

Progression in **Humans Year 1-9** key for use **Fair & comparative testing** **Research using secondary sources** **Identifying, classifying & grouping** **Pattern seeking** **Observing over time**

For the purpose of this series, reference to humans being part of the mammals group of animals has been removed

Year group	English National Curriculum statement	Child led enquiry opportunities (write as questions)	Maths opportunities	Story opportunities	Resources links	Enquiry type (highlight)	Working scientifically links (highlight)
Year 1	<ol style="list-style-type: none"> <li>identify</li> <li>name</li> <li>draw</li> <li>label the basic parts of the human body</li> <li>say which part of the body is associated with each sense.</li> </ol>	<p>Which parts of my body are involved in my senses?</p> <p>Which sense do I use to....?</p> <p>What do I use my ..... for?</p> <p>Where is my...?</p> <p>Just because I am older am I taller?</p>	<p>Bar chart</p> <p>counting in 2s,5s and tens</p> <p>Venn diagram</p>	<p>Funny Bones</p> <p>Look Out! How we use our five senses.</p> <p>The growing story.</p>	<p>Crickweb</p> <p>Discovery Dog</p> <p>Topmarks</p>	<p>Fair &amp; comparative testing</p> <p>Research using secondary sources</p> <p>Identifying, classifying &amp; grouping</p> <p>Pattern seeking</p> <p>Observing over time</p>	<p>asking simple questions and recognising that they can be answered in different ways.(1,2,3,4,5,6,7)</p> <p>observing closely, using simple equipment(1,2,3,4,5,6)</p> <p>performing simple tests (5)</p> <p>identifying and classifying (1,2,3,6)</p>
Year 2	<ol style="list-style-type: none"> <li>notice that animals, including humans, have offspring which grow into adults.</li> <li>find out about and describe the basic needs of animals, including humans, for survival (water, food and air)</li> </ol>	<p>Which foods are healthy/unhealthy?</p> <p>which drinks are unhealthy for our teeth?</p> <p>Why are some foods unhealthy?</p> <p>How do I keep healthy?</p>	<p>Venn diagrams</p> <p>Tables</p> <p>Measurement</p>	<p>I know how my cells make me grow.</p> <p>The Demon Dentist.</p> <p>Handas Surprise</p> <p>The ugly Duckling</p> <p>Tryannosaurus</p>	<p>Crickweb</p> <p>Expresso</p> <p>BBC</p>	<p>Fair &amp; comparative testing</p> <p>Research using secondary sources</p>	<p>using their observations and ideas to suggest answers to questions (1,2,3,6)</p>

	8. describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene.	What do living things need to survive? could i survive without? could a ----- live on the moon could a penguin live in the desert? could a camel live in the north pole?				Identifying, classifying & grouping Pattern seeking Observing over time	gathering and recording data to help in answering questions. (2,6,7)
Year 3	1.identify that animals, including humans, need the right types and amount of nutrition, and that they cannot make their own food; they get nutrition from what they eat 2.identify that humans and some other animals have skeletons and muscles for support, protection and movement.	what would happen if I only ate...? Why do I need... to be healthy? what would happen if I didn't have ... skeleton, any muscles?		Charlie and the chocolate factory i will not never ever eat tomatoes charlie and lola goldilocks spider sandwiches		Fair & comparative testing Research using secondary sources Identifying, classifying & grouping Pattern seeking Observing over time	<ul style="list-style-type: none"> <li>asking relevant questions &amp; using different types of scientific enquiries to answer them</li> <li>setting up simple practical enquiries, comparative &amp; fair tests</li> <li>making systematic and careful observations &amp;, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers &amp; data loggers</li> <li>gathering, recording, classifying and presenting data in a variety of ways to help in answering questions</li> </ul>
Year 4	3. describe the simple functions of the basic parts of the digestive system in humans 4. identify the different types of teeth in humans and their simple functions	Why do we have different teeth? Can you guess this animals diet from its teeth? What happens to our food? Which part of the digestive system			Bananas and knives/forks and spoons.	Fair & comparative testing Research using secondary sources Identifying, classifying & grouping	

does the most  
important job.  
[organ job  
interview]

Pattern seeking  
Observing over  
time

- recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, & tables
- reporting on findings from enquiries, including oral & written explanations, displays or presentations of results & conclusions
- using results to draw simple conclusions, make predictions for new values, suggest improvements & raise further questions
- identifying differences, similarities or changes related to simple scientific ideas and processes
  - using straightforward scientific evidence to answer questions or to support their findings.

Year 5	<p>1.describe the changes as humans develop to old age.</p>	<p>How does the body change as we grow older?          Why does the body change?          Is it good or bad?          What changes do you think will happen to you in the future?</p>				<p>Fair &amp; comparative testing          Research using secondary sources          Identifying, classifying &amp; grouping          Pattern seeking          Observing over time</p>	<ul style="list-style-type: none"> <li>• planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary</li> <li>• taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate</li> <li>• recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs</li> </ul>
Year 6	<p>2.identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood</p> <p>3.recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function</p> <p>4.describe the ways in which nutrients and water are transported within animals, including humans.</p>	<p>How does exercise affect our heart rate? This leads to...          Does your heart rate go up forever?          Is it the same for adults and children?          Does your height or weight affect how your heart rate goes up?</p>	<p>Stopwatches          counting          line graphs</p>		<p>Model heart,          real heart.</p>	<p>Fair &amp; comparative testing          Research using secondary sources          Identifying, classifying &amp; grouping          Pattern seeking          Observing over time</p>	<ul style="list-style-type: none"> <li>• using test results to make predictions to set up further comparative and fair tests</li> <li>• reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations</li> <li>• identifying scientific evidence that has been used to support or refute ideas or arguments.</li> </ul>

Key Stage 3	<p><b><u>Structure and function of living organisms</u></b></p> <p><b>Cells and organisation</b></p> <ul style="list-style-type: none"> <li>the hierarchical organisation of multicellular organisms: from cells to tissues to organs to systems to organisms</li> </ul> <p>(repeated from plants series)</p> <p><b>The Skeletal and Muscular Systems</b></p> <p>the structure &amp; functions of the human skeleton, to include support, protection, movement &amp; making blood cells</p> <p>biomechanics – the interaction between skeleton &amp; muscles, including the measurement of force exerted by different muscles</p> <p>the function of muscles &amp; examples of antagonistic muscles.</p> <p><b>Nutrition and digestion</b></p> <p>content of a healthy human diet: carbohydrates, lipids (fats and oils), proteins, vitamins, minerals, dietary fibre and water, &amp; why each is needed</p>	<p>What are the differences between plant and animal cells?</p> <p>How much force can different muscles exert?</p> <p>How much energy do different people need?</p> <p>How much energy is in different foods?</p>	<p>Scale/magnification</p> <p>Measurement/Units/mean calculation</p> <p>Interpretation of graphs and tables</p>		<p>microscopes, slides etc.</p> <p>Food labels, energy requirement info from internet or text book</p>	<p>Fair &amp; comparative testing</p> <p>Research using secondary sources</p> <p>Identifying, classifying &amp; grouping</p> <p>Pattern seeking</p> <p>Observing over time</p>	<p><b>Scientific attitudes</b></p> <ul style="list-style-type: none"> <li>pay attention to objectivity and concern for accuracy, precision, repeatability and reproducibility</li> <li>understand that scientific methods and theories develop as earlier explanations are modified to take account of new evidence and ideas, together with the importance of publishing results and peer review</li> <li>evaluate risks.</li> </ul> <p><b>Experimental skills and investigations</b></p> <ul style="list-style-type: none"> <li>ask questions and develop a line of enquiry based on observations of the real world, alongside prior knowledge and experience</li> <li>make predictions using scientific knowledge and understanding</li> <li>select, plan and carry out the most</li> </ul>
-------------	---	---	---	--	--	--	--

<p>calculations of energy requirements in a healthy daily diet</p> <p>the consequences of imbalances in the diet, including obesity, starvation &amp; deficiency diseases</p> <p>the tissues and organs of the human digestive system, including adaptations to function &amp; how the digestive system digests food (enzymes simply as biological catalysts)</p> <p>the importance of bacteria in the human digestive system</p> <p><b>Gas exchange systems</b></p> <p>the structure and functions of the gas exchange system in humans, including adaptations to function</p> <p>the mechanism of breathing to move air in and out of the lungs, using a pressure model to explain the movement of gases, including simple measurements of lung volume</p> <p>the impact of exercise, asthma &amp; smoking on the human gas exchange system</p> <p><b>Reproduction</b></p>	<p>How is the digestive system adapted for maximum absorption?</p> <p>How are the lungs adapted to increase diffusion of gases?</p> <p>How does inhaled air differ from exhaled air?</p> <p>What changes happen to the body when we exercise?</p>	<p>calculating surface area</p> <p>Calculating surface area</p>			<p>Cubes/blocks to calculate surface area</p> <p>As above</p> <p>mirrors, thermometers, limewater, straws, boiling tubes, cobalt chloride paper</p> <p>Stopwatches or pulse meters. Thermometers</p>		<p>appropriate types of scientific enquiries to test predictions, including identifying independent, dependent and control variables, where appropriate</p> <ul style="list-style-type: none"> <li>● use appropriate techniques, apparatus, and materials during fieldwork and laboratory work, paying attention to health and safety</li> <li>● make and record observations and measurements using a range of methods for different investigations; and evaluate the reliability of methods and suggest possible improvements</li> <li>● apply sampling techniques.</li> </ul> <p><b>Analysis and evaluation</b></p> <ul style="list-style-type: none"> <li>● apply mathematical concepts and calculate results</li> <li>● present observations and data using appropriate methods,</li> </ul>
--	---	---	--	--	--	--	--

<p>reproduction in humans (as an example of a mammal), including the structure &amp; function of the male &amp; female reproductive systems, menstrual cycle (without details of hormones), gametes, fertilisation, gestation &amp; birth, to include the effect of maternal lifestyle on the foetus through the placenta.</p> <p><b>Health</b> the effects of recreational drugs (including substance misuse) on behaviour, health and life processes.</p> <p><b><u>Material cycles &amp; energy</u></b> <b>Cellular respiration</b> aerobic and anaerobic respiration in living organisms, including the breakdown of organic molecules to enable all the other chemical processes necessary for life the process of anaerobic respiration in humans <del>and micro-organisms, including fermentation</del>, &amp; a word summary for anaerobic respiration</p>	<p>What effect does caffeine have on heart rate?</p> <p>What effect does anaerobic respiration have on the human body?</p>			<p>Cola, stopwatches or heart rate monitors</p>		<p>including tables and graphs</p> <ul style="list-style-type: none"> <li>● interpret observations and data, including identifying patterns and using observations, measurements and data to draw conclusions</li> <li>● present reasoned explanations, including explaining data in relation to predictions and hypotheses</li> <li>● evaluate data, showing awareness of potential sources of random and systematic error</li> <li>● identify further questions arising from their results.</li> </ul> <p><b>Measurement</b></p> <ul style="list-style-type: none"> <li>● understand and use SI units and IUPAC chemical nomenclature</li> <li>● use and derive simple equations and carry out appropriate calculations</li> </ul> <p>undertake basic data analysis including simple statistical techniques</p>
---	--	--	--	---	--	---