

STEM Curriculum Map:

Students will take part in eight different six week projects over the course of two years, all designed to help students develop their **problem solving, data analysis, teamwork, evaluation** and **presentation** skills. They will also be exposed to a wide variety of careers. These projects are chosen to **Equip** our students with the understanding of how STEM impacts their lives, **Encourage** students to play an active part in conserving the world around us, **Empower** pupils to think critically about projects and real world issues and **Enthuse** students for stem, so that they are inspired to pursue STEM subjects in further education and beyond.

Year 7

Students will be taught one hour a week of STEM throughout the year and take part in six different six week projects. These projects are as follows:

Project 1 – Recycling Plastic:

Students will learn about what plastic is, why it is so useful and how humans have over relied on plastic leading to pollution. They will design a method to recycle their own plastic bottles and build a prototype.

Project 2 – Building Bridges:

Students will investigate bridges and common techniques for their construction. They will then discover the importance of strength of building materials and apply these skills to build their own bridge and have it tested for both strength and quality of design.

Project 3 – Astronomy:

Students will discover what the universe is like beyond our planet. They will look up into the night sky and wonder what is out there and also start to understand the idea of scale and how big the universe really is. Students will design and build telescopes and put them to the test.

Project 4 – Rollercoasters

Students will be taught about the physics behind why some rollercoasters are faster than others and how there is a delicate balance between speed and safety. Students will design and build a prototype marble rollercoaster and compete for the fastest, longest and most well designed coaster.

Project 5 – Growing your own food

Students will hone their agricultural skills learning about photosynthesis and why plants grow. They will apply this to their own seedlings and be responsible for the care and upkeep of a plant. They will monitor how changing the conditions affects the growth and health of their seeds.

Project 6 – Forensics 1

Students will be asked “Who done it” in a murder mystery setting and learn about the delicate art of forensics and the precision and care needed to be a forensics scientist. They will discover how to extract DNA and reveal fingerprints. In a series of practicals.

Year 8

Students will have 12 hours of STEM taught on a rotation with art and design. During which they will complete two six week projects.

Project 1 – Building Wind Turbines

Students will look into the impact that humans have on the planet and question “how can we decrease our carbon footprint?” and “how can we become zero carbon?”. Students will then investigate how we can generate power without burning fossil fuels. Designing and building their own model wind turbines and putting these to the test.

Project 2 – Forensics Part 2

Students will build on their knowledge of forensics part one and begin to look at the world through the eyes of a criminal court. Looking at what evidence is needed to convict a criminal and how that evidence is handled and processed to ensure the correct suspect is convicted. Students will plan a case to present to the class on who they believe should be convicted.

Supporting Links:

Recycling Plastics:

<https://www.natgeokids.com/uk/kids-club/cool-kids/general-kids-club/plastic-pollution/>

<https://www.bbc.co.uk/bitesize/articles/zpr3bqt#zq2svwx>

Building Bridges:

<https://www.youtube.com/watch?v=BXDP6ZJ6ams>

Astronomy:

<https://spaceplace.nasa.gov/>

Rollercoasters:

<https://www.bbc.co.uk/bitesize/articles/zm4cgp3>

Growing your own plant:

<https://kids.britannica.com/kids/article/plant/353639>

Forensics:

<https://www.youtube.com/watch?v=4u-pdQvAp3A>

Building wind turbines:

<https://www.bbc.co.uk/bitesize/articles/zf99dp3>