BOURNVILLE SCHOOL

CURRICULUM OVERVIEW 2019-2020

SUBJECT: COMBINED SCIENCE

	AUTUMN 1	AUTUMN 2	SPRING 1	SPRING 2	SUMMER 1	SUMMER 2
	THE BIG QUESTIONS	THE BIG QUESTIONS	THE BIG QUESTIONS	THE BIG QUESTIONS	THE BIG QUESTIONS	THE BIG QUESTIONS
YEAR 11	**5.8 Chemical analysis** How do you spot a particle without being able to see it? **5.9 Chemistry of the atmosphere** Why is Venus hotter than Mercury, despite being further from the Sun?	**5.10 Using resources** How can you provide drinking water for a city in the desert? **6.5 Forces** Is a book on a table moving the Earth?	**6.6 Waves** What can we learn about light using water? **6.7 Magnetism and electromagnetism** What happens between two fields?	**Revise and improve paper 2 and paper 1 material**		
YEAR 10	**6,4 Atomic structure** When is it safe to return after a nuclear disaster? **5.3 Quantitative chemistry** How many atoms are in everything?	**5.4 Chemical changes** How can we turn rocks into a bike? **5.5 Energy changes** Can you cool down a room with plants?	**4.5 Homeostasis and response** What happens in our bodies when we are being chased by a lion?	**4.6 Inheritance, variation and evolution** Why are we all different and why does it matter?	**5.6 The rate and extent of chemical change** How can an industry make more money in less time? **5.7 Organic chemistry** Where do we put all the carbon?	**4.7 Ecology** As the world's population increases, how can we feed everyone?
YEAR 9	**4.2 Organisation:** If you eat a bag of doughnuts, what does your body do with it?	**4.1 Cell biology:** If cells are the building blocks of life, how do they work together? **5.1 Atomic structure and the periodic table:** Explain why there are different atoms and how we organise what makes them.	**5.2 Bonding, structures and properties of matter:** If atoms want to be stable, how do they achieve this and what are the consequences? **6.2 Electricity:** What makes your phone charger work?	**6.1 Energy:** What is the currency of the universe? How is energy stored and transferred?	**4.3 Infection and response** How could you die from a scratch?	**4.4 Bioenergetics:** What links light to Lucozade to leaping? **6.3 Particle model of matter** Why can ice float, melt and disappear?

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YEAR 8	**Chemistry Unit 1 - Periodic Table and Reactivity.** What are the basic building blocks of all matter and how do their different arrangements effect their properties?	**Biology Unit 1 - Digestion, Evolution and Variation.** How can small differences in organisms lead to the complexity of life?	**Physics Unit 1 - Energy Transfers and Fluids.** Why does a ship made of steel float on water?	**Biology Unit 2 - Respiration and the Body.** What does our body need for us to stay alive?	**Chemistry Unit 2 - The Environment.** Are we destroying the planet?	**Physics Unit 2 - Earth Space and Light.** How did the Universe begin?
YEAR 7	**Physics Unit 1 - Forces and Sound.** What are forces and their effects on our surroundings?	**Biology Unit 1 – Cells and Reproduction.** What does it mean to be a living organism and what are the different life processes?	**Chemistry Unit 1 - Chemical Reactions and the Particle Model.** How can water and ice behave so differently if it is made of the same stuff?	**Physics Unit 2 - Energy and Electricity.** How do we store energy and do work?	**Biology Unit 2 - Classification and Plants.** Why is a dolphin more closely related to us than a fish?	**Chemistry Unit 2 - Acids and Alkalis.** What is the difference between battery acid and bleach?

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GCSE BIOLOGY (TRIPLE)

	AUTUMN 1	AUTUMN 2	SPRING 1	SPRING 2	SUMMER 1	SUMMER 2
	THE BIG QUESTIONS	THE BIG QUESTIONS	THE BIG QUESTIONS	THE BIG QUESTIONS	THE BIG QUESTIONS	THE BIG QUESTIONS
YEAR 11	**4.7 Ecology 1** Why can life be described as a struggle for reproduction?	**Review paper 1 material**	**4.7 Ecology** As the world's population increases, how can we feed everyone?	**Revise and improve paper 2 and paper 1 material**		
YEAR 10	**4.4 Bioenergetics 1** What links light to Lucozade to leaping?	**4.4 Bioenergetics 2** Why is the day after "leg day" at the gym painful, but only for a short time?	**4.5 Homeostasis and response 1** What happens in our bodies when we are being chased by a lion?	**4.5 Homeostasis and response 2** How does a plant know where to grow? Why is the pituitary gland essential to animal life?	**4.6 Inheritance, variation and evolution 1** Why are we all different and why does it matter?	**4.6 Inheritance, variation and evolution 2** What is the evidence for evolution?
YEAR 9	**4.2 Organisation1** If you eat a bag of doughnuts, what does your body do with it?	**4.2 Organisation 2** Why do you have100,000 km of blood vessels? How does the Amazon rainforest control its own weather system?	**4.1 Cell biology 1** If cells are the building blocks of life, how do they work together?	**4.1 Cell biology 2** How could you regrow a face?	**4.3 Infection and response** How could you die from a scratch?	**4.3 Infection and response** Why should Marvel make superhero films about pharmacologists and immunologists?

GCSE PHYSICS (TRIPLE)

	AUTUMN 1	AUTUMN 2	SPRING 1	SPRING 2	SUMMER 1	SUMMER 2
	THE BIG QUESTIONS	THE BIG QUESTIONS	THE BIG QUESTIONS	THE BIG QUESTIONS	THE BIG QUESTIONS	THE BIG QUESTIONS
YEAR 11	**4.7 Magnetism and electromagnetism 1** What happens between two fields?	**Bringing it all together** How do we retain and apply our knowledge?	**4.8 Space physics** What is the past, present and future of our Universe?	**Revise and improve paper 2 and paper 1 material**		
YEAR 10	**4.4 Atomic structure 1** When is it safe to return after a nuclear disaster?	**4.5 Forces 1** Is a book on a table moving the Earth?	**4.5 Forces 2** How do planes and submarines withstand the pressure?	**4.6 Waves 1** What can we learn about light using water?	**Perfecting practical skills** What makes a good scientist?	**4.6 Waves 2** Can you cook popcorn with your phone?

YEAR 9	**4.2 Electricity 1:** What makes your phone charger work?	**4.2 Electricity 2:** How can burning coal in a power station lead to burning toast at home?	**4.1 Energy 1:** What is the currency of the universe? How is energy stored and transferred?	**4.1 Energy 2:** How can we hold onto our energy?	**4.3 Particle model of matter 1** What percentage of a bag of crisps is air?	**4.3 Particle model of matter 2** Why do balloons expand?

GCSE CHEMISTRY (TRIPLE)

	AUTUMN 1	**AUTUMN 2**	**SPRING 1**	**SPRING 2**	**SUMMER 1**	**SUMMER 2**
	THE BIG QUESTIONS	THE BIG QUESTIONS	THE BIG QUESTIONS	THE BIG QUESTIONS	THE BIG QUESTIONS	THE BIG QUESTIONS
YEAR 11	**5.8 Chemical analysis** How do you spot a particle without being able to see it?	**5.10 Using resources** How can you provide drinking water for a city in the desert?	**5.10 Using resources** Revision of paper 1 and 2 topics	**Revise and improve paper 2 and paper 1 material**		
YEAR 10	**4.6 The rate and extent of chemical change** How can an industry make more money in less time?	**4.6 The rate and extent of chemical change continued** How can an industry make more money in less time?	**5.7 Organic chemistry** Where do we put all the carbon?	**Perfecting practical skills** What makes a good scientist?	**5.9 Chemistry of the atmosphere** Why is Venus hotter than Mercury, despite being further from the Sun?	**5.9 Chemistry of the atmosphere continued** Why is Venus hotter than Mercury, despite being further from the Sun?
YEAR 9	**4.1 Atomic structure and the periodic table:** "Like chalk and cheese", explain why there are different atoms and how we organise what makes them.	**4.2 Bonding, structures and properties of matter:** If atoms want to be stable, how do they achieve this and what are the consequences?	**4.3 Quantitative chemistry** How many atoms are in everything? RP2: Neutralisation	**4.4 Chemical changes** How can we turn rocks into a bike? RP1: Making salts RP3: Electrolysis	**4.5 Energy changes** Can you cool down a room with plants? RP4: Temperature changes	**4.5 Energy changes continued**