



2018-2019 KS3 Curriculum: Science

Benjamin Britten science students are taught in a way that develops their passion for learning and an inquiring mind, which is at the very core of what science and education are about. In order to ensure this, students study a bespoke key stage 3 scheme of work that develops their subject knowledge alongside investigative and communication skills and gives them time to explore, make discoveries and solve problems. The scheme of work incorporates all aspects of The National Curriculum for Science.

<u>Time</u>	<u>Topics- Rotating</u>	<u>Further Details About The Topic</u>
From September 2018 to July 2019	<u>Biology</u> Key Concepts in Biology and biology basics. Ecosystems Reproduction Health and Disease Genetics	During Biology lessons students will learn: <ul style="list-style-type: none"> • Cell biology and the role of the cell. They will develop practical skills in cell biology. • how ecosystems function and their interactions and human impact • the anatomy of the mammalian reproductive system • DNA structure and function
	<u>Physics</u> Forces Circuits Particles and Density Energy Astronomy	During Physics lessons students will learn: <ul style="list-style-type: none"> • Friction and drag, floating and sinking, Pressure and unbalanced forces. • Electricity, switches and current, series and parallel circuits, Potential difference and resistors. • Solids, liquids and gases at the particle level, looking at how the energy changes during changes of state. They will also study density and complete one of the core practical's–Investigating Density. • Energy stores and transfers will be looked at through practical application. Efficiency, heat and temperature will be studied in relation to keeping our homes warm. • The Earth and why we have seasons, magnetic Earth, gravity in space and orbits, life cycle of stars, origins of the universe and how red shift provides evidence for the Big Bang. Students will also have the opportunity to take part in a number of work-shops and be involved in a Solar System Model competition.
	<u>Chemistry</u>	During Chemistry lessons students will learn:



2018-2019 KS4 Curriculum: Science

Students study Edexcel GCSE Science at Benjamin Britten. Students studying both combined and separate sciences will sit 6 external exams at the end of year 11. There is no coursework element to the GCSE it is 100% externally assessed. There are two tiers: Higher Tier or Foundation Tier. Students follow the course best suited to their ability and their tier of entry for the exams is made after considering what would be best for each individual student.

For many students at Benjamin Britten, studying the sciences in Key Stage 4 provides the platform for more advanced studies, establishing the basis for a wide range of careers. For others, it will be their last formal study of subjects that provide the foundations for understanding the natural world and will enhance their lives in an increasingly technological society. Students planning to continue studying sciences at A-level will be able to do so with GCSEs in either combined or separate sciences.

Year 9 - Biology

<u>Time</u>	<u>Topics- Rotating</u>	<u>Further Details About The Topic</u>
From January 2019 to July 2019	Biology Basics Cells and Control Genetics Natural Selection and Evolution Health and Disease Plant structures and their functions	Students will deepen and extend their knowledge in: <ul style="list-style-type: none">• Cell biology and the role of the cell in living organisms and comparisons between cells. They will develop practical skills in cell biology.• Enzymes and their role in our bodies• The role of the nervous system in our bodies and the world around us. The role of hormones in maintaining our body health, the menstrual cycle and contraception.• DNA structure and function, how and why we look different.• Evidence of Evolution and the role of Charles Darwin.• What causes plant diseases and how we stop them from spreading.• How plants survive and help us to survive and their adaptations and the role of plants within ecosystems. This will enable them to understand and develop their learning going into Year 10.

Year 10 - Biology

<u>Time</u>	<u>Topics- Rotating</u>	<u>Further Details About The Topic</u>
From January 2019 to July 2019	Biology Key concepts Health and Disease Genetics Exchange and Transport in animals	Students will deepen and extend their knowledge in: <ul style="list-style-type: none">• Cell biology and the role of the cell in living organisms and comparisons between cells. They will develop practical skills in cell biology.• DNA structure and function, how and why we look different.



	Animal Coordination, Control and Homeostasis Plant structures and their functions	<ul style="list-style-type: none"> Evidence of Evolution and the role of Charles Darwin. What causes diseases and how we stop them from spreading and how the body protects itself. How plants survive and help us to survive and their adaptations and the role of plants within ecosystems. <p>This will enable them to understand and develop their learning going into Year 11.</p>
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Year 9 - Physics

<u>Time</u>	<u>Topics- Rotating</u>	<u>Further Details About The Topic</u>
From January 2019 to July 2019		<p>Students will deepen and extend their knowledge in:</p> <ul style="list-style-type: none"> How to calculate speeds and accelerations, and how to represent changes in distance moved and speed graphs. Ideas about Newton's Laws of Motion, about the factors that affect the stopping distance of a vehicle and how to use the ideas about energy transfer to calculate deceleration and momentum. Ways in which energy can be transferred and stored, how to reduce energy transfers, and the renewable and non-renewable resources we use in everyday life. How waves transfer energy and information, and what happens when waves are reflected, refracted, transmitted or absorbed. How different forms of radiation that we cannot see, are used and their dangers.

Year 10 - Physics

<u>Time</u>	<u>Topics- Rotating</u>	<u>Further Details About The Topic</u>
From January 2019 to July 2019		<p>Students will deepen and extend their knowledge in:</p> <ul style="list-style-type: none"> The solar system and how gravity affects orbits. The life cycles of stars and the evidence for different theories of the origin of the universe. How forces can transfer energy. Force fields and how to use vector diagrams to work out what happens when several different forces act on an object at the same time. How electricity is supplied and used in different circuits, and how to explain some phenomena caused by static electricity. How magnetic fields are used to produce forces and to change the voltage of electricity supplies.



		<ul style="list-style-type: none">How the particle model explains the properties of matter and what happens when energy is transferred to or from a substance. And how the energy transfers in a spring when stretched.
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Year 9 - Chemistry

<u>Time</u>	<u>Topics- Rotating</u>	<u>Further Details About The Topic</u>
From January 2019 to July 2019		Students will deepen and extend their knowledge in:

Year 10 - Chemistry

<u>Time</u>	<u>Topics- Rotating</u>	<u>Further Details About The Topic</u>
From January 2019 to July 2019		Students will deepen and extend their knowledge in:

During year 11 students follow a tailored revision schedule that allows each topic within Biology, Physics and Chemistry to be revisited. Students review previous learning, practice skills and consolidate subject knowledge while also gaining confidence with exam technique.