

Focus area	Emerging – a student who has emerging skills in the Y8 Science curriculum will be able to:	Developing – a student who has developing skills in the Y8 Science curriculum will be able to:	Secure – a student who has secure skills in the Y8 Science curriculum will be able to:	Mastered – a student who has mastered the skills in the Y8 Science curriculum will be able to:
Biology 1: Cells	<p>Identify an animal and a plant cell.</p> <p>Label a microscope</p> <p>With help view a slide under a microscope and identify if it is a plant or animal cell.</p> <p>Identify things as being alive or not.</p>	<p>Recognise and label normal and specialised animal and plant cells; use a microscope to make observations.</p> <p>Follow instructions on how to make a slide. Students can identify hazards in an investigation and take steps to reduce risk</p> <p>Recall the life processes: movement, reproduction, sensitivity, growth, respiration, excretion, nutrition</p>	<p>Describe the functions of the nucleus, cell membrane, mitochondria, cytoplasm, cell wall, vacuole and chloroplast.</p> <p>Describe how to prepare a microscope slide Students can identify strategies which enable a slide to be made and viewed safely</p> <p>Describe the life processes. Use life processes to justify whether something is an organism or is non-living.</p>	<p>Compare and contrast the similarities and differences between normal and specialised animal and plant cells.</p> <p>Write a detailed method including a diagram on how to prepare a microscope slide for a plant and animal cell.</p> <p>Write a detailed risk assessment on preparing a microscope slide for a plant an animal cell.</p> <p>Produce labelled scientific drawings from microscope slides</p> <p>Identify ways in which an organism shows each life process.</p> <p>Compare life processes in a range of plants and animals.</p>

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Biology 2: Reproduction	<p>State some of the parts of the human reproductive systems.</p> <p>Recognise changes that occur during adolescence.</p> <p>Understand that substances pass from a mother to her developing foetus.</p>	<p>Name the main parts of the male and female human reproductive systems.</p> <p>Recognise changes that occur during adolescence.</p> <p>Identify substances passed on from a mother that will either help or harm her developing foetus.</p>	<p>Describe the structures and functions of the main parts of the male and female human reproductive systems; describe how fertility problems may arise.</p> <p>Recognise changes that occur during adolescence.</p> <p>Describe how the menstruation cycle works.</p> <p>Describe the structures and functions of different parts of a pregnant uterus, describing how substances pass into and from a developing foetus.</p>	<p>Explain how the male and female reproductive structures are designed for fertilisation; describe methods to combat infertility.</p> <p>Recognise changes that occur during adolescence.</p> <p>Explain how and why some problems occur with menstruation.</p> <p>Explain how a pregnant uterus is different from a normal uterus, including the impact of different substances on the health and development of a foetus</p>
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	<i>Science curriculum will be able to:</i>	<i>Y8 Science curriculum will be able to:</i>		<i>Y8 Science curriculum will be able to:</i>
Biology 3: Body systems	<p>Understand that our bodies are supported by a skeleton. Recognise that our skeleton is made of many bones joined together.</p> <p>Know that muscles can contract and relax.</p> <p>Understand that some muscles are stronger than others.</p> <p>Understand how the circulatory system works.</p>	<p>Identify the main bones of the skeleton. Describe the role of skeletal joints. Recall that muscles contract to move bones at joints.</p> <p>Explain how muscles work antagonistically to bring about movement and evaluate a model.</p> <p>Investigate the strengths of different muscles and draw a conclusion.</p> <p>Describe some medical problems that can arise with the skeletal system.</p>	<p>Describe the functions of the skeleton</p> <p>Identify some different joints and explain the role of tendons and ligaments in joints.</p> <p>Identify muscles that contract to cause specific movements.</p> <p>Plan and carry out an investigation to compare strengths of muscles and analyse the results using a graph.</p> <p>Describe some treatments for a range of problems with the skeletal system.</p>	<p>Explain how different parts of the skeleton are adapted to carry out particular functions.</p> <p>Compare the movement allowed at different joints and explain why different types of joints are needed. skeleton.</p> <p>Explain how muscles work antagonistically to bring about movement and evaluate a model.</p> <p>Plan and carry out a fair investigation, analyse the data and evaluate the procedure.</p> <p>Explain how diagnosis and treatment of problems with the skeletal system have changed over time.</p>
Chemistry 1: Particles MINDS ON	Correctly identifies particle diagrams as showing S, L or G	Properties of solids, liquids and gases can be described in terms of particles in	Explain the properties of solids, liquids and gases based on the arrangement	Observations where substances change

	<p>Struggles to link particle theory with observations when explaining change of state.</p> <p>Draw diagrams to show arrangement of particles in solids, liquids and gases.</p> <p>Recognises that pressure is due to presence of gas particles.</p> <p>Struggles to link particle theory with diagrams</p>	<p>motion but with differences in the arrangement and movement of these same particles: closely spaced and vibrating (solid), in random motion but in contact (liquid), or in random motion and widely spaced (gas).</p> <p>Needs prompting and questioning to explain changes of state of water using particle theory</p> <p>Draw diagrams to show arrangement of particles in solids, liquids and gases.</p> <p>Recognises that increased numbers of gas particles usually leads to increase in pressure at the same temperature.</p>	<p>and movement of their particles.</p> <p>Explains, using particle theory with some level of fluency, observations when water changes through 3 states of matter.</p> <p>Draw before and after diagrams of particles to explain observations about changes of state, gas pressure and diffusion</p> <p>Explains gas pressure in terms of frequency of particle collisions with walls of container, and that this frequency is affected by KE of particles, which is affected by temperature</p>	<p>temperature or state can be described in terms of particles gaining or losing energy</p> <p>Explains observations fluently, using particle theory, when water changes through 3 states of matter</p> <p>Draw before and after diagrams of particles to explain observations about changes of state, gas pressure and diffusion</p> <p>Explains that hollow vessels expand or collapse depending on the pressure difference between inside and outside the vessel.</p>
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<p>HANDS ON</p>	<p>showing diffusion of particles, but can recognise the process of diffusion from an analogy or example</p> <p>Needs close supervision to handle and manipulate equipment safely</p> <p>Can sometimes interpret information in a data table. Can sometimes lay out and label axes. Always needs help to choose a suitable linear scale.</p> <p>Heat ice until almost boiling</p> <p>Requires pre-printed results table. Does not reliably record results</p>	<p>Can state the definition of diffusion and can sketch a model of diffusion.</p> <p>Needs instruction often to safely handle and manipulate equipment with confidence and fluency.</p> <p>Can attempt to convert information from table format to a graph. Occasionally needs help to label axes and/or use suitable linear scale</p> <p>Heat ice until almost boiling, having selected and used appropriate equipment</p> <p>Needs frequent assistance to draw a suitable results table. Finds at regular intervals the temperature of water being</p>	<p>Can state the definition of diffusion and can sketch a model of diffusion. Can list factors that affect the rate of diffusion.</p> <p>Handles and manipulates equipment with confidence and fluency most of the time</p> <p>Interpret data tables and graph using correctly drawn axes and suitable linear scale. Struggles with negative values.</p> <p>Heat ice until almost boiling, having selected and used appropriate equipment, and have suggested further safety measures such as clamping the beaker in position</p> <p>Needs occasional assistance to draw a suitable results table.</p>	<p>Can describe how, and explain why temperature and particle size affect the rate of diffusion.</p> <p>Reliably handles and manipulates equipment with confidence and fluency</p> <p>Interpret data tables and draw correctly on a graph, including negative values</p> <p>Carry out practical procedures using instructions without guidance and in a calm fashion with due regard to the safety of others</p> <p>Independently draws suitable results table. Find at regular intervals the temperature of water being</p>
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	Requires support to draw and label axes, and to plot data.	<p>heated but does not reliable record results.</p> <p>Graphs results but needs assistance with labelling axes or plotting data</p>	<p>Finds at regular intervals the temperature of water being heated and records results</p> <p>Graphs results, labelling axes correctly and plotting most data accurately</p>	<p>heated and tabulate observations to reveal the pattern</p> <p>Graphs results, labelling axes correctly and plotting data accurately</p>
Chemistry 2: Acids and Alkalis	<p>Know that you have acids and alkalis in your house</p> <p>Know that some chemicals change colour in acids and alkalis.</p> <p>Know that acids are opposite to alkalis.</p> <p>Know that water is not an acid is or alkali.</p> <p>State what is made in neutralisation.</p>	<p>Identify some everyday substances that contain acids and alkalis.</p> <p>Give an example of an indicator and state why indicators are useful.</p> <p>Describe some examples of neutralisation.</p> <p>Recognise that water is one product of neutralisation.</p> <p>Follow a method to make copper sulphate crystals.</p>	<p>Explain what all acids have in common and what all alkalis have in common.</p> <p>Explain what an indicator is and analyse results when using an indicator.</p> <p>Describe the changes to indicators when acids and alkalis are mixed.</p> <p>Know that water is not an acid is or alkali.</p> <p>Explain the general reaction between an acid and ankali, using generic equations.</p>	<p>Evaluate the hazards posed by some acids and alkalis and how to reduce these risks.</p> <p>Compare the effectiveness of different indicators</p> <p>Explain the changes to indicators in terms of pH when acids and alkalis are mixed</p> <p>Predict the name of the products formed in neutralisation reactions.</p> <p>Plat a graph and analyse data about indigestion remedies to decide which</p>

	<p>Know that indigestion is often caused by a build-up of acid in your stomach.</p> <p>Know the hazard symbols.</p>	<p>Describe what indigestion remedies are and explain how they work.</p> <p>Follow a method safely</p>	<p>Design an investigation to compare the effectiveness of indigestion remedies, including a risk assessment</p>	<p>remedy is the most effective.</p>
Chemistry 3: Earth and Atmosphere	<p>State that the moon was formed by the collision of another body with the early Earth</p> <p>Name the layers of the Earth.</p> <p>Name the main components of the atmosphere.</p> <p>State a property of sedimentary rocks.</p> <p>Describe simply how sedimentary rocks are made.</p> <p>Recognise that 'igneous' and 'metamorphic' are types of rock.</p>	<p>State that Earth started as a cloud of dust and gas.</p> <p>Label a diagram of the layers of the Earth</p> <p>State the % of each of the components of the atmosphere</p> <p>State a property of sedimentary rocks.</p> <p>Describe simply how sedimentary rocks are made.</p> <p>State one difference between igneous and metamorphic rocks.</p>	<p>I can state one fact about each of 3 stages to describe how the Earth was formed</p> <p>I can describe properties of the different layers of the Earth's structure.</p> <p>Explain the current sources of CO₂ and water vapour</p> <p>Explain two properties of sedimentary rocks.</p> <p>Explain how sedimentary rocks are made.</p> <p>Compare the ways that igneous and metamorphic rocks form.</p>	<p>I can state one fact about each of 3 stages to describe how the Earth was formed</p> <p>I can compare the different layers of the Earth in terms of their properties.</p> <p>Compare current and original atmosphere</p> <p>Explain two properties of sedimentary rocks by linking them to the rock structure and formation.</p> <p>Give a detailed explanation of the sedimentary rock cycle.</p> <p>Discuss examples of rocks that illustrate the different methods of formation of</p>

	<p>Describe very simply how igneous OR metamorphic rocks are formed.</p> <p>Give simple facts about how a rock can be changed from one type to another.</p> <p>State that carbon dioxide levels have changed over time.</p> <p>State that carbon dioxide can be stored naturally.</p> <p>State that the temperature of the atmosphere is increasing.</p> <p>State one impact of global warming.</p> <p>State what is meant by recycling.</p>	<p>Describe very simply how igneous AND metamorphic rocks are formed.</p> <p>Give simple facts about how a rock can be changed from one type to another.</p> <p>Describe the changes in levels of carbon dioxide over time.</p> <p>Name one place carbon dioxide may be stored.</p> <p>State a cause of global warming.</p> <p>State one impact of global warming.</p> <p>Describe how aluminium is recycled.</p>	<p>Explain how igneous and metamorphic rocks form.</p> <p>Use the rock cycle to explain how the material in rocks is recycled.</p> <p>Explain why the concentration of carbon dioxide in the atmosphere did not change for many years.</p> <p>Use the carbon cycle to identify reservoirs of carbon.</p> <p>Explain why global warming happens.</p> <p>Explain some impacts of global warming.</p> <p>Explain how aluminium is recycled.</p>	<p>igneous and metamorphic rocks.</p> <p>Link properties of igneous and metamorphic rocks to their methods of formation.</p> <p>Give a detailed description and explanation of a rock's journey through the rock cycle.</p> <p>Explain changes in the levels of carbon dioxide using stages</p> <p>Use equations to explain processes that exchange carbon dioxide to and from the atmosphere.</p> <p>Use a model to explain why global warming happens</p> <p>Discuss in detail the impacts of global warming, identifying primary and secondary problems.</p>
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	Give one advantage OR one disadvantage of recycling.	Give one advantage AND one disadvantage of recycling	Analyse the advantages and disadvantages of recycling.	Compare how other materials are recycled with recycling of aluminium. Use data to discuss the relative benefits and drawbacks of recycling materials
Physics 1: Forces	Describe what a force is and give examples Recall the effects of forces on an object and explain how a force has caused certain effects State what is meant by friction and how it can affect movement State what is meant by pressure State what is meant by balanced and unbalanced forces	Describe the effects of forces and the directions in which they act State what is meant by extension, compress, stretch, elastic, plastic Identify situations in which friction is helpful and not helpful Describe how pressure depends on force and area. Describe some common units for pressure Explain the effects of balanced and unbalanced forces	Explain the difference between mass and weight Describe how the extension of a spring depends on the force applied Explain some ways in which friction can be changed Use the formula relating force, pressure and area State what is meant by the term resultant force	Represent sizes and direction of forces using arrows Explain what is meant by elastic limit and limit of proportionality Suggest why friction has changed in unfamiliar situations Explain applications of pressure in different situations Calculate the resultant force acting upon an object

Physics 2: Electricity	<p>Identify common circuit components and their symbols</p> <p>State what the different components of a model represent</p> <p>State what is meant by a series circuit, parallel circuit</p> <p>State the units for voltage</p> <p>Recall some dangers of electricity</p>	<p>Construct a circuit from instructions provided in the form of a circuit diagram</p> <p>Describe how the model is like an electric circuit</p> <p>Construct a circuit diagram from instructions provided in the form of a circuit diagram</p> <p>Describe how voltage varies in a parallel circuit</p> <p>Recall how different wires are connected in a plug</p>	<p>Describe and explain how adding more bulbs affects the brightness of bulbs in a circuit</p> <p>Explain how the model is not like an electric circuit</p> <p>Explain why the lights in a house are wired in parallel</p> <p>Explain how a variable resistor works</p> <p>Explain how a fuse works</p>	<p>Draw a circuit diagram from a constructed circuit</p> <p>Explain why we need models to help us think about electricity</p> <p>Use their knowledge of switches and parallel circuits to devise circuits for specified purposes</p> <p>Use a model to explain the idea of voltage</p> <p>Apply their knowledge of voltage, current and electrical safety to novel situations</p>

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Biology 1: Nutrition & Digestion	<p>Describe the components of a healthy diet (food groups).</p> <p>Identify people that require more or less energy.</p> <p>Identify some of the organs in the digestive system.</p> <p>Describe the role of the stomach and small intestine in digestion.</p>	<p>Describe the components of a healthy diet (food groups). Recall the tests for starch and sugar. Suggest some foods that contain starch and sugar.</p> <p>List groups of people who need different amounts of energy from food.</p> <p>Describe some of the physical effects of obesity and starvation.</p> <p>Describe the cause and symptoms of scurvy and suggest foods to treat it.</p> <p>Name some of the organs of the digestive system.</p> <p>Describe what is meant by physical digestion and chemical digestion.</p> <p>Describe the role of the stomach, small intestine, oesophagus, pancreas and large intestine in digestion.</p> <p>Recall the names of some digestive enzymes.</p>	<p>Explain the role of some of the components of a healthy diet. Recall the tests for protein and fats. Suggest several foods that contain proteins and fats.</p> <p>Compare the energy requirements of different people such as men and women, teenagers and the elderly, pregnant and non-pregnant women.</p> <p>Explain some of the physical effects of obesity and starvation</p> <p>Describe the causes of several deficiency diseases and suggest foods to treat each.</p> <p>Locate the organs of the digestive system on a diagram. Recall where physical digestion takes place and where chemical digestion takes place. Explain how teeth and saliva are adapted to digest food.</p> <p>Describe some adaptations of the organs of the digestive system.</p> <p>Explain the role of three digestive enzymes.</p>	<p>Explain the role of all of the components of a healthy diet. Predict the observations of food tests for several foods for starch, sugar, protein and fats.</p> <p>Explain why different groups of people have different energy requirements.</p> <p>Use data on packaging to plan how individuals could meet their energy requirements.</p> <p>Name the organs of the digestive system in the order that food passes through them.</p> <p>Explain the link between digestion and circulation.</p> <p>Explain how the structure of each of the organs of the digestive system supports its function.</p> <p>Explain how visking tubing can be used to model the digestive system.</p>

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Biology: Plants and plant reproduction	<p>Label some of the parts of a flowering plant</p> <p>Label some of the parts of a flowering plant</p> <p>Recognise the role of a seed.</p> <p>Recognise that seeds germinate for plants to develop.</p> <p>Identify the part of a leaf cell that is responsible for absorbing the sun's light energy.</p> <p>Name some of the nutrients needed by plants and supplied by fertilisers.</p>	<p>Describe the role of different parts of the flowering plant in reproduction.</p> <p>Describe the role of different parts of the flowering plant in reproduction.</p> <p>Recognise different seed-dispersal methods by the structures of the seeds.</p> <p>Recognise the conditions required for germination</p> <p>Describe how gases enter and leave a leaf and how light energy for photosynthesis is captured.</p>	<p>Explain the differences in insect pollinated and wind pollinated plants.</p> <p>Explain the differences in insect pollinated and wind pollinated plants.</p> <p>Identify key variables that need to be controlled when investigating the effect of seed design on seed dispersal.</p> <p>Identify factors affecting germination and control variables when investigating germination</p> <p>Describe how cells in the leaf and root are adapted for their functions.</p> <p>Explain why nutrients are needed by plants, how</p>	<p>Discuss the strengths and weaknesses of wind-pollinated and insect-pollinated plants.</p> <p>Discuss the strengths and weaknesses of wind-pollinated and insect-pollinated plants.</p> <p>Explain the advantages and disadvantages of different seed dispersal mechanisms.</p> <p>Explain the conditions required for germination and reasons behind dormancy and non-germination</p> <p>Relate and explain how the structure of palisade, mesophyll and guard cells allows them to perform their function.</p> <p>Explain how mineral deficiencies affect plants</p>

	<p>Recognise that seeds germinate for plants to develop.</p> <p>Name some of the nutrients needed by plants and supplied by fertilisers.</p> <p>Recognise that green plants need sunlight.</p> <p>Understand that the amount of light affects photosynthesis.</p>	<p>Name some of the nutrients needed by plants and supplied by fertilisers; state how they enter the plant dissolved in soil water.</p> <p>Recognise the conditions required for germination</p> <p>Name some of the nutrients needed by plants and supplied by fertilisers; state how they enter the plant dissolved in soil water.</p> <p>State that green plants need sunlight to grow and to make food.</p> <p>Describe how levels of light, temperature and carbon dioxide affect the rate of photosynthesis.</p>	<p>spreading manure adds them to the soil and how water passes through the plant.</p> <p>Identify factors affecting germination and control variables when investigating germination</p> <p>Explain why nutrients are needed by plants, how spreading manure adds them to the soil and how water passes through the plant.</p> <p>Identify water and carbon dioxide as the raw materials for photosynthesis, and glucose and oxygen as the products.</p> <p>Explain how levels of light, temperature and carbon dioxide affect the rate of photosynthesis</p> <p>Identify water and carbon dioxide as the raw materials for photosynthesis, and</p>	<p>and how different factors affect the rate of transpiration.</p> <p>Explain the conditions required for germinations and reasons behind dormancy and non-germination</p> <p>Explain how mineral deficiencies affect plants and how different factors affect the rate of transpiration.</p> <p>Explain the chemical changes involved in photosynthesis and the roles of light and chlorophyll.</p> <p>Explain the chemical changes involved in photosynthesis and the roles of light and chlorophyll.</p>
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	<p>Recognise that green plants need sunlight.</p> <p>Describe how levels of light, temperature and carbon dioxide affect the rate of photosynthesis.</p>	<p>State that green plants need sunlight to grow and to make food.</p> <p>Describe how levels of light, temperature and carbon dioxide affect the rate of photosynthesis.</p>	<p>glucose and oxygen as the products.</p> <p>Explain how levels of light, temperature and carbon dioxide affect the rate of photosynthesis</p>	<p>Apply learning about the factors affecting photosynthesis to solve problems</p>
Chemistry 4: Atoms, Elements, Compounds	<p>Give some examples of elements.</p> <p>Understand that many elements are found in the Earth's crust.</p> <p>Identify metals and non-metals.</p> <p>Understand what a compound is.</p>	<p>Give some examples of elements, locate them in the Periodic Table and use the table to identify metals and non-metals.</p> <p>Identify some common properties of metal elements and non-metal elements and their uses.</p> <p>Identify metals and non-metals using data and suggest a reason for particular applications.</p> <p>Describe an example of a compound and represent a</p>	<p>Give examples of elements and explain how they are organised in the Periodic Table.</p> <p>Classify metals and non-metals using their properties.</p> <p>Explain the properties of elements using data and why they are used for different applications.</p> <p>Explain how compounds can be formed and explain a</p>	<p>Define elements, use symbols, link the organisation of the Periodic Table to element features and explain how scientists organised the Periodic Table.</p> <p>Identify similarities and differences between metals and how these relate to their uses; compare and contrast properties of metals and non-metals.</p> <p>Select and justify the use of elements for different purposes, based on their properties.</p> <p>Make links between simple models of compounds and chemical symbols.</p>

		chemical reaction using a simple model.	chemical reaction using simple models	
Chemistry 5: Chemical Reactions	<p>Make observations of a chemical reaction.</p> <p>Know that when an element reacts with oxygen it is an oxygenation reaction.</p> <p>Know the difference between melting and burning.</p>	<p>Make observations and identify reactants and products.</p> <p>Identify oxidation and thermal decomposition reactions.</p> <p>Identify changes during a reaction, relate these to reactants and products, and identify a difference between melting and burning.</p>	<p>Make accurate observations, identify differences, and with support, describe reactions using simple models or word equations.</p> <p>Explain why oxidation is a reaction; explain the differences between oxidation and thermal decomposition.</p> <p>Make accurate observations, explain them using a simple model and a word equation and explain differences between chemical and physical changes in terms of atoms.</p>	<p>Suggest reasons for different observations, describe reactions using word equations and start to use symbols to model chemical reactions.</p> <p>Use models and word equations to explain changes during oxidation and thermal decomposition reactions.</p> <p>Explain observations using word equations, use the correct terms and simple models to explain the differences between chemical and physical changes.</p>
Physics 1: Sound and Waves	<p>Recognise that sound energy is transferred by waves.</p> <p>Describe how different sources produce louder or quieter sounds, or change the pitch</p>	<p>Recognise that sound energy is transferred by waves and describe how sound waves are made in different situations.</p> <p>Know sound cannot travel through a vacuum.</p>	<p>Use the particle model to explain why sound cannot travel through a vacuum.</p> <p>Compare longitudinal and transverse waves.</p> <p>Describe how to measure the speed of sound, and how the speed of sound can</p>	<p>Use the particle model to explain why the speed of sound is different in solids, liquids and gases.</p> <p>Use calculations to measure the speed of sound and the distance of objects in different applications,</p>

	<p>Know sound is a longitudinal wave.</p> <p><i>Present information as Bar char with help. (skill)</i></p> <p><i>Name the parts of the ear</i></p> <p>State the meaning of absorb, transmit, reflect</p> <p>State what an oscilloscope is used for.</p>	<p>State the meaning of transverse wave, longitudinal wave, superposition, giving examples</p> <p>Recognise an echo as a reflection of sound.</p> <p><i>Present information as Bar char independently and analyse the data (skill)</i></p> <p>Describe the functions of the parts of the ear</p> <p>Recognise quiet, loud, high pitched and low-pitched sounds on an oscilloscope</p>	<p>be used in different applications to measure distances.</p> <p><i>Plot a line graph and Identify relationships from the graph. (skill)</i></p> <p>Describe how microphones convert sound into electrical signals</p> <p>Explain the effect that changing the amplitude and Frequency has on the sound wave shown on the oscilloscope.</p>	<p>applying ideas about echoes.</p> <p>Explain Superposition</p> <p><i>Analyse scatter graphs to identify anomalies and suggest improvements to reduce them (skill)</i></p> <p>Explain how animals can detect the direction from which a sound is coming</p> <p>Interpret the display on an oscilloscope and devise wave diagrams to represent sounds of different wavelength and amplitude</p>
<p>Physics 2: Light and Waves</p>	<p>State the colours of the rainbow.</p> <p>Understand that energy travels in waves.</p>	<p>Describe the formation of a spectrum from white light.</p> <p>Describe the ray model of light using the idea that light travels in straight lines.</p>	<p>Explain how white light can be split into a continuous spectrum of colours, called the visible spectrum.</p> <p>Explain the difference between reflection and refraction, and describe what happens when light waves are refracted.</p>	<p>Use the concepts of reflection and absorption of light to explain why some materials (transparent, translucent and opaque) are coloured.</p> <p>Use ray diagrams to explain how a pinhole camera and the eye work.</p>

	Represent a ray of light as straight line on a labelled diagram.	Recognise that light can be reflected by some materials and absorbed by others.	Explain how some materials absorb energy, and the differences between transparent, translucent and opaque materials.	Use diagrams to explain the difference between diffuse and specular reflection.
Physics 3: Space	<p>Understand that the earth moves around the sun</p> <p>Place the earth, moon, sun and galaxy in order of relative size</p> <p>Recognise the earth is tilted and identify the north and south poles</p>	<p>Describe the movement of the sun, earth and moon in relation to each other</p> <p>Describe the differences between the sun, other stars and galaxies</p> <p>Describe the effects that the tilt of the earth axis has on earth</p>	<p>Explain the effects of the relative motion of the sun, earth and moon</p> <p>Describe the relationship between the sun, other stars and galaxies</p> <p>Explain the causes of daily seasonal changes</p>	<p>Explain the relative movement of the sun, earth and moon using the idea of gravity.</p> <p>Relate ideas about the sun, stars and galaxies to evidence visible from earth</p>