Subject: Science

Year Group: 9

Curriculum Intent:
The intent of our Science curriculum is to encourage our students in developing a sense of excitement, exploration and investigation, a love of the subject and of learning. As well as deepening their understanding of science, they can apply their knowledge to the world around them. Science equips students with an ability to use literacy, numeracy and practical techniques interchangeably and bridges the gap between theory and application. This enables students to make the link between science and technology and the impact they both have on our everyday lives. Throughout their Science education, students work independently and in groups to help them develop their individual learning skills and their ability to communicate and share new ideas and methodology with peers.

College Values:
Science equips students with the ability to take stewardship of their learning using investigations and research to draw conclusions. By working in groups students are encouraged to cooperate and collaborate allowing them to engender respect for their own techniques and knowledge as well as that of others. By encouraging a love of both content and scientific methods, Science equips students with transferable skills which will apply to service within their communities.

Knowledge and Skills

Photosynthesis – leaf structure and adaptations, minerals, water transport, word equation. The dependence of almost all life on Earth on photosynthesis by plants and algae, the Carbon Cycle.

Materials and properties,Metals,Ceramics,Revisiting separating techniques,Polymers Composites, recycling

Forces and Motion Speed, distance and time, Measuring speed, Unbalanced forces,Force and acceleration Terminal velocity, Work done , Energy transfers, Balancing and moments"

Variation Inherited and environmental variation, DNA structure,Extracting DNA, Mutations,Revisit reproduction,Sex inheritance,Inheritance,Extinction
Evolution and Natural selection

Reactivity of metals Corrosion, metals and oxygen, metals and water, metals and acid, reactivity series using the reactivity series, neutralisation, making and naming salts

Electricity and magnetism Remembering current and voltage, Resistance, Resistance of a wire, Magnetic fields, Electromagnets The motor effect

Once the KS3 content has been covered and assessed, Y9 will progress onto one module eachof GCSE Science (Biology/Chemistry/Physics) in order to consolidate KS3 knowledge and integrate this with fundamentals for GCSE.

Skills

Making slides, explaining structure in relation to function (cells and organs)
Big world concepts (life without plants and the source is the sun)
Identification of properties in relation to uses. Comparisons using numerical data
Use of and limits of polymers (identify, explain,analyse)
Identifying, explaining and justifying (recycling materials)
Using s/d/t equations and equation triangles for calculations (numeracy)
Conversion, using units
Graphs
Researching DNA
Practical : Extracting DNA
Probability
Percentage loss or gain, using mass balances, hazardous materials
Calculations, precision.
Revision skills

Homework:
Homework will consist of glossary (keyword and definitions) learning for each topic. Activities will be set on Seneca (for content coverage) and in the form of homework research tasks and projects.
Retrieval practice will also take the form of exam style questions and longer answers.

Cultural Capital:
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