

CHS Curriculum Intent

SUCCESSFUL: Learners who gain deep and powerful knowledge in preparation for life; combining academic rigour, curiosity and creative flair.

CREATIVE: Learners who are imaginative, optimistic and inventive; finding their voice to become effective communicators prepared for lifelong adaptability

HAPPY: Learners who are confident, resilient, well-rounded citizens; they understand the world's communities and are ready to discover their place in it.

CHS Curriculum Area Framework for Learning – Year 7

SUBJECT	Science
INTENT	<p>The intent of the science department is to convey to students that Science underpins everything. At Chorlton High School we study</p> <p>Physics: to be able to understand the fundamental principles that govern all energy and matter in the Universe. Physics gives us tools to understand nature from the scale of sub-atomic particles up to the inter-galactic scale of the Universe.</p> <p>Chemistry: to be able to understand the nature of substances: how they are composed, their behaviour, and their physical and chemical properties. Chemistry allows us to identify unknown substances, monitor concentrations and synthesise new chemicals. Above all, Chemistry is about finding solutions to the problems that concern us and our surroundings.</p> <p>Biology: to be able to understand life and thereby understand ourselves. Biology allows us an understanding of the amazing complexity of many life processes and mechanisms. Biology encourages us to seek out reasons for strange, surprising and sometimes unusual observations.</p>

Year Group	7 2020 21					
Rationale/ Narrative	To learn the “big ideas” associated with Science. To develop firm foundations in Biology, Chemistry and Physics and to explore and engage students’ curiosity of the natural world. Students will learn how to carry out investigations, write scientifically and then explore the fundamental areas of science which include; cells, reproduction, atoms, electricity, photosynthesis and states of matter.					
	Autumn 1 - Scientific skills	Autumn 2 – Cells and reproduction	Spring 1 – Atoms and the periodic table	Spring 2 – Electrical circuits and Power	Summer 1 – Plant structure and interdependence	Summer 2 – States, energy transfer and Forces
KNOWLEDGE	How Science Works 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.	Menstrual cycle Cells (specialised cells, animal and plant structure) Labelling and describing cell organelles. Reproductive system Fertilisation Puberty Using microscopes	Elements, compounds and mixtures. Using the Periodic table. Group 1 in the periodic table. Chemical reactions Structure of an atom. Electron shells Atomic and mass number. Reactivity of metals. Investigating the reactivity of metals. Exothermic and endothermic reactions.	Series and parallel circuits. Conductors and insulators. Measuring current and voltage. Magnetism Electromagnetism Generating electricity Power stations National Grid	Photosynthesis Testing leaves for starch Investigating. photosynthesis Food chains Food webs Insect pollination Leaf structure Seed dispersal Observing Stomata	States of matter (solids, liquids and gases). Conservation of matter. Stearic acid (latent heat investigation). Conduction Convection Evaporation and condensation. Gravity and weight. Air resistance. A trip to Mars Design, build and test landers.
SKILLS	Learning Command words and carrying out/writing up scientific investigations.	Learning how to use a microscope. Memory recall – for cell parts and the reproductive systems.	Students will work collaboratively to produce a presentation about the structure of the atom.	Students will work collaboratively to produce a presentation about how a power station works.	Students will work collaboratively to analyse complex food webs.	Students will carry out and fully write up scientific investigations into: - Conservation of mass

	<p>Knowledge and use of 'How Science Works' key terms.</p> <p>Graph plotting and interpretation including choosing appropriate scale.</p>	<p>Creative writing – journey of a sperm.</p>	<p>Students will carry out and fully write up scientific investigations into:</p> <ul style="list-style-type: none"> - exo and endothermic reactions, - temperature change, when different metals react with acids, - heating different metals with oxygen. 	<p>Students will carry out and fully write up scientific investigations into:</p> <ul style="list-style-type: none"> - testing electrical conductors, - current in series and parallel circuits, - voltage in series and parallel circuits, - static electricity and use a Van der graff generator. 	<p>Students will carry out and fully write up scientific investigations into:</p> <ul style="list-style-type: none"> - Iodine test for starch, - rate of photosynthesis using pond weed, - observing stomata using a microscope. 	<ul style="list-style-type: none"> - Rate of evaporation - Cooling curve for stearic acid - Conduction through glass and metal rods - Convection - Evaporation and condensation
ASSESSMENTS	<p>Students will be assessed on:</p> <ul style="list-style-type: none"> - How to draw a line graph and a bar chart. This will include appropriate use of categoric and continuous data. - Writing scientifically: Students will learn to write a scientific report that tests a hypothesis and uses the terms: independent, dependent and control variable. - Multiple choice revision test (MCT). 	<p>Students will be assessed on:</p> <ul style="list-style-type: none"> - MCT – revision (cells and reproduction). - Writing creatively: (journey of sperm) – students will write about the journey of a sperm through the female reproductive system. - Progress test: This will test understanding of how science works skills (covering all the topic areas described in Autumn 1 and 2 – knowledge). 	<p>Students will be assessed on:</p> <ul style="list-style-type: none"> - Writing scientifically: students will write a scientific report about the reactivity of metals with hydrochloric acid. - Atomic structure presentation. Students will research and present work about the periodic table and the structure of the atom. - Multiple choice revision test (covering all the topic areas described in Spring 1 – knowledge above). 	<p>Students will be assessed on:</p> <ul style="list-style-type: none"> - Students will write a scientific report about circuits (both series and parallel). - Students will build a model Power station and then present their work to their peers. - Progress test: This will test understanding of how science works skills (covering all the topic areas described in Autumn and Spring – knowledge). 	<p>Students will be assessed on:</p> <ul style="list-style-type: none"> - Students will write a scientific report about how the rate of photosynthesis is affected by the intensity of a light. - Students will design a food web using information cards and then present the work to their peers or the class. - Multiple choice revision test (covering all the topic areas described in summer 1 – knowledge above). 	<p>Students will be assessed on:</p> <ul style="list-style-type: none"> - Students will write a scientific report about the cooling rate of stearic acid. - Mars lander presentation. Students will design and test mars landers. They will present these to the class. - Progress test (this will cover all the knowledge they have developed throughout the whole year).

