

	Unit of work & brief outline of what will be covered.	Key Objectives – what will students learn	Assessment
1	<p><b>9F Reactivity</b> Physical and chemical changes Displacement reactions Extracting metals</p> <p><b>9I Forces and Motion</b> Forces Speed, distance, time Moment of force, work done</p> <p><b>9A Genetics &amp; Evaluation</b> Environmental and inherited variation</p>	<p>Explain how chemical reactions are different from physical changes Explain the products formed by the oxidation of metals. Describe what happens during a displacement reaction Explain what happens in oxidation and reduction</p> <p>Explain the effects of balanced and unbalanced forces. Identify useful and wasted energies, and state what efficiency means Draw and interpret distance–time graphs Calculate a speed from the gradient of a distance-time graph Use the formula relating moment, force and perpendicular distance Describe the relationship between work done and energy transferred, and the factors that affect the work done</p> <p>Explain how environmental and inherited variations are caused Express probabilities as percentages, decimals and fractions Describe the roles played by Watson, Crick, Franklin and Wilkins in the discovery of the structure of DNA.</p>	<p>Self-assessment of DO NOW questions</p> <p>Key assessment piece (KAP)</p> <p>Teacher questioning in class</p> <p>Review of Tassomai accuracy and understanding</p> <p>Mini white board questioning</p>
2	<p><b>9A Genetics &amp; Evaluation</b> DNA, genes, extinction</p>	<p>Explain how changes in an ecosystem can cause endangerment and extinction Explain how particular adaptations affect the chances of survival in a habitat</p>	<p>Self-assessment of DO NOW questions</p> <p>Key assessment piece (KAP)</p> <p>Teacher questioning in class</p>

	<p><b>9C Making materials</b> Structure and properties of ceramics, polymers, composite materials Recycling materials</p> <p><b>9J Force field and electromagnets</b> Force fields Static electricity and danger Electricity</p>	<p>Explain how natural selection determines the survival of certain variations of adaptations within a population</p> <p>Explain how the properties of ceramic and polymers depend on their bonding and structure. Name the source of most monomers and describe how they polymerise Describe what happens in thermal decomposition reactions Explain the causes and possible problems caused by acid rain and the greenhouse effect Describe how metals, glass, concrete and paper can be recycled</p> <p>Described what magnets can do to magnetic materials and other magnets Explained what happens to electrons when an object is given a charge of static electricity Described how current and voltage behave in series and parallel circuits.</p>	<p>Review of Tassomai accuracy and understanding</p> <p>Mini white board questioning</p>
3	<p><b>9J Force field and electromagnets</b> Resistance Electromagnets</p> <p><b>9B Plant growth</b> Reactions in plants Factors affecting the rate of photosynthesis Plant adaptations Farming and biodiversity</p>	<p>Described how the resistance of a wire changes with length and thickness Used the formula relating current, voltage and resistance Described how the strength of an electromagnet can be changed. Explained how electromagnets are used in relays</p> <p>Model aerobic respiration and photosynthesis using a word equation Explain how the rate of photosynthesis can be controlled by limiting factors</p>	<p>Self-assessment of DO NOW questions</p> <p>Key assessment piece (KAP)</p> <p>Teacher questioning in class</p> <p>Review of Tassomai accuracy and understanding</p> <p>Mini white board questioning</p>

	<p><b>Start GCSE syllabus</b></p> <p><b>B1 Cells and organisations</b> Animal, plant and specialised cells Microscope Diffusion and active transport</p>	<p>Describe how leaves (and their cells) are adapted for photosynthesis Describe the uses of some different substances made by plants Describe how roots and stems (and their cells) are adapted for water absorption and transport Use food webs to predict the effects of changes in the numbers of organisms in an ecosystem Explain some of the problems caused by modern farming method</p> <p>Explain how the main structures of the cells are related to their functions Calculate the magnification, real size and image size of a specimen Describe the factors affecting the rate of diffusion</p>	
4	<p><b>B1 Cells and organisations</b> Osmosis in plant Exchanging materials</p> <p><b>Revision for end of KS3 Science exams</b></p> <p><b>C1 Atomic structure</b> Chemical equations Separating mixtures Structure and history of atom</p>	<p>Explain why osmosis is so important in plant and animal cells Calculate percentage change and use this to plot a line graph with negative numbers and draw a line of best fit Explain why large multicellular organisms need special systems for exchanging materials with the environment</p> <p>Write balanced symbol equations, including state symbols, to represent reactions Describe different techniques of separating mixtures Describe the structure of atoms and define atomic and mass numbers Explain how and why the atomic model has changed over time</p>	<p>Self-assessment of DO NOW questions</p> <p>Key assessment piece (KAP)</p> <p>Teacher questioning in class</p> <p>Review of Tassomai accuracy and understanding</p> <p>Mini white board questioning</p>

5	<p><b>C1 Atomic structure</b> Ions and isotopes Electronic structures</p> <p><b>P1 Conservation and dissipation of energy</b> Energy stores Energy and work Energy and efficiency Energy and power</p> <p><b>B2 Cell divisions</b> Growth and differentiation Stem cells</p>	<p>Work out the number of protons, electrons and neutrons in ions Draw the electronic structure of the first 20 elements in the periodic table</p> <p>Describe the ways in which energy can be stored and transferred Describe the changes to energy stores in a closed system Calculate the work done by a force Calculate the GPE, KE and elastic potential energy stores Calculate the power wasted by an appliance Explain how energy transfers can be made more efficient</p> <p>Describe how cell differentiation varies in animal and plant cells Describe the functions of stem cells in embryos, in adult animals, and in plants</p>	<p>Self-assessment of DO NOW questions</p> <p>Key assessment piece (KAP)</p> <p>Teacher questioning in class</p> <p>Review of Tassomai accuracy and understanding</p> <p>Mini white board questioning</p>
6	<p><b>C2 The Periodic table</b> Development of the periodic table Group 1 and Group 7 Explaining trends</p> <p><b>P2 Energy transfer by heating</b> Energy transfer by conduction Specific heat capacity (SHC)</p> <p><b>Catch up/Recap</b></p>	<p>Describe how the periodic table was developed over time Describe how atomic structures linked to the periodic table Explain how the properties of the Group 1 and Group 7 elements change going down the group Explain trends in reactivity in Group 1 and Group 7</p> <p>Describe how the thermal conductivity of a material affects the rate of energy transfers by conduction Measure the SHC Use the equation to calculate the energy changes that occur when an object changes temperature</p>	<p>Self-assessment of DO NOW questions</p> <p>Key assessment piece (KAP)</p> <p>Teacher questioning in class</p> <p>Review of Tassomai accuracy and understanding</p> <p>Mini white board questioning</p>