TLA ~ Year 4 Science Progression

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Cornerstones Topic	**Potions**	**I am Warrior**	**Burps, Bottoms and Biles**	**Blue Abyss**	**Traders and Raiders**	
Unit title	Materials – States of Matter (A,B,C)	Electricity (A,B,C,D,E)	Animals and Humans (A,B,C)	Living Things and their habitats (A,B,C,D)	Plants (A,B,C,D)	Light and Sound (A,B,C,D,E)
Programme of study	Compare and group materials together according to whether they are solids, liquids or gases. (A) Observe that some materials change state when they are heated or cooled, and measure or research the temperature at which this happens. (B) Identify the part played by evaporation and condensation in the water cycle and associate the rate the of evaporation with temperature. (C)	Identify common appliances that run on electricity. (A) Construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers. (B) Identify whether or not a lamp will light in a simple series circuits, based on whether or not the lamp is a part of a complete loop with a battery. (C) Recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit. (D) Recognise some common conductors an insulators, and associate metals with being good conductors. (E)	Describe the simple functions of the basic parts of the digestive system, in humans. (A) Identify the different types of teeth, in humans, and their simple functions. (B) Construct and interpret a variety of food chains, identifying producers, predators and prey. (C)	Recognise that **animals** can be grouped in a variety of ways. (A) Explore and use classification keys to help group identify and name a variety of living things in their local and wider environment (**animals**). (B) Recognise that environments can change and that this can sometimes pose dangers to living things (**animals**). (C) Construct and interpret a variety of food chains; identifying producers, predators and prey. (D)	Recognise that living things **plants** can be grouped in a variety of ways. (A) Explore and use classification keys to help group identify and name a variety of living things in their local and wider environment (plants). (B) Recognise that environments can change and that this can sometimes pose dangers to living things (**plants**). (C)	Identify how sounds are made, associating some of them with something vibrating. (A) Recognise that vibrations from sounds travel through a medium to the ear. (B) Find patterns between the pitch of a sound and features of the object that produce it. (C) Find patterns between the volume of a sound the strength of the vibrations that produced it. (D) Recognise that sounds get fainter as the distance from the sound source increases. (E)
Skills	Group and sort materials according to whether they are solids, liquids or gases. Observe and explain that some materials change state when they are heated or cooled and	Compare common household equipment and appliances that are and are not powered by electricity. Describe materials as conductors or insulators.	Be able to describe the journey of food through the digestive system. Describe what damages teeth and how to look after them.	Compare, sort and group living things (**animals)** in a variety of ways, based on observable features and behaviour. Construct and interpret a variety of food chains to	Compare, sort and group living things (p**lants)** in a variety of ways, based on observable features and behaviour.	Be able to explain how sounds are made and heard using diagrams, models, written methods or verbally. Compare and find patterns in the pitch of a sound,

	measure or research the temperature in degrees Celsius at which materials change state.	Construct operational simple circuits using a range of components and switches for control.	Describe the four different types of teeth in humans and other animals and describe their functions. Construct and interpret a variety of food chains and webs to show interdependence and how energy is passed on over time.	show interdependence and how energy is passed on over time. Explain how adaptations help living things **(animals)** survive in their habitat. Explain how unfamiliar habitats, such as an ocean, can change over time and what influences these changes.	Explain how adaptations help living things **(plants)** survive in their habitat.	using a range of equipment, such as musical instruments. Compare and find patterns in the volume of a sound, using a range of equipment, such as musical instruments. Compare how the volume of a sound changes at different distances from the source.
Knowledge	Know that materials can be grouped according to whether they are solids, liquids or gases. Know that solids stay in once place and can be held. Know that some solids can be squashed, bent, twisted and stretched. Know liquids move around (flow) easily and are difficult to hold. They take the shape of the container in which they are held. Gases spread out to fill the available space and cannot be held. Know air is a mixture of gases. Know that heating or cooling materials can bring about a change of state and this change can be reversible or irreversible.	Know that electricity is a type of energy. It is used to power many everyday items such as kettles, computers and televisions. Know electricity can come from batteries and batteries eventually run out of power and need to be recycled or recharged. Batteries power devices which can be carried around e.g. mobile phones and torches. Know that electrical components include cells, wires, lamps, motors, switches and buzzers. Know switches open and close a circuit and provide control. Know that electrical conductors allow electricity to flow through them, whereas insulators do not. Know that common electrical conductors are metals and insulators are wood, glass, plastic and rubber.	Identify and name the parts of the human digestive system. Know the functions of the organs in the human digestive system. Identify and know the different types of human teeth. Know the characteristics of the teeth of herbivores, carnivores and omnivores. Know the functions of different types of human teeth. Know that food chains show what animals eat within a habitat and how energy is passed on over time. Know that changes within a food chain have an impact on the entire food chain	Know how to use classification keys to identify and name living things. Know how changes to an environment could endanger living things. Know how to use and construct food chains to identify producers, predators and prey.	Know how to use classification keys to identify and name living things. Know how changes to an environment could endanger living things.	Know that when an instrument is played, the air around or inside it vibrates. These vibrations travel as a sound wave. Sound waves travel through a medium, such as air, water and metal. Know that pitch is how high or low a sound is. Know that parts of an instrument that are shorter, tighter or thinner produce high-pitched sounds and parts of an instrument that are longer, looser or fatter produce low-pitched sounds. Know volume is how loud or quiet a sound is. The harder an instrument is hit, plucked or blown – the stronger the vibrations and the louder the sound. Sounds are louder closer to the sound source and fainter as the distance from the sound source increases.

Progression	1. Pre unit assessment and Prior learning/foundational knowledge 2. LO: know the properties of solids, liquids and gases. 3. LO: compare and group solids, liquids and gases based on their properties. Retrieval point 4. LO: observe and describe changes of state – heating – inc evaporating **Investigation** 5. LO: observe and describe changes of state – cooling – inc condensing Retrieval point 6. LO: explain and describe the water cycle. Retrieval point	1. Pre unit assessment and Prior learning/foundational knowledge 2. LO: know and describe that electricity is an energy and which everyday appliances that use it. 3. LO: know different sources of electricity including batteries Retrieval point 4. LO: construct and describe different electrical circuits Retrieval point 5. LO: explore and describe conductors and insulators 6. LO: **Investigation –** conductors and insulators Retrieval point	1. Pre unit assessment and Prior learning/foundational knowledge 2. LO: know and describe that food chains show what animals eat 3. LO: explore and describe the different diets of prey and predators. 4. LO: explain how changes in the food chain can impact the entire food chain. Retrieval point 5. LO: know and describe the 4 types of teeth in humans and animals and their function. 6. LO: know and describe what damages teeth and how to care for them, **Investigation** Retrieval point 7. LO : know the main organs in the digestive system. 8. LO: explain the function and role of the organs in the digestive system. Retrieval point	1. Pre unit assessment and Prior learning/foundational knowledge 2. LO: group animals in different ways – giving reasons for groupings 3. LO: use classification keys to identify and name living things. Retrieval point 4. LO: explore changes that occur in different habitats and explain the impact on living things. Retrieval point 5. LO: know that adaptations effect living things and explain how it helps them survive in different habitats. 6. LO: investigate how adaptations effect living things in their environment **Investigation** Retrieval point	1. Pre unit assessment and Prior learning/foundational knowledge 2. LO: group plants in different ways – giving reasons for groupings 3. LO: use classification keys to identify and name plants. Retrieval point 4. LO: explore changes that occur in different habitats and explain the impact on living things. **Investigation** Retrieval point 5. LO: know that adaptations effect plants and explain how it helps them survive in different habitats. 6. LO: investigate how adaptations effect plants in their environment Retrieval point	1. Pre unit assessment and Prior learning/foundational knowledge 2. LO: explain and describe how sounds are made. 3. LO: explain and describe how sounds travel to the ear Retrieval point 4. LO: investigate and observe how the shape of an object effects the sound it makes. **Investigation** Retrieval point 5. LO: explore and find patterns between the volume of sound and the strength of vibration 6. LO: **i**nvestigate the impact of distance on sound. **Investigation** Retrieval point

Working Scientifically	Questioning	Measurement	Investigation	Observation
Year 4	Ask relevant scientific questions, independently, about the world around them and begin to identify how they can answer them.	Take accurate measurements in standard units, using a range of equipment.	Begin to independently plan, set up and carry out a range of comparative and fair tests, making predictions and following a method accurately.	Begin to choose which observations to make and for how long and make systematic, careful observations and comparisons, identifying changes and connections.