

Curriculum intent (overview) – To deepen students’ skills and knowledge through a broad and balanced curriculum which prepares students for adulthood.

11V - Venture Curriculum - Science/3 Lessons weekly

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| Year | 2024 – 2025 Autumn 1 | 2024 – 2025 Autumn 2 | 2024 – 2025 Spring 1 | 2024 – 2025 Spring 2 | 2024 – 2025 Summer 1 | 2024 – 2025 Summer 2 |
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| | <p>Topic: B11 My Genes B12 Food Factory</p> <p>Suggested Key Questions: What are the processes all living things do? How to atoms join together? What rays are used to treat patients with specific conditions?</p> <p>Key Skills and Knowledge: B11 My Genes</p> <ol style="list-style-type: none"> 1. Know that the nucleus contains chromosomes which can be seen with a light microscope during cell division but can be seen in greater detail with an electron microscope. 2. Know that chromosomes are made of DNA. DNA as two strands forming a double helix. DNA in | <p>Topic: C11 How fast? How Slow? C12 CSI Plus</p> <p>Suggested Key Questions: What are genes and what do genes do? What techniques are used in at a crime scene? Why are alternative energy sources important?</p> <p>Key Skills and Knowledge: C11 How fast? How Slow?</p> <ol style="list-style-type: none"> 1. Interpret information from charts and graphs about rates of reaction. 2. Understand how particle collisions can be used to explain reaction rates. 3. Know that changes in temperature usually changes the speed of chemical reactions. | <p>Topic: (1) Fly me to the moon (P11) (2) Final Frontiers (P12)</p> <p>Suggested Key Questions: What are the names of the planets moving away from the Sun? What do you know about our Solar system?</p> <p>Key Skills and Knowledge: Fly me to the moon (P11)</p> <ol style="list-style-type: none"> 1. Know that the moon orbits the Earth. 2. Know the order of the eight planets in the solar system. 3. Explain how the thrust of the rocket is provided by heating a gas to increase its volume. 4. Explain how the motion of the molecules in a gas is related both to its temperature and | <p>Topic: Can do assessment tasks Completion of practical assessments</p> <p>Suggested Key Questions: What are the key practical's and skills used by scientists?</p> <p>Key Skills and Knowledge: Working scientifically skills:</p> <ol style="list-style-type: none"> a) Planning to collect data. b) Processing the data. c) Identify patterns/ trends in data. d) Interpret data. e) Review the method. | <p>Topic: AQA Unit Awards</p> <p>Suggested Key Questions: What are shelters/ habitats? How the weather changes? How can sounds be made and how they differ?</p> <p>Key Skills and Knowledge:</p> <ol style="list-style-type: none"> 1. Take part in a discussion about what a shelter is and why shelters are important, identify at least three types of human/ animal shelters, identify 3 animals found in 3 different habitats. 2. Identify different weather conditions and suitable clothing for varying seasons. | <p>Topic: AQA Unit Awards</p> <p>Suggested Key Questions: What are the different designs used for insect shelters? Where is water used? Where are magnets used and why?</p> <p>Key Skills and Knowledge:</p> <ol style="list-style-type: none"> 1. Contribute to discussion about science in the workplace. Demonstrate ability to contribute to design process for an insect shelter, produce two designs of familiar objects and using these ideas two designs of insect shelters with support. Experience cooperative |

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| | <p>chromosomes are genes. DNA carries our unique genetic code.</p> <p>3. Describe the genome as the entire genetic material of an organism.</p> <p>4. Know that most human features are determined by a person’s genes.</p> <p>5. Be able to classify a range of human features as genetic: e.g. tongue rolling, ear lobes, environmental e.g. scars, accent, and both e.g. hair colour, good at sport.</p> <p>6. Understand that most features are affected by several genes, e.g. height. Know that some diseases are caused by ‘faulty genes’.</p> <p>B12 Food Factory</p> <p>1. Know the process of photosynthesis.</p> <p>2. Explain the effects of changing variables on photosynthesis (light,</p> | <p>4. Know that changes in the concentration change the speed of a chemical reaction.</p> <p>5. Know that catalysts can alter the rate of reaction but are not used up in the reaction.</p> <p>6. State the activation energy is the energy that needs to be added to start a chemical reaction.</p> <p>CSI Plus C12</p> <p>1. Know that anyone present at a crime scene will leave some evidence behind.</p> <p>2. Know fingerprints are left on a surface because oils from the skin are deposited. Know how fingerprints can be removed from a surface.</p> <p>3. Recognise loop, arch and whorl as features of fingerprints.</p> <p>4. Know that no two people have identical fingerprints – not even identical twins.</p> <p>5. Recall that the main blood</p> | <p>its pressure: (qualitative only).</p> <p>5. Know that some parts of some rockets/ shuttles return to the Earth and can be reused.</p> <p>6. Understand that manned spacecraft need resources that unmanned spacecraft do not e.g. oxygen, food, water.</p> <p>Final Frontiers (P12)</p> <p>1. Know that the Sun (a star) is at the centre of our solar system.</p> <p>2. Know that the Earth orbits the Sun.</p> <p>3. Recall that the Earth moves in its orbit through space at an enormous speed.</p> <p>4. Understand that other planets take longer/shorter times to orbit the Sun if they are further/nearer to the Sun.</p> <p>5. Know that the Sun is a star in the Milky Way galaxy.</p> <p>6. Be able to compare the sizes of the moon, the Earth, the Sun, the</p> | | <p>Recognise some instruments for understanding conditions such as temperature.</p> <p>3. Experience making sounds with different objects, use senses to experience sound travelling through different mediums, using symbol, drum vibrations causing sounds and changes in sound such as volume.</p> <p>Key Skills:</p> <p>Take part/ contribute to a scientific discussion.</p> | <p>working with adults/ peers.</p> <p>2. Demonstrate ability to sequence the making of a water based drink, identify places within school environment where there is water, identify products that can be used alongside water for cleaning oneself and name one form of water transport. Experience making and tasting of ice-llollies, drinks made from water and how foods change when cooked in water.</p> <p>3. Identify at least 3 objects attract to magnets and 3 not attracted. Experience making of patterns using iron filings and a magnet.</p> <p>Key Skills:</p> <p>Investigate materials attracted to magnets. Contribute to design process.</p> |
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| | <p>water, wind, soil)</p> <p>3. Describe the processes of transpiration and translocation, including structure and function of the stomata.</p> <p>4. Know that most of the milk we buy comes from cows, sheep or goats and is processed.</p> <p>5. Describe genetic engineering as a process which involves modifying the genome of an organism.</p> <p>6. Possible benefits and risks of gene technology and cloning in modern agriculture and medicine.</p> | <p>groups are A, B, AB and O.</p> <p>6. Know how chromatography can be used to separate colours in ink.</p> | <p>Milky Way and the Universe.</p> <p>Key Skills: Can find information to help me from books and computers with help.</p> | | | |
| <p>Links to Gatsby Benchmarks:</p> | <p>Benchmark 2, – Learning from the Career and Labor Market information. Benchmark 3 – Addressing the needs of the student and * - Personal Guidance</p> | <p>Benchmark 2, – Learning from the Career and Labor Market information. Benchmark 3 – Addressing the needs of the student and * - Personal Guidance</p> | <p>Benchmark 2, – Learning from the Career and Labor Market information. Benchmark 3 – Addressing the needs of the student and * - Personal Guidance Benchmark 5- Encounters with</p> | <p>Benchmark 2, – Learning from the Career and Labor Market information. Benchmark 3 – Addressing the needs of the student and * - Personal Guidance Benchmark 5- Encounters with</p> | <p>Benchmark 2, – Learning from the Career and Labor Market information. Benchmark 3 – Addressing the needs of the student and * - Personal Guidance</p> | <p>Benchmark 2, – Learning from the Career and Labor Market information. Benchmark 3 – Addressing the needs of the student and * - Personal Guidance</p> |

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| | <p>Students to consider what skills are needed to be a police officer or a detective... lead onto looking at what skills are needed for different roles they are interested in and what qualifications.</p> | <p>Benchmark 4 – Linking Curriculum to learning Benchmark 8 – Personal Guidance</p> <p>Students to consider what skills are needed to access the opportunities they are interested in. Going into work places/remote visits. Research. Writing C.Vs and cover letters.</p> | <p>employers and employees</p> <p>Students to consider what skills are needed to access the opportunities they are interested in. Research.</p> | <p>employers and employees</p> <p>Students to consider what skills are needed to access the opportunities they are interested in. Research.</p> | <p>Benchmark 6 – Experience of Work places</p> <p>Students to consider what skills are needed to access the opportunities they are interested in. Looking at careers in sports and researching sports.</p> | <p>Benchmark 6 – Experience of Work places</p> <p>Students to consider what skills are needed to access the opportunities they are interested in. Looking at careers in sports and researching sports.</p> |
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