

# The Beacon Centre

## Science

Science is a key component of the school curriculum. The students are taught separate sciences (Biology, Chemistry and Physics) with a range of practical activities alongside theory. Key areas of study within each science include light, sound, separating mixtures, acids and alkalis, the human body and evolution. Each class has a tailored and suitably supported set of PowerPoint slides, worksheets, practical tasks and group discussions to maximise learning and develop scientific skills. Teaching assistants (key workers) as well as a specialist science teacher help develop students towards their termly targets working its way up to AQA GCSE Single or Dual Award Science in KS4. Students are encouraged to question and develop curiosity in topics in order to better their understanding and develop life skills to take science beyond the classroom.

Long Term overview of the topics that each class will study during each half term.					
	Key Stage 3b	Key Stage 3a	Year 10	Year 11	Green Room
Autumn 1	Human Reproduction	Human Reproduction	Atoms, elements and compounds. Chemistry unit 1	Organisation unit 2 biology	
Autumn 2	Contact Forces	Contact Forces	Energy, Physics unit 1	Bioenergetics unit 4 biology	
Spring 1	Space, acids and alkalis	Space, acids and alkalis	Biology unit 1, cells	Biology unit 1, cells	
Spring 2	Interdependence, Energy costs	Interdependence, Energy costs	Biology unit 1, cells	Biology unit 1, cells	
Summer 1					
Summer 2					

Potential qualifications that can be achieved in this subject area:

GCSE, BTEC, Cambridge National, ASDAN, Functional Skills, Entry Level Certificate

Class: Key Stage 3b

Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
<ul style="list-style-type: none"><li>• Adolescence</li><li>• Pregnancy</li><li>• Menstrual cycle</li></ul>	<ul style="list-style-type: none"><li>• List main forces</li><li>• Calculate resultant force</li><li>• Explain how surface area and air resistance affect motion</li></ul>	<ul style="list-style-type: none"><li>• List planets in order</li><li>• Compare size and scale of objects in universe</li><li>• Use the pH scale to categories substances</li><li>• Measure pH of samples</li></ul>	<ul style="list-style-type: none"><li>• Describe how animals are classified</li><li>• Draw food chains and webs</li><li>• Describe different sources of electricity</li><li>• Calculate energy transferred and cost</li></ul>		

Class: Key Stage 3a

Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
<ul style="list-style-type: none"> <li>• Adolescence</li> <li>• Pregnancy</li> <li>• Menstrual cycle</li> </ul>	<ul style="list-style-type: none"> <li>• List main forces</li> <li>• Calculate resultant force</li> <li>• Explain how surface area and air resistance affect motion</li> </ul>	<ul style="list-style-type: none"> <li>• List planets in order</li> <li>• Compare size and scale of objects in universe</li> <li>• Use the pH scale to categories substances</li> <li>• Measure pH of samples</li> </ul>	<ul style="list-style-type: none"> <li>• Describe how animals are classified</li> <li>• Draw food chains and webs</li> <li>• Describe different sources of electricity</li> <li>• Calculate energy transferred and cost</li> </ul>		

Class: Year 10					
Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
<ul style="list-style-type: none"> <li>• Definitions of elements, compounds and mixtures</li> <li>• Explain separation methods</li> </ul>	<ul style="list-style-type: none"> <li>• Explain energy transfer diagrams</li> <li>• Calculate efficiency</li> <li>• Outline of conservation of energy</li> </ul>	<ul style="list-style-type: none"> <li>• Describe how animal and plant cells are similar and different.</li> <li>• Draw cells using a microscope.</li> <li>• Explain the function of several specialised cells.</li> </ul>	<ul style="list-style-type: none"> <li>• Outline the process of mitosis and meiosis.</li> <li>• Describe the processes of diffusion and osmosis.</li> </ul>		

Class: Year 11					
Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
<ul style="list-style-type: none"> <li>• Explain how a virus works</li> <li>• Know how bacteria and viruses are different</li> <li>• Recap photosynthesis</li> </ul>	<ul style="list-style-type: none"> <li>• Limiting rates of photosynthesis</li> <li>• Differences between respiration and breathing</li> <li>• Experiments linking aerobic and anaerobic respiration</li> </ul>	<ul style="list-style-type: none"> <li>• Describe how animal and plant cells are similar and different.</li> <li>• Draw cells using a microscope.</li> <li>• Explain the function of several specialised cells.</li> </ul>	<ul style="list-style-type: none"> <li>• Outline the processes of mitosis and meiosis.</li> <li>• Describe the processes of diffusion and osmosis</li> </ul>		

Class: The Green Room					
Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2

<p>Bullet point the key aspects of the unit that will be covered during the term.</p>		<ul style="list-style-type: none"><li>• List planets in order</li><li>• Compare size and scale of objects in universe</li><li>• Use the pH scale to categorise substances</li><li>• Measure pH of samples</li></ul>	<ul style="list-style-type: none"><li>• Describe how animals are classified</li><li>• Draw food chains and webs</li><li>• Describe different sources of electricity</li><li>• Calculate energy transferred and cost</li></ul>	
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