

KS3 "Science" Curriculum Mapping

Year 7 – Topics done on rotation in each section to ease the pressure on practical equipment required									
Term	First term (finished	l before Christmas)		Mid-year topics on	rotation (Dec-April)		End of year topics (post SAS)		
Topic(s)/ Subjects(s)	I'm a Scientist	Electricity	The Human Body	Earth and Beyond	Simple Chemical Reactions	Matter	Classification and variation	Magnetism	
Knowledge and skills (Content)	An introductory topic: Learners will become familiar with working safely in the labs, naming and safely using key equipment such as Bunsen burners. They will also develop their independent enquiry skills by designing and implementing their own experiments; recording data; processing and analysing data; and evaluating their own experimental processes.	This topic investigates circuits, current, potential difference and resistance. Learners will be able to gain hands on experience of using circuit boards applying their problem-solving skills and practical knowledge. They will apply their knowledge to real life examples such as burglar alarms.	The first in the series of Biology topics that our learners will experience. They will develop their technical vocabulary to help describe and explain how multicellular organisms, including humans, are structured. Journeying from sub- cellular chemical reactions, such as respiration, all the way through to organ system functions, with an impetus on how this knowledge is used in the medical world. Learners will begin to harness their handiness in using a microscope as well as discover their own fascinating development from just two simple, well- adapted and complementary cells, to their current selves.	Space exploration and understanding the forces that influence the physical world around us is the focus for this topic. Through plenty of independent enquiry and investigations, learners will satisfy their curiosity about our solar system, daily and seasonal changes on Earth and effects of lunar cycles. They will acknowledge human space endeavours and the technology and people that have furthered our understanding of the solar system, and beyond. Learners will be gin to apply mathematical equations to scientific theories such as gravity, and how other forces govern motion on Earth and in Space, including rocket dynamics.	This topic begins the learner's journey into Chemistry. Students will use a range of equipment to carry out simple chemical reactions. They will predict the products formed and carry out tests to confirm their predictions. This topic lays the foundations to Chemistry throughout CHS.	Reinforcing and furthering learners' understanding of particles and their properties, separation techniques, solution chemistry and the fundamentals of heat energy transfer. Learners use modelling and a variety of practical investigations to determine scientific principles. They will explore real life application of scientific techniques such as solving a crime scene with chromatography.	An important topic for the modern-day scientist; learners will reveal what we know about the climate changes on pre- human Earth, from just soil, ice and fossil samples, and suggest what we do with the knowledge today. The topic covers some basic principles to understanding natural history, such as how we classify animals and how animals have evolved and adapted to environ mental change. Learner s will be tasked to develop creative ideas and solutions to the modern-day problems of human- influenced species enda ngerment and extinction. This topic is also used to develop graph and data interpretation aptitudes , including identifying and dealing with anomalies.	Learners will find out about magnets and their magnetic fields and apply these concepts to our daily modern lives. The topic provides the perfect platform for students to practice and develop their problem solving and mental resilience through practical investigations.	



Assessment	Investigative skills test	End of Topic test written on Exam Base. Content covered in mid-year test (Feb)	End of Topic test written on Exam Base. Content covered in SAS	End of Topic test written on Exam Base. Content covered in SAS	End of Topic test written on Exam Base. Content covered in SAS	End of Topic test written on Exam Base. Content covered in SAS	End of Topic test written on Exam Base.	End of Topic test written on Exam Base.	
Cross Curricular Links	Maths - bar graphs summer term Y7; calculating averages autumn 2 nd half	Maths - rearranging equations GCSE	Antagonistic muscle pairs - GCSE P.E. Y10	Maths - standard form Y7 autumn term	aths - standard form 7 autumn term		Maths - Scaling Y7; Drawing axis Y9	Geography - how a compass works	
SMSC, British Values, Cultural Capital	Practical activities Class discussions	Practical activities Group work	Practical activities Group work	British space program history; debate on economic evaluation of space exploration	Practical activities Group work	Practical activities Group work	Practical activities Group work Climate issues	Practical activities Group work	
CEIAG	Any practical Science career	Electrician	Doctor Nurse Physiotherapist	Astronauts; all careers involved in space programs made explicit.	Forensic scientist Health and safety supervisor	Synthetic chemist Analytical scientist Engineering	Geologist Zoologist	Medical Physicist	
Learning outside the classroom	Big Bang Fair Jodrell Bank Q&A/trip in future) Special species competition- linean soc (Art); spring in a frame photography comp; big bug hunt; endangered species hunt.								
Additional Subject Specific Information	https://congletonhigh.sha %20exam%20revision%2	https://congletonhigh.sharepoint.com/sites/CHSStudentShared/science/KS3%20Shutdown%20work/Forms/AllItems.aspx?id=%2Fsites%2FCHSStudentShared%2Fscience%2FKS3%20Shutdown%20work%2FKS3 %20exam%20revision%20support%2FYear%207&viewid=91680fc9%2D2c1b%2D437e%2D9336%2D7e64ed46dce6							



Year 8 – Topics done on rotation in each section to ease the pressure on practical equipment required

Term	First term (finished	d before Christmas)		Mid-year topics on	End of year topics (post SAS)			
Topic(s)/ Subjects(s)	Light and Sound	Energy in the environment	Periodic Table	Alive and Kicking	Rocks and weathering	Chemical Reactions	Energy and resources	Microbes
Knowledge and skills (Content)	This topic challenges leaners ' understanding of particle physics and applies it to a whole world of what we see/hear; explaining how we see and hear, but also enlightening them to the spectrums beyond our senses. The topic further exposes learners to practicing of experimental design, collecting and interpreting good d ata, using equations, and identifyi ng errors. Learners will discover the Electromagnetic spectrum, the visible light spectrum, infra- and ultrasound and how both the natural world and scientists take advantage of these. Practical investigations into the properties and behaviour of visible (coloured) light and sound provide opportun ities for learners to learn by doing and explore their own ideas and theories. A tricky dissection of an eyeball will not only give learners an appreciation of how lenses work, but supply	A topic set in the outdoors, learners will see plants in a whole new light and realise they are the key to life and energy flow on Earth and begin to piece together how photosynthesis makes life possible. They will develop an overview of how energy flows through the food web using practical models and appreciate how ecologists estimate the numbers of organisms at each level of the food web. Getting their hands dirty is a necessity in this topic as learners will design an investigation to compare invertebrates in two different microhabitats and get creative and crafty with making and trialling their own insect traps.	Learners build on ideas of particle models of chemical reactions and develop an understanding of what the periodic table was developed for and how, and link this to how it is presently used by chemists. Pupils will work with a host of everyday and novel hazardous chemicals to harness their skills in precision measuring to make observations of reactions of different chemical groups. Their teacher will demonstrate explosive reactions where students will be tasked with applying their chemical knowledge to both predict and interpret products/resul ts of chemical reactions. Learners will master naming compounds from their reactants for some widely used reactions, and some will make the leap from using chemical names to solving more complex	Progress made in 'Human Body' in year 7 will be revisited as a launch pad for learners to develop a deeper understanding of the respiratory and digestive system, making links between essential nutrients and cellular function. Learners will get hands on in dissection of lungs to understand how our organs are adapted to their functional efficiency, as well as how they affected by smoking. Digestive enzymes are introduced and put into context in their industrial uses and their specific functions within our digestive system; knowledge required for their further study at GCSE.	A topic that allows students to discover the changes that occur in the physical word around them. Students will learn about the structure of the Earth and how volcanoes and climate change the rocks around them. They will also explore how evidence in rocks can tells us stories about how life has changed on Earth. Students will investigate how different processes weather and transport rocks, and link different volcanic shapes to a lava viscosit y through a practical investigation.	A follow on to 'The periodic table', this topic provides the bridge between KS3 and GCSE chemistry. Learners explore more hazardous chemistry such as combustion reactions and acid-alkali reactions, whilst applyin g and bolstering their previous knowledge of chemical reactions to new scenarios. Learners will also gain potentially life-saving knowledge of identifying type of fire and how to safely extinguish each type of fire.	Starting with traditional methods of generating electricity then meandering through the various ways we now generate electricity from renewable sources, learners will develop their problem solving and evaluative thinking to answer questions such as "What's the best way to power the country/world?". Learning through secondary rese arch, discussion and collaborating with others are key skills to being a successful scientist, and this topic provides a relevant and pertinent setting for leaners to trial and improve these.	This topic delves into the invisible living world around us, and how it plays a vital role in our day-to-day lives both in medicinal discoveries and providing us with vital and tasty nutrients such as bread. Learners will apply and practice scientific experimental design to product testing in order to evaluate effectiveness of deodorants and antibiotics. They will deepen their knowledge of the microbe world, including classification, transmission, prevention/cure of disease-causing microbes, as well as our body's natural responses to the micro- war we fight daily.



	them with a test of their dexterity and education of safe working with sharp implements.		chemical formula reactions.						
Assessment	End of Topic test written on Exam Base. Content covered in mid-year test (Feb)	End of Topic test written on Exam Base. Content covered in mid-year test (Feb)	End of Topic test written on Exam Base. Content covered in SAS	End of Topic test written on Exam Base. Content covered in SAS	End of Topic test written on Exam Base. Content covered in SAS	End of Topic test written on Exam Base. Content covered in SAS	End of Topic test written on Exam Base.	End of Topic test written on Exam Base.	
Cross Curricular Links	Maths KS2 link using a protractor and angles	Food tech – energy transfers of food	Maths – balancing equations	DT-food nutrition, PE - diet and lifestyle health	Geography- rocks and weathering	Real world knowledge - how to put out a fire Life skills – understanding hazard symbols	Maths - Energy efficiency % calculations; Geography- Renewables; DT - Energy in foods.	DT , PSHCE personal hygiene and hygienic food preparation	
SMSC, British Values, Cultural Capital	Noise pollution; understanding uses of light and sound practically	Advantages of organic crops Ethical discussions around use of fertilisers	Practical activities Class discussions	Dissection, diet and health, lifestyle choices – drugs and alcohol use	Global awareness, practical activities, group work.	Ethical - acid rain and the effects of the environment Practical activities	Ethical Energy usage; Reading energy bills. Art- Eco island design/build	Vaccination, health	
CEIAG	Medical technicians & MD; Opticians; Theatre/light technicians	Agricultural industry	Composites engineer Research chemist	Nutritionist, Doctor, sports scientist,	Geologist, geochemist, engineer	Environmental scientist Pharmaceuticals Chemical synthesis	Energy sector jobs (renewable energy of the future).	Microbiologist, Brewer, Biotechnologist, Environmental Agency Officer	
Learning outside the classroom	Big bang trip; spring in a f	rame competition (Art) ; end	dangered species hunt; Joo	drell bank visit; British scien	ce week- 'innovating for the	e future'; Great science sha	re		
Additional Subject Specific Information	https://congletonhigh.shat 0work&viewpath=%2Fsite %2FKS3%20exam%20re	Ittps://congletonhigh.sharepoint.com/sites/CHSStudentShared/science/KS3%20Shutdown%20work/Forms/AllItems.aspx?newTargetListUrl=%2Fsites%2FCHSStudentShared%2Fscience%2FKS3%20Shutdown%20work/Forms/AllItems%2Easpx&id=%2Fsites%2FCHSStudentShared%2Fscience%2FKS3%20Shutdown%20work%2FForms%2FAllItems%2Easpx&id=%2Fsites%2FCHSStudentShared%2Fscience%2FKS3%20Shutdown%20work%2FForms%2FAllItems%2Easpx&id=%2Fsites%2FCHSStudentShared%2Fscience%2FKS3%20Shutdown%20work%2FForms%2FAllItems%2Easpx&id=%2Fsites%2FCHSStudentShared%2Fscience%2FKS3%20Shutdown%20work%2FForms%2FAllItems%2Easpx&id=%2Fsites%2FCHSStudentShared%2Fscience%2FKS3%20Shutdown%20work%2FForms%2FAllItems%2Easpx&id=%2Fsites%2FCHSStudentShared%2Fscience%2FKS3%20Shutdown%20work%2FForms%2FAllItems%2Easpx&id=%2Fsites%2FCHSStudentShared%2Fscience%2FKS3%20Shutdown%20work%2FForms%2FAllItems%2Easpx&id=%2Fsites%2FCHSStudentShared%2Fscience%2FKS3%20Shutdown%20work%2Fforms%2FAllItems%2Easpx&id=%2Fsites%2FCHSStudentShared%2Fscience%2FKS3%20Shutdown%20work%2Fforms%2FallItems%2Easpx&id=%2Fsites%2FCHSStudentShared%2Fscience%2FKS3%20Shutdown%20work%2Fforms%2FallItems%2Easpx&id=%2Fsites%2FCHSStudentShared%2Fscience%2FKS3%20Shutdown%20work%2Fforms%2FallItems%2Easpx&id=%2Fsites%2FCHSStudentShared%2Fscience%2FKS3%20Shutdown%20work%2Fforms%2FallItems%2Easpx&id=%2Fsites%2FCHSStudentShared%2Fscience%2FKS3%20Shutdown%20work%2Fforms%2Fforms%2FallItems%2Fsites%2FSites%2FCHSStudentShared%2Fscience%2FKS3%20Shutdown%20work%2Fforms%2Fforms%2FallItems%2Fsites%2FSites%2FCHSStudentShared%2Fscience%2FKS3%20Shutdown%20work%2Fforms%2Fforms%2Fforms%2Fsites%2FSites%2FSites%2FCHSStudentShared%2Fscience%2FKS3%20Shutdown%20work%2Fforms%2Fforms%2Fforms%2Fsites%2FSites%2FSites%2FCHSStudentShared%2Fscience%2FKS3%20Shutdown%20work%2Fforms%2Fforms%2Fforms%2Fforms%2Fsites%2FSites%2FCHSStudentShared%2Fscience%2FKS3%20Shutdown%20work%2Fforms%2Ffo							



rear 9 – Topics done on rotation in each section to ease the pressure on practical equipment required										
Term	First term (finished	l before Christmas)		Mid-year	End of year topics (post SAS)					
Topic(s)/ Subjects(s)	Particles	Inheritance and Selection	Metals	Salts	Disease	Energy and Electricity	Speeding up	Using Resources	Ecology	
Knowledge and skills (Content)	This topic builds on early understanding of particle physics from year 7 & 8 and give pupils more independence in planning and accurately executing their own investigations to gather evidence related to conduction of heat. Learners will be mathematically ch allenged with recalling and application of some key pressure equations a nd begin to master concepts of how pressure and heat affect substances in their different physical states. The EM spectrum is also revisited with a focus on infra-red radiation as a source of heat.	"Why do I look like this?" is the key question learners will be able to answer by the end of this topic, and they explore the world of genetic variation, selection and engineering. The topic bridges earlier knowl edge of cells with reproducti on, human gestation and development require d at GCSE level. Learners will exercise their ability to evaluate ethics in science with debates about cloning of animals for research and farming and the morality of genetic engineering.	A chemistry topic that recounts the basics of the periodic table, elements and compounds, reaction s of metals, but steps up a gear; both in reactivity and using chemical symbols and formula to describe reactions. Learners get the opportunity to observe the surprisin g reactions of group one metals with water and acids, and develop their technical chemistry skills and competency in using apparatus.	'Salts' complements and builds on skills learnt in 'metals' topic, with a focus on predicting and naming products from reactions of acids with different metal compounds used in industry. Learners will be given and trusted with more hazardous substances which they will be required to be familiar with at GCSE, and start to appreciate the huge role chemistry has in everyday products and medical developments.	A short Biology topic, which acts a prelude to the Infection and response topic covered in year 10. Learners will enhance their technical biology vocabulary, and conduct and present their very own research on diseases of their choice. Through this task they will learn how to gauge reliability of sources of information, and how to properly cite secondary research, as well practice presenting information in an engaging way to their peers.	This topic bolts on to inve stigating series and parallel circuits, current, potential difference and resistance, first visited in year 7, and provides learners with more autonomy and freedom to explore the nature of electricity. The focus is to provide a tangible link to energy as a whole and lay a strong foundation which they will build upon at KS4, by introducing some of the more challenging concepts and mathematics they will approach at GCSE.	Forces and speed are tackled in this topic with a more rigorous focus on mathematical me chanics. Learners are required to recall and apply of formula to solve problems; providing a stepping- stone for learners to practice skills they will require in the GCSE Physics course. There is an emphasis on practical investigation, selecting appropriate variables, accurately recording results and linking their discoveries to real- life problems/observatio ns.	Drawing on year 8 practical experience of fuels, this topic centres around environmental chemistry and sustainable use of products. Learners explore use, and consequences of using everyday items and resources they take for granted. They see how biology and chemistry complement each other in providing solutions to supplying clean water, recycling plastics, and decontaminating soils.	A precursor to the year 10 Ecology topic and a sequel to the year 7 'extinction' topic, this section provides a link between animal adaptations/evolutio n and the roles organisms play in nutrient cycling through an ecosystem. Learners will get hands on and familiar with using ecological equipment they will experience in required practical challenges at GCSE, as well as provide further opportunity to polish their experimental design and report writing skills.	
Assessment	End of Topic test written on Exam Base. Content covered in mid-year test (Feb)	End of Topic test written on Exam Base. Content covered in mid-year test (Feb)	End of Topic test written on Exam Base. Content covered in SAS	End of Topic test written on Exam Base. Content covered in SAS	End of Topic test written on Exam Base. Content covered in SAS	End of Topic test written on Exam Base. Content covered in SAS	End of Topic test written on Exam Base. Content covered in SAS	End of Topic test written on Exam Base.	GCSE Biology topic. Done here to fit in assessed practical in Summer Term.	
Cross Curricular Links	Maths – balancing equations	Geography – land use for farming	Maths – rearranging equations	English – naming rules for compounds	Food tech – development of pathogens P.E vaccines and keeping healthy	Maths – rearranging equations. DT – looking at practical challenges when making wind turbines.	Maths – rearranging equations.	DT-different materials	Geography – sampling the environment and factors affecting distribution, maths – calculating means and estimating populations	



SMSC, British Values, Cultural Capital	Practical activities Class discussions	Practical activities Class discussion Collaboration	Cultural - Understanding the importance of communication using symbols Practical activities	Working together and problem solving during practical activities. Communication and sharing of responsibility.	Working together – discussions. Sharing research information. Applying experience of covid to reducing transmission of diseases.	Working together – collaborating and sharing ideas. Listening to other students.	Working together – listening and sharing ideas. Seeing problems and thinking of solutions.	Practical activities, sustainable development, problem solving	Interdependence – how every change can affect an ecosystem, role of humans in carbon cycle	
CEIAG	Pharmacist Environment officer	Genetic Researcher, Genetic counsellor, Horticulturist	Forensic scientist Chemist	Forensic scientist Chemist	Epidemiologist, Doctor, Nurse, Microbiologist, Infection control	Electrician. Energy advisor – how to make electricity in a sustainable way.	Police traffic officers; measuring the velocity of athletes (swimmers, runners).	LCA consultant, composite chemist, environmental scientist	Ecologist, environmental scientist, conservationist, flood risk analysts, biodiversity officer	
Learning outside the classroom	Careers talks; spring in a frame competition (Art); endangered species hunt; British science week- 'innovating for the future'; Great science share; Ecology sampling; distance-time running practical;									
Additional Subject Specific Information	https://congletonhigh.s Owork&viewpath=%2F %2FKS3%20exam%2	Ittps://congletonhigh.sharepoint.com/sites/CHSStudentShared/science/KS3%20Shutdown%20work/Forms/AllItems.aspx?newTargetListUrl=%2Fsites%2FCHSStudentShared%2Fscience%2FKS3%20Shutdown%20work/Second Second								