledge <i>Cells Foundation</i> Cells, Microscopy, DNA, Mitosis, Diffusion, Active Transport, Exchanging Surfaces <i>Energy Foundation</i> Energy Stores, Kinetic Energy, Potential Energy, Specific Heat Capacity, Energy Resources <i>Atomic Structure Foundation</i> Elements, Compounds Separation Electronic Structure, The periodic Table, Groups 1,7 + 0 Key Skills Use of models to describe/explain movement in/out of cells. Use of/rearrangement of formulae, units and very small/large numbers. Explaining element properties using knowledge of electronic structure.</p>

Biology

	Half term 1	Half term 2	Half term 3	Half term 4	Half term 5	Half term 6
Year 10	<p>B1 Cell Division</p> <p>Knowledge – Cells, Microscopy, Mitosis, Movement in & Out of Cells.</p> <p>Key Skills Using a microscope. Magnification Calculations Interpreting graphs and charts.</p>	<p>B2 Cell Organisation</p> <p>Knowledge – Enzymes & Digestion, Circulatory System, Cardiovascular System, Non-Communicable Diseases,</p> <p>Key Skills – Identifying foods from food tests. Evaluating the risks factors involved in non-communicable diseases. Interpreting graphs and data.</p>	<p>B3 Infection & Response</p> <p>Knowledge – Communicable Diseases, Developing Drugs Vaccination.</p> <p>Key Skills –</p> <p>Evaluating drug development plans. Drawing graphs, interpreting graphs and data.</p>	<p>B4 Bioenergetics</p> <p>Knowledge – Photosynthesis & Limiting factors, Respiration & Metabolism.</p> <p>Key Skills –</p> <p>Measuring heart rate and breathing rate. Drawing graphs and interpreting data.</p>	<p>B4 Bioenergetics</p> <p>Knowledge – Photosynthesis & Limiting factors, Respiration & Metabolism.</p> <p>Key Skills –</p> <p>Measuring heart rate and breathing rate. Drawing graphs and interpreting data</p>	<p>B5 Homeostasis & Response</p> <p>Knowledge – Homeostasis, The Nervous System, The endocrine System, Puberty and the Menstrual Cycle, Fertility.</p> <p>Key Skills – Drawing graphs and interpreting data, calculating reaction times.</p>
Year 11	<p>B5 Homeostasis & Response</p> <p>Knowledge – Homeostasis, The Nervous System, The endocrine System, Puberty and the Menstrual Cycle, Fertility.</p> <p>Key Skills – Drawing graphs and interpreting data, calculating reaction times.</p>	<p>B6 Inheritance, Variation & Evolution</p> <p>Knowledge – DNA, Reproduction, Meiosis, Genetic Diagrams, Variation, Selective Breeding, Genetic Engineering, Fossils, Classification.</p> <p>Key Skills – Drawing punnet squares, identifying genetic disorders from genetic trees.</p>	<p>B6 Inheritance, Variation & Evolution</p> <p>Knowledge – DNA, Reproduction, Meiosis, Genetic Diagrams, Variation, Selective Breeding, Genetic Engineering, Fossils, Classification.</p> <p>Key Skills – Drawing punnet squares, identifying genetic disorders from genetic trees.</p>	<p>B7 Ecology</p> <p>Knowledge – Abiotic & Biotic Factors Adaptations, Food Chains, Quadrats & Transects, The Water Cycle, Biodiversity & Waste Management, Global Warming, Deforestation and Land use.</p> <p>Key Skills – Using quadrats & transects, evaluating the factors affecting the ecosystem.</p>	<p>Revision & Exams</p>	<p>Revision & Exams</p>

Chemistry

	Half term 1	Half term 2	Half term 3	Half term 4	Half term 5	Half term 6
Year 10	<p style="color: red;">C2 Bonding, Structure & States of Matter</p> <p style="color: red;">Knowledge – Ionic, Covalent & Metallic Bonding, Giant Covalent & Ionic Structures & properties, Polymers, States of matter.</p> <p style="color: red;">Key Skills – Drawing dot & cross diagrams to represent bonding. Evaluating molecular models.</p>	<p style="color: red;">C3 Quantitative Chemistry</p> <p style="color: red;">Knowledge – Relative formula mass, The Mole, Conservation of Mass, The Mole & Equations, Limiting Reactants, Concentrations of Solutions.</p> <p style="color: red;">Key Skills – Numeracy, chemical calculations.</p>	<p style="color: red;">C4 Chemical Reactions</p> <p style="color: red;">Knowledge – Acids & Bases, Strong & weak acids, Reactions of Acids, The Reactivity series, separating metals from metal oxides, Redox reactions, Electrolysis.</p> <p style="color: red;">Key Skills – Making Salts, Neutralisation, Recognising hazards, analysing experimental data.</p>	<p style="color: red;">C4 Chemical Reactions</p> <p style="color: red;">Knowledge – Acids & Bases, Strong & weak acids, Reactions of Acids, The Reactivity series, separating metals from metal oxides, Redox reactions, Electrolysis.</p> <p style="color: red;">Key Skills – Making Salts, Neutralisation, Recognising hazards, analysing experimental data.</p>	<p style="color: red;">C5 - Energy in Reactions</p> <p style="color: red;">Knowledge – Endothermic & Exothermic Reactions, Bond Energies.</p> <p style="color: red;">Key Skills – Drawing reaction profiles, calculating bond energies, numeracy.</p>	<p style="color: red;">C6 - Rates of Reaction</p> <p style="color: red;">Knowledge – Rate of Reaction & Factors, Reversible Reactions, Le Chatelier's Principle.</p> <p style="color: red;">Key Skills – Measuring rate of reaction, drawing tangents, calculating gradients, interpreting graphs and data. Drawing graphs and lines of best fit.</p>
Year 11	<p style="color: red;">C7 - Organic Chemistry</p> <p style="color: red;">Knowledge – Hydrocarbons, Fractional Distillation, Combustion, Uses and Cracking of Crude Oil.</p> <p style="color: red;">Key Skills – Drawing molecular & displayed formula, evaluating fuels.</p>	<p style="color: red;">C8 - Chemical Analysis</p> <p style="color: red;">Knowledge – Purity & Formulations, Paper Chromatography, Tests for gases.</p> <p style="color: red;">Key Skills – Identifying gases, calculating RF values, carrying out chromatography.</p>	<p style="color: red;">C9 Chemistry of the Atmosphere</p> <p style="color: red;">Knowledge – The Evolution of the Atmosphere, Greenhouse Gases and Climate Change, Carbon Footprints.</p> <p style="color: red;">Key Skills – Numeracy, literacy, drawing and interpreting graphs, interpreting data.</p>	<p style="color: red;">C10 Using Resources</p> <p style="color: red;">Knowledge – Finite & Renewable resources, Reusing & Recycling, Life Cycle Assessments, potable water, waste water treatment.</p> <p style="color: red;">Key Skills - Numeracy, literacy, drawing and interpreting graphs, interpreting data.</p>	Revision & Exams	Revision & Exams

Physics

	Half term 1	Half term 2	Half term 3	Half term 4	Half term 5	Half term 6
Year 10	<p style="text-align: center;">P1 Energy</p> <p>Knowledge – Energy Stores & Systems, Energy Transfers, Renewable energy stores.</p> <p>Key Skills – Energy & Efficiency Calculations. Identifying and Analysing trends. Calculating specific heat capacity.</p>	<p style="text-align: center;">P2 Electricity</p> <p>Knowledge – Current, Circuit Symbols, $V=IR$ calculations, Resistance of A wire, Power of electrical appliances, The National Grid.</p> <p>Key Skills – Electrical Calculations, Power Calculations.</p>	<p style="text-align: center;">P2 Electricity</p> <p>Knowledge – Current, Circuit Symbols, $V=IR$ calculations, Resistance of A wire, Power of electrical appliances, The National Grid.</p> <p>Key Skills – Electrical Calculations, Power Calculations.</p>	<p style="text-align: center;">P3 Particle Model of Matter</p> <p>Knowledge – The Particle Model, Density of Materials, Internal Energy and Changes of State, Specific Latent Heat.</p> <p>Key Skills – Measuring density of regular and irregular shape objects.</p>	<p style="text-align: center;">P4 Atomic Structure & Radioactivity</p> <p>Knowledge – Developing the model of the Atom, Isotopes & Nuclear Equations, Half Life, Irradiation & Contamination.</p> <p>Key Skills – Calculating half-life, reading and interpreting graphs, nuclear equations.</p>	<p style="text-align: center;">P5 Forces</p> <p>Knowledge – Contact & non-Contact forces, Speed, Acceleration, Terminal Velocity, Newton’s First and Second Laws.</p> <p>Key Skills – Calculations, reading and interpreting velocity-time graphs, interpreting distance-time graphs.</p>
Year 11	<p style="text-align: center;">P5 Forces</p> <p>Knowledge – Contact & non-Contact forces, Speed, Acceleration, Terminal Velocity, Newton’s First and Second Laws.</p> <p>Key Skills – Calculations, reading and interpreting velocity-time graphs, interpreting distance-time graphs.</p>	<p style="text-align: center;">P6 Waves</p> <p>Knowledge – Transverse & Longitudinal Waves. Refraction, EM waves & their uses.</p> <p>Key Skills – Wave Calculations, Investigating infrared radiation.</p>	<p style="text-align: center;">P7 Magnetism & Electromagnetism</p> <p>Knowledge – Permanent and Induced Magnets , Electromagnetism.</p> <p>Key Skills – Investigative skills, data analysis.</p>	Revision	Revision & Exams	Revision & Exams