

KS4 Long Term Plan 2020-2021

Subject: Science

Exam Board: AQA



Curriculum Statement of Intent Science

The aim of the Science department here at St Pauls' is:

“Empowering students to take ownership of their learning enabling them to achieve outstanding results and become independent scientists realising the importance of science in their everyday lives. The Science Department are a dedicated, supportive team who value sharing good practice to make students be the best that they can be.”

Science at St Paul's is about developing student's ideas and ways of working that enable them to make sense of the world in which they live through investigation, as well as using and applying processing skills. We ensure that all children are exposed to high-quality teaching and learning experiences, which allow children to engage with practical experiments. They are immersed in scientific vocabulary, which aids students' knowledge and understanding not only of the topic they are studying, but of the world around them. We intend to provide all students with a broad and balanced Science curriculum and encourage them to develop a sense of excitement and curiosity about Science.

Science teaching at St.Paul's involves adapting and extending the curriculum to match all pupils' needs across all 3 Key Stages. We ensure that all students are provided with rich learning experiences that aim to:

- Prepare our children for life in an increasingly scientific and technological world today and in the future;
- Help our children acquire a growing understanding of the nature, processes and methods of scientific ideas;
- Help develop and extend our students scientific concept of their world;
- Build on our students natural curiosity and developing a scientific approach to problems;
- Encouraging open-mindedness, self-assessment, perseverance and developing the skills of 3 investigations – including: observing, measuring, predicting, hypothesising, experimenting, communicating, interpreting, explaining and evaluating;
- Develop the use of scientific language, recording and techniques;
- Make links between science and other subjects.

Curriculum Statement of Implementation

KS4: the GCSE Science curriculum is delivered across 3 years, currently with 2 Triple sets and 4 Trilogy sets in each year group. The students have 6 Science lessons a week, and each Science is taught by a specialist in that area which ensures that their subject knowledge is excellent. The curriculum is 'spiralled' so that the building blocks for each specialism are laid in Year 9 and then built upon throughout the 3 year program, with lots of quizzes and interleaving. We aim to finish teaching the curriculum content by December of Y11 so that we can then revise.

At the end of each topic the students have an End of Module test, which also includes an interleaved question from a previous topic, thus ensuring that the students are regularly reviewing previous learning. As well as embedding content throughout each module, the students also complete Required practicals, which help to develop their practical skills and promote their interest in science. These are written up in lab books which provide the method and also include exam style questions to help prepare them for external assessments.

We use 'Educake' for homework, which is an online Learning platform that develops the students AO1 skills. We also set Exam questions every few weeks to help the students develop their Higher level AO2 skills.

The impact and measure of our Science curriculum is to ensure students not only acquire the appropriate age related knowledge linked to the curriculum, but also skills which equip them to progress from their starting points, and within their everyday lives.

All children will have:

- A wider variety of skills linked to both scientific knowledge and understanding, and scientific enquiry/investigative skills;
- A richer vocabulary which will enable to articulate their understanding of taught concepts; and
- High aspirations, which will see them through to further study, work and a successful adult life.

YEAR 9 LONG TERM PLAN			
	Module	Duration	Assessment completed by
Biology	Cells <i>RPs: Microscopy and Osmosis</i>	18 lessons 9 weeks	Don't do EOMT as they will be assessed in the year 9 exams.
	Revise for year 9 exams	1 week	Wb 9 th November
	Year 9 exams (and reflection)	1.5 weeks	Wb 16 th November
	Organisation <i>RPs: Food tests and enzymes</i>	10 lessons 5 weeks	No test
	Year 9 exams (and reflection)	1.5 weeks	Wb 18 th January
	Organisation <i>RPs: Food tests and enzymes</i>	14 lessons 7 weeks	Wb 22 nd March
	Bioenergetics <i>RPs: Photosynthesis</i>	18 lessons 9 weeks	Wb 14 th June
	Disease I – Communicable diseases <i>RPs: Microbiology (triple only)</i>	10 lessons - including 4 triple only. 5 weeks <i>Triple two lessons short</i>	No test
	Disease II – Non-communicable disease.		Year 10
	Disease III – Preventing and treating disease		Year 10
	Homeostasis <i>RPs: Reaction time and plant responses (triple only).</i>		Year 10

	Ecology <i>RPs: Sampling and decay (triple only).</i>		Year 10
	Inheritance		Year 11
Chemistry	Atomic structure and the periodic table <i>Don't do EOMT as they will be assessed in the year 9 exams</i>	12 lessons + 1 triple only. 7 weeks	Double Wb 19 th October Triple Wb 2 nd November
	Revise for year 9 exams	2 weeks	Wb 9 th November
	Year 9 exams (and reflection)	1.5 weeks	Wb 16 th November
	Structure and bonding <i>Triple do nanoscience after the year 9 January exams</i>	13 lessons + 2 triple only. 8 weeks	Double Wb 25 th January Triple Wb 1 st February
	Year 9 exams	1 week <i>Near the end of the structure and bonding module</i>	Wb 18 th January
	Quantitative chemistry	15 lessons + 6 triple only. 8 weeks	Double Wb 19 th April Triple Wb 17 th May
	Chemical changes <i>Triple do not do any electrolysis</i> <i>RP1: preparing a soluble salt</i>	21 lessons - 5 electrolysis lessons 4 'assessment' lessons for triple to do in year 10 9 weeks	Double Wb 28 th June Triple

	<i>RP2: titration TRIPLE</i> <i>RP3: electrolysis</i>		Wb 12 th July
	Double only Revisit difficult concepts Do previous RPs Catch up time Walking talking peer marked mocks	3 weeks	Wb 12 th July
	Energy changes		Year 10
	Rate and extent of chemical change		Year 10
	Organic chemistry		Year 10
	Chemical analysis		Year 10
	Chemistry of the atmosphere		Year 10
Using resources		Year 11	
Physics	Energy <i>RPs: Force and extension and thermal insulation (triple only).</i>	26 lessons <i>- including 4 triple only.</i> 12 weeks <i>Triple two lessons short</i>	Double 9 th November Triple 21 st December
	Year 9 Exams	1 week	23 rd November
	Electricity <i>RPs: Resistance and I-V characteristics</i>	30 lessons <i>- including 3 triple only</i> 14 weeks	Double 17 th May Triple

	<i>Triple two lessons short</i>	24 th May
Year 9 Exams	1 week	25 th January
Particle model of matter <i>RPs: Density and specific heat capacity</i>	15 lessons - including 1 triple only. 8 weeks	Double 5 th July Triple 12 th July
Atomic structure	15 lessons - including 4 triple only. 8 weeks	Year 10
Waves <i>RPs: Waves, radiation and absorption and light (triple only)</i>	26 lessons - including 11 triple only. 13 weeks	Year 10
Electromagnetism	12 lessons - including 4 triple only. 6 weeks	Year 10
Forces <i>RPs: Acceleration</i>	32 lessons - including 10 triple only. 16 weeks	Year 11
<i>Space: Triple only</i>	<i>8 lessons triple only.</i> 4 weeks	Year 11

YEAR 10 LONG TERM PLAN		
Module	Duration	Assessment Completed By...
Disease	16 lessons - including 5 triple only. 8 weeks	No test
Year 10 exams	2 weeks	Wb 2 nd November
Disease	10 lessons 5 weeks	Wb 14 th December
Homeostasis <i>RPs: Reaction time and Plant responses (triple only).</i>	31 lessons - including 10 triple only. 12 weeks – which is 6 lessons short for triples	Don't do EOMT as they will be assessed in the year 10 exams.
Year 10 exams	2 weeks	Wb 19 th April
Ecology - this was covered during lockdown so you need to do an intensive revision module with them.	8 lessons 4 weeks	Wb 24 th May
Inheritance	14 lessons (out of 28 lessons) - including 7 triple only. 7 weeks	Autumn of Year 11

Chemistry	Double Quantitative chemistry	15 lessons + 6 <i>triple only</i>	Double Wb 19 th October
	Triple Quantitative chemistry	but must teach by half term regardless – Triple and Double!	
		7 weeks	
	Year 10 exams	2 weeks	Wb 2 nd November
	Chemical changes	19 lessons + 2 <i>triple only</i>	Double Wb 1 st February
		10 weeks	Triple Wb 8 th February
	Energy changes	10 lessons + 2 <i>triple only</i>	Wb 15 th March
		5 weeks	Triple Wb 29 th March
	Double only Revision for year 10 exams	2 weeks	Double Wb 29 th March
No time for triples		No time for Triples	
Year 10 exams	2 weeks	Wb 19 th April	
Rate and extent of chemical change	18 lessons Must finish by the summer	Wb 12 th July <i>including 1 week for WEX</i>	
Organic chemistry		Year 11	

	Chemical analysis		Year 11
Physics	Atomic structure	15 lessons - including 4 triple only. 8 weeks	Double 30 th November Triple 7 th December
	Year 10 Exams	2 weeks	2 nd November
	Waves <i>RPs: Waves, Radiation and absorption and light (triple only)</i>	23 lessons - including 9 triple only 10 weeks <i>Triple three lessons short</i>	Double 25 th January Triple 8 th February
	Electromagnetism	12 lessons - including 4 triple only. 6 weeks	Double 15 th March Triple 29 th March
	Year 10 Exams	2 weeks	19 th April
	Forces I – Forces in balance and Motion	13 lessons 7 weeks	Double 14 th June Triple 28 th June
	Forces II – Force and motion and Force and Pressure <i>RPs: Acceleration</i>	18 lessons - including 7 triple only. 9 weeks	Year 11

	<i>Space: Triple only</i>	<i>8 lessons triple only.</i> 4 weeks	Year 11
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YEAR 11 LONG TERM PLAN

	Module	Duration	Assessment Completed By...
Biology	Inheritance Trilogy: 16 lessons content (max) plus 4 lessons for tests/reflection Triple: 23 lessons content (max) plus 4 lessons for tests/reflection	4 to 5 weeks (depending on when you teach your classes) So max of 10 lessons	No test
	Revision for Paper 1	1 week	Revision starts week beginning 5/10/20
	Year 11 exams	2 weeks	Exams start week beginning 12 th October, completed by w/b 19 th October
	Inheritance Trilogy: 6 to 8 content lessons left Triple: 13 to 15 content lessons left	Trilogy: max 4 weeks teaching then assess Triple: max 8 weeks teaching then assess	Trilogy: w/b 7 th Dec Triple: w/b 11 th Jan
	Revise for PPEs	Trilogy: 4 weeks Triple: 2 weeks	
	Year 11 PPEs	2 weeks	Exams start week beginning 1st February, completed by w/b 8 th Feb
	Using resources No assessment Double only content – even for the triples	8 lessons 4 weeks	Wb 28 th September
Chemistry	Revise paper 1	1 week	Wb 5 th October

	Year 11 exams	2 weeks	19 th October
	Double Rate and extent of chemical change	18 lessons 9 weeks	Double 11 th January
	Triple <ul style="list-style-type: none"> Finish using resources without assessment or Haber process Teach rate and extent of chemical change and Haber without practicals, Recap the remaining content from year 10 chemical analysis 	6 lessons + 18 lessons 11 weeks	Triple 25 th January
	Revise PPEs	2 weeks	Wb 18 th January
	No time for triples		No time for triples
	Year 11 PPEs	2 weeks	Wb 1st February
	Forces I – Forces in balance and Motion	14 lessons 7 weeks	23 rd November
	Year 11 exams	2 weeks	12 th October
Physics	Forces II – Force and motion and Force and Pressure RPs: Acceleration	18 lessons - including 7 triple only. 6 weeks <i>Triple six lessons short</i>	18 th January
	PPEs	2 Weeks	25 th January

