

## SCIENCE: CURRICULUM STATEMENT

### Intent

Science is the pursuit and application of knowledge and understanding of the natural and social world. This is achieved by following a systematic approach to gather evidence leading to testable theories. Science develops questioning skills, ensuring our future generations do not accept statements at face value, but probe the value, reasoning and evidence behind the top line. This is all supported by the six question words... *Who? – How? – Why? – When? – Where? – What?*

At St Mary's, our pupils study Biology, Chemistry and Physics using a narrative-based approach. Ideas are introduced within relevant and interesting settings helping learners to anchor their conceptual knowledge of the range of scientific topics required at GCSE level.

Practical skills are embedded within the specification and learners are expected to carry out practical work in preparation for a written examination that will specifically test these skills.

At *Key Stage Three*, our pupils study a curriculum split into shorter units of work, with the schemes of work specifically created to ease transition from KS3 to KS4. Many of the more difficult concepts at *KS4* are introduced and there is also opportunity to develop exam technique. The units are listed below:

Year Seven Units	Particles Cells Forces Atoms and Elements Organising A Body Light Sound Reactions Acids and Alkalies Reproduction
Year Eight Units	Microbes Space Separation Techniques Food and Digestion Periodic Table Electricity and Magnetism Respiration Adaptations and Classification

Year Nine Units	Plants and Photosynthesis Reactions of Metals Speeding Up Fit and Healthy Pressure and Moments Environmental Chemistry
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At *Key Stage Four*, pupils experience one of two pathways. Those pupils more able to manage the extra demand are offered three separate GCSE courses. These are accelerated courses, with one additional hour per fortnight to study an extra (third) GCSE. The rest of the cohort study the Combined Science course, which culminates in the award of two GCSE grades. The units of work studied are similar; however, the separate GCSE courses have additional content not covered by the Combined Science course - this becomes increasingly different as the course progresses, and does leave some space for movement across courses up until the end of Year 10

B1 : You and Your Genes	C1: Air and Water	P1: Radiation and Waves
B2: Keeping Healthy	C2: Chemical Patterns	P2: Sustainable Energy
B3: Living Together	C3: Chemicals in the Natural Environment	P3: Electric Circuits
B4: Food and Growth	C4: Material Choices	P4: Explaining Motion
B5: Human Body	C5: Chemical Analysis	P5: Radioactive Materials
B6: Life on Earth	C6: Making Useful Chemicals.	P6: Matter
All units are underpinned with opportunities to undertake technical and practical scientific skills, and the development of proficient analysis of data		

## Implementation

### KS3

The department staff, utilising areas of expertise to maximise impact, wrote the current schemes of work collaboratively. These schemes of work and related resources are stored electronically on the [Science Central Resource Library \(CRL\)](#). All staff members can access these schemes.

Current schemes of work follow statutory guidance from DfE, but offer opportunity for further study to maximise particular areas of pupil interest.

Marking and feedback within the department follows the school, marking policy in terms of aims, rationale, structure and frequency.

All pupils sit end of unit tests, which can be used to award key stage three grades. These tests consist of a range of question styles, and prepare pupils for the longer form questions found in final GCSE exam papers.

Test results are recorded on a department spreadsheet on the [CRL](#). This allows regular review of results to assess pupil progress, and revisit schemes of work as required.

### KS4

Teachers primarily teach within their areas of specialism, and follow the syllabi available via the [OCR](#) website.

Resources are shared between department colleagues, with many resources stored within the department area of the [CRL](#).

KS4 pupils extensively (but not exclusively) use exam practice workbook(s) as their main method of homework. Work is marked and marks recorded regularly.

All pupils sit end of unit tests. These are made up of questions from previous exam papers and marked as per the mark scheme provided by the exam board.

Grades are allocated based on representative percentages against the most relevant grade boundaries provided by the exam board.

Grades are recorded on a department spreadsheet within our [CRL](#). This allows regular review of grades to assess pupil progress, and revisit setting of pupils if required.

## Impact

### Areas of success from 2022 GCSE results

#### Biology:

- Results exceeded FFT20 targets.
- Pupils in Biology achieved almost 1/4 of a grade more than comparable pupils in other subjects (Residual 0.24).
- EAL pupils (cohort of 15) achieved 1/3 of a grade more than comparable pupils in other subjects (Residual 0.33).
- Boys achieved (on average) 1/4 of a grade higher than the FFT20 target.

#### Chemistry:

- Results exceeded FFT20 targets.
- Pupils in set 1 half a grade more than comparable pupils in other subjects (Residual 0.50).
- EAL pupils (cohort of 15) achieved 1/3 of a grade more than comparable pupils in other subjects (Residual 0.33).
- Boys achieved on average more than half a grade more than comparable pupils in other subjects (Residual 0.55).

#### Physics:

- Physics results are very close to matching very challenging FFT20 targets. (Average of -0.09 points).
- Boys in Physics achieved 1/3 of a grade more than comparable pupils in other subjects. (Residual 0.33).

#### Combined Science:

- Combined Science pupils achieved a positive residual.
- EAL pupils averaged almost half a grade more in Combined Science than comparable pupils in other subjects. (Residual 0.44).

Those areas in particular need of focus are established during analysis and production of the *Department Development Plan*, which is updated three times throughout the academic year. Areas of focus are shared at Department Meetings, as are specific details of pupils within the recognised target groups