	Term 1	Term 2	Term 3	Term 4	Term 5	Term 6
Theme/Big Idea	**C1 – Atomic Structure:** Atoms are the building blocks of matter. Atomic structure, isotopes and electronic structure explain the behaviour and arrangement of elements. **B1 – Cell Structure & Transport:** Cells are the basic units of life. Cell structures are adapted to their functions and transport processes move substances into and out of cells.	**B2 – Cell Division:** Cell division allows organisms to grow and repair tissues. Differentiation produces specialised cells. Includes the cell cycle, chromosomes, mitosis and stem cells. **P2 – Heating:** Thermal energy transfer depends on material properties and the conditions under which heating occurs. Includes conduction, insulation and specific heat capacity. **P1 – Energy:** Energy is transferred between stores and is conserved. Useful energy transfers and wasted energy can be quantified. **C2 – Periodic Table:** The periodic table organises elements by atomic number and allows properties and reactivity to be predicted. Includes Groups 0, 1 and 7.	**P2 – Heating:** Thermal energy transfer depends on material properties and the conditions under which heating occurs. Includes conduction, insulation and specific heat capacity. **B3 – Organisation:** Specialised tissues, organs and transport systems allow multicellular organisms to exchange and distribute substances. Includes blood, heart, blood vessels and plant transport. **C2 – Periodic Table:** The periodic table organises elements by atomic number and allows properties and	**B3 – Organisation:** Specialised tissues, organs and transport systems allow multicellular organisms to exchange and distribute substances. Includes blood, heart, blood vessels and plant transport. **C3 – Structure & Bonding:** The type of bonding and arrangement of particles determines the properties and uses of substances. Includes ionic, covalent and metallic bonding.	**B3 – Organisation:** Specialised tissues, organs and transport systems allow multicellular organisms to exchange and distribute substances. Includes blood, heart, blood vessels and plant transport. **B4 – Infection & Response:** Pathogens cause communicable disease, while physical barriers and immune responses help protect organisms. Includes vaccination and antibiotic resistance. **C3 – Structure & Bonding:** The type of bonding and arrangement of particles determines the properties and uses of substances. Includes ionic, covalent and metallic bonding. **P3 – Energy Resources:** Energy resources have	**Exams –** Year 9 examination period: cumulative assessment of taught Biology, Chemistry and Physics content. **B4 – Infection & Response:** Pathogens cause communicable disease, while physical barriers and immune responses help protect organisms. Includes vaccination and antibiotic resistance. **P4 – Electricity:** Current, potential difference and resistance describe how electrical circuits transfer energy. Includes series and parallel circuits and component characteristics.

			reactivity to be predicted. Includes Groups 0, 1 and 7. **C3 – Structure & Bonding:** The type of bonding and arrangement of particles determines the properties and uses of substances. Includes ionic, covalent and metallic bonding.		different advantages, limitations, environmental impacts and levels of reliability.	
Content What are they learning? (including keywords)	**C1:** Atoms are the building blocks of matter. Atomic structure, isotopes and electronic structure explain the behaviour and arrangement of elements. **Keywords:** atom, element, compound, mixture, isotope, atomic number, mass number, proton, neutron, electron, electronic structure, periodic table, separation **B1:** Cells are the basic units of life. Cell structures are adapted to their functions and	**B2:** Cell division allows organisms to grow and repair tissues. Differentiation produces specialised cells. Includes the cell cycle, chromosomes, mitosis and stem cells. **Keywords:** cell cycle, chromosome, DNA, mitosis, cell division, growth, repair, differentiation, specialised cell, stem cell, embryo **P2:** Thermal energy transfer depends on material properties and the conditions under which heating occurs. Includes conduction, insulation and specific heat capacity.	**P2:** Thermal energy transfer depends on material properties and the conditions under which heating occurs. Includes conduction, insulation and specific heat capacity. **Keywords:** thermal energy, heating, conduction, convection, radiation, insulation, temperature, specific heat capacity, energy transfer	**B3:** Specialised tissues, organs and transport systems allow multicellular organisms to exchange and distribute substances. Includes blood, heart, blood vessels and plant transport. **Keywords:** tissue, organ, organ system, blood, red blood cell, white blood cell, plasma, platelet, heart, artery, vein, capillary, xylem, phloem, transpiration, translocation **C3:** The type of bonding and	**B3:** Specialised tissues, organs and transport systems allow multicellular organisms to exchange and distribute substances. Includes blood, heart, blood vessels and plant transport. **Keywords:** tissue, organ, organ system, blood, red blood cell, white blood cell, plasma, platelet, heart, artery, vein, capillary, xylem, phloem, transpiration, translocation **B4:** Pathogens cause communicable	**Exams:** Retrieval and application of taught content, including knowledge, calculations, data interpretation and practical/working-scientifically skills. **Keywords:** retrieval, application, calculation, data interpretation, graph, equation, practical, evaluation, evidence, working scientifically **B4:** Pathogens cause communicable disease, while physical barriers and immune responses help protect organisms. Includes

	transport processes move substances into and out of cells. **Keywords:** cell, nucleus, cytoplasm, cell membrane, mitochondria, ribosome, diffusion, osmosis, active transport, concentration gradient, magnification, specialised cell	**Keywords:** thermal energy, heating, conduction, convection, radiation, insulation, temperature, specific heat capacity, energy transfer **P1:** Energy is transferred between stores and is conserved. Useful energy transfers and wasted energy can be quantified. **Keywords:** energy store, energy transfer, conservation of energy, work done, power, efficiency, useful energy, wasted energy, Sankey diagram **C2:** The periodic table organises elements by atomic number and allows properties and reactivity to be predicted. Includes Groups 0, 1 and 7. **Keywords:** periodic table, group, period, electron, electronic structure, reactivity, Group 0, Group 1, Group 7, noble gas, halogen, alkali metal, displacement	**B3:** Specialised tissues, organs and transport systems allow multicellular organisms to exchange and distribute substances. Includes blood, heart, blood vessels and plant transport. **Keywords:** tissue, organ, organ system, blood, red blood cell, white blood cell, plasma, platelet, heart, artery, vein, capillary, xylem, phloem, transpiration, translocation **C2:** The periodic table organises elements by atomic number and allows properties and reactivity to be predicted. Includes Groups 0, 1 and 7. **Keywords:** periodic table, group, period, electron, electronic structure,	arrangement of particles determines the properties and uses of substances. Includes ionic, covalent and metallic bonding. **Keywords:** ionic bonding, covalent bonding, metallic bonding, ion, electron, molecule, lattice, conductivity, melting point, boiling point, alloy, graphite, diamond	disease, while physical barriers and immune responses help protect organisms. Includes vaccination and antibiotic resistance. **Keywords:** pathogen, communicable disease, virus, bacterium, fungus, protist, toxin, immune system, antibody, antigen, vaccination, antibiotic, antibiotic resistance **C3:** The type of bonding and arrangement of particles determines the properties and uses of substances. Includes ionic, covalent and metallic bonding. **Keywords:** ionic bonding, covalent bonding, metallic bonding, ion, electron, molecule, lattice, conductivity, melting point, boiling point, alloy, graphite, diamond **P3:** Energy resources have different advantages, limitations, environmental	vaccination and antibiotic resistance. **Keywords:** pathogen, communicable disease, virus, bacterium, fungus, protist, toxin, immune system, antibody, antigen, vaccination, antibiotic, antibiotic resistance **P4:** Current, potential difference and resistance describe how electrical circuits transfer energy. Includes series and parallel circuits and component characteristics. **Keywords:** current, potential difference, resistance, circuit, series, parallel, conductor, insulator, charge, voltage, ammeter, voltmeter, power, electrical energy, component

			reactivity, Group 0, Group 1, Group 7, noble gas, halogen, alkali metal, displacement **C3:** The type of bonding and arrangement of particles determines the properties and uses of substances. Includes ionic, covalent and metallic bonding. **Keywords:** ionic bonding, covalent bonding, metallic bonding, ion, electron, molecule, lattice, conductivity, melting point, boiling point, alloy, graphite, diamond		impacts and levels of reliability. **Keywords:** renewable, non-renewable, fossil fuel, nuclear, solar, wind, hydroelectric, geothermal, biomass, energy resource, carbon dioxide, reliability, environmental impact	
Skills How are they learning it?	**C1:** Write and balance equations; interpret atomic models; calculate particle numbers and relative atomic mass; represent electron arrangements. **Required practical:** No AQA required practical is specified	**B2:** Sequence and explain mitosis; interpret cell-cycle diagrams; explain differentiation; evaluate stem-cell applications and ethical arguments. **Required practical:** No AQA required practical is specified directly for B2 Cell Division.	**P2:** Measure temperature; analyse heating/cooling data; compare materials; calculate energy changes; evaluate experimental methods. **Required practical:**	**B3:** Interpret biological diagrams; explain structure-function relationships; calculate rates; analyse risk factors; process and evaluate experimental data. **Required practical:** Required Practical 3: use qualitative	**B3:** Interpret biological diagrams; explain structure-function relationships; calculate rates; analyse risk factors; process and evaluate experimental data. **Required practical:** Required Practical 3: use qualitative	**Exams:** Retrieve and apply knowledge; select equations; interpret graphs and data; evaluate practical methods; answer extended-response questions. **Required practical:** Required practical knowledge is assessed through

	directly for C1 Atomic Structure. **B1:** Use a microscope; produce biological drawings; calculate magnification; interpret transport data; calculate percentage change; explain adaptations; plan and evaluate investigations. **Required practical:** Required Practical 1: use a light microscope to observe, draw and label plant and animal cells, including a magnification scale. Required Practical 2: investigate the effect of salt or sugar concentration on the mass of plant tissue.	**P2:** Measure temperature; analyse heating/cooling data; compare materials; calculate energy changes; evaluate experimental methods. **Required practical:** Required Practical 14: determine the specific heat capacity of one or more materials. **P1:** Use equations and units; draw and interpret Sankey diagrams; calculate efficiency, power and energy; evaluate energy transfers. **Required practical:** No AQA required practical is specified directly for P1 Energy. **C2:** Use electron structures to explain trends; predict reactivity; interpret observations; compare group properties; evaluate evidence for classification. **Required practical:** No AQA required practical is specified directly for C2 The Periodic Table.	Required Practical 14: determine the specific heat capacity of one or more materials. **B3:** Interpret biological diagrams; explain structure-function relationships; calculate rates; analyse risk factors; process and evaluate experimental data. **Required practical:** Required Practical 3: use qualitative reagents to test for carbohydrates, lipids and proteins. Required Practical 4: investigate the effect of pH on the rate of reaction of amylase. **C2:** Use electron structures to explain trends; predict reactivity; interpret observations; compare group properties; evaluate evidence for classification.	reagents to test for carbohydrates, lipids and proteins. Required Practical 4: investigate the effect of pH on the rate of reaction of amylase. **C3:** Draw and interpret bonding diagrams; model particle arrangements; explain properties from structure; compare materials and evaluate models. **Required practical:** No AQA required practical is specified directly for C3 Structure and Bonding.	reagents to test for carbohydrates, lipids and proteins. Required Practical 4: investigate the effect of pH on the rate of reaction of amylase. **B4:** Interpret disease data; explain transmission and prevention; explain immune responses; evaluate vaccination and antibiotic use; analyse resistance. **Required practical:** No AQA required practical is specified directly for B4 Infection and Response. **C3:** Draw and interpret bonding diagrams; model particle arrangements; explain properties from structure; compare materials and evaluate models. **Required practical:** No AQA required practical is specified directly for C3 Structure and Bonding. **P3:** Compare energy resources using	written examination questions; revisit the required practicals taught so far, including methods, variables, measurements, graphs, conclusions and evaluation. **B4:** Interpret disease data; explain transmission and prevention; explain immune responses; evaluate vaccination and antibiotic use; analyse resistance. **Required practical:** No AQA required practical is specified directly for B4 Infection and Response. **P4:** Construct circuits; draw circuit diagrams; measure current and potential difference; calculate resistance, power and energy; interpret component characteristics. **Required practical:** Required Practical 15: set up and check circuits to investigate factors affecting resistance, including wire length and

			Required practical: No AQA required practical is specified directly for C2 The Periodic Table. **C3:** Draw and interpret bonding diagrams; model particle arrangements; explain properties from structure; compare materials and evaluate models. **Required practical:** No AQA required practical is specified directly for C3 Structure and Bonding.		evidence; interpret data; calculate energy/power where appropriate; evaluate environmental and social trade-offs. **Required practical:** No AQA required practical is specified directly for P3 Energy Resources.	combinations of resistors in series and parallel.
Key Questions	**C1:** What is an element? How has the atomic model changed? How does electronic structure relate to elements? **B1:** How does cell structure relate to function? What affects diffusion? How is osmosis different from diffusion? Why is active transport needed?	**B2:** Why must cells divide? Why does mitosis produce genetically identical cells? What is differentiation? What are stem cells used for? **P2:** How is thermal energy transferred? Why do materials differ in thermal conductivity? How can heat loss be reduced? **P1:** What does conservation of energy	**P2:** How is thermal energy transferred? Why do materials differ in thermal conductivity? How can heat loss be reduced? **B3:** Why do multicellular organisms need transport systems? How is the heart adapted? How do blood vessels	**B3:** Why do multicellular organisms need transport systems? How is the heart adapted? How do blood vessels differ? How do plants transport water and sugars? **C3:** How does bonding affect properties? Why do metals conduct? Why do ionic compounds conduct	**B3:** Why do multicellular organisms need transport systems? How is the heart adapted? How do blood vessels differ? How do plants transport water and sugars? **B4:** How do pathogens spread? How does the body defend itself? How do vaccines work? Why	**Exams:** Can I apply my knowledge to unfamiliar contexts? Can I interpret data and evidence? Can I explain, calculate and evaluate clearly? **B4:** How do pathogens spread? How does the body defend itself? How do vaccines work? Why do antibiotics not treat viral infections?

		mean? What is wasted energy? How are work, energy, power and efficiency related? **C2:** Why do elements in the same group have similar properties? Why does reactivity change down a group? How does displacement show relative reactivity?	differ? How do plants transport water and sugars? **C2:** Why do elements in the same group have similar properties? Why does reactivity change down a group? How does displacement show relative reactivity? **C3:** How does bonding affect properties? Why do metals conduct? Why do ionic compounds conduct when molten? Why do diamond and graphite have different properties?	when molten? Why do diamond and graphite have different properties?	do antibiotics not treat viral infections? **C3:** How does bonding affect properties? Why do metals conduct? Why do ionic compounds conduct when molten? Why do diamond and graphite have different properties? **P3:** What makes an energy resource useful? Why are some renewable resources intermittent? How should environmental impact influence energy choices?	**P4:** What is current? What is potential difference? How do series and parallel circuits differ? How do component properties affect current?
Assessment (specific assessed piece(s); milestone(s))	**C1:** C1 end-of-topic assessment and relevant practical/working-scientifically milestone. **B1:** B1 end-of-topic assessment and relevant practical/working-scientifically milestone.	**B2:** B2 end-of-topic assessment and relevant practical/working-scientifically milestone. **P2:** P2 end-of-topic assessment and relevant practical/working-scientifically milestone.	**P2:** P2 end-of-topic assessment and relevant practical/working-scientifically milestone. **B3:** B3 end-of-topic assessment and relevant practical/working-scientifically milestone.	**B3:** B3 end-of-topic assessment and relevant practical/working-scientifically milestone. **C3:** C3 end-of-topic assessment and relevant practical/working-scientifically milestone.	**B3:** B3 end-of-topic assessment and relevant practical/working-scientifically milestone. **B4:** B4 end-of-topic assessment and relevant practical/working-scientifically milestone.	**Exams:** Year 9 examinations / cumulative assessment. **B4:** B4 end-of-topic assessment and relevant practical/working-scientifically milestone.

		P1: P1 end-of-topic assessment and relevant practical/working-scientifically milestone. **C2:** C2 end-of-topic assessment and relevant practical/working-scientifically milestone.	**C2:** C2 end-of-topic assessment and relevant practical/working-scientifically milestone. **C3:** C3 end-of-topic assessment and relevant practical/working-scientifically milestone.		**C3:** C3 end-of-topic assessment and relevant practical/working-scientifically milestone. **P3:** P3 end-of-topic assessment and relevant practical/working-scientifically milestone.	**P4:** P4 end-of-topic assessment and relevant practical/working-scientifically milestone.