



Big Question: Can We Improve the Fitness of Saltney Town FC?

AoLE: Science & Technology	Subject: Science - Biology	Year: 8
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Big Question / Aim / Objective / Concept	Vision (Proposed outcome) / Purpose of curriculum	Prior knowledge / Learners previous knowledge
<p>Can we improve the fitness of Saltney Town FC?</p> <p>Students study the concepts of digestion, respiration and the cardiovascular system.</p>	<p>This Big question covers:</p> <ul style="list-style-type: none"> <li>-Diet, digestion, transport and use of the nutrients in digested food.</li> <li>-The chemical reaction of respiration in living organisms and the structure and function of the human respiratory and circulatory systems.</li> </ul>	<ul style="list-style-type: none"> <li>-understand that foods contain a variety of substances needed by the body and recognise the idea of nutrition as a life process.</li> <li>-appreciate that a wide variety of foods needs to be eaten to have a balanced diet.</li> <li>-know that food contains stored energy.</li> <li>-be familiar with the names and positions of some of the organs in the digestive system.</li> <li>-know that substances are carried around the body by the blood.</li> <li>-the idea and process of absorption will be unfamiliar to most.</li> <li>-be familiar with respiration as one of the life processes.</li> <li>-know the gases in air.</li> <li>-know what digestion does.</li> <li>-be able to describe the function of the heart.</li> <li>-know that organs are made of tissues and tissues are made of cells.</li> <li>-know that the breathing rate varies.</li> </ul>

What does progression look like in this Big Question?

Progression Indicator	Description of learning (What matters statements)	Student evidence of progression (Blooms) / Knowledge
Excelling	<p>I can explain how biological processes and control mechanisms enable organisms to function, develop, reproduce and survive.</p> <p>I can evaluate the factors which affect the development and health of organisms.</p>	<p>Describe, explain and draw conclusions for the qualitative protein, glucose, starch and lipids tests.</p> <p>Explain what food allergies and intolerances are.</p> <p>Describe how nutrients are supplied to cells via the blood and tissue fluid.</p> <p>Explain why some food cannot be digested by humans.</p> <p>Recall some of the evidence that has led to current ideas about blood circulation.</p> <p>Identify anomalous results and evaluate evidence.</p> <p>Draw conclusions from data given in secondary sources and state whether this agrees with the conclusions drawn in the source material.</p> <p>Explain how respiration is similar and different to burning fuels.</p> <p>Describe and explain aerobic and anaerobic respiration.</p> <p>Recall the word equations for respiration.</p> <p>Describe how gas exchange is affected by damage to alveoli.</p>
Advancing	<p>I can describe the levels of cellular organisation and how cells perform biological processes that ensure the development and survival of organisms.</p>	<p>Use models to represent the digestion of large insoluble food molecules.</p> <p>Display data in a variety of different forms.</p>



		<p>Describe how nutrients are digested and absorbed.</p> <p>Describe an old model of circulation and explain how it does not match current evidence.</p> <p>Identify possible reasons why correct theories may not be accepted.</p> <p>Use word equations for chemical reactions.</p> <p>Explain why tissues need a good blood supply.</p> <p>Describe some effects of poor oxygen supply.</p> <p>Explain the differences between inhaled and exhaled air.</p> <p>Explain the role of alveoli in gas exchange.</p> <p>Explain how the lungs are kept clean.</p> <p>Describe how glucose, oxygen and carbon dioxide are transported around the body by the circulatory system.</p>
Securing	<p>I can describe the features of organisms and recognise how they allow them to live, grow and reproduce for survival in their environment.</p> <p>I can explain the role of different organs and systems that enable plants and animals to live and grow.</p>	<p>Use a model to describe the action of enzymes.</p> <p>Without help, point out that variables need to be kept the same in investigations and stop these variables changing.</p> <p>Carry out and interpret results from tests for starch and fat.</p> <p>Describe what a balanced diet is.</p> <p>Describe how digested food is transported around the body.</p> <p>Recall that nutrients, fibre and water are all vital components of a balanced diet and good sources of these substances.</p> <p>Recall the roles of nutrients, fibre and water in the body.</p> <p>Recall that some athletes choose to abuse medical drugs that have been developed for other purposes.</p> <p>Recognise a range of jobs that are involved in the training of athletes.</p> <p>Record observations accurately and identify patterns in data using charts.</p> <p>Explain the importance of control experiments and sample size when carrying out an investigation.</p> <p>Make careful observations using a range of equipment and ICT.</p> <p>Recall that oxygen is needed for aerobic respiration.</p> <p>Recall the positions and functions of the organs in the respiratory/breathing and circulatory systems.</p>
Beginning	<p>I can recognise patterns from my observations and investigations and can communicate my findings.</p> <p>I can use my knowledge and understanding to predict effects as part of my scientific exploration.</p> <p>I can explore relationships between living things, their habitats and their life cycles.</p>	<p>Use data from secondary sources of information to construct bar charts.</p> <p>Display data in tables.</p> <p>Identify and control variables appropriately without help.</p> <p>Recall the names of the major nutrients in food and good sources of these substances.</p> <p>Recall that theories about circulation have changed.</p> <p>Make observations and identify patterns in data.</p> <p>Recognise that exhaled and inhaled air are different.</p> <p>Recall that digested food is needed for energy.</p>

Authentic learning experiences (Local / National / International)	Skills (Literacy / Numeracy / DCF) / Cross Curricular links
Saltney Town FC.	Literacy: WF – Word familiarisation EC – Extended reading/ comprehension RR – Research and



Impact of diet, respiration and cardiovascular system on a local sports team.	report EW – Extended writing, DS – Debates and speaking Numeracy: Analysis of data, application of formulae, constructing line graphs (SALUTE) M – Measuring C – Calculations T – Tables L – Line graphs B – Bar charts SS28, N - Numbers DCF: IR – Internet research DL - Datalogging WP – Word processing SS – Spreadsheets PS – Presentation software MS – Media software
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Assessment (How will we know that students have learnt what we taught them?)

Formative assessment: Quick quiz questions Word sheets Quick checks Summary sheets I can progression ladders	Summative assessment: End of 'Biq Question' test x2 (mid topic and end of topic) Energy Content of food practical assessment
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Evaluation (to be completed 2024)

Strengths	Areas for Development	Pupil Voice