Year Three Science Progression Steps

Year 3	Developing	Expected Standard	Exceeding	Scientific Language
Animals, including humans (Biology) 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. Identify that humans and some other animals have skeletons and muscles for support, protection and movement.	• Pupil understands that animals cannot make their own food and get nutrition from the food they eat • Pupil can name some foods and the food groups they belong to • Pupil can describe some consequences of a poor or limited diet • Pupils can group some animals by the type of diet they eat increasingly using technical language e.g. carnivore, herbivore, omnivore • Pupil can identify, name, draw and label the basic parts of the human body including some internal bones and organs • Pupil can recognise 1 function of the skeleton • Pupil understands that muscles help the movement of bones • Pupil can name at least 1 muscle in the arms, chest, legs	• Pupil can explain that animals get nutrition from the food they eat and different foods give different nutrients and amounts of energy • Pupil can explain what comprises a balanced diet identifying foods in the correct food groups e.g. protein, fat, carbohydrate, fibre • Pupil can describe the dangers of poor and limited diets on the body, health and fitness of man and other animals, giving examples of diseases associated with inadequate and excessive nutrient intake • Pupil can group animals by comparing the different diets of humans and some common animals e.g. pets; farm animals; common wild animals – they use technical language to describe the groups • Pupil recognises that vertebrate animals have skeletons and invertebrates do not, naming examples of each • Pupil can explain the functions of the skeleton in animals and describe the disadvantages that not having a skeleton would bring for the animal • Pupil recognises how bones are joined to and move in the skeleton of animals and humans, explaining the effect of and how muscles work • Pupil can describe the 3 types of muscle and identify their different functions e.g. role in lifting, running, sitting.	• Pupil begins to describe process of digestion and the ways in which nutrients and water are transported within animals, including humans • Pupil can discuss that a balanced diet for a man is different to other animals and compare the differences/similarities • Pupil can recognise the impact of diet, exercise, and lifestyle on the way the body functions and the health implications due to poor choices for the individual and society • Pupils can create food webs for different habitats showing the way that energy is transferred from plants to animals • Pupil can name a large number and knows how many bones there are in the human body, as well as their functions • Pupil can compare the skeletons of humans and other animals commenting on the similarities and differences, as well as the impact of this upon movement, support and protection • Pupil can discuss the process of healing following a bone being broken or muscle damaged • Pupil understands the effect of exercise and nutrition on the development of bones and muscles	Food groups; composite foods; balanced diet; protein (food for growth); fats & carbohydrates (foods for activity); vitamins, minerals and fibre (foods for health); whole grain; energy; food plate; food pyramid; carnivore; omnivore; herbivore; vegetarian; perspiration; sweat; pulse rate; skeletons; support; protection; movement; organs; muscles; function; structure; vertebrate; vertebrae; invertebrate; oxygen; carbon dioxide; relax; contract; heart; lungs; brain; ribs; skull; bones; spine; joints; attached; femur; patella; tibia; fibula; radius; ulna; digits; tarsals; humerus; clavicle; scapula; skull; spine

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Forces and Magnets (Physics) Compare how things move on different surfaces Notice that some forces need contact between two objects, but magnetic forces act at a distance Observe how magnets attract or repel each other and attract some materials and not others Compare and group together a variety of everyday materials on the basis of whether they are attracted to a magnet, and identify some magnetic materials Describe magnets as having two poles Predict whether two magnets will attract or repel each other, depending on which poles are facing	• Pupil recognises that objects need a force applying to move them • Pupil recognises that objects need greater/less force to move over different types of surface • Pupil recognises that objects move in the direction a force is applied • Pupil is beginning to recognise that some materials are magnetic and others non-magnetic • Pupil knows that a magnet has 2 different poles • Pupil explains that some materials and objects made from them are attracted towards the magnet – Magnetic	• Pupil knows that for an object to move a force is applied to overcome the stationary force holding it in place and the object moves in the direction of this larger force • Pupil can give reasons as to why objects may require more or less force to move over different surfaces • Pupil can identify a force as a push or a pull and show the effect of these on an object in a simple drawing with explanation • Pupil knows that magnets can make some objects move over surfaces without touching the object • Pupil can explain that a magnet has different poles which can repel or attract each other depending on which poles are facing • Pupil can group materials as either magnetic or non- magnetic • Pupil can explain some possible everyday uses for magnets	• Pupil can describe the effect of gravity, friction, air or water resistance on the movement of an object over/through a variety of media • Pupils can explain both verbally and diagrammatically the different forces acting on an object to make it move using correct technical vocabulary • Pupil can develop investigations which will show the strength of a magnet to attract or repel other magnets. • Pupil can create a simple electromagnet and reverse the polarity • Pupil can grade the strength of different types of magnets by their ability to move, by attraction or repulsion, different types of magnetic materials • Pupil can devise investigations which will have an everyday use to show the properties of a magnet	force; push; pull; friction; magnet; magnetic; non-magnetic; North pole; South pole; repel; attract; surface; strength; pattern; resistance; direct; contact
Plants (Biology) Identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers. Explore the requirements of plants for life and growth (air, light, water, nutrients from soil, and room to grow) and how they vary from plant to plant. Investigate the way in which water is transported within plants. Explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal	• Pupil can identify each part of a flowering plant with accurate vocabulary • Pupil recognises the functions of some parts of a flowering plant • Pupil can name and describe some of the requirements of a plant for life and growth • Pupil recognises that plants need water to grow and be healthy as well as naming the root as the part of the plant through which water enters the plant • Pupil knows that flowers are important in pollination, fertilisation and seed dispersal	• Pupil can identify and describe the function of each part of a flowering plant • Pupil can name and describe the requirements of a plant for life and growth • Pupil can explain that some plants have different requirements for life and growth due to environmental adaptations • Pupil can explain how water is transported around the plant • Pupil can explain the process of pollination, fertilisation and seed dispersal in the life cycle of a flowering plant • Pupil can explain the role that the wind and animals play in pollination and seed dispersal	• Pupil can explain the impact upon a plant if one or more of its parts failed to function correctly • Pupils can describe and demonstrate practically, for a range of plants, that they need different requirements for life and growth, as well as explaining the impact on the plant if one requirement is missing • Pupil uses correct vocabulary to explain the transportation of water around a plant to keep it healthy and how this can be shown practically • Pupil can suggest external factors which can limit the processes of pollination, fertilisation and seed dispersal, as well as ways these could be overcome by the intervention of man	function; transportation; anchor; nutrients; minerals; fertiliser; air; oxygen; carbon dioxide; photosynthesis; pollination; fertilisation; seed dispersal; reproduction; pest; diseases; overcrowding; wilt; spindly; pale; stunted; life processes; producer; life cycle; germination; dormant; stigma; style; ovary; anther; filament; stamen; sepal; ovule; pollen; nectar; insect

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Rocks (Chemistry) Compare and group together different kinds of rocks on the basis of their appearance and simple physical properties Describe in simple terms how fossils are formed when things that have lived are trapped within rock Recognise that soils are made from rocks and organic matter	• Pupil understands that there are different types of rocks and can give some reasons for their differences • Pupil can name some common types of rocks • e.g. limestone, granite and may use the terms igneous, metamorphic or sedimentary when discussing properties • Pupil can describe some aspects of the rock cycle • Pupil understands that some rocks contain fossils and these are impressions of animals or plants that lived in the past • Pupil recognises that soils are made from a mixture of particles which were once rocks and organic material	• Pupil can group rocks by their appearance and physical properties with accurate reasoning relating to colour, hardness, grain or crystal composition • Pupil can describe the structure of the Earth and where the different types of rocks may be found • Pupil can explain how igneous, metamorphic and sedimentary rocks are formed • Pupil can explain the rock cycle with simple scientific vocabulary • Pupil uses their knowledge of rock formation to explain how fossils, from previously living animals/plants, are made • Pupil can describe how soils are formed and include organic matter and inorganic materials	• Pupil can explain that rocks can be eroded or weathered by different environmental conditions and the rate at which this happens depends on their composition • Pupil can describe the effect of heat and/or pressure on rocks involved in the formation of igneous, metamorphic and sedimentary rocks • Pupil can describe that the properties of rocks are determined by their composition, as well as by the heat/pressure applied from the surrounding environment • Pupil can describe factors which may accelerate/decelerate the rock cycle • Pupil uses their knowledge of rock formation to explain how fossils, from previously living animals/plants, are made suggesting how this could be duplicated in the classroom • Pupil explains that there are different types of soil dependent upon the bedrock where they were formed and combination of organic materials	rock; soil; appearance; grain; crystal; particle; permeable; impermeable; porous; sedimentary; metamorphic; igneous; rock cycle; bedrock; weathering; erosion; organic; peat; humus; loam; absorbent; impervious; molten; lava; fossil; texture; sand; gravel; clay; Moh's scale; sandstone; granite; marble; limestone; flint; slate; chalk; characteristics; volcano; inorganic; organic
Light (Physics) Recognise that they need light in order to see things and that dark is the absence of light. Notice that light is reflected from surfaces. Recognise that light from the sun can be dangerous and that there are ways to protect their eyes. Recognise that shadows are formed when the light from a light source is blocked by a solid object. Find patterns in the way that the size of shadows change	• Pupil can name a number of light sources • Pupil understands that light is reflected from surfaces • Pupil knows that shadow formation is linked to the absence of light behind an object • Pupil begins to make links between the object and shape of the shadow formed • Pupil understands that moving a light source affects the size and shape of a shadow • Pupil understands that it is dangerous to look directly at the sun •	• Pupil can explain that we need light to see based on their own investigations • Pupil can describe what happens when light is reflected off a mirror or other surfaces • Pupil recognises that when light strikes an opaque object a shadow forms behind the material/object • Pupil can explain that shadows are a similar shape to the object/material which formed the shadow • Pupil can describe the effect of changing the position of the light source and/or position of the object upon the shadow recognising any emerging patterns • Pupil knows that looking at the sun can damage the eyes and that although we may wear protection to reduce the glare from sunlight we should still not look directly at the sun as damage will occur	• Pupil recognises that light travels from light sources or is reflected from other objects/materials to our eyes and this is how we see • Pupil can describe and group objects/materials in terms of their ability to reflect light • Pupil can draw diagrams to show how shadows are formed indicating the direction that light travels, the position and shape of any shadow formed accurately • Pupil recognises that light travels in straight lines from a light source • Pupil can use knowledge of the position of a light source to create shadows of a particular size, shape and for a predetermined purpose • Pupil can explain the effect on the eye of looking directly at the sun or other light source	light; travel; direction; straight; line; opaque; transparent; translucent; reflect; reflective; reflection; surface; sun; source; protect; damage; eyes; shadow; object; dangerous; absence; artificial; natural; patterns; shape; torch; candle; lamp; solid; block; visibility