



**Mid Term Plan – Key Stage -3 – Year 9- Food and Festivals- Africa and India (Chemical Reactions and Gas exchange)**

Science	<b>Week 1&amp;2</b>	<b>Week 3</b>	<b>Week 4</b>	<b>Week 5/6</b>
	<b>Balanced Diet and Food Tests</b>	<b>Digestive System</b>	<b>Teeth</b>	<b>Digestion – Starch/ Proteins</b>
	<p><b>Objective:</b> To describe the parts of a balanced diet</p> <p><b>Success Criteria:</b>  <b>Support:</b> Identify the basic needs of all animals for survival (water, food, air). (S10) I can describe the importance for humans of exercise (eating the right amounts/ types of food).(S11)  <b>Core:</b> I can Identify that animals and humans get the nutrition from food they eat. (S12) I can identify that animals and humans need the right types and amount of nutrition. (S13) I can describe what makes up a balanced diet. (S14)  <b>Extension:</b> I can explain the content of a healthy human diet and why each element is needed. I can describe what our bodies need energy for. (S17)</p> <p><b>Suggested Activities:</b></p> <ul style="list-style-type: none"> <li>• Display a range of different foods ask pupils in pairs to put foods into groups and explain why they have grouped them in this way.</li> <li>• Practical activity – testing variety of foods using, Benedict's, Iodine, and Biuret solution for glucose, starch and protein.</li> <li>• Look at the food pyramid</li> <li>• Design a balanced meal on a plate</li> <li>• Discuss why we eat food – what do we need food for?</li> <li>• Produce Venn diagrams showing food with different combinations of nutrients.</li> </ul>	<p><b>Objective:</b> To describe the structure and function of the digestive system</p> <p><b>Success Criteria:</b>  <b>Support:</b> I can participate in a class discussion about the names of parts of the human body. (S7) Locate on a model, person and diagram, basic parts of the human body.(S9)  <b>Core:</b> I can identify and label the basic parts of the digestive system in humans. (S13) I can describe the simple functions of the basic parts of the digestive system in humans. (S14)  <b>Extension:</b> I can describe and name the tissues and organs of the human digestive system.(S17) I can explain how the tissues and organs of the human digestive system are adapted to function. (S19)</p> <p><b>Suggested Activities:</b></p> <ul style="list-style-type: none"> <li>• Look at diagram, models of digestive system, label the organs look at the function of the organs</li> <li>• Make a model of the system</li> <li>• Why do we need to digest our food?</li> </ul>	<p><b>Objective:</b> To explain the function of our teeth</p> <p><b>Success Criteria:</b>  <b>Support:</b> I can identify and label or draw the basic parts of the human body. (S8)  <b>Core:</b> Identify the different types of teeth in humans. (S13) Understand the words dissolve and solution. (Materials S13)  <b>Extension:</b> I can describe the functions of the different teeth in humans.(S14) I can Interpret observations and data, including identifying patterns. (Working Scientifically S18)</p> <p><b>Suggested Activities:</b></p> <ul style="list-style-type: none"> <li>• Look at teeth and what different types of teeth are for</li> <li>• Look at skulls and identify what foods animals eat according to their teeth</li> <li>• How do we look after our teeth? Teeth hygiene, brushing teeth, disclosing tablets to look at how clean teeth are.</li> <li>• Why do we need to chew our food?</li> <li>• Make impressions of teeth and label them.</li> <li>• Look at the structure of the teeth</li> <li>• Investigate the effect of cola/ acids on teeth (using an egg to represent the tooth)</li> </ul>	<p><b>Objective:</b> To explain how food is digested</p> <p><b>Success Criteria:</b>  <b>Support:</b> Identify the basic needs of all animals for survival (water, food, air). (S10)  <b>Core:</b> I know that nutrients and water are transported within animals including humans. (S15)  <b>Extension:</b> Can explain how the tissues and organs of the human digestive system function and how the digestive system digests food (including enzymes). (S18) Understand chemical reactions as the rearrangement of atoms.(Materials S17) Can explain the concepts of pure substances, mixtures and diffusion in terms of the particle model. (Materials S18)            Using IT: Purple mash to make an animation</p> <p><b>Suggested Activities:</b></p> <ul style="list-style-type: none"> <li>• Emphasise different size of starch and sugar molecules/ protein and amino acids- can the fit through the tiny holes in the intestines?</li> <li>• Why do we eat starch when it cannot pass through into the blood?</li> <li>• Use beads to produce a model of a starch molecule that is a polymer of sugar molecule. Go through the name of other digestive enzymes- demonstrate how enzymes break it down into glucose</li> <li>• Make a cartoon strip of enzymes digesting a protein or starch molecule.</li> <li>• Practical activity: test bread for starch and glucose, then chew some bread and spit it out, re test for starch and glucose – should see different results.</li> <li>• Discuss digestion as a chemical reaction (decomposition) and how the atoms rearrange once they have passed through the blood</li> </ul>
	<b>Week 7</b>	<b>Week 8&amp;9</b>	<b>Week 10</b>	<b>Week 11</b>
<b>Enzymes &amp; Bacteria</b>	<b>Antacid Investigation</b>	<b>Deficiency Diseases/ Malnutrition</b>	<b>The Breathing System</b>	
<p><b>Objective:</b> To explain the job of enzymes and bacteria in our body</p> <p><b>Success Criteria:</b>  <b>Support:</b> I can participate in a class discussion about the names of parts of the human body. (S7)  <b>Core:</b> I can describe what hygiene is and ways in which we can maintain hygiene. (S11)  <b>Extension:</b> I can explain how the tissues and organs of the human digestive system function and how the digestive system digests food (including enzymes). (S18) I can explain the importance of bacteria in the human digestive system.(S20) I know what catalysts do. (Materials 20)</p> <p><b>Suggested Activities:</b></p> <ul style="list-style-type: none"> <li>• Investigate the effect of temperature on the digestion of starch.</li> <li>• Look at products like yakult and how they help our body with digestion</li> </ul>	<p><b>Objective:</b> To investigate which antacid is the best remedy</p> <p><b>Success Criteria:</b>  <b>Support:</b> I can make simple records of findings, e.g. photos, symbols, pictures. (S7) I can contribute to performing simple tests.(S9) I can state simple results from a test, e.g. 'It changed colour, it got hot, it went faster (WS S10)  <b>Core:</b> I can use the pH scale and indicators to measure acidity/alkalinity. (Materials S15)  <b>Extension:</b> I know that acids react with alkalis to produce a salt plus water. (Materials S17)</p> <p><b>Suggested Activities:</b></p> <ul style="list-style-type: none"> <li>• What's in our stomachs?</li> <li>• Fill in the pH scale Look at an edible pH scale e.g. lemon juice/lemons , haribo, cola, water. milk, herbal teas, banana and compare/order.</li> <li>• Demo: pH Rainbow Alka-Seltzer</li> </ul>	<p><b>Objective:</b> To explain what happens without a balanced diet</p> <p><b>Success Criteria:</b>  <b>Support:</b> <b>Support:</b> Identify the basic needs of all animals for survival (water, food, air). (S10) I can describe the importance for humans of exercise (eating the right amounts/ types of food).(S11)  <b>Core:</b> I can identify that animals and humans need the right types and amount of nutrition. (S13) I can recognise the impact of diet, exercise, drugs and lifestyle on the way the body functions. (S16)  <b>Extension:</b> I can evaluate consequences of imbalances in the diet such as deficiency diseases. (S20)            SMSC: Learning about how to keep healthy</p> <p><b>Suggested Activities:</b></p> <ul style="list-style-type: none"> <li>• Look at pictures of child with deficiency disease</li> <li>• Using DCPIP stain test for amount of Vitamin C in different fruit juices, or use food labels to</li> </ul>	<p><b>Objective:</b> To describe the structure and function of the breathing system</p> <p><b>Success Criteria:</b>  <b>Support:</b> I can describe the basic needs of animals for survival, e.g. air to breathe. (S11)  <b>Core:</b> <b>Core:</b> I can identify and name the main parts of the human breathing system. (S15)  <b>Extension:</b> I can describe the role of diffusion in the movement of materials in and between cells. (S19)</p> <p><b>Suggested Activities:</b></p> <ul style="list-style-type: none"> <li>• <b>Demo:</b> Lung dissection, inflate lungs with pump.</li> <li>• Label a diagram of the breathing system</li> <li>• Look at more detail at the structure of alveoli and gas exchange, discuss how alveoli are adapted to gas exchange. Discuss diffusion.</li> <li>• <b>Demo:</b> examples of diffusion</li> </ul>	



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<ul style="list-style-type: none"> <li>Discuss bacteria in the intestine and how it can help us, 'good' bacteria'</li> <li>Discuss 'bad bacteria' and why hand washing after using the toilet is so important.</li> </ul>	<ul style="list-style-type: none"> <li>Introduce the concept of pH with universal indicator</li> <li>Test a series of substances (acid, alkali and neutral) with universal indicator and litmus. Record observations and make conclusions.</li> <li><b>Demo:</b> Carry out a simple neutralization experiment with hydrochloric acid and antacid tablet</li> <li>Discuss what heartburn/indigestion is</li> <li>Plan and carry out an investigation into which antacid is the best.? How do you decide which is best?</li> <li><b>Demo:</b> Test for CO<sub>2</sub> with limewater -explain that often indigestion remedies are carbonates, what gas may be produced? What side effect may this cause?</li> </ul>	<p>compare vitamin content</p> <ul style="list-style-type: none"> <li>Go through what each mineral is needed for. Discuss vitamins and what they are needed for.</li> <li>Display or hand out cards with symptoms of mineral or vitamin deficiencies, ask pupils to diagnose the patient's deficiency.</li> <li>Ask to explain their answers.</li> <li>What food would pupils advise each patient eat more of?</li> <li><b>Video:</b> Diet Doctors</li> <li>Make an advert/ jingle/slogan to advertise eating a mineral/vitamin/ food group.</li> </ul>	
<b>Week 12</b>	<b>Week 13 &amp; 14</b>	<b>Week 15</b>	<b>Useful Links/ Suggested Home Learning</b>
<p style="text-align: center;"><b><u>Mechanism of Breathing</u></b></p> <p><b>Objective:</b> To explain how we breathe</p> <p><b>Success Criteria:</b>  <b>Support:</b> I can Describe the basic needs of animals for survival, e.g. air to breathe. (S11)  <b>Core:</b> I use relevant scientific language and illustrations to discuss, communicate, and justify scientific ideas. (WS S15) I can set up simple practical enquiries and comparative fair tests. (WS S14)  <b>Extension:</b> I can describe the mechanism of breathing to move air in and out of the lungs. (S17) I can use a pressure model to explain the movement of gases, including simple measurements of lung volume. (S17)</p> <p><b>Suggested Activities:</b></p> <ul style="list-style-type: none"> <li>Write a description of what happens when you breathe in. Explain the mechanics of ventilation.</li> <li><b>Practical:</b> Huff Puff Tubes- blow bubbles into limewater</li> <li>Breath out onto a mirror to see condensation, use cobalt chloride paper to test the condensation</li> <li>Measure the temperature of the exhaled breath</li> <li>Look at percentages for the composition of our breath</li> <li>Use 2L bottle to breathe and displace water to measure lung volume.</li> </ul>	<p style="text-align: center;"><b><u>Investigation into effects of dancing on breathing</u></b></p> <p><b>Objective:</b> To investigate the effects of dancing on breathing</p> <p><b>Success Criteria:</b>  <b>Support:</b> I can contribute to planning and evaluating a simple test. (S8) I can state simply what I have found out (S11). I can describe the importance for humans of exercise (eating the right amounts/ types of food).(S11)  <b>Core:</b> I can set up simple practical enquiries and comparative fair tests, I can use results to draw simple conclusions. (S14)  <b>Extension:</b> I can evaluate the impact of exercise on the human gas exchange system.(S20)</p> <p><b>LotC:</b> Disco</p> <p><b>Suggested Activities:</b></p> <ul style="list-style-type: none"> <li>Look at clips of people dancing at festivals and discuss what organs, muscles, parts of the bodies are used.</li> <li>Plan and carry out an investigation in to the effect of dancing on our breathing system</li> <li>Write conclusion, or a report on findings.</li> </ul>	<p style="text-align: center;"><b><u>Impacts of smoking on breathing</u></b></p> <p><b>Objective:</b> To describe the effects of smoking on our health.</p> <p><b>Success Criteria:</b>  <b>Support:</b> I can make own observations of patterns or regular changes. (S8)  <b>Core:</b> I can describe the effect(s) of diet, exercise, drugs and lifestyle on the body. (S15)  <b>Extension:</b> I can discuss the effects of recreational drugs on behaviour, health and life processes. (S17) Can evaluate the impact of exercise, asthma, and smoking on the human gas exchange system. (S20)          Using IT: Use searches to research effects of smoking  <b>SMSC:</b> Learning about the effects of smoking on health.</p> <p><b>Suggested Activities:</b></p> <ul style="list-style-type: none"> <li>Explain the effect of smoking on the lungs and emphysema using images to show the effect on lungs</li> <li>Discuss asthma and how the lungs are affected</li> <li>Make an anti-smoking advert</li> </ul>	<p>Make a model of the human digestive system</p> <p>When eating meals together you can discuss the different food groups and what we need them for in our bodies.</p> <p>Success Criteria taken from Norfolk Assessment Pathway:</p> <ul style="list-style-type: none"> <li>Animals including Humans</li> <li>Working scientifically</li> <li>Materials and changes</li> </ul>