Progression map: Scientific knowledge

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|  |  | 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 –inc plants**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 changing states of matter** | 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 seasonsObserve and describe how the length of day changesWhat 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.