



**Curriculum Statement**

The science curriculum at Yate Academy is designed to promote mastery of key scientific concepts. These concepts are based on Big Ideas in science which are spiralled throughout the curriculum providing opportunity for greater challenge as students move up the school. Science specialists use expert models, examples and practical activities to provide a knowledge rich experience for students at Yate Academy. We share the ultimate goal that science students will emerge from Yate Academy with an understanding of the scientific processes that aim to make sense of the world. They will possess the skills to critically think about a range of situations. They will be scientifically literate, and able to excel intellectually at University and beyond.

	Year 7	Year 8	Year 9
Term 1	<p><b>Big Idea: Structure determines properties</b>  <b>Unit 1:</b> <a href="#">Particles</a>  <b>Unit 2:</b> <a href="#">Atoms and Elements</a></p> <p><b>Big Idea: Reacts rearrange matter</b>  <b>Unit 3:</b> <a href="#">Acids and Alkalis</a></p>	<p><b>Big Idea: Structure determines properties</b>  <b>Unit 1:</b> Separating mixtures</p> <p><b>Big Idea: Reactions rearrange matter</b>  <b>Unit 2:</b> Chemical reactions</p>	<p><b>Big Idea: Energy is conserved in systems</b>  <b>Unit 1:</b> Energy in our home</p> <p><b>Big Idea: Characteristics are inherited</b>  <b>Unit 2:</b> Inheritance</p>
Term 2	<p><b>Big Idea: Reacts rearrange matter</b>  <b>Unit 3:</b> <a href="#">Acids and Alkalis</a></p> <p><b>Big Idea: Bodies are systems</b>  <b>Unit 4:</b> <a href="#">Cells and systems</a></p>	<p><b>Big Idea: Organisms are interdependent</b>  <b>Unit 3:</b> Photosynthesis</p> <p><b>Big idea: Bodies are systems</b>                      Unit 4: Movement across membranes</p>	<p><b>Big Idea: Objects affect other objects at a distance</b>  <b>Unit 3:</b> Waves</p> <p><b>Big Idea: Organism are interdependent</b>  <b>Unit 4:</b> Respiration</p>
Term 3	<p><b>Big Idea: Energy is conserved in systems</b>  <b>Unit 5:</b> <a href="#">Conservation of energy</a></p>	<p><b>Big idea: Forces predict motion</b>  <b>Unit 5:</b> Speed</p> <p><b>Big idea: Objects can affect other objects at a distance</b>  <b>Unit 6:</b> Magnetism</p>	<p><b>Big Idea: Reactions rearrange matter</b>  <b>Unit 5:</b> Introduction to quantitative chemistry</p> <p><b>Big idea: Bodies are systems</b>  <b>Unit 6:</b> Cell biology</p>

<b>Term 4</b>	<p><b>Big Idea:</b> Forces predict motion  <b>Unit 6:</b> <a href="#">Forces</a></p> <p><b>Big idea:</b> The Universe is made of millions of galaxy  <b>Unit 7:</b> <a href="#">Forces and space</a></p>	<p><b>Big idea: Characteristics are inherited</b>  <b>Unit 7:</b> Life diversity</p> <p><b>Big idea: Energy is conserved in systems</b>  <b>Unit 8:</b> Electricity</p>	<p><b>Big Idea: Bodies are systems</b>  <b>Unit 7:</b> Exchange</p> <p><b>Big Idea: Structure determines properties</b>  <b>Unit 8:</b> Atoms and periodic table</p>
<b>Term 5</b>	<p><b>Big idea: Characteristics are inherited</b>  <b>Unit 8:</b> <a href="#">Reproduction</a></p> <p><b>Big Idea: The Earth's surface and climate is shaped by processes</b>  <b>Unit 9:</b> <a href="#">The Earth's structure</a></p>	<p><b>Big Idea: Energy is conserved in systems</b>  <b>Unit 9:</b> Energy and Earth</p>	<p><b>Big idea: Energy is conserved in systems</b>  <b>Unit 9:</b> Energy calculations</p>
<b>Term 6</b>	<p><b>Big Idea: Organisms are interdependent</b>  <b>Unit 10:</b> <a href="#">Interdependence</a></p>	<p><b>Big Idea: Structure determines properties</b>  <b>Unit 10:</b> The periodic table</p>	<p><b>Big Idea: Structure determines properties</b>  <b>Unit 10:</b> Molecules of matter</p>

	Year 10	Year 11
Term 1	<p><b>Big Idea: Bodies are systems</b> Unit 1: Organisation in animals</p> <p><b>Big Idea: Structure determines properties</b> Unit 2: Structure and bonding</p> <p><b>Big idea: Energy is conserved in systems</b> Unit 3: Electricity</p>	<p><b>Big idea: Structure determines properties</b> Unit 1: Chemical analysis</p> <p><b>Big idea: Objects can affect other objects at a distance</b> Unit 2: Motion</p>
Term 2	<p><b>Big idea: Bodies are systems</b> <b>Unit 4:</b> Infection and response</p> <p><b>Big Idea: Reactions rearrange matter</b> <b>Unit 5:</b> Quantitative chemistry</p> <p><b>Big Idea: Organisms are interdependent</b> <b>Unit 6:</b> Plants and systems</p>	<p><b>Big idea: Bodies are systems</b> <b>Unit 3:</b> Hormonal coordination</p> <p><b>Big Idea: Structure determines properties</b> <b>Unit 4:</b> Carbon chemistry</p> <p><b>Big Idea: Characteristics are inherited</b> <b>Unit 5:</b> Reproduction</p>
Term 3	<p><b>Big Idea: Structure determines properties</b> <b>Unit 7:</b> Chemical changes</p> <p><b>Big idea: Structure determines properties</b> <b>Unit 8:</b> Radioactivity</p>	<p><b>Big idea: Structure determines properties</b> <b>Unit 6:</b> Waves</p> <p><b>Big Idea:</b> the Earth's surface is determined by processes <b>Unit 7:</b> Chemistry of the atmosphere</p> <p><b>Big Idea:</b> Characteristics are inherited <b>Unit 8:</b> Evolution</p>
Term 4	<p><b>Big idea: Energy is conserved in systems</b> Unit 9: Energy changes</p> <p><b>Big Idea: Reactions rearrange matter</b> <b>Unit 10:</b> Electrolysis</p>	<p><b>Big Idea:</b> Forces predict motion <b>Unit 9:</b> Magnetism</p> <p><b>Big Idea:</b> The Earth's surface is determined by processes <b>Unit 10:</b> Using resources</p>

<b>Term 5</b>	<b>Big Idea: Organisms are interdependent</b> <b>Unit 11:</b> Ecology	<b>Big Idea:</b> The Reactions rearrange matter <b>Unit 11:</b> Rates of reaction
<b>Term 6</b>	<b>Big idea: Forces predict motion</b> Unit 12: Forces  <b>Big idea: Bodies are systems</b> Unit 13: Human nervous system	

**AQA-A Level- Biology**

	<b>Year 12</b>	<b>Year 13</b>
<b>Term 1</b>	<b>Unit 1:</b> AS Cell Biology <b>Unit 2:</b> AS Biological molecules	<b>Unit 1:</b> Respiration and energy transfers <b>Unit 2:</b> Cycles in biology
<b>Term 2</b>	<b>Unit 3:</b> AS Exchange and Transport <b>Unit 4:</b> AS Immunity	<b>Unit 3 :</b> Response
<b>Term 3</b>	<b>Unit 5:</b> AS Mass transport in plants and animals	<b>Unit 4:</b> Genetic and populations
<b>Term 4</b>	<b>Unit 6:</b> AS Genetic information	<b>Unit 5:</b> Inheritance and evolution <b>Unit 6:</b> Control of gene expression
<b>Term 5</b>	<b>Unit 7:</b> AS Relationships between organisms	
<b>Term 6</b>	<b>Unit 8:</b> A-level Photosynthesis and energy transfers	

**AQA-A Level- Chemistry**

	Year 12	Year 13
<b>Term 1</b>	<b>Unit 1:</b> AS Amount of substance and Atomic Structure	<b>Unit 7 :</b> Thermodynamics and rate equations
<b>Term 2</b>	<b>Unit 2:</b> AS Bonding, Introduction to Organic Chemistry and Alkanes	<b>Unit 8 :</b> Transition Metals
<b>Term 3</b>	<b>Unit 3:</b> AS Halogenoalkanes, Alkenes, Group 2 and Group 7 Elements	<b>Unit 9 :</b> Acids and Bases, Electrode Potentials and Period 3 Oxides
<b>Term 4</b>	<b>Unit 4:</b> AS Redox Equations, Periodicity, Energetic and Kinetics	<b>Unit 10 :</b> Amines, Biological Molecules, Organic Synthesis and Analysis
<b>Term 5</b>	<b>Unit 5:</b> AS Equilibria, Alcohols and Organic Analysis	
<b>Term 6</b>	<b>Unit 6:</b> A-Level Optical Isomerism, Carbonyls, Carboxylic Acids, Aromatic Chemistry, Polymers	

**AQA-A Level- Physics**

	Year 12	Year 13
<b>Term 1</b>	<b>Unit 1:</b> Introduction to Practical Skills, <b>Unit 2:</b> Particles & Radiation	<b>Unit 6:</b> Further Mechanics & Thermal Physics
<b>Term 2</b>	<b>Unit 3:</b> Waves & Optics	<b>Unit 7:</b> Fields
<b>Term 3</b>	<b>Unit 4:</b> Mechanics & Materials	<b>Unit 8:</b> Nuclear Physics
<b>Term 4</b>	<b>Unit 4:</b> Mechanics & Materials	<b>Unit 9:</b> Optional Modules (Astrophysics)
<b>Term 5</b>	<b>Unit 5:</b> Electricity	
<b>Term 6</b>	<b>Unit 6:</b> Further Mechanics & Thermal Physics	

## AQA-A Level- Psychology

	Year 12	Year 13
<b>Term 1</b>	<b>Unit 1 and Unit 2:</b> AS Social influence, AS Memory	<b>Unit 10 and Unit 11:</b> A-Level Biopsychology, A-Level Issue and debates
<b>Term 2</b>	<b>Unit 3:</b> AS Attachment	<b>Unit 12:</b> A-Level Cognitive development
<b>Term 3</b>	<b>Unit 4 and Unit 5:</b> AS Approaches, Biopsychology	<b>Unit 13:</b> A-Level Schizophrenia
<b>Term 4</b>	<b>Unit 6 and Unit 7:</b> AS Clinical psychology, Research methods 1	<b>Unit 14:</b> A-Level Forensic psychology
<b>Term 5</b>	<b>Unit 8:</b> AS Research methods 1	
<b>Term 6</b>	<b>Unit 9:</b> A-Level Research methods 2	

### Curriculum Impact - How do you know students know more and remember more as a result of your curriculum?

Students leave KS3 science with mastery of core scientific knowledge that they will use in KS4. Across KS3, they have the opportunity to apply their classroom experience in a range of practical scenarios and have had the opportunity to be part of memorable experiences with external organisations such as the National Space Agency and UK Air Ambulance.

Over half the students taking the combined science GCSE sit the higher tier paper. At Yate Academy 70% of students achieve 4+ in combined science. About a third of our Y11 students are challenged to sit the triple science GCSE, with 100% of students achieving 4+ and 57% achieving 7+ in GCSE Triple Chemistry. This helps prepare students who are interested in science courses and careers beyond GCSE.

Yate Academy runs A-level in Biology, Chemistry and Physics and students emerge from A-level sciences at Yate academy into vocational qualifications such as nursing, sports science, or paramedic training and academic routes such as dentistry at Bristol University or Biomedical science at Plymouth University.