

## Science covered at Ratcliffe

We provide learners at Ratcliffe School with a science education that develops individuals understanding of the world through the specific disciplines of biology, chemistry and physics.

### KS1

The focus of science teaching at KS1 is to enable learners to experience and observe science so they are inspired to ask and find answers to their own questions.

The website below has specific details of the topics covered throughout KS1. The rolling programme for when each topic is delivered is also listed below.

[https://www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/239132/PRIMARY\\_national\\_curriculum\\_-\\_Science.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/239132/PRIMARY_national_curriculum_-_Science.pdf)

	<b>Autumn term</b>	<b>Spring term</b>	<b>Summer term</b>
Year 2 (e.g. 2014-2015)	<b>Working scientifically</b>  <b>Living things and their habitats</b>	<b>Animals including humans</b>  <b>Plants</b>	<b>Use of everyday materials</b> (including people who have developed useful new materials) - forces
Year 1 (e.g. 2013-2014)	<b>Working scientifically</b> (learning key skills needed for science, practical learning in own and local environments)  <b>Animals including humans</b>	<b>Every day materials</b> (including people who have developed useful new materials)  <b>Seasonal Changes</b>	<b>Plants</b>  <b>Seasonal Changes</b>

In Key Stage 1 the pupils are assessed and their prior knowledge, skills and experiences are all considered to inform the medium term plan. The table above shows headings for the areas that will be covered in each term, planned and taught to the children to match their individual abilities and needs. It may be that more time is spent on one area of learning than another, to ensure that the individual pupils get coverage of all aspects of the new Science curriculum by the end of Key Stage 1.

### KS2

Science teaching at KS2 facilitates learners broadening their scientific view of the world through exploring, talking, testing and developing ideas about every day phenomenon. As learners progress they develop a deeper understanding of a wide range of scientific ideas. Through building on secure skills learners begin to analyse functions, relationships and interactions more systematically. They carry out comparative and fair testing drawing conclusions based on their data and observations, and start to apply their scientific knowledge and understanding to explain their findings.

The website below has specific details of the topics covered throughout KS2. The rolling programme for when each topic is delivered is also listed below.

[https://www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/239132/PRIMARY\\_national\\_curriculum\\_-\\_Science.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/239132/PRIMARY_national_curriculum_-_Science.pdf)

<b>Science rolling programme – Key Stage 2</b>			
<b>AUTUMN TERM</b>			
<b><u>Year A</u></b>	<b><u>Year B</u></b>	<b><u>Year C</u></b>	<b><u>Year D</u></b>
<b>2013/2014</b>	<b>2014/2015</b>	<b>2015/2016</b>	<b>2016/2017</b>
<b>Physics (3)</b>  Sources of light; shadows & reflections  Simple forces, including magnetism	<b>Physics (6)</b>  Light & Shadows; the eye  Forces, including gravity  Electricity: investigating circuits	<b>Biology (5)</b>  Life cycles of plants & animals (inc. mammal, insect, bird, amphibian)  Describe changes as humans develop & mature	<b>Physics (4)</b>  Sound as vibrations  Electricity: simple circuits & conductors
<b>SPRING TERM</b>			
<b>Biology (3)</b>  Plants, incl. parts, lifecycle and requirements for life  Animals: skeletons & nutrition	<b>Biology (4)</b>  Classify living things  Digestive system & teeth  Food chains	<b>Chemistry (5)</b>  Classify materials according to a variety of properties  Understand mixtures & solutions  Know about reversible changes; identify irreversible	<b>Biology (6)</b>  Classification, including micro-organisms  Health & Lifestyles, incl. circulatory system  Evolution & Adaptation
<b>SUMMER TERM</b>			
<b>Chemistry (4)</b>  Changes of state  The water cycle	<b>Chemistry (3)</b>  Classification of rock types  Simple understanding of fossilisation	<b>Physics (5)</b>  Understand location and interaction of Sun, Earth & Moon  Introduce gravity, resistance & mechanical forces	<b>Biology (6)</b>  Health & Lifestyles, incl. circulatory system  Evolution & Adaptation

### **KS3**

Throughout KS3 a practical and engaging curriculum promotes science being about working objectively and modifying ideas to take account of new evidence. Learners are supported to develop a deeper understanding of scientific ideas in biology, chemistry and physics. As they progress they start to make connections between the topics they have studied. They are also encouraged to use modelling and abstract ideas to develop and evaluate explanations of phenomena in the world around them.

The website below has specific details of the topics covered throughout KS3. The rolling programme for when each topic is delivered is also listed below.

[https://www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/335174/SECO\\_NDARY\\_national\\_curriculum\\_-\\_Science\\_220714.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/335174/SECO_NDARY_national_curriculum_-_Science_220714.pdf)

### Year 7

	Autumn 2014		Spring 2015		Summer 2015
i	7G Particle model	i	7B Reproduction	i	8E Atoms and elements
ii	7A Cells	ii	7J Electrical circuits	ii	7L Solar system
iii	7I Energy resources	iii	7F Simple chemical reactions	iii	7C Environment 8D Ecological relationships
iv	7E Acids and alkalis	iv	7D Variation & classification	iv	

### Year 8

	Autumn 2014		Spring 2015		Summer 2015
i	7H Solutions	i	7K Forces and their effects	i	9C Plants & photosynthesis
ii	8K Light	ii	8B Respiration	ii	8J Magnets & electromagnets
iii	8A Food and Digestion	iii	8I Heating and cooling	iii	8G Rocks and weathering 8H Rock cycle
iv	8F Compounds and mixtures	iv	8C Microbes and disease	iv	8L Sound and hearing

### Year 9

	Autumn 2014		Spring 2015		Summer 2015
I	9K Speeding up	i	9A Inheritance and selection	i	9G Environmental chemistry 9H Using chemistry
ii	9D Plants for food	ii	9F Patterns of reactivity	ii	9L Pressure and moments
iii	9E Reactions of metals	iii	9I Energy and electricity	iii	Introduction to KS4
iv	9J Gravity and space	iv	9B Fit and healthy	iv	

### KS4

During KS4 learners will work towards accredited awards; either Entry Level Science or GCSE core and additional science.

### GCSE

GCSE Gateway Science and GCSE Gateway Additional Science (two GCSE's)

For these qualifications learners study the science associated with activities and experiences they will come across in everyday life, and their implications for society. Strong emphasis is placed on the active involvement of candidates in the learning process and self-motivation is promoted. Through these qualifications learners are provided with the opportunity to acquire the scientific skills, knowledge and understanding necessary for life as a scientifically literate citizen.

These GCSE qualifications are terminally assessed; each GCSE requires learners to sit two exams and complete a coursework task.

The websites below have specific details of the topics covered throughout KS4 GCSE studies. The rolling programme for when each topic is delivered is also listed below.

<http://www.ocr.org.uk/Images/82546-specification.pdf>

<http://www.ocr.org.uk/Images/82544-specification.pdf>

#### Year 10B & 10W

Y		Autumn 2014		Spring 2015		Summer 2015
10	i	B1 Understanding ourselves	i	P1 Energy for the home Practical and coursework	i	P2 Living for the future
10	ii	B1 Understanding ourselves C1 Carbon chemistry	ii	B2 Understanding the environment	ii	P2 Living for the future + Revision
10	iii	C1 Carbon chemistry	iii	C2 Rocks & metals	iii	Revision Practical and coursework
10	iv	P1 Energy for the home	iv	C2 Rocks & metals Practical and coursework	iv	B3 Living & growing

#### Year 11T

Y		Autumn 2014		Spring 2015		Summer 2015
11	i	B3 Living & growing	i	P3 Forces for transport Practical and coursework	i	P4 Radiation for life Practical and coursework
11	ii	B3 Living & growing C3 The periodic table	ii	B4 It's a green world	ii	P4 Radiation for life + Revision
11	iii	C3 The periodic table	iii	B4 It's a green world C4 Chemical economics	iii	Revision
11	iv	P3 Forces for transport	iv	C4 Chemical economics	iv	

### Entry Level Science

This accredited course will be offered to candidates for whom a GCSE course may not be a realistic goal. Through this course, science facts, ideas and principles are introduced through familiar contexts and applications. There is also an emphasis on development of communication and study skills to help prepare learners to become scientifically literate citizens.

The course maximises positive achievement and employs frequent short accessible assessments. These include written 'end of unit tests', practical 'can do tasks' and a piece of investigation based 'course work'. The Entry Level Certificate in Science can be very motivating and provide a stepping stone for learners to move onto the GCSE specification.

The websites below have specific details of the topics covered throughout KS4 Entry Level Science studies. The rolling programme for when each topic is delivered is also listed below.

<http://www.ocr.org.uk/Images/80809-specification-accredited.pdf>

	<b>Autumn 2014</b>		<b>Spring 2015</b>		<b>Summer 2015</b>
i	B8 Understanding ourselves	i	B13 Body wars	i	B7 Gasping for breath
ii	C9 How fast How slow	ii	C5 Fibres & fabrics	ii	C13 Whats added to our food
iii	P4 Pushes & pulls	iii	P1 Getting the message	iii	P9 Driving along
iv	B5 Healthy eating	iv	B12 My genes	iv	B9 Fooling your senses
vi	C4 Heavy metal	vi	C12 Fuels	vi	C7 Strong stuff
vii	P8 Deep impact	vii	P2 Our electricity supply	vii	P11 Nuclear power