



PHYSICS CURRICULUM INTENT

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| HGCSC Mission | Exceptional education for every child, every day |
| Priority | Provide a broad and balanced curriculum that challenges everyone |

SCIENCE DEPARTMENT INTENT

Pupils will become confident and independent learners with the tools and skills to adapt to all lifestyles. They will develop their scientific minds so that they feel comfortable not only answering exam questions, but also continuing their scientific understanding. The department will also raise the aspirations of students, so that the number of pupils continuing to study science post-16 increases.

| SCIENTIFIC SKILLS | SCIENTIFIC MINDS | RAISE ASPIRATIONS |
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| <ul style="list-style-type: none"> Pupils will be taught how to approach scientific problems and how to best tackle them to get the best results. Pupils will be taught the practical skills needed to complete different problems. Pupils will be taught mathematical skills so that they not only access the maths required in science problems, but also develop their general math skills. | <ul style="list-style-type: none"> Students will have the opportunities to discuss and debate real world situations in order to develop their minds. Teachers will talk through their own thought process and experiences, so that pupils have the chance to see how teachers have developed. Students will be shown how different areas of science interleave with one another to form a strong scientific understanding. | <ul style="list-style-type: none"> Teachers will show and discuss the types of jobs that a science education can lead to and the type of lifestyle they can have. Students will also be encouraged to ask questions and research the types of roles that can be achieved through a science education. |

CURRICULUM AIMS

- Develop a strong and deep understanding of science in the real world and how it can be linked to many different areas.
- Develop a keen appetite for learning and discovering how the world around us works.
- Allow pupils to discover and experiment with new experimental techniques and apply these to scientific ideas.

5 YEAR PLAN

By the time pupils complete their science education at HGCSC, they will have a deep understanding of the 3 science topics following 5 years of sequential learning and exposure to high level thinking. Pupils will have explored how the universe works and how all living and non-living elements are linked, to create the world we know.

During the 5 year period, pupils will have had the opportunities to experience science in the real world, through trips, after school clubs and expert talks.

Pupils will also be exposed to the different careers that are available to them with a science education and how these careers can aid their potential lifestyle.

SKILLS

- Ability to discuss key scientific ideas
- Evaluate ideas through comparison of advantages and disadvantages
- Apply mathematical ideas in a scientific context
- Draw and analyse different types of graphs
- Draw conclusions from many different ideas and sources
- Work and lead a team to complete new and challenging tasks
- Develop health and safety knowledge through practicals
- Gain an understanding of COSHH assessments
- Develop an understanding of how to plan and complete numerous scientific practicals

KNOWLEDGE

Biological Knowledge

Pupils will learn about the organisation and structure of the living world. This will begin on a microscopic level, observing and understanding simple cells. They will then learn about how cells are arranged into tissues, then systems and organisms. Finally they will understand how different organisms interact with each other and the world around them to form ecosystems and biomes.

Chemical Knowledge

Pupils will learn about materials; how we use them, how we combine them and how we manipulate them. They will learn about how our understanding of the materials that make up our universe have developed over time, beginning with what we can see, feel and (quite often) smell, and how through experimentation and technological advancements we now have a more thorough understanding of materials on a atomic and sub-atomic level.

Physical Knowledge

Pupils will learn how the transfer and storage of energy is fundamental to all of the different physical processes around us. They will be able to explain the science behind everyday concepts such as how radiators heat rooms, how radiation can be used in medicine, how and why state changes occur and how power stations provide electricity to our homes.