Progression map: Scientific knowledge

		R	Y1	Y2	Y3	Y4	Y5	Y6
Biology	Animals & humans	**Early Learning goals /Development Matters** **Explore the natural world around them, draw pictures of animals and plants** **Understand the effect of the changing seasons on the natural world around them and changing states of matter** **Know and talk about different factors that support their overall health – toothbrushing, screen time, good sleep , safe pedestrian**	Why are humans not like tigers? **Identify/name common animals: carnivores, herbivores and omnivores** **identify, name, draw and label the basic parts of the human body .Associate with each senses.**	How can I grow to be a happy, healthy me? X2 **notice that animals, including humans, have offspring which grow into adults** **describe the basic needs of animals, including humans, for survival** **importance of exercise, eating the right amounts of different types of food, and hygiene.**	How can an athlete move so fast? **skeletons and muscles for support, protection and movement** **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**	What happens to the food we eat? **functions of the basic parts of the digestive system** **different types of teeth in humans and functions**	What will you look like at 80? **describe the changes as humans develop to old age.** Does all life start as an egg? Life cycles **life cycles of a mammal, amphibian,insect and a bird** **process of reproduction in some plants and animals.**	What would a journey through our bodies look like? **circulatory system/ heart, blood vessels and blood** **diet, exercise, drugs and lifestyle** **describe the ways in which nutrients and water are transported** Why do our bodies change?
	Plants		What changes in the seasons will Percy the Park Keeper see around our school? **observe changes across the four seasons** **observe and describe weather associated with the seasons and how day length varies.**	How does a tiny seed grow into a sunflower? **observe and describe how seeds and bulbs grow into mature plants** **find out and describe how plants need water, light and a suitable temperature to grow and stay healthy.**	How did that blossom become an apple? Plants **functions of plants: roots, stem/trunk, leaves flowers** **requirements of plants for life and growth and how they vary from plant to plant** **investigate how water is transported within plants** **explore pollination, seed formation and seed dispersal.**		Does all life start as an egg? Life cycles –<u>inc plants</u> **process of reproduction in some plants and animals.**	

	Habitats	**Recognise some environments are different to the one in which they live -drawing on their experiences and what has been read.** **Describe what they see, hear and feel outside**	What birds and plants would Percy the Park Keeper find in the school/park? **identify and name a variety of common wild and garden plants, including deciduous and evergreen trees** **Identify and describe the basic structure of a variety of common flowering plants, including trees.** **identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals** **describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals, including pets) ???**	What is it like to live under a rock? **differences between things that are living, dead, and never been alive** **most living things live in habitats to which they are suited -provide for the basic needs of animals and plants- they depend on each other** **identify/name plants/animals in their habitats, including micro-habitats** **animals obtain their food from plants/other animals- simple food chain, and identify/name sources of food.**		What wild things live near us? **know that living things can be grouped in a variety of ways.** **construct and interpret a variety of food chains, identifying producers, predators and prey.** **Know that environments can change and pose a danger to living things.**		Living things and their habitats **Know that living things can be classified into broad groups according to observable characteristics and based on similarities and differences**
	Evolution		Y6 ONLY Could Spiderman really exist? Evolution and inheritance **Know what evolution is and can explain it** **Know how how fossils can be used to find out about the past** **Know that offspring produce living of the same kind , but normally offspring vary and are not identical to their parents** **Know how animals and plants are adapted to suit their environmentin different ways** **Know that adaptation may lead to evolution** **Know that living things have changed over time** **Know that fossils provide information about living things that inhabited the Earth millions of years ago** .					

Chemistry	Materials	**Understand the effect of the changing seasons on the natural world around them and <u>changing states of matter</u>**	What materials would Stickman see around our school? **distinguish between an object and the material from which it is made** **identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock** **describe the simple physical properties of a variety of everyday materials** **compare and group together a variety of everyday materials on the basis of their simple physical properties.**	How can we fix Mrs Kernick's tent? (Materials) **identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses** **find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching.**	What do rocks tell us about the way the Earth was formed? Rocks and Soils **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.**	How would you survive without water? States of matter **Compare/group materials-whether they are solids, liquids or gases** **some materials change state when heated or cooled. Measure or research the temp at which this happens.** **identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature.**	Could you be the next CSI investigator? Separating mixtures **Compare/group materials on basis of properties.** **know that some materials will dissolve in liquid to form a solution- describe how to recover** **separate using filtering, sieving and evaporating** **give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday** **dissolving, mixing and changes of state are reversible changes** **explain that some changes result in the formation of new materials- not usually reversible,**	

Physics	Light/sound	Links: Describe what they see, hear, feel outside **Understand the effect of the changing seasons on the natural world around them – length of day, amount of sunshine**	Y1 links: Seasonal changes* Observe changes across the seasons Observe and describe how the length of day changes What materials would stickman see around the classroom?* Identify properties of different materials (light can pass through some materials but not others)		How far can you throw your shadow? Light and shadows **need light in order to see things.Dark is absence of light** **notice that light is reflected from surfaces** **recognise that light from the sun can be dangerous-there are ways to protect teyes** **recognise that shadows are formed when the light from a light source is blocked by an opaque object** **find patterns in the way that the size of shadows change**.	What makes music magnificent? Sound **identify how sounds are made** **vibrations from sounds travel through a medium to the ear** **patterns between pitch and features of the object that produced it** **patterns between volume of sound & strength of vibrations that produced it** **recognise that sounds get fainter as the distance from the sound source increases.**		How can you light up your life? **light appears to travel in straight lines** **objects are seen because they give out or reflect light into the eye** **we see things because light travels from light sources to our eyes** **explain why shadows have the same shape as the objects that cast them**.

	Forces	Explore the natural world around them	Stickman* Which materials are flexible?		**Can you feel the force?** **compare how things move on different surfaces** **some forces need contact between two objects- magnetic forces can act at a distance** **magnets attract/repel and attract some materials** **compare/ group various materials on the basis of attraction to a magnet, and identify some magnetic materials** **magnets have two poles** **predict will they attract/repel**		Can you feel the force? Friction, air/water resistance pulleys/levers/gears **unsupported objects fall towards the Earth because of the force of gravity** **identify the effects of air resistance, water resistance and friction** **some mechanisms, , allow a smaller force to have a greater effect.**	
	Electricity					How could we cope without electricity? **identify electrical appliances** **construct a simple series circuit, name parts: cells, wires, bulbs, switches buzzers** **identify a complete loop with a battery** **switch opens /closes circuits and** **recognise common conductors and insulators-metals are good conductors.**		**Are you a bright spark?** **associate the brightness /volume with voltage** **compare and give reasons for variations in how components function, including the brightness of bulbs, the loudness of buzzers and the on/off position of switches** **use recognised symbols when representing a simple circuit in a diagram.**

	Earth/space	Links: Explore the changing seasons	Y1 links: Seasonal changes* Observe changes across the seasons			Could you be the next Tim Peake/Helen Sharman? **Describe:** **movement of the Earth/planets, relative to the Sun** **movement of the Moon relative to the Earth** **Sun, Earth and Moon as approximately spherical bodies** **explain day/ night and the apparent movement of the sun**	

*These themes are not taught explicitly inKS1 but are addressed in topics.