



The Science Curriculum at Nova is Ambitious, Sequenced Carefully, Principled, Inclusive, Research-informed and Enriching.



AMBITION

Students further develop their understanding of and interest in science whilst delving into both the history of scientific discovery and the contemporary implications of scientific findings. For example, what has led us to our current understanding of the atom? Are stem cells really going to help us cure diseases? Scientific discoveries have expanded our knowledge and understanding of the world around us faster than any other discipline but there is still more to be discovered. The science curriculum at Nova Hreod Academy will develop curious and enthusiastic students that will become the scientists of tomorrow, making the most important discoveries of the future and driving our understanding ever onwards.



SEQUENCED

The curriculum is carefully sequenced allowing us to build from fundamental principles such as what particles are and how they behave, how a cell works, energy and motion to more complex ideas such as the structures and bonding in all kinds of chemicals, genetics and inheritance and how forces act. In KS4, students choose either to follow the combined science or separate science route. By the end of their time studying science students will be confident in their understanding of the scientific explanations of the things around them and eager to find out even more. They will be well prepared for life after Nova and A-level sciences or related subjects in other Post-16 routes if they so chose.



PRINCIPLED

Our priority is building a strong knowledge foundation for the students. Clear links are made between topics to encourage students to build the bigger picture of science. From this starting point they learn to question and debate ideas at the forefront of science as well as appreciate the importance of the history of science in shaping the world today. Practical investigation and scientific methodology play an important role in our teaching, equipping students with critical thinking, problem solving and analytical skills that go beyond the science classroom.



INCLUSIVE

We never assume knowledge and new topics and lessons are always started with a recap of prior knowledge to ensure all students are able to engage with the content. Potential misconceptions are identified at the planning stage so that teachers are able to work with the students to improve their understanding on these key issues. Dual coding is used in lessons along with I do, we do, you do cycles so that all students can feel success in their learning. Scientific texts are read as a whole class and understanding checked whilst key vocabulary is taught and practiced before being put into use.



RESEARCH INFORMED

The interleaving of topics throughout our curriculum is key in strengthening students' understanding of science and how it all links together. Home study is carefully planned to support in class learning and knowledge retention in conjunction with regular low stakes quizzing. I do, we do, you do cycles are used throughout our lessons to ensure students know what success looks like and are able to achieve it for themselves. Techniques such as cold calling, show call and turn & talk are standard in lessons to promote student engagement. Common interim assessments are used regularly in conjunction with data driven instruction and whole class feedback provided so that students progress and improve.



ENRICHING

As part of our co-curricular offer students can attend science after school clubs and are also given the opportunity to take part in at least one science trip every year. Attending events such as the Cheltenham Science Festival and the Big Bang Fair encourages students to consider science in a wider context and strengthens their everyday science learning. Year 10 students are also given the opportunity to attend Science Live, a series of lectures by UK scientists which also includes advice on their GCSE exams. As much as possible we also run workshop sessions in school with the help of outside agencies to give students a broader experience of science.