| Year 10 - Science | | | | | | |
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| **Curriculum intent** | All students will develop knowledge which helps them in their own lives and to understand the world in which they live. Students will be confident with their knowledge, allowing them to inform others and to problem solve through scientific enquiry. To prepare students for the future they will be curious and equipped to question and challenge information they are presented with.<br><br>Through the curriculum, key themes of knowledge are revisited each year, with the knowledge being developed over time. The themes link to biology, chemistry and physics and are carefully sequenced in order to ensure that students have all of the powerful knowledge needed to move onto the next theme. This will ensure that students develop a secure long term memory over time with flexible knowledge that can be applied to different contexts. | | | | | |
| **Term** | **Autumn 1** | **Autumn 2** | **Spring 1** | **Spring 2** | **Summer 1** | **Summer 2** |
| **Knowledge** | **Biology Topic 1 Cell Biology** explore how structural differences between types of cells enables them to perform specific functions within the organism.<br><br>**Chemistry Topic 1 Atomic Structure and the Periodic Table** understand the periodic table provides chemists with a structured organisation of the known chemical elements from which they can make sense of their | **Biology Topic 2 Organisation** learn about the human digestive system which provides the body with nutrients and the respiratory system that provides it with oxygen and removes carbon dioxide. They will also learn how the plant's transport system is dependent on environmental conditions to ensure that leaf cells are provided with the water and carbon dioxide that they need for photosynthesis. | **Biology Topic 2 Organisation** learn about the human digestive system which provides the body with nutrients and the respiratory system that provides it with oxygen and removes carbon dioxide. They will also learn how the plant's transport system is dependent on environmental conditions to ensure that leaf cells are provided with the water and carbon dioxide | **Biology Topic 3 Infection and Response** explore how we can avoid diseases by reducing contact with them, as well as how the body uses barriers against pathogens<br><br>**Chemistry Topic 4 Chemical Changes** understand chemical changes began when people began experimenting with chemical reactions in a systematic way and organising their results logically.<br><br>**Physics Topic 3 Particle Model of** | **Biology Topic 4 Bioenergetics** explore how plants harness the Sun's energy in photosynthesis in order to make food and all organisms use glucose and oxygen to perform respiration.<br><br>**Chemistry Topic 5 Energy Changes** understand the interaction of particles often involves transfers of energy due to the breaking and formation of bonds. | **Biology Topic 7 Ecology** learn how different parts of an ecosystem interact with each other and the effects that humans have on the environment<br><br>**Chemistry Topic 9 Chemistry of the atmosphere** understand the factors that affect our atmosphere and how pollution causes problems<br><br>**Physics Topic 5 Forces** understand that engineers analyse forces when designing a great variety of |

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| | physical and chemical properties.<br><br>**Physics Topic 1 Energy** learn how physicists and engineers are working hard to identify ways to reduce our energy usage. | **Chemistry Topic 2 Bonding, Structure and the Properties of Matter** understand chemists use theories of structure and bonding to explain the physical and chemical properties of materials.<br><br>**Physics Topic 2 Electricity** understand that electrical power fills the modern world with artificial light and sound, information and entertainment, remote sensing and control. | that they need for photosynthesis.<br><br>**Chemistry Topic 3 Quantitative Chemistry** understand chemists use quantitative analysis to determine the formulae of compounds and the equations for reactions.<br><br>**Physics Topic 2 Electricity** understand that electrical power fills the modern world with artificial light and sound, information and entertainment, remote sensing and control. | **Matter** understand the particle model is widely used to predict the behaviour of solids, liquids and gases. | **Physics Topic 4 Atomic Structure** understand the properties of radioactive materials, how they decay, and the properties and hazards of the ionising radiation they produce | machines and instruments, from road bridges and fairground rides to atomic force microscopes |
| **Skills** | Graph drawing<br>Method writing | Calculation<br>Description and explanation | Evaluation<br>Method writing | Suggestion<br>Risk assessment | Method writing<br>Description and explanation | Evaluating investigations<br>Calculation |
| **Assessments** | Mastery Recall Tasks each half term | Mastery Recall Tasks each half term | Midterm synoptic exam | Mastery Recall Tasks each half term | Paper 1 mock exams during the Year 10 mock exam period. | Mastery Recall Tasks each half term |

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| | Mastery Application tasks each topic:<br>Biology – draw a graph<br>Chemistry – create a risk assessment<br>Physics – evaluate a process | Mastery Application tasks each topic:<br>Biology – describe a method<br>Chemistry – describe a process<br>Physics – calculate a value | Mastery Recall Tasks each half term<br><br>Mastery Application tasks each topic:<br>Biology – describe a method<br>Chemistry – calculate a value<br>Physics – calculate a value | Mastery Application tasks each topic:<br>Biology – compare tow methods<br>Chemistry – describe a method<br>Physics – describe a method | Mastery Recall Tasks each half term<br><br>Mastery Application tasks each topic:<br>Biology – suggest a hypothesis<br>Chemistry – evaluate a method<br>Physics – describe a substance | Mastery Application tasks each topic:<br>Biology – describe a method<br>Chemistry explain a process<br>Physics – describe a mehtod |
| **Curiosity** | Books:<br>CPG AQA revision guide and workbooks<br>World of Science<br>https://www.amazon.co.uk/World-Science-Various/dp/1842368036/ref=sr_1_1?s=books&ie=UTF8&qid=1432298879&sr=1-1<br><br>Science in the news:<br>https://www.iflscience.com/<br>https://theday.co.uk/<br>https://www.bbc.co.uk/news/science_and_environment | | | | | |