

Home Learning Activities

Teacher: KJE / CCH

Subject: Science

Year Group or Key Stage: KS4

2026-2027

Topic	Home Learning Activities	Online Learning Links	SMSC
Atomic structure and periodic table	Atomic structure Developing a model for atoms Atoms, elements and compounds Modern periodic table and electronic configuration Atomic number and mass number Isotopes and relative atomic mass (RAM) Relative formula mass Development of the periodic table	https://www.thenational.academy/teachers/programmes/combined-science-secondary-ks4-foundation-aqa/units/atomic-structure-and-the-periodic-table/lessons	
Eukaryotic and prokaryotic cells	Cells Light microscopy: observing and drawing cells Animal cells: common structures and specialised cells Plant cells: common structures and specialised cells Eukaryotic and prokaryotic cells Common structures of prokaryotic cells The size and scale of cells: the basics	https://www.thenational.academy/teachers/programmes/combined-science-secondary-ks4-foundation-aqa/units/eukaryotic-and-prokaryotic-cells/lessons	
Particles explanations of density and pressure	Calculating density and measuring volume Measuring density Pressure in a fluid Upthrust Explaining convection Changes of pressure	https://www.thenational.academy/teachers/programmes/combined-science-secondary-ks4-foundation-aqa/units/particle-explanations-of-density-and-pressure/lessons	
DNA and the genome	The genome The structure of DNA The genome, the environment and phenotype	https://www.thenational.academy/teachers/programmes/combined-science-secondary-ks4-foundation-aqa/units/dna-and-the-genome/lessons	
Structure and bonding	Why chemical reactions happen Metallic structure and properties		

	Metal alloys Forming ions for ionic bonding Giant ionic structures Determining ionic formulae Ionic diagrams for binary ionic substances Properties of giant ionic structures Forming covalent bonds Properties of covalent substances	https://www.thenational.academy/teachers/programmes/combined-science-secondary-ks4-foundation-aqa/units/structure-and-bonding/lessons	
Health and disease	Diseases Cardiovascular disease Risk factors for non-communicable diseases Cancer Bacterial and viral diseases in humans: Salmonella and measles Fungal and protist diseases in humans. Sexually transmitted infections Plant diseases: TMV and rose black spot Climate change and human health	https://www.thenational.academy/teachers/programmes/combined-science-secondary-ks4-foundation-aqa/units/health-and-disease/lessons	
Measuring and calculating motion	Different speeds ($v=s/t$) Measuring instantaneous speed practical ($v=s/t$) Measuring instantaneous speed analysis ($v=s/t$) Displacement and velocity as vectors Velocity on a graph Calculating displacement-time graphs Acceleration Measuring acceleration practical Measuring acceleration analysis Calculating motion graphs Motion calculations	https://www.thenational.academy/teachers/programmes/combined-science-secondary-ks4-foundation-aqa/units/measuring-and-calculating-motion/lessons	
States of matter	The particle model State changes: fundamentals State changes: evaporation and sublimation Predicting states of matter Pure substance Heating and cooling curves Heating curves: practical	https://www.thenational.academy/teachers/programmes/combined-science-secondary-ks4-foundation-aqa/units/states-of-matter/lessons	
Biological molecules and enzymes	Biological molecules Tests for biological molecules Obtaining the elements needed to make biological molecules Enzymes: function, structure and specificity Effects of substrate concentration and temperature on rate of enzyme activity The effect of pH on the rate of an enzyme reaction: plan The effect of pH on the rate of an enzyme reaction: practical The effect of pH on the rate of an enzyme reaction: data analysis	https://www.thenational.academy/teachers/programmes/combined-science-secondary-ks4-foundation-aqa/units/biological-molecules-and-enzymes/lessons	

Transport and exchange surfaces in humans	The human circulatory system The human heart and double circulatory system Human blood cells and blood vessels Microscopy of human blood cells and blood vessels Moving into and out of the blood: diffusion, osmosis and active transport Diffusion and surface area to volume ratio The importance of exchange surfaces and transport systems in humans	https://www.thenational.academy/teachers/programmes/combined-science-secondary-ks4-foundation-aqa/units/transport-and-exchange-surfaces-in-humans/lessons	
Electric fields and circuit calculations	Moving electric charge Linking current, potential difference and resistance Resistance of a wire at a constant temperature Analysing series circuits Adding components to a parallel circuit Analysing parallel circuits	https://www.thenational.academy/teachers/programmes/combined-science-secondary-ks4-foundation-aqa/units/electric-fields-and-circuit-calculations/lessons	
Coordination and control: the human nervous system	The human nervous system Neurones and synapses Human reaction time: practical The structure and function of a reflex arc	https://www.thenational.academy/teachers/programmes/combined-science-secondary-ks4-foundation-aqa/units/coordination-and-control-the-human-nervous-system/lessons	
Separating substances	Separating mixtures (including formulations) Solutions Filtration Chromatography: paper Interpreting chromatograms Chromatography: separating a mixture of inks Distillation: simple distillation Distillation: separating a mixture of inks Distillation: fractional distillation Potable water Wastewater treatment Water sample analysis: pH Water sample analysis: dissolved solids Water sample analysis: distillation	https://www.thenational.academy/teachers/programmes/combined-science-secondary-ks4-foundation-aqa/units/separating-substances/lessons	
Coordination and control: hormones and the human endocrine system	The human endocrine system Insulin and the control of blood sugar Type 1 and type 2 diabetes	https://www.thenational.academy/teachers/programmes/combined-science-secondary-ks4-foundation-aqa/units/coordination-and-control-hormones-and-the-human-endocrine-system/lessons	

Measuring waves	Transverse waves Representing transverse waves Representing longitudinal waves Oscilloscopes Measuring the speed of water waves from distance and time Measuring waves on a string The wave equation Using the wave speed equations Measuring water waves in a ripple tank Measuring the speed of sound in air and solids	https://www.thenational.academy/teachers/programmes/combined-science-secondary-ks4-foundation-aqa/units/measuring-waves/lessons	
Photosynthesis: requirements and products	Producers, photosynthesis and consumers The requirements and products of photosynthesis: practical	https://www.thenational.academy/teachers/programmes/combined-science-secondary-ks4-foundation-aqa/units/photosynthesis-requirements-and-products/lessons	
Calculations involving masses	Three types of chemical reaction Conservation of mass Balancing equations Uncertainties in a measurements: chemistry Mass in a chemical reaction	https://www.thenational.academy/teachers/programmes/combined-science-secondary-ks4-foundation-aqa/units/calculations-involving-masses/lessons	
Inheritance, genotype and phenotype	Alleles, genotype and phenotype Models of a single-gene inheritance: Punnett squares Models of a single-gene inheritance: family tree diagrams Inheritance of biological sex in human	https://www.thenational.academy/teachers/programmes/combined-science-secondary-ks4-foundation-aqa/units/inheritance-genotype-and-phenotype/lessons	
Energy of moving objects	Work done Power Efficiency Calculating the energy of a moving object The energy of an object in a gravitation field Calculating energy changes Stretching a spring practical Stretching a spring analysis Calculating the energy of a spring	https://www.thenational.academy/teachers/programmes/combined-science-secondary-ks4-foundation-aqa/units/energy-of-moving-objects/lessons	
Cell division: mitosis and meiosis	Growth in multicellular organisms The cell cycle and cell division: mitosis		

	The structure of DNA: including nucleotides Errors in cell division and cancer: basics Making gametes: meiosis	https://www.thenational.academy/teachers/programmes/combined-science-secondary-ks4-foundation-aqa/units/cell-division-mitosis-and-meiosis/lessons	
Making salts	Describing salts Hazard symbols and equipment Acid-base reactions (carbonates as bases) Chemical reactions of acids with metal and metals carbonates Concentration of solutions pH scale and indicators Solubility rules Making a pure dry sample out of a soluble salt Adapting a multi-step chemical procedure for making a pure dry salt Change in pH: practical	https://www.thenational.academy/teachers/programmes/combined-science-secondary-ks4-foundation-aqa/units/making-salts/lessons	
Stem cells and differentiation	Specialised cells, unspecialised cells and differentiation Stem cells in animals Meristem cells in plants Using stem cells in medicine: potential benefits, risks, and ethical issues	https://www.thenational.academy/teachers/programmes/combined-science-secondary-ks4-foundation-aqa/units/stem-cells-and-differentiation/lessons	
Energy of moving particles	Thermal conduction and insulation Effective insulation Heating different substances Calculating specific heat capacity Measuring specific heat capacity A heating curve for water Specific latent heat	https://www.thenational.academy/teachers/programmes/combined-science-secondary-ks4-foundation-aqa/units/energy-of-moving-particles/lessons	
Fossil evidence, selective breeding and explaining evolution	The fossil record provides evidence for evolution Common ancestors and transitional species Selective breeding and human food security The evolution of new species	https://www.thenational.academy/teachers/programmes/combined-science-secondary-ks4-foundation-aqa/units/fossil-evidence-selective-breeding-and-explaining-evolution/lessons	
Chemistry of carbon	Bonding to carbon atoms Diamond and graphite Using models to explain state changes Graphene and fullerenes Discovery and uses of carbon nanostructures	https://www.thenational.academy/teachers/programmes/combined-science-secondary-ks4-foundation-aqa/units/chemistry-of-carbon/lessons	

	Bonding, structure and properties Hydrocarbons		
Living organisms and their environment	Components of an ecosystem Measuring the size and distribution of populations of organisms Estimating population size using quadrats: practical Estimating population size and distribution using transects: practical Competition and adaptations in ecosystems The role of microorganisms in decomposition Material cycles: the carbon cycle Material cycles: the water cycle	https://www.thenational.academy/teachers/programmes/combined-science-secondary-ks4-foundation-aqa/units/living-organisms-and-their-environments/lessons	
Circuit components	Measuring the resistance of a filament lamp Resistance of a hot metal Measuring the resistance of a diode Interpreting IV graphs Potential divider circuits LDRs and thermistors	https://www.thenational.academy/teachers/programmes/combined-science-secondary-ks4-foundation-aqa/units/circuit-components/lessons	

*If you have any difficulties with any of the tasks, please e-mail k.jensen@greenwood.hants.sch.uk for support