Year 2 – Scientific Enquiry Skills

	Comparative Test	• Performing simple tests.
	Identify & Classify.	• Identifying and classifying.
	Observation Over Time	• Observing closely, using simple equipment.
	Pattern Seeking	• Gathering and recording data to help in answering questions.
	Research & Communication	• Ask simple questions and recognise that they can be answered in different ways. • Using their observations and ideas to suggest answers to questions.

Maths within Science

Types of Scientific Enquiry

Comparative / fair testing
Changing one variable to see its effect on another, whilst keeping all others the same.

Research
Using secondary sources of information to answer scientific questions.

Observation over time
Observing changes that occur over a period of time ranging from minutes to months.

Pattern-seeking
Identifying patterns and looking for relationships in enquiries where variables are difficult to control.

Identifying, grouping and classifying
Making observations to name, sort and organise items.

Skill Statements

Asking questions
Asking questions that can be answered using a scientific enquiry.

Making predictions
Using prior knowledge to suggest what will happen in an enquiry.

Setting up tests
Deciding on the method and equipment to use to carry out an enquiry.

Observing and measuring
Using senses and measuring equipment to make observations about the enquiry.

Recording data
Using tables, drawings and other means to note observations and measurements.

Interpreting and communicating results
Using information from the data to say what you found out.

Evaluating
Reflecting on the success of the enquiry approach and identifying further questions for enquiry.

Year 2

- ★ I can ask questions about the world.
- ★ I am recognise that questions can be answered in different ways.

- ★ I am beginning to make predictions based on my own ideas and observations.

- ★ I am discuss my ideas about how to find things out
- ★ I can independently perform simple tests .

- ★ I can observe closely using simple equipment.
- ★ I can notice patterns and relationships.

- ★ I can gather and record data
- ★ I can use it to help me answer questions

- ★ I am beginning to communicate my findings in a variety of ways.
- ★ I can show my results in a simple table

- ★ I am beginning to discuss my results in relation to my prediction.
- ★ I am beginning to say what I would change about my investigation.

Year 2 – Plants

National Curriculum Objectives	Sticky Knowledge	Vocabulary
• **Observe and describe how seeds and bulbs grow into mature plants.** • **Find out and describe how plants need water, light and warmth to grow and stay healthy.**	• Plants grow from seeds/bulbs • Plants need light, water and warmth to grow and survive • Flowers make seeds to make more plants (reproduce) • Plants are important • We need plants to survive (to clean air, to eat) • We can eat different parts of the plants (leaves, stems, roots, seeds, fruit)	Leaves, trunk, branch, root, seed, bulb, flower, stem, wild, garden, deciduous, evergreen, observe, grow, compare, record, temperature, predict, measure, diagram, germinate, warmth, sunlight. Key Scientists: Agnes Chase (Botanist) Linked Texts

Prior Learning	Key Question(s):	Future Learning
In Year 1 Children should: • **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.** • **Identify and name the roots, trunk, branches and leaves of trees.**	• Do cress produce seeds, how could we find out? • Do all plants produce flowers and seeds? • What is different between freshly cut and planted flowers? • Do plants flower all year round? • What are flowers for? • What happens to a plant after it has produced seeds?	In Year 3 Children will: • Identify and describe the functions of different parts of the flowering plant:roots, stem/trunk/leaves and flowers • Explore the part flowers play in a flowering plants life cycle, including: pollination, seed formation and seed dispersal • Explain the requirements of plants for life and growth (air, light, water, nutrients from soil, room to grow) and how they vary between plants • Know the way in which water is transported between plants

Teaching Ideas

1	2	3	4	5	6
Recap – Look at Big Book from year 1, what is a bulb? **Design an experiment to find out what plants need grow (cress seeds).** **Question – What do plants need to grow and stay healthy?**	How will we test our ideas? Begin test	Observe and record the growth of our plants over time.	What are the differences between seeds and bulbs?	Describe the life cycle of a plant.	Describe what plants need to grow and stay healthy. (results of experiment and evaluation)

					What should I do to grow a healthy plant?

Year 2 – Animals, including Humans

National Curriculum Objectives	Sticky Knowledge	Vocabulary
• **Know that animals, including humans, have offspring which grow into adults** • **Know the basic stages in a life cycle for animals, including humans.** • **Find out and describe the basic needs of animals, including 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.**	• Animals move in order to survive. • Different animals move in different ways to help them survive. • Exercise keeps animal's bodies in good condition and increases survival chances. • All animals eventually die. • Animals reproduce new animals when they reach maturity. • Animals grow until maturity and then don't grow any larger.	Living, dead, never alive, habitats, micro-habitats, food, food chain, leaf litter, shelter, sea shore, woodland, ocean, rainforest, conditions, desert, damp, shade, Key Scientists Linked Texts ***Tadpole's Promise*** *(Jeanne Willis and Tony Ross)*

Prior Learning	Key Question(s):	Future Learning
In Year 1 children should: • **Identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals.** • **Identify and name a variety of common animals that are carnivores, herbivores and omnivores.**	• How long do should my pets live for? • Do all animals grow and live the same way? • Do bigger animals live longer? • Why are we all different heights? • How and why do we grow and change?	In Year 3 children will: • Identify that animals, including humans, need the right types and amount of nutrition, and they cannot make their own food; they get their nutrition from what they eat. • Know how nutrients, water and oxygen are transported within animals and humans. • Know about the importance of a nutritious, balanced diet. • Identify that humans and some other animals have skeletons and muscles for support, protection and movement:

Teaching Ideas

Week 1	Week 2	Week 3	Week 4	Week 5	
What do humans need?	What are offspring?	What is the life cycle of a butterfly? What is the life cycle of a human?	What food do you need in a healthy diet and why?	Why is hygiene important?	Why is exercise important? (through PE)

Year 2 – Living Things & their Habitats

National Curriculum Objectives	Sticky Knowledge	Vocabulary
• **Explore and compare the difference 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 the different sources of food.**	• Some things are living, some were once living but now dead and some things never lived. • There is variation between living things. • Different animals and plants live in different places. • Living things are adapted to survive in different habitats. • Environmental change can affect plants and animals that live there.	Living, dead, never alive, habitats, micro-habitats, food, food chain, leaf litter, shelter, sea shore, woodland, ocean, rainforest, conditions, desert, damp, shade, Key Scientists: Linked Texts:

Prior Learning	Key Question(s)	Future Learning
In Early Years children should: • **Comments and questions about the place they live or the natural world.** • **Shows care and concern for living things and the environment.** • **Can talk about things they have observed such as plants and animals.** • **Notices features of objects in their environment.** • **Comments and asks questions about their familiar world.**	• How to animals eat? • Do all animals eat the same thing? • Which animals hunt, and which animals are hunted? Why? • What animals live in our school environment? • How are animals and plants 'adapted' to live in their habitats • Why do animals and plants like to live in different places?	In Year 4 children will: • Recognise that living things can be grouped in a variety of ways. • Explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment. • Know and label the features of a river • Recognise that environments can change and that this can sometimes pose danger to living things.

Teaching Ideas

Comparative tests	Identify & Classify	Observation over time	Pattern Seeking	Research	End of unit assessment
What are the differences between something that is living, things that are no longer alive and things that have never been alive?	 What micro-habitats do minibeasts live in?	 How do living organisms survive?	How does a food chain work? 		Linked to sticky knowledge and information on knowledge organiser.

					

Year 2 – Materials

National Curriculum Objectives	Sticky Knowledge	Vocabulary	
• **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 shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching.**	• Materials can be changed by physical force (twisting, bending, squashing and stretching)	Waterproof, fabric, rubber, cars, rock, paper, cardboard, wood, metal, plastic, glass, brick, twisting, squashing, bending, matches, cans, spoons,	
		Key Scientists	Linked Texts
		Charles Mackintosh (Waterproof coat)	***The Tin Forest*** *(Helen Ward)*
Prior Learning	**Key Question(s):**	**Future Learning**	

In Year 1 children should: • **Distinguish between and object and the material from which it is made.** • **Identify and name a variety of everyday materials, including wood, metal, plastic, glass, 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 properties.**	It is recommended that materials be taught three times through KS1. Give a theme for each topic e.g. buildings, exploration, toys, the seaside. Plan to investigate a couple of classes of materials and properties in each topic so children get a depth of experience each topic and cover all the classes of materials over the key stage <u>Buildings</u> • Which rocks are the least crumbly? • Which materials absorb the most water? • Which type of brick would be the easiest to drag to make a pyramid? • Which material would be the strongest to use as a floor tile? <u>Toys & Nice things</u> • Which fabric would make the softest blanket? • The baby has spilt her drink, which material would absorb the drink the best? • We want to make a really slippy slide, which liquid would be best to use? • Which chocolate will melt the fastest on a warm plate (a model of a warm hand) • Which wrapping papers are strong enough to wrap and send a present? <u>Clothing & Materials</u> • Which material could be used to make a waterproof hat for the teacher when she is on the playground at playtime? • Which plastic would be flexible enough to make a belt? • Which material could I wrap my ice egg / snowman in to stop it melting, or would it make it melt quicker? • What could I wrap a chicken egg in to keep it warm when it is waiting to hatch? • What could you paint on the runaway gingerbread man that would allow him to swim the river and get away from the fox and not turn to mush?	In Year 3 children will: • 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.

Teaching Ideas **Year 2 Progression (complete).docx**

<u>Comparative tests</u>	<u>Identify & Classify</u>	<u>Observation over time</u>	<u>Pattern Seeking</u>	<u>Research</u>	<u>BIG Question – Assessment Opportunity</u>
What are objects made from?	Comparing materials – how can we change the shape of a solid object? (twisting, bending, squashing, squeezing)	Which material is best to hold water/ Which material is best for blocking a hole in a bucket?	What materials are Transparent, Translucent or opaque?		END OF UNIT QUIZ