

SCIENCE

- Science teaching is broad balanced and has a clear progression in subject knowledge and skills
- The department is committed to all learners achieving the best they can through high quality teaching, learning and assessment
- Promotes learner engagement in learning through enquiry led approaches involving exploration, risk taking, discovery and speculation

Science at Greys Education Centre follows fully the new and updated DfE programme of study across all Key stages. Science is taught in small group settings or 1:1. Students have personalised learning programmes which are fully accredited. All Science staff at Key stage 3 and key stage 4 are specialised Science teachers. At the Primary provision Science is delivered by qualified primary teachers.

At key stage 1 and key stage 2 students will follow the NC yearly objectives. Students' progress will be assessed using Blooms taxonomy i.e. *Emerging, Excepted and Exceeding*. At key stage 3 students will follow the Oxford 'Activate' Science series and Key descriptors from the NC will be used to show progression (Appendix 1). At Key stage 4 students will follow the Edexcel BTEC Applied Science course and / or the GCSE Science (AQA) pathway. This will depend on when they start and what they have been studying in their previous school.

Work is differentiated for all students. We have personalised learning opportunities for our students with STA support and interventions as needed.

In Science we aim to show clear progression in subject knowledge and skills. We use a variety for formative and summative tools i.e. Alfie Cloud assessment, summative tests from Activate etc. Students are assessed on entry and progress is tracked regularly and interventions put in place as needed for every child to meet their potential.

To support inclusion :

- We aim for every pupil feeling safe, confident and happy during Science lessons
- See every pupil making the best progress of which they are able and enjoying their time during Science lessons promote every child's belief in themselves as a learner and valued member of our school community.

Greys Education Centre – Science Department aims to ensure that everyone in the class has the same opportunity to learn — and by extension, to get their qualification/ accreditation by removing obstacles and ensuring that everyone in the class is on a "level playing-field". At Key stage 4 all students will have access to Science as a STEM subject to ensure future careers in Science can be achieved with high level accreditation and achievement.

All students with SEN will be supported through their journey here at Greys. This could include 1:1 STA support, differentiated work and more personalised timetable including G and T opportunities.

Teaching Assistants are a valuable resource. TA's can be used to help enrich and support in small group settings or 1:1.

Schemes of work will include specific literacy and numeracy strategies and activities for speaking, listening, reading and writing, number work, graphs as appropriate and teachers will be supported by professional development support to implement these in lessons.

Greys Education Centre – Science department has an important role in supporting the health and wellbeing of children and young people. At every stage we will support the ethos for example students will be taught the components of a healthy diet and the impact of exercise and drug use on health.

The Science teams in the primary and secondary provisions have access to networked ICT suite. We have digital cameras and Video cameras which can be booked out as required. The secondary provision also has a full Data logger kit to support scientific enquiry.

The Science Department has cover work booklets for staff that are off due to sickness. If absence is known in advance (i.e. CPD) it is the responsibility of the staff to set the cover work.

The Science department uses the schools VLE which have activities which can be used for homework and extended learning opportunities. The Science department has taken students to the sky diving centre and the Science museum in London. We have also achieved the Primary Science Quality Mark (PQSM) and the Woodland Trust Gold Award.

The Science Department uses the positive reward system which is utilised in the schools. Students gain points for meeting their personalised targets. These are then converted to reward points and trips.

Across Key stage 1, 2, and 3 we use the AQA unit award schemes for accreditation. At Keystone 4 students will follow the BTEC Applied Science course or the AQA GCSE Science pathway.

The Science department uses the 'Greys Triangle' approach for assessment. This approach means input from the Teacher, students and their peers to inform progression and planning for next steps for learning. Progress is tracked regularly and Academic Mentoring days this information is shared with all stakeholders including parents/carers.

APPENDIX 1 – KS3 Key descriptors of levels of achievement

Science	
Level of Achievement	Description
3	Follow a method and gain some results. Plan a fair test with some help. Explain the results in a simple way. Describe differences between living and non-living things. Describe how living things change because of their diet or light/water availability. Sort materials into groups based on what they are or do (properties). Recognise and sort types of changes into those which can be reversed and those which cannot. Make simple explanations of why things happen, i.e. when something speeds up it is caused by a push or pull.

4	<p>Make predictions based on simple scientific knowledge. Select the correct equipment and record the results in a table. Draw simple graphs and use them to explain what happened in the experiment. Name and recognise the major organs in plants and animals. Draw food chains within a habitat. Describe methods for separating simple mixtures. Name types of change using scientific terms, i.e. evaporation. Make predictions about whether changes will be able to be reversed or not. Describe how to set up a simple electrical circuit. How a basic understanding of forces, gravity, magnetism, friction.</p>
5	<p>Write a method including a fair test. Carry out an investigation, using equipment accurately and repeating experiments. Draw line graphs from the experimental results. Suggest ways in which to improve investigation work. Describe the jobs of each major organ in the body. Draw the life cycle of plants and humans. Put plants and animals into the correct class or group. Describe the properties of metals, i.e. they conduct heat. Identify a metal from a non-metal. Explain how some things happen even when the reason cannot be seen, i.e. how balanced forces cause something to move at a steady speed. Use a model to show how the Earth is moving.</p>
6	<p>Use information and research to help when planning an investigation. Use accurate equipment with fine-scale divisions. Make conclusions which involve scientific understanding and language. Identify results which do not fit a pattern and try to explain what caused them. Describe life processes in plants and animals, i.e. photosynthesis, respiration. Describe the similarities and differences between plant and animal cells. Describe how the environment can affect the type and number of a plant or animal living in a habitat. Use particle diagrams to explain the arrangement and movement of particles in a solid, liquid and gas. Identify and describe some chemical reactions that are like each other. Write word equations. Describe and explain some more difficult ideas, i.e. how electrical items transfer electrical energy to other types. Explain refraction and dispersion of light.</p>
7	<p>Select and write methods to investigate relationships without assistance. Explain conclusions using high level of scientific language and knowledge. Explain life processes using the chemical equations for them. Explain how different types of cell are adapted to their job. Explain the difference between inherited characteristics and those caused or affected by environment. Draw pyramids of number to show how feeding relationships affect the size of the populations in a habitat. Draw formulae, symbols and particle diagrams to identify whether a chemical is an element, compound or mixture. Use a pattern of chemical reactions to predict what will happen in another chemical reaction. Describe and explain some even more difficult ideas, i.e. why objects are coloured, how gravitational attraction keeps the planets in motion. Show how electricity and magnetism are linked. Use equations to make calculations and use the correct units.</p>
8	<p>Explain whether the data collected in an investigation is sufficient for the conclusion drawn. Show how much uncertainty there is in the accuracy of data and the conclusions generated. Describe (using genetics) how some characteristics are inherited. Use graphs to explain patterns of change in a habitat. Generate the chemical formula for a compound. Use chemical formulae to write a balanced symbol equation. Use chemical knowledge to suggest methods for making new compounds. Use calculations which require more than one step and explain what a graph is showing.</p>