Key Learning in Science: Year 2

Please Note: There should be plenty of opportunities throughout the year for children to use the school/local environment to observe plant growth, changes in habitats across the seasons and life cycles of a variety of different animals (for example: chicks/other birds, tadpoles/frogs, caterpillars/butterflies, other mini-beasts, other young animals during trips to farms/zoos). This could be done through an ongoing/monthly nature journal to observe, record and review over a period of time. The unit of work on 'Animal survival and growth' can be covered in the same half term as work on 'Habitats' in order to link the concept of survival.

Environment - Living things and their habitats

Pupils should be taught to:

- Explore and compare the differences between things that are living, dead, and things that have never been alive.
- Identify that most living things live in habitats to which they are suited and describe how different habitats provide for the basic needs of different kinds of animals and plants, and how they depend on each other.
- Identify and name a variety of plants and animals in their habitats, including micro-habitats.
- Describe how animals obtain their food from plants and other animals, using the idea of a simple food chain, and identify and name different sources of food.
  - Different kinds of plants and animals live in different kinds of places.
  - There are different kinds of habitat near school which need to be cared for
  - Habitats provide the preferred conditions for the animals/plants that live there (compare local habitats and less familiar examples).
  - Observe living things in their habitats during different seasonal changes

Notes and Guidance (non-statutory):

Pupils should be introduced to the idea that all living things have certain characteristics that are essential for keeping them alive and healthy. They should raise and answer questions that help them to become familiar with the life processes that are common to all living things. Pupils should be introduced to the terms 'habitat' (a natural environment or home of a variety of plants and animals) and 'micro-habitat' (a very small habitat, for example for woodlice under stones, logs or leaf litter). They should raise and answer questions about the local environment that help them to identify and study a variety of plants and animals within their habitat and observe how living things depend on each other, for example plants serving as a source of food and shelter for animals. Pupils should compare animals in familiar habitats with animals found in less familiar habitats, for example, on the seashore, in woodland, in the ocean, in the rainforest.

Pupils might work scientifically by:

- **Sorting and classifying** things as to whether they are living, dead or were never alive.
- **Recording** their findings using charts
- **Describing** how they decided where to place things,
- **Exploring questions** such as: 'Is a flame alive? Is a deciduous tree dead in winter?'
- **Talking about ways of answering their questions.**
- **Constructing a simple food chain** that includes humans (e.g. grass, cow, human);
- **Describing** the conditions in different habitats and micro-habitats (under log, on stony path, under bushes);
- **Finding out how** the conditions **affect** the number and type(s) of plants and animals that live there.

Animals - Animal survival and growth

Pupils should be taught to:

- Notice that animals have offspring which grow into adults.
- Find out about and describe the basic needs of animals for survival (water, food and air).

Notes and Guidance (non-statutory):

Pupils should be introduced to the basic needs of animals for survival.

They should also be introduced to the process of reproduction and growth in animals. The focus at this stage should be on questions that help pupils to recognise growth; they should not be expected to understand how reproduction occurs. The following examples might be used: egg, chick, chicken; egg, caterpillar, pupa, butterfly; spawn, tadpole, frog; lamb, sheep.

Pupils might work scientifically by:

- **Observing, through video or first-hand observation** and **measurement**, how different animals grow
- **Asking questions** about what things animals need for survival **suggesting ways to find answers to their questions**.
- **Describing** the main changes as young animal offspring grow into adults (at least: between egg and adult bird; between egg and adult insect; between baby and adult mammal)

Health – How we grow and stay healthy

Pupils should be taught to:

- Notice that humans have offspring which grow into adults.
- Find out about and describe the basic needs of humans, for survival (water, food and air).
- Describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene.
  - Medicines can be useful when we are ill.
  - Medicines can be harmful if not used properly.

Notes and Guidance (non-statutory):

Pupils should be introduced to the basic needs of animals for survival, as well as the importance of exercise and nutrition for humans.

They should also be introduced to the process of reproduction and growth in animals [humans]. The focus at this stage should be on questions that help pupils to recognise growth; they should not be expected to understand how reproduction occurs. Growing into adults can include reference to baby, toddler, child, teenager, adult.

Pupils might work scientifically by:

- **Observing**, **through video or first-hand observation** and **measurement**, how humans grow.
- **Recording** their findings using charts.
- **Asking questions** about what things animals [humans]. need for survival and what humans need to stay healthy and
- **Suggesting ways to find answers to their questions**.

Key Learning in Science: Year 2

Plants – Plant growth	Material Properties – Uses of Materials
Pupils should be taught to: ▪ 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 (and how changing these affects the plant) ▫ Plants are living and eventually die **Notes and Guidance (non-statutory):** Pupils should use the local environment throughout the year to observe how different plants grow. Pupils should be introduced to the requirements of plants for germination, growth and survival, as well as the process of reproduction and growth in plants. **Note:** Seeds and bulbs need water to grow but most do not need light; seeds and bulbs have a store of food inside them. **Pupils might work scientifically by:** • **Observing** and **recording**, with some accuracy, the growth of a variety of plants as they **change over time** from a seed or bulb, or • **Observing** similar plants **at different stages** of growth; • **Setting up a comparative test** to show that plants need light and water to stay healthy.	Pupils should be taught to: ▪ Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, water, 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 (applying a force) ▫ Some materials can be found naturally; others have to be made **Notes and Guidance (non-statutory):** Pupils should identify and discuss the uses of different everyday materials so that they become familiar with how some materials are used for more than one thing (metal can be used for coins, cans, cars and table legs; wood can be used for matches, floors, and telegraph poles) or different materials are used for the same thing (spoons can be made from plastic, wood, metal, but not normally from glass). They should think about the properties of materials that make them suitable or unsuitable for particular purposes and they should be encouraged to think about unusual and creative uses for everyday materials. Pupils might find out about people who have developed useful new materials; for example, John Dunlop, Charles Macintosh or John McAdam. **Pupils might work scientifically by:** • **Comparing** the uses of everyday materials in and around the school with materials found in other places (at home, the journey to school, on visits, and in stories, rhymes and songs); • **Observing closely**, • **Identifying and classifying** the uses of different materials, and • **Recording their observations**. • **Thinking about** unusual and creative uses for everyday materials.

Year Group Expectations: Year 2

Exploring / Observing *KS1 - observing closely* *Using their observations and ideas to suggest answers to questions*	Grouping and Classifying *KS1 - Compare and contrast a variety of examples linked to KS1 PoS*	Questioning *KS1 - asking simple questions*	Researching *KS1 - finding things out using secondary sources of information*	Modelling *using dance, drama or a visual aid to represent science in the real world*	Collaborating *interacting effectively as part of a group*
▪ Use simple scientific language from the year 2 PoS to talk about / **record** what they have noticed ▪ Use observations to make suggestions and/or ask questions ▪ **Observe** and describe simple processes/cycles/changes with several steps *(e.g. growth cycle, simple food chain, saying how living things depend on one another)* ▪ **Observe** closely and communicate with increasing accuracy the features or properties of things in the real world	▪ **Name / Identify** common examples, some common features or different uses ▪ **Sort** and **group** objects, materials or living things by observable and/or behavioural features ▪ **Compare** and contrast… a variety of things [objects, materials or living things] - focusing on the similarities as well as the differences	▪ Raise their own logical questions based on or linked to things they have observed ▪ With help / scaffolds, begin to ask questions such as 'What will happen if…?"	▪ Talk about how useful the information source was and express opinion about findings ▪ Make suggestions about who to ask or where to look for information. ▪ Ask people questions to help them answer their questions ▪ Use simple and appropriate secondary sources (such as books, photographs, videos and other technology) to find things out / find answers	▪ Act out something to represent something else about the world around us *(e.g a life cycle)*	▪ Share ideas in a group and listen to the ideas of others ▪ Work cooperatively with others on a science task making some choices

Planning and Testing *KS1 - performing simple tests*	Using Equipment and Measures *KS1 - Using simple equipment and gathering data to help in answering their questions*	Communicating *Reporting findings, recording data, presenting findings* *Read, spell and pronounce scientific vocabulary correctly linked to the relevant Yr Grp*	Considering the results of an investigation / writing a conclusion		
			Describing results / Looking for patterns *KS1 - Talk about what happened / what they noticed*	Explaining results *KS1 - talk about what they found out*	Trusting results
▪ Carry out simple comparative tests as part of a group, following a **method** with some independence ▪ Make a simple prediction about what might happen and try to give a vague reason (even though it might not be correct) ▪ With support, make suggestions on a **method** for setting up a simple comparative test ▪ Talk about a practical way to find answers to their questions	▪ **Measure** using non-standard and simple standard measures (e.g. cm, time) with increasing accuracy ▪ Begin to make decisions about which equipment to use ▪ Correctly and safely use **equipment** provided to make observations and/or take simple measurements	▪ **Record** and communicate their findings in a range of ways to a variety of audiences ▪ Use simple scientific language with increasing accuracy (from year 2 PoS) ▪ **Record** simple data with some accuracy to help in answering questions: - With support or using frameworks, make decisions about how to complete a variety of tables/charts *(e.g. a 2 column table, tally charts, Venn diagram, pictograms, block graphs with 1:1 scale).* - *Present findings in a class displays* - *Sequence / annotate photographs of change over time* - *Produced increasingly detailed drawings which are labelled/annotated*	▪ With guidance, begin to notice **patterns** in their data e.g. order their findings, sequence best to worst, say what happened over time, etc. ▪ Recognise if **results** matched **prediction**s. (say if results were what they expected) ▪ Use their recordings to talk about and describe what has happened	▪ Begin to use simple scientific language (from year 2 PoS) to explain what they have found out. ▪ Give a simple, logical reason why something happened *(e.g. I think … because …)*	▪ Begin to discuss if the test was un**fair**