

	Half term 1	Half term 2	Half term 3	Half term 4	Half term 5	Half term 6
Year 12 Applied Science	<p>Content delivered: Unit 1 Biology: History of the microscope Preparing biological slides Electron microscopes Magnification calculations Structures in a cell Unit 1 Chemistry: Periodic table and atomic mass Moles and reacting masses Determining RAM and formula Electronic structure Preparing standard solutions Calculating concentration Intermolecular forces Unit 1: Physics: Waves Transverse and longitudinal waves Measuring speed of waves Superposition of waves</p>	<p>Content delivered: Unit 1 Biology: Specialised cells Sex cells Root hair cells Structure and function of the blood White blood cells Epithelial cells Pulmonary system Arteries and veins Cardiovascular and respiratory disease Unit 1 Chemistry: Intermolecular forces Acid-base titrations Physical properties of period 2 and 3 Chemical properties of period 2 and 3 Ionic bonding and formulae Unit 1 Physics: Diffraction and superposition Industrial application of diffraction gratings Progressive and stationary resonance Calculating speed of waves on a string</p>	<p>Content delivered: Unit 1 Biology: Sliding filament theory ECG traces Nervous system Neurones Axons Synapses Myelin sheath Action potentials Resting potentials Brain structure Chemicals in the brain Unit 1 Chemistry: Variable oxidation states of TMs Covalent bonding Bonding and structure investigation Group 1 and 7 reactivity Reactions of metals and acids Unit 1 Physics: Producing notes from vibrating air columns Refractive index Total internal reflection Critical angle Inverse square law</p>	<p>Content delivered: Unit 1 Biology: Review unit 1 for summer exam Unit 1 Chemistry: Review unit 1 for summer exam Unit 1 Physics: Inverse square law for intensity Wave intensity and communication Review unit 1 for summer exam</p>	<p>Content delivered: Unit 2 Biology (Assignment C): Polarity and size in chromatographic separations Using different polar solvents to extract pigments TLC Paper chromatography of plant pigment Paper chromatography of amino acids Unit 2 Chemistry (Assignment A): Titration Colorimetry Unit 2 Physics (Assignment B): Cooling curves Comparing thermometers</p>	<p>Content delivered: Unit 2 Biology (Assignment C): Assignment write up time Unit 2 Chemistry (Assignment A): Assignment write up time Unit 2 Physics (Assignment B): Assignment write up time Unit 2 (Assignment D): Risk assessments Assignment write up time</p>
<p>Key Words Level 2 Level 3</p>	<p>Biology Magnification, resolution, lens, refraction, concave, convex, mitosis, prophase, metaphase, anaphase, telophase, golgi, mitochondria, chloroplast, endoplasmic reticulum, SER, RER, nucleolus, vesicle, centriole, eukaryote, prokaryote Chemistry Titration, Burette, pipette, concentration, moles per dm³, concordant, shell, sub-shell, energy level, Van der Waals, temporary/induced dipole-dipole, permanent dipole-dipole, hydrogen bond Physics Longitudinal, transverse, compression, rarefaction, speed, velocity, wavelength</p>	<p>Biology Differentiated, epithelial, erythrocyte, gamete, chromosome, genetic inheritance, lymphocyte, phagocyte, platelet, plasma, photomicrograph, squamous, fibrogen, tissue, connective, bronchi, pulmonary, bronchiole, spirometer, alveoli, intercostal, diaphragm, bronchi, pulmonary, bronchiole, spirometer, alveoli, intercostal, diaphragm, artery, arteriole, vein, capillary, lumen, oxygenated, emphysema, disease, pulmonary, myosin, actin, filament, ATP Chemistry Titration, Burette, pipette, Van der Waals, temporary/induced dipole-dipole, permanent dipole-dipole, hydrogen bond, acid, base, alkali, titration, neutralisation, burette, pipette, Melting point, boiling point, bond energy, ionisation energy, kJmol⁻¹ Physics Longitudinal, transverse, compression, rarefaction, speed, velocity, wavelength, superposition, interference, destructive, constructive, diffraction, node, antinode</p>	<p>Biology Diastole, systole, ventricle, atrium, septum, bundle of His, depolarisation, repolarisation, purkynje fibres, SAN, AVN, neurone, axon, dendrite, depolarisation, repolarisation, neurone, axon, dendrite, synapse, neurotransmitter, acetylcholine, myelinated, synaptic cleft, pre synaptic knob, post synaptic knob Chemistry Melting point, boiling point, bond energy, ionisation energy, kJmol⁻¹, oxidation, Covalent, inter molecular, intra molecular, electron, d-shell, ligand, alkali, hydroxide, oxide, oxidation, reduction, oxidation number Physics Longitudinal, transverse, compression, rarefaction, speed, velocity, wavelength, superposition, interference, destructive, constructive, diffraction, node, antinode, Refractive index, incident, reflected ray, refracted ray, total internal reflection, normal, angle of reflection, angle of incidence, Intensity, lumens, power, watts, Freznel</p>	<p>Biology Taken from HT1-3 Chemistry Taken from HT1-3 Physics Taken from HT1-3</p>	<p>Biology Chromatography, mobile, stationary, polarity, chlorophyll Chemistry Titration, Burette, pipette, concentration, moles per dm³, accuracy, precision, concordant, absorbance, transmission, calibration curve Physics Colorimetry</p>	<p>Biology Chromatography, mobile, stationary, polarity, chlorophyll Chemistry Titration, Burette, pipette, concentration, moles per dm³, accuracy, precision, concordant, absorbance, transmission, calibration curve Physics Colorimetry</p>
<p>Where previous knowledge has occurred and future development KS2 → KS3 → KS4 → KS5</p>	<p>KS2: X KS3: Year 7 cells KS4: Year 10 Cells (B1) KS5: Specialised cells</p>	<p>KS2: KS3: Year 7 cells KS3: Year 8 waves KS4: Year 10 Cells (B1) KS4: Year 10 Immune responses (B3) KS4: Year 10 EM spectrum KS5: Wave intensity</p>	<p>KS2: Human skeleton and muscles KS3: Year 7 Muscles and joints KS3: Year 8 Soundwaves KS3: Year 8 Light KS4: Year 10 The heart (B2) KS4: Year 11 Reflex actions (B5) KS4: Year 10 Waves KS4: Year 10 EM spectrum KS5: Reaction times</p>	<p>KS2: See HT1-3 KS3: See HT1-3 KS4: See HT1-3 KS5: Throughout units so far</p>	<p>KS2: Dissolving liquids in liquids & changes of state KS3: Year 7 Solutions KS4: Year 11 Purity (C8) KS4: Year 10 Specific heat capacity KS5: Unit 3 investigative skills</p>	<p>KS2: Dissolving liquids in liquids & changes of state KS3: Year 7 Solutions KS4: Year 11 Purity (C8) KS4: Year 10 Specific heat capacity KS5: Unit 3 investigative skills</p>

Common Misconceptions	Biology: Differences between SEM and TEM Chemistry: Understanding the mole is an amount of something Physics: Adding as vectors – noting +/-	Biology: That blood is just red blood cells Chemistry: Conversions if units Physics: Lambda	Biology: Defibrillators can be used on any heart conditions Chemistry: Physics: Mixing up speed of sound and speed of light	Biology: Identified from in class assessments Chemistry: Identified from in class assessments Physics: Identified from in class assessments	Biology: Confusing solvent polarity with magnetism Chemistry: Reading burette in wrong direction Physics: Scales on graph axis	Confusing risk and hazard
Literacy	Scientific writing (HSW): Microscopy Scientific writing (HSW): Standard solutions NHTW reviews as starter activities	Scientific writing (HSW): Titration Scientific writing (HSW): Wave speed NHTW reviews as starter activities	Scientific writing (HSW): Metals and acids Scientific writing (HSW): Displacement reactions NHTW reviews as starter activities	NHTW reviews as starter activities	Scientific writing (HSW): Chromatography Scientific writing (HSW): Titrations Scientific writing (HSW): Colorimetry Scientific writing (HSW): Cooling curves NHTW reviews as starter activities	Scientific writing (HSW): Unit 2 write up NHTW reviews as starter activities
Numeracy	Rearranging equations Calculating mean Converting units	Rearranging equations Calculating mean Converting units	Rearranging equations Calculating mean Converting units	Rearranging equations Calculating mean Converting units	Rearranging equations Calculating mean Converting units Drawing and interpreting graphs	Rearranging equations Calculating mean Converting units Drawing and interpreting graphs
Homework	Completion of Everlearner/Doddle section quizzes	Completion of Everlearner/Doddle section quizzes	Completion of Everlearner/Doddle section quizzes	Completion of Everlearner/Doddle section quizzes	Completion of Everlearner/Doddle section quizzes	Completion of Everlearner/Doddle section quizzes
Assessment this half-term	6 mark in class questions NHTW grid vocab test	Paper 1 mock exam 6 mark in class questions NHTW grid vocab test	Paper 1 mock exam 6 mark in class questions NHTW grid vocab test	External Unit 1 exam 6 mark in class questions NHTW grid vocab test	6 mark in class questions NHTW grid vocab test	1 st draft of Unit 2 write ups 6 mark in class questions NHTW grid vocab test
Career opportunities Employment Links	LIFE SKILLS: Understanding how sound travels EMPLOYMENT: Sound engineer	LIFE SKILLS: Understanding he role of blood EMPLOYMENT: Phlebotomist	LIFE SKILLS: Understanding how reflexes work EMPLOYMENT: Physiotherapist	LIFE SKILLS: Resilience and organisation EMPLOYMENT: Research scientist	LIFE SKILLS: Understanding how to analytically evaluate and calibrate equipment EMPLOYMENT: Research scientist	LIFE SKILLS: Understanding how to devise and evaluate risk assessments EMPLOYMENT: Engineer
Enrichment			Cardiac nurse visit for ECG			
Practical activities/HSW	Root tip squash Determining RAM Preparing standard solutions	Titration Heart dissection Calculating speed of waves on a string	Reactions of metals and acids Displacement reactions		Cooling curves TLC of plant pigment Titration Colorimetry	
Employability Skills	Aiming high Creativity Leadership Listening Presenting Problem solving	Literacy Creativity Leadership Listening Presenting Problem solving	Literacy Creativity Leadership Listening Presenting Problem solving	Literacy Creativity Leadership Listening Presenting Problem solving	Literacy Creativity Leadership Listening Presenting Problem solving	Literacy Creativity Leadership Listening Presenting Problem solving
IT Skills	IT1 & IT2: Appropriate websites and research for homework as well as recall quizzes	IT1 & IT2: Appropriate websites and research for homework as well as recall quizzes	IT1 & IT2: Appropriate websites and research for homework as well as recall quizzes	IT1 & IT2: Appropriate websites and research for homework as well as recall quizzes	IT1 & IT2: Appropriate websites and research for homework as well as recall quizzes	IT1 & IT2: Appropriate websites and research for homework as well as recall quizzes
Notes/developments /standardisation comments						