Year 7 Curriculum Overview [2019-2020] – Planning for Progression
Subject – Science

Schedule	Term	Knowledge & Understanding	Literacy Skills **Building vocabulary** **Developing oral skills** **Developing reading skills** **Developing writing skills**	Key Skills **Subject Skills** **Numeracy Skills** **21st Century Skills** **Employability Skills**	Assessment **Formative** **Interim** **Summative**
Autumn Term	**Half Term 1**	Chemistry 1: Separation Techniques 1. Identifying and Drawing Equipment 2. Working Safely 3. Elements, compounds and mixtures. 4. Filtration 5. Dissolving and Evaporation 6. Chromatography 7. Particle model 8. Distillation (prac) 9. Crude oil Biology 1: Cell systems and reproduction 1. Cells 2. Specialised Cells 3. Microscopes-core prac 4. Microscopes and Calculations 5. Diffusion 6. Digestion and Villi 7. Adaptations 8. Male & Female Reproductive System 9. Menstrual Cycle	**Vocabulary** Extensive list of vocabulary for each topic including element, compound, mixture, dissolve, filtration, condense, chromatogram **Oral skills** Communication during dissolving and evaporation practical. Extended answers to questioning **Reading skills** Reading methods and equipment lists. Exam style questions Pair reading **Writing skills** Formulate a conclusion and evaluation. *Practical Working Scientifically skills, drawing of cells and laboratory equipment.*	**Numeracy** Calculations involving microscopes. • SI units – conversion between units • Magnification calculations • Using I.A.M magnification equation • Accurate cell measurements • Calculating Rf values • Interpretation of graphical and numerical data – chromatograms **Subject skills** Create a particle model & specialised cell. Scientific enquiry on chromatography. Problem solving skills during practical lessons distillation. **21st Century Skills** Collaboration with practical work chromatography. Independence – Digital literacy – presentation skills – use of ipads. **Employability** Research- identifying adaptation of the villi. **Link to cultural capital:** History of distillation – how distillation equipment improves separation techniques.	**Formative Assessment** • Targeted questioning • Progression questions – allowing for pupil reflection on their own learning. • Key words and definitions – games / matching tasks • Quick quizzes • Quizlet • Gap fills (from scheme) • Whiteboard activity to enhance numeracy skills • Exam-style questions – linked to practical tasks • Extended answer tasks • Assessment of practical skills including observation. **Summative Assessment** **Year 7 HT1 Class Assessment** Chemistry topic 1 Separating substances and Biology topic 1 Cells.

	Half Term 2	Physics 1: Contact and Non-contact forces 1. Resultant forces 2. CF Friction 3. Weight vs Mass 4. Stopping distances 5. Crash hazards 6. Compasses and Magnets 7. NCF gravity (w = m x g) 8. Electrostatics Biology 2: Diseases 1. Pathogens 2. Communicable diseases 3. Non-communicable diseases 4. Barriers 5. The circulatory system 6. The heart (simple) The vessels	**Vocabulary** Extensive list of vocabulary for each topic including friction, weight, virus, bacteria, fungi **Oral skills** Verbal explanation of the vessels involved in the circulatory system. Presentation on communicable and non-communicable diseases. **Reading skills** Comprehension of texts on communicable diseases **Writing skills** Written plan for friction practical. Describing hazards and risks involved during practical lesson.	**Numeracy** • Using W.M.G equation • Rearrangement of this equation. • Calculating resultant forces. **21st Century Skills** Team work to conduct the steps needed to view onion cells under a microscope. Enhancing practical skills questioning **Employability** Matching appropriate pathogens to a disease. Independence – Assessing Hazards and Risks in practical investigations. **Link to cultural capital:** Contributions of William Harvey to describe the systematic circulation and properties of the blood being pumped to the brain and body by the heart.	October 2019 **Year 7 HT2 Linear Assessment Week** Assessment will cover units from HT1. (B1 & C1) December 2019
Spring Term	**Half Term 3**	Chemistry 2: States of matter 1. States of matter 2. Changes of State 3. Mixture/melting points 4. Drinking water Physics 2: Motion 1. Forces in Motion 2. Speed 3. Distance Time graphs 4. Acceleration-prac 5. Afl review	**Vocabulary** Extensive list of vocabulary for each topic including atom, molecules, gas, liquid, solid, boiling point, melting point **Oral skills** Team work during practical, discussion of observations, Extended answers to questioning **Reading skills** Matching key vocabulary to definitions ***Extended writing focus:*** Evaluation – how to improve results / modify investigations	**Numeracy** Interpreting heating and cooling curves. Interpreting data to identify the state of a substance Physics formula calculating acceleration **21st Century Skills** Collaborative team work in a Practical Setting. Enhancing practical skills questioning **Employability** Analyse factors that affect states of matter. IT skills- Ipad research	**Formative Assessment** • Make predictions • Open-ended questions • Key words and definitions – games / matching tasks • Quick quizzes • Quizlet • Gap fills (from scheme) • Whiteboard activity to enhance numeracy skills • Exam-style questions – linked to practical tasks • Extended answer tasks Assessment of practical skills including observation. **Summative Assessment**
	Half Term 4	Biology 3: Plants 1. *Photosynthesis* 2. *Photosynthesis- starch prac*	**Vocabulary** Extensive list of vocabulary for each topic including stomata, chlorophyll, gas	**Numeracy** • Number of subatomic particles in an atom	

		3. *Leaf structure* 4. *Xylem and phloem* Chemistry 3: The Atom 1. *History of the Atom* 2. *Structure of Atom* 3. *Different Atoms* 4. *Mass Number & Isotopes.*	exchange, atom, neutron, proton, electron **Oral skills** Team work during practical, discussion of observations, Extended answers to questioning **Reading skills** Comprehension of texts on atomic theories. **Writing skills** Lessons which focus on extended writing: Comparing the role of the xylem and phloem.	• Calculating Atomic Mass and atomic number. **21st Century Skills** Communication – presentation on the different states of matter. Practical team work **Employability** Ordering the steps involved in the starch practical. IT Skills- Ipad research **Link to cultural capital:** Dalton's Atomic theory / model of the Atom	**Departmental Class Assessment** Experimental skills- drawing and interpreting bar charts. January 2020 **Examination week March 2020** Units B1,B2,C1,C2,P1,P2 Assessment will cover all units of work in HT1 and HT2
Summer Term	**Half Term 5**	Physics 3:Energy & Electricity 1. *Introducing circuits* 2. *building circuits* 3. *electrical safety* 4. *Energy transfers* 5. *Energy efficiency* 6. *Keeping warm* 7. *Measuring Energy practical.* 8. *Work & power practical.* 9. *Renewable resources* 10. *Non-renewable resources* Biology 4: Respiration and material cycles 1 *Respiratory system* 2 *Alveoli* 3 *Respiration- prac* 4 *The water cycle* 5 *The carbon cycle* 6 *The nitrogen cycle*	**Vocabulary** Extensive list of vocabulary for each topic including alveoli, diaphragm, carbon, nitrogen, lung, efficiency, insulation, component **Oral skills** Team work during practical, discussion of observations, Extended answers to questioning **Reading skills** Scientific text analysed and annotated **Writing skills** Plan an investigation on work and power.	**Numeracy** Calculating energy efficiency. Physics formula calculating work done and power. **21st Century Skills** Practical team work building circuits Develop and improve experimental procedures such as the Work done practical. **Employability** Decision on most cost-effective form of insulation. Ipad research **Link to cultural capital:** How the scientific working of the respiratory system has led to new medical developments.	Formative Assessment • Problem solving • Raise hands • Red/Green cards • Key words and definitions – games / matching tasks • Quick quizzes • Quizlet • Gap fills (from scheme) • Whiteboard activity to enhance numeracy skills • Exam-style questions – linked to practical tasks • Extended answer tasks • Assessment of practical skills including observation. **Summative Assessment** June 2020 B3,B4,C3,C4,P1,P2,P3. Assessment will cover units of work in HT1 – HT6
	Half Term 6	Chemistry 4: Reactivity 1. *Reactivity series* 2. *Simple displacement* 3. *Conservation of mass* 4. *Word equations* 5. *Symbol equations.* 6. *Rates of reaction* 7. *Factors affecting rates of reaction* 8. *Temperature and reaction rate*	**Vocabulary** Extensive list of vocabulary for each topic including Reactivity series, displacement reaction, metal, temperature, surface area, concentration **Oral skills**	**Numeracy** Graph interpretation. **21st Century Skills** Collaboration-team games on the scientific cycles. Practical team work **Employability** Analyse factors that affect rates of reaction.	

		Topic 4: Mix Topic *1.The Solar System* *2. Satellites* *3.Comparing flowering plants* *4.Flame tests.*	Team work during practical, discussion of observations, Extended answers to questioning **Reading skills** Read and evaluate key scientific theories. **Writing skills** Advantages and disadvantages of radioactivity.	IT Skills-Ipad research **Link to cultural capital:** How the scientific development of radioactivity has led to advances in medical treatment.	