



Wirksworth Junior School. Science skills progression. Year 4. (2021-2021)

Year Group	States of matter (Autumn Term 1)	Sound (Autumn Term 2)	Living things and their habitats (Spring Term 1)	Animals, Digestive system & food chains (Spring Term 2)	Electricity (Summer Term 1 and 2)
Year 3 and 4 Year B	<p><b>Lord Kelvin</b></p> <p>I can compare and group materials together, according to whether they are solids, liquids or gases.</p> <p>I can observe that some materials change state when they are heated or cooled, and measure or research the temperature at which this happens in degrees Celsius (°C).</p> <p>I can identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature.</p> <p><b>Geography</b> <b>DT</b> <b>Maths</b></p>	<p><b>Leonardo D Gallileo</b></p> <p>I can identify how sounds are made, associating some of them with something vibrating.</p> <p>I can recognise that vibrations from sounds travel through a medium to the ear.</p> <p>I can find patterns between the pitch of a sound and features of the object that produced it.</p> <p>I can find patterns between the volume of a sound and the strength of the vibrations that produced it.</p> <p>I can recognise that sounds get fainter as the distance from the sound source increases.</p> <p><b>Music</b></p>	<p><b>David Attenborough</b></p> <p>I can recognise that living things can be grouped in variety of ways.</p> <p>I can explore and use classification keys to help group, identify and name a variety of living things their local and wider environment.</p> <p>I can recognise that environments can change and that this can sometimes pose dangers to living things.</p> <p><b>Geography</b> <b>Maths</b></p>	<p><b>Antoni van Leeuwenhoek</b></p> <p>I can describe the simple functions of the basic parts of the digestive system in humans.</p> <p>I can identify the different types of teeth in humans and their simple functions.</p> <p>I can construct and interpret a variety of food chains, identifying producers, predators and prey.</p> <p><b>PE</b> <b>PSHE</b> <b>ICT</b></p>	<p><b>Garrett Morgan</b></p> <p>I can identify common appliances that run on electricity.</p> <p>I can construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers.</p> <p>I can identify whether or not a lamp will light in a simple series circuit, based on whether or not the lamp is part of a complete loop with a battery.</p> <p>I can recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit.</p> <p>I can recognise some common conductors and insulators, and associate metals with being good conductors</p> <p><b>English</b> <b>DT</b> <b>ICT</b></p>
	<p><b>Science skills mapped</b></p>	<p>Talk about links between cause and effect and (with help) pose a relevant fair test question</p> <p>Plan a fair test and decide</p>	<p>Decide on which sets of data to collect, what observations to make and what equipment to use.</p> <p>Select and use a range of</p>	<p>Talk about what criteria I will use to sort and classify things.</p>	<p>Use simple keys and branching databases to identify things.</p> <p>I make simple branching databases (keys) for things that have clear differences.</p>

	<p>what data to collect I can select and use a range of equipment accurately to</p>	<p>equipment accurately to collect data using standard units.</p>	<p>Talk about things that can be grouped and decide when questions can be answered by sorting and classifying.</p>	<p>Suggest improvements to the way I sort and identify things.</p>	<p>the information I need</p>
<p>collect data using standard in my units</p>	<p>data collected through eg. Dataloggers.</p>	<p>Begin to use and interpret patterns might be found</p>	<p>Talk about where find the information I need</p>	<p>Use information sources to own words.</p>	<p>Record what I found out Make records using tables and</p>
<p>bar charts</p>	<p>Suggest improvements to the way I looked for fair test. Suggest ways to improve the conclusions and</p>	<p>investigated by pattern patterns. Begin to use and interpret</p>	<p>Record what I found out in seeking. way I observe things. Suggest improvements to the way I sort and identify things.</p>	<p>Present information in different my own words. data collected. Present information in Communicate what the information and data means using scientific ideas. Suggest ways to improve how I find out things.</p>	<p>Suggest ways to improve my ways. Draw simple answer questions from what I found out, and raise further questions. Suggest ways to improve how I find out things.</p>
<p><b>Investigation</b> Observing over time</p>	<p>Comparative and fair testing Comparative and fair testing the length of a guitar string / tuning the pitch of the identify all the animals prey?</p>	<p>Pattern seeking grouping Can we use the sound?</p>	<p>Identifying, classifying and sources What's the difference that we caught pond dipping?</p>	<p>Research using secondary How has electricity changed the way we life. predator and warm? Identifying, classifying and grouping</p>	<p>Research using secondary sources Which material is best for How does affect</p>

Pattern seeking Notes

and guidance (non-statutory)

The table below contains notes and guidance for each science topic for your year group. These have come from the National Curriculum and might help when planning lessons. This should also help with the progression of learning throughout the school and stop year groups from teaching the same thing twice.

Living things in their habitats

-Pupils should use the local environment throughout the year to raise and answer questions that help them to identify and study plants and animals in their habitat. They should identify how the habitat changes throughout the year. Pupils should explore possible ways of grouping a wide selection of living things that include animals, flowering plants and non-flowering plants. Pupils could begin to put vertebrate animals into groups, for example: fish, amphibians, reptiles, birds, and mammals; and invertebrates into snails and slugs, worms, spiders, and insects.

-Note: plants can be grouped into categories such as flowering plants (including grasses) and non-flowering plants, for example ferns and mosses.

-Pupils should explore examples of human impact (both positive and negative) on environments, for example, the positive effects of nature reserves, ecologically planned parks, or garden ponds, and the negative effects of population and development, litter or deforestation.

-Pupils might work scientifically by: using and making simple guides or keys to explore and identify local plants and animals; making a guide to local living things; raising and answering questions based on their observations of animals and what they have found out about other animals that they have researched.

#### Animals including humans

-Pupils should be introduced to the main body parts associated with the digestive system, for example: mouth, tongue, teeth, oesophagus, stomach, and small and large intestine, and explore questions that help them to understand their special functions.

-Pupils might work scientifically by: comparing the teeth of carnivores and herbivores and suggesting reasons for differences; finding out what damages teeth and how to look after them. They might draw and discuss their ideas about the digestive system and compare them with models or images.

#### States of matter

-Pupils should explore a variety of everyday materials and develop simple descriptions of the states of matter (solids hold their shape; liquids form a pool not a pile; gases escape from an unsealed container). Pupils should observe water as a solid, a liquid and a gas and should note the changes to water when it is heated or cooled.

-Note: teachers should avoid using materials where heating is associated with chemical change, for example, through baking or burning.

-Pupils might work scientifically by: grouping and classifying a variety of different materials; exploring the effect of temperature on substances such as chocolate, butter, cream (for example, to make food such as chocolate crispy cakes and ice-cream for a party). They could research the temperature at which materials change state, for example, when iron melts or when oxygen condenses into a liquid. They might observe and record evaporation over a period of time, for example, a puddle in the playground or washing on a line, and investigate the effect of temperature on washing drying or snowmen melting.

#### Sound

-Pupils should explore and identify the way sound is made through vibration in a range of different musical instruments from around the world; and find out how the pitch and volume of sounds can be changed in a variety of ways.

-Pupils might work scientifically by: finding patterns in the sounds that are made by different objects such as saucepan lids of different sizes or elastic bands of different thicknesses. They might make earmuffs from a variety of different materials to investigate which provides the best insulation against sound. They could make and play their own instruments by using what they have found out about pitch and volume.

#### Electricity

Pupils should construct simple series circuits, trying different components, for example, bulbs, buzzers and motors, and including switches, and use their circuits to create simple devices. Pupils should draw the circuit as a pictorial representation, not necessarily using conventional circuit symbols at this stage; these will be introduced in year 6.

Note: pupils might use the terms current and voltage, but these should not be introduced or defined formally at this stage. Pupils should be taught about precautions for working safely with electricity.

Pupils might work scientifically by: observing patterns, for example, that bulbs get brighter if more cells are added, that metals tend to be conductors of electricity, and that some materials can and some cannot be used to connect across a gap in a circuit.