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| **Year 10 - Science** | | | | | | |
| **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.  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** use a range of investigativetechniques to explore how structural differences between types of cells enables them to perform specific functions within the organism.  **Chemistry Topic 1 atomic structure and the periodic table** use a range of investigativetechniques to understand the periodic table provides chemists with a structured organisation of the known chemical elements from which they can make sense of their physical and chemical properties.  **Physics Topic 1 energy** use a range of investigativetechniques to learn how physicists and engineers are working hard to identify ways to reduce our energy usage. | **Biology Topic 2 organisation** use a range of investigativetechniques to 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.  **Chemistry Topic 2 bonding, structure and the properties of matter** use a range of investigativetechniques to understand chemists use theories of structure and bonding to explain the physical and chemical properties of materials.  **Physics Topic 2 electricity** use a range of investigativetechniques to understand that electrical power fills the modern world with artificial light and sound, information and entertainment, remote sensing and control.  **Biology Topic 3 infection and response** use a range of investigativetechniques to explore how we can avoid diseases by reducing contact with them, as well as how the body uses barriers against pathogens. | **Chemistry Topic 3 quantitative chemistry** use a range of investigativetechniques to understand chemists use quantitative analysis to determine the formulae of compounds and the equations for reactions.  **Physics Topic 3 particle model of matter** use a range of investigativetechniques to understand the particle model is widely used to predict the behaviour of solids, liquids and gases. | **Biology Topic 4 Bioenergetics** use a range of investigativetechniques to 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. | **Chemistry Topic 4 chemical changes** use a range of investigativetechniques to understand chemical changes began when people began experimenting with chemical reactions in a systematic way and organising their results logically.  **Physics Topic 4 atomic structure** use a range of investigativetechniques to understand that ionising radiation is hazardous but can be very useful. | **Chemistry Topic 5 energy changes** use a range of investigativetechniques to understand the interaction of particles often involves transfers of energy due to the breaking and formation of bonds.  **Biology Topic 7 ecology** use a range of investigativetechniques to understand all species live in ecosystems composed of complex communities of animals and plants dependent on each other and that are adapted to particular conditions, both abiotic and biotic. |
| **Skills** | Modelling and simulationtechniques.  Working scientifically: developing scientific attitudes, experimental skills and investigations, analysis and evaluation and using a range of measurements. | Develop practical skills to use a microscopes to investigate scientific theories.  Working scientifically: developing scientific attitudes, experimental skills and investigations, analysis and evaluation and using a range of measurements. | Working scientifically: developing scientific attitudes, experimental skills and investigations, analysis and evaluation and using a range of measurements.  Maths skills – handling data, graphs and using units.  Develop practical skills to investigate scientific theories. | Working scientifically: developing scientific attitudes, experimental skills and investigations, analysis and evaluation and using a range of measurements.  Develop practical skills to investigate scientific theories.  Maths skills – handling data, graphs and using units. | Working scientifically: developing scientific attitudes, experimental skills and investigations, analysis and evaluation and using a range of measurements.  Maths skills – handling data, graphs and using units.  Develop practical skills to investigate scientific theories. | Working scientifically: developing scientific attitudes, experimental skills and investigations, analysis and evaluation and using a range of measurements.  Maths skills – handling data, graphs and using units.  Develop practical skills to investigate scientific theories. |
| **Assessments** | End of topic tests for all topics to identify any areas of development. | End of topic tests for all topics to identify any areas of development. | End of topic tests for all topics to identify any areas of development. | End of topic tests for all topics to identify any areas of development. | Biology paper 1 mock exam during the Year 10 mock exam period.  End of topic tests for all topics to identify any areas of development. | End of topic tests for all topics to identify any areas of development. |
| **Curiosity** | Books:  CPG AQA revision guide and workbooks  World of Science  <https://www.amazon.co.uk/World-Science-Various/dp/1842368036/ref=sr_1_1?s=books&ie=UTF8&qid=1432298879&sr=1-1>  Science in the news:  <https://www.iflscience.com/>  <https://theday.co.uk/>  <https://www.bbc.co.uk/news/science_and_environment> | | | | | |