Curriculum Knowledge Map - Science

Year 7	Autumn 1 - Skills	Autumn 2 – Atoms and Elements	Spring 1 – Cells and Reproduction	Spring 2 – Electricity and magnetism	Summer 1 – Particles and separation	Summer 2 – Plant structure & interdependence
Declarative *What should they know?*	• HSW Skills • Practical skills and writing scientifically • Command words • Repeats, means, anomalies, accuracy, errors. • Variables and methods. • Graphs Sample size (range, intervals and scale) Control groups.	• Elements, compounds and mixtures • Using the Periodic table • Group 1 of periodic table • Chemical reactions • Chemical Equations • Structure of an atom • Electron shells • Atomic and mass number • Reactivity of metals • Investigating the reactivity of metals	• Menstrual cycle • Animal and Plant cells • Specialised cells • Movement in and out of cells • Labelling and describing cell organelles • Reproductive system • Foetal development • Fertilisation • Puberty • Using microscopes	• Circuit Component • Series and parallel circuits • Conductors and insulators • Measuring current and Voltage • Magnetism • Electromagnetism • Static • Resistance	• States of matter (solids, liquids and gases) • Conservation of matter • Boiling • Melting • Stearic acid (latent heat investigation) Solubility • Separating techniques • Filtration, evaporation, condensation, distillation and chromatography	• Photosynthesis • Testing leaves for starch • Investigating photosynthesis • Food chains • Food webs • Predator/Prey relationships • Insect pollination • Leaf structure • Seed dispersal • Observing Stomata • Ecosystems and Habitats
Procedural *What should they be able to do?*	• Identifying key Scientific Equipment • Learning how to keep themself and others safe in a lab • Conducting/writing • scientific equations • Effectively using key terms such as anomaly, range, mean, • resolution, interval, scale, repeats • Understanding how • to write a conclusion • Explaining results / • findings of practical • Identifying variables • Learning how to plot • a line graph • Learning how to plot a bar chart - choosing an • appropriate scale • Analysing a graph	• Identify properties of certain elements • Become familiarised with the periodic table • Write word equations • for the reactions including the reactions of metals and non-metals and the formation of oxides from nonmetals. • Students will investigate reactions to see if they are exo or endothermic • Students will investigate metals with acid to see the • temperature change • (reactivity) • Students will heat metals with oxygen.	• Learning how to use a microscope • Memory recall – for • cell parts and the reproductive system • Creative writing – journey of a sperm • Information retrieval on specialised cells • Comparison of egg and sperm cell • Modelling the menstrual cycle by creating a bracelet	• Make predictions – are materials conductive or not, test predictions • Correctly build series and parallel circuits • Current in series and parallel circuits • Investigate voltage in series/ parallel circuits • Investigate static electricity and use a Van der graff generator • Using magnets - difference between repel and attract • Draw magnetic field lines and demonstrate • magnetic field lines • Learn how to make an electromagnet, investigate what happens when strength is increased or decrease	• Learning how to annotate a graph • Retrieval practice Students will conduct/write up scientific investigations: • Conservation of mass • Rate of evaporation • Cooling curve for stearic acid • Investigating solubility, melting and boiling points • Evaporation and condensation • Chromatography Distillation	• Students work as a team to complete complex food webs Students will conduct/write up scientific investigations: • Iodine test for starch • Testing rate of photosynthesis using pond weed • Observe stomata • using a microscope

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Disciplinary Literacy *(Tier 3 Vocab)*	SEEC • Categoric • Continuous • Describe • Explain • Conclusion • Evaluation • Independent • Dependent	SEEC • element • compound • mixture • reactivity • exothermic • endothermic	SEEC • reproduction • specialised • adapted • fertilisation • magnification	SEEC • state • matter • conservation • conduction • convection • evaporation • condensation	SEEC • voltage • current • conductor • insulator • attract • repel	SEEC • photosynthesis • pollination • dispersal • producer • consumer
Assessment	Mid-Point Assessments (MPA) and teacher assessed questions (TAQ) MPA 1 Graphs MPA 2 Skills MPA's Focus on low stakes testing using exam questions from KS 3 assessments. TAQ 6 mark questions in preparation for GCSE style long answer / QWC questions	Mid-Point Assessments (MPA) and teacher assessed questions (TAQ) MPA 1 Atoms and Elements MPA 2 Reactivity MPA's Focus on low stakes testing using exam questions from KS 3 assessments. TAQ 6 mark questions in preparation for GCSE style long answer / QWC questions	Mid-Point Assessments (MPA) and teacher assessed questions (TAQ) MPA 1 Cells MPA 2 Reproduction MPA's Focus on low stakes testing using exam questions from KS 3 assessments. TAQ 6 mark questions in preparation for GCSE style long answer / QWC questions Progress Test based on units taught so far in Year 7 Skills Atoms and Elements	Mid-Point Assessments (MPA) and teacher assessed questions (TAQ) MPA 1 Electricity MPA 2 Magnetism MPA's Focus on low stakes testing using exam questions from KS 3 assessments. TAQ 6 mark questions in preparation for GCSE style long answer / QWC questions	Mid-Point Assessments (MPA) and teacher assessed questions (TAQ) MPA 1 States of Matter MPA 2 Separating techniques MPA's Focus on low stakes testing using exam questions from KS 3 assessments. TAQ 6 mark questions in preparation for GCSE style long answer / QWC questions	Mid-Point Assessments (MPA) and teacher assessed questions (TAQ) MPA 1 Photosynthesis MPA 2 interdependence MPA's Focus on low stakes testing using exam questions from KS 3 assessments. TAQ 6 mark questions in preparation for GCSE style long answer / QWC questions Progress Test based on units taught so far in Year 7 Skills Atoms and Elements Cells and Reproduction Electricity and Magnetism
Home Learning	Creative homework based on scientific investigations topics. Comprehension exercise on famous people – Mae Jemison Four educake quizzes of between 10 and 20 marks on organisms.	Creative homework based on atoms and elements. Comprehension exercise on famous people – Marie Curie Four educake quizzes of between 10 and 20 marks on Acids and Alkalis	Creative homework based on cells. Comprehension exercise on famous people: Anne Mclaren Four educake quizzes of between 10 and 20 marks on Waves, light, and sound. Revision for the January progress test • Skills • Atoms and elements	Creative homework based on power station. Comprehension exercise on famous people: Electrifying Women. Four educake quizzes of between 10 and 20 marks on Rocks, climate, and the universe	Creative homework based on flowers and food webs. Comprehension exercise on famous people: Dr Hayat Cindi Four educake quizzes of between 10 and 20 marks on Genes and evolution	Creative homework based on solids, liquids and gases or separation techniques. Comprehension exercise on famous people: Stephen Hawking Four educake quizzes of between 10 and 20 marks on Forces Revision for the summer progress test • Skills

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						• Cells • Electricity • Atoms