



Subject: Science

Year Group: 10

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

AQA GCSE Science

Triple Science with cover anything with (TS) indicated.

B2: Cell division B2.1: Cell division

B2.2: Growth and differentiation B2.3: Stem cells

B2.4: Stem cell dilemma

BB3: Organisation and the digestive system B3.1: Tissues and organs

B3.2: The human digestive system B3.3: The chemistry of food

B3.4: Catalysts and enzymes B3.5: Factors affecting enzyme action B3.6: B3.7: Making digestion efficient B4: Organising animals and plants B4.1:The blood B4.2: The blood vessels B4.3: The heartB4.4: Helping the heartB4.5: Breathing and gas exchange B4.6: Tissues and organs in plants B4.7: Transport systems in plants B4.8: Evaporation and transpiration B4.9: Factors affecting transpiration

P1: Conservation and dissipation of energy P1.1: Changes in energy stores

P1.2: Conservation of energy P1.3: Energy and work P1.4: Gravitational potential energy stores P1.5: Kinetic energy and elastic energy stores P1.6: Energy dissipationP1.7: Energy and efficiency P1.8: Electrical appliances P1.9: Energy and powerP2: Energy transfer by heating P2.1: Energy transfer by conduction

P2.4: Specific heat capacity P2.5: Heating and insulating buildings P3: Energy resources P3.1: Energy demands P3.2: Energy from wind and water

P3.3: Power from the Sun and the Earth P3.4: Energy and the environment

P3.5: Big energy issues

C1: Atomic structure C1.1: AtomsC1.2: Chemical equations C1.3: Separating mixtures





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C1.4: Fractional distillation and paper chromatography C1.5: History of the atom C1.6: Structure of the atom C1.7: Ions, atoms and isotopes C1.8: Electronic structures C2: The periodic table C2.1: Development of the periodic table C2.2: Electronic structures and the periodic table C2.3: Group 1 - alkali metals C2.4: Group 7 - the halogens C2.5: Explaining trends C2.6: The transition elements (TS)"

P4: Electrical circuits P4.1: Electrical charges and fields (TS)

P4.2: Current and chargesP4.3: Potential difference and resistance P4.4: Component characteristicsP4.5: Series circuits P4.6: Parallel circuits P5: Electricity in the home P5.1: Alternating current P5.2: Cables and plugs P5.3: Electrical power and potential difference P5.4: Electrical currents and energy transfer P5.5: Appliances and efficiency

B5: Communicable diseases B5.1: Health and disease B5.2: Pathogens and diseaseB5.3: Growing bacteria in the lab (TS) B5.4: Preventing bacterial growth (TS) B5.5: Preventing infectionsB5.6: Viral diseases B5.7: Bacterial diseasesB5.8: Diseases caused by fungi and protists B5.9: Human defence responsesB5.10: More about plant diseases (TS)B5.11: Plant defence response (TS)B6: Preventing and treating disease B6.1: Vaccination

B6.2: Antibiotics and painkillers B6.3: Discovering drugs

B6.4: Developing drugsB6.5: Making monoclonal antibodies (TS)

B6.6: Uses of monoclonal antibodies (TS)B7: Non-communicable diseases B7.1: Non-communicable diseases B7.2: CancerB7.3: Smoking and the risk of disease B7.4: Diet, exercise and diseaseB7.5: Alcohol and other carcinogens "

"C3.1: States of matter C3.2: Atoms into ions C3.3: Ionic bondingC3.4: Giant ionic structures C3.5: Covalent bonding C3.6: Structure of simple molecules C3.7: Giant covalent structures C3.8: Fullerenes and graphene C3.9: Giant metallic structures C3.10: Nanoparticles (TS) C3.11: Applications of nanoparticles (TS) QUANTITATIVE CHEMISTRY

C4.1: Relative masses and moles C4.2: Equations and calculations

C4.3: From masses to balanced equations C4.4: The yield of a chemical reaction (TS) C4.5: Atom economy (TS)C4.6: Expressing concentrations C4.7: Titrations (TS)C4.8: Titration calculations (TS) C4.9: Volumes of gases (TS)

B8: Photosynthesis B8.1: Photosynthesis B4.2: The rate of photosynthesis B4.3: How plants use glucose B8.4: Making the most of photosynthesis

B9: RespirationB9.1: Aerobic respiration B9.2: The response to exercise B9.3: Anaerobic respiration B9.4: Metabolism and the liver B10.2: The structure and function of the nervous system B10.3: Reflex actions B10.4: The brain (TS) B10.5: The eye (TS) B10.6: Common problems of the eye (TS)

P6: Molecules and matter P6.1: Density P6.2: States of matter P6.3: Changes of state P6.4: Internal energy P6.5: Specific latent heatP6.6: Gas pressure and temperature (TS) P6.7: Gas pressure and volume (TS) PHYSICS TOPIC 4:

P7: Radioactivity P7.1: Atoms and radiation P7.2: The discovery of the nucleus P7.3: Changes in the nucleus P7.4: More about alpha, beta, and gamma radiation





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B11: Hormonal coordination B11.1: Principals of hormonal control B11.2: The control of glucose levels
B11.3: Treating diabetes B11.4: The role of negative feedback B11.5: Human reproductionB11.6:
Hormones and the menstrual cycle B11.7: The artificial control of fertility B11.8: Infertility treatments
B11.9: Plant hormones and responses (TS) B11.10: Using plant hormones (TS) B12: Homeostasis in action
(TS)B12.1: Controlling body temperature (TS) B12.2: Removing waste products (TS) B12.3: The human kidney (TS)B12.4: Dialysis - an artificial kidney (TS) B12.5: Kidney transplants (TS)

P8: Forces in balance P8.1: Vectors and scalars P8.2: Forces between objects P8.3: Resultant forces P8.4: Moments at work (TS) P8.5: More about levers and gears (TS)
P8.6: Centre of mass P8.7: Moments and equilibrium (TS) P8.8: The parallelogram of forces P8.9: Resolution of forces
P9: Motion P9.1: Speed and distant-time graphs P9.2: Velocity and acceleration P9.3: More about velocity-time graphs P9.4: Analysing motion graphs
P10: Force and motion P10.1: Force and acceleration
P10.2: Weight and terminal velocity P10.3: Forces and braking P10.4: Momentum
P10.5: Conservation of momentum (TS) P10.6: Impact forces (TS) P10.7: Safety first (TS) P10.8: Forces and elasticity P11: Force and pressure (TS)
P11.1: Pressure and surfaces (TS) P11.2: Pressure in a liquid at rest (TS) P11.3: Atmospheric pressure (TS)
P11.4: Upthrust and flotation (TS)"

<u>Skills</u>

Development of Scientific Thinking Experimental Skills & Strategies Analysis & Evaluation Scientific Vocabulary, Quantities, Units, Symbols & Nomenclature Extended writing Investigation Planning Conclusion writing Evaluation writing Application of mathematical formulae Evaluating Impact Ethical Considerations Data Analysis Scientific modelling Manipulation of practical equipment





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Homework:

At GCSE homework will consist of exam style question practice.

Some tasks will be research based and these will be teacher assessed (eg: practical write ups and projects)

Activities will be set on Kerboodle and Seneca.

All students have access to an electronic version of the course textbook.

Cultural Capital:

https://www.kerboodle.com/app

https://www.bbc.co.uk/bitesize/levels/z98jmp3

https://senecalearning.com/en-GB/

https://www.s-cool.co.uk/

