Science Progression of Knowledge and Skills from EYFS to Year 2

Overview:
This document has been designed to give teachers an overview of the Progression of Knowledge and Skills from Reception to Year 2. It shows the statements from the National Curriculum (statutory requirements) and the ELG that should be covered and how elements build on each other from year to year. It also shows what most children should know by the end of each year.
We provide a high-quality science curriculum based on scientific knowledge and conceptual understanding alongside scientific enquiry to lay the foundations for understanding the world.
We want our pupils to have the scientific knowledge required to understand the uses and implications of science today and for the future.
We aim **to develop excitement and curiosity of natural phenomena.**

Statements that should be covered are in blue and have been taken from the National Curriculum (statutory requirements) and the ELG/ Development matters [0-3, 3-4, children in Reception 4-5]
EYFS has come from **New EYFS Framework and developmental matters Sept 2020**

Pupils will be learning the following skills and knowledge:

Skills for working scientifically	Reception	Year 1	Year 2
Question	As a scientist, I can [skill] • **Ask simple questions about the immediate environment** e.g. wild garden • **Ask simple questions about what they see**	As a scientist, I can • Ask simple questions and recognise that they can be answered in different ways: know that they can be answered using scientific enquiry • **Ask more complex questions about what they see, hear, smell and feel**	As a scientist, I can • Ask simple questions and recognise that they can be answered in different ways: know that they can be answered using scientific enquiry • **Ask questions about the world around us and recognise that they can find answers in different ways**
Observe	As a scientist, I can • **Talk about similarities and differences** (e.g. a stone is hard and sinks but a plastic jug is hard and floats) • **Describe what they see, hear and feel** • **Predict *what will happen* during child-initiated play** e.g. with water and floating	As a scientist, I can • Observe **change over time.** • **Make observations about change** • Use **senses** • Use simple equipment **to observe (magnifying glasses and magnifying pots, cylinders)** • **Make predictions based on observations**	As a scientist, I can • **Observe and measure change over time e.g. plant growth** • **Use all senses without prompting** • **Select appropriate equipment to observe** • **Make *predictions* based on their questions**
Classify and find patterns	As a scientist, I can • **Talk and sort using simple scientific criteria** (e.g. autumn treasures such as leaves, pinecones and other seeds – These leaves are both spiky/ green etc.)	As a scientist, I can • Identify and classify **by putting a plant/an animal/ material into one of two given groups** e.g. familiar plants, animals and materials	As a scientist, I can • Identify and classify **by putting objects into 2 or 3 groups or generate the groups themselves** • **State why an object belongs in a particular group (living, dead and never alive),** e.g. a wooden spoon is dead because it was once a tree
Control Investigations Comparing and fair testing	As a scientist, I can explore • **objects/ materials/ living things/ resources designed to model scientific processes** (e.g. putting ice/ water outside, melting coloured ice)	As a scientist, I can • Perform simple tests **with one variable changing,** • E.g. set up a test to see which material makes the best umbrella. • Set up a test to see which material makes the best boat. ('23)	As a scientist, I can • Perform simple tests**, deciding on what could be changed,** e.g. Set up a fair test to find out how a seed grows best (container used, light/dark, using soil, cotton wool, sand, stones, beads)
Research	As a scientist, I can • **Listen and respond to stories about scientific processes, events and objects** (e.g. The tiny seed, stories about Ice worlds)	As a scientist, I can • **Find information using given sources e.g. books**	As a scientist, I can • **Select information from a range of given sources** (e.g. using non-fiction books, videos)
Model	As a scientist I can • **create drawings and models of their environment** (concrete context e.g. drawing a flower)	As a scientist, I can • **Draw diagrams** (concrete context *e.g. draw around a child's body when on the floor and label the different parts)*	As a scientist, I can • **Explore and create drawings and physical models** (e.g. diorama – habitat)
Conclude	As a scientist • **I can talk about simple phenomena** (e.g. Ice melting)	As a scientist • **I can describe what has happened or been observed**	As a scientist, I can • **Explain why a simple observation occurred** • **Evaluate the effectiveness of observations**

Subject themes	Reception	Year 1	Year 2
	(Experience)	(Building knowledge)	(Apply knowledge)
Plants	"Explore the natural world around them, making observations and drawing pictures of animals and plants." **[ELG the natural world]** **"How do we care about the world around us?"** Summer 1 As a scientist, I know that • **A plant needs water and sunlight to grow** • A plant will grow from a seed. • A plant grows, and decays (rots) over time (e.g. fruit in bin, daffodils - Everyday EY work) As a scientist I can • **Identify a tree and a flower** • Name and describe some familiar plants whilst outside (e.g. daffodils are yellow) • Plant a seed (Variety of seeds – exposure given) • Draw a picture of a plant	"Identify and name a variety of common wild and garden plants, including deciduous ad evergreen trees" "Identify and describe the basic structure of a variety of common flowering plants including trees. **Step back in time: Summer 1** **The Great outdoors: Summer 2** As a scientist, I know that • Deciduous trees lose all their leaves in the winter • Evergreen trees have leaves all year round. • **A flowering plant has a stem, petals, root, and leaves** • **A tree has roots, trunk, branches and leaves.** As a scientist, I can • **Identify and name wild plants** (e.g. dandelion, daisy, clover, poppy, bluebells) • **Identify and name garden plants on our school grounds (**e.g. daffodils, snowdrops, tulips) • **Identify and name 3 types of tree on our school ground** (e.g. Oak, willow, fir trees) • Label parts of a flowering plant • Label parts of a flowering tree Plant hunt in the wild garden/ allotment	"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" **Ready, Steady, Grow: Summer 1** As a scientist, I know that • **Seeds and bulbs grow into plants** • **Plants also need warmth to grow, as well as water and light.** • Vegetables can grow below ground (Potatoes , onions, carrots, radishes) • Vegetables can grow above ground (runner beans, lettuce,) • Fruit can grow from plants or trees (cherries, tomatoes, strawberries) As a scientist, I can • **Observe, measure and record the change as a seed grows** • **Observe, measure and record the change as a bulb grows** • Grow fruit and vegetables (to eat) (allotment – gardening club) • Observe and draw seeds on/ in a fruit (strawberries, apple) • Observe and draw bulbs (grow cress, - bulb) Broad bean
Vocabulary	Receptive Vocabulary Bulb Rot, mould,	Receptive Vocabulary Blossom Bud Deciduous Evergreen Flowering plant	Receptive Vocabulary Absorb Air (oxygen) Bulb Fruit Germination Reproduction Life processes Mrs Gren Nutrients Survival
	Expressive Vocabulary Seed Flower grow, die root plant petal rotten leaf/leaves	Expressive Vocabulary Branch Flower Leaves Petals Plant Roots Stem Trunk Seed	Expressive Vocabulary Plant Soil Temperature Water Light

Animals, including humans	"Explore the natural world around them, making observations and drawing pictures of animals and plants." **"How do we celebrate?" Autumn 2** As a scientist, I know that • Animals live in different environments (cold and hot climates) • **Some animals are nocturnal** As a scientist, I can • **Name a range of farm animals and habitats**	"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." "Describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals, including pets)" "Identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense" **Good to Be Me: Autumn 1** **Jurassic Journey: Spring 1** **The Great Outdoors: Summer 2** As a scientist, I know that • **There are different types of animals that live in different habitats.** • A fish lives in water and breathes using gills • A mammal gives birth to live young, is warm blooded, and has hair or fur (N.B. In certain mammals such as whales it is present only before birth.) • An amphibian lives in water and on land, is cold blooded and takes on the temperature of their environment. • A bird has feathers, a beak, and wings. A bird lays eggs. • A reptile is cold blooded, breathes air and has scales • **A carnivore eats meat (dog), a herbivore eats plants (rabbit), an omnivore eats meat and plants (humans, birds)** • There are different parts of the body • Humans have a skeleton made up of different bones • We have 5 different senses (smell, taste, touch, sight, hearing) As a scientist, I can • **Identify and name at least one common animal from each group listed below** • **Sort animals into different groups** (carnivore/ herbivore/ omnivore, amphibian/ fish/ reptiles/ birds/ mammals) • Compare different animals • **Identify simple differences between animals – eg legs/no legs, *wings, feathers, fur, scales, beak*, what they eat.** • **Label different parts (head, neck, arms, elbows, legs, knees, face, ears, eyes, hair, mouth, teeth) / bones (rib/ skull) of the body Autumn 1** • **Say which body part is associated with which sense Autumn 1**	"Notice that animals, including humans, have offspring, which grow into adults." "Find out about and describe the basic needs of animals including humans, for survival (water, food and air)" * **also in living things and their habitats** "Describe the importance for humans of exercise, eating the right amounts of different types of food and hygiene." **Tinga Tinga: Autumn 2** **Rainforest Rumble: Spring 2** **Ready, Steady, Grow: Summer 1** **Lights, Camera, Action: Summer 2 (PSHE)** As a scientist, I know that • **Animals including humans have offspring which grow into adults** • **Animals including humans need water, food and air to survive*** • **Exercise and sleep is important** • That some foods are healthy and some are unhealthy • **I know that a balanced diet is the food we eat to stay healthy** • There are different food groups: Carbohydrate, protein, dairy, fruit and vegetables, foods high in fat/sugar/salt • We need to eat the right amount of food from the different types of food. • We have to wash our hands before handling and eating food to get rid of germs • **Understand that to stay *healthy*, humans need to *exercise*** • **Understand that to stay healthy, humans need to keep things clean, including washing hands.** • When we exercise our heart beats faster, we feel warmer, we feel happier, we get stronger and we have more energy. As a scientist, I can • Order and label the stages of the life cycle of a human (PSHE) (baby, toddler, child, teenager, adult) • **Order and label the life cycle of an animal** (egg, chick, chicken; egg, caterpillar, pupa, butterfly; spawn, tadpole, frog; lamb, sheep) • Name and sort different foods into their food groups (bread, pasta – carbohydrate, meat, eggs – protein, fruit and veg) • Find out from research what different animals eat • **Give a reason why we need to exercise** (PSHE too) (we will be happier, healthier and stronger)
Vocabulary	Receptive Vocabulary Nocturnal Habitats climate Polar region oceans desert Expressive Vocabulary Penguins, polar bears, owl, fox, hedgehog, piglets, calves, foals, lambs, chicks, barn, field, pen, pond, pig sty	Receptive Vocabulary Carnivore, omnivore, herbivore, habitat Amphibians (frog, toad, newt), Warm blooded, Cold blooded (takes on the temperature of surrounding environment) Skeleton, skull, ribs, spine Expressive Vocabulary Reptiles (lizard, snake, crocodiles, turtles), Fish (clown fish, angel fish, ray), Birds (blue tit, blackbird, robin, sparrow), Mammals (horse, lion, pig, dog), Arm, back, face, hair, chest, chin, ear, elbow, eyes, finger, foot, hand, knee, leg, mouth, neck, nose, shoulder, stomach	Receptive Vocabulary Food groups: Carbohydrates, Proteins, Vitamins, dairy, Balanced diet, Survival, Offspring, Hygiene, Expressive Vocabulary Adults, Animals, Exercise, Humans, life cycle

Living things and habitats	"Explore the natural world around them, making observations and drawing pictures of animals and plants." **How do we celebrate? Autumn 2** **What is the same and different? Sum 2** As a scientist, I know that • That there are polar regions, deserts, oceans and rainforests. • In woodlands there are trees, nests, burrows and dens • On the farm there are ponds, fields, stables/ barns (23/24 Farm Visit Sum1) As a scientist, I can • **Name and describe different habitats such as farms** (Creature Teachers A2)		"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 microhabitats" "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." **Tinga Tinga Autumn 2** **Rainforest Rumble: Spring 2** As a scientist, I know that • **Things are either living (tree), dead (leaf from tree) or have never been alive (rock)** • **Most living things live in habitats to which they are suited** (e.g. camel- desert, lion – Sahara, monkey – rainforest) • A microhabitat is a very small habitat and can be under a log, a pile of leaves, a stony path or under a bush etc. • **Animals need water, air, food, shelter to survive.** • Animals and plants depend on each other to survive • Some animals eat other animals • I know that a predator is an animal that hunts, catches and eats other animals • I know that prey is an animal that is hunted or killed by another animal for food. As a scientist, I can • **Sort objects into groups – living, dead, never alive** • **Describe how different animals are suited to their habitat** • **Identify and name a variety of plants and animals in their habitats including microhabitats** • Create a diorama suitable for a rainforest animal (D&T) • **Describe how animals obtain their food from plants and other animals** • **Draw and label a simple food chain** • Name and identify different sources of food (cow – beef) tree - berries – birds)
Vocabulary	Receptive Vocabulary North/ South poles, hot climate/ cold climate, rainforest, ocean, desert, polar region Expressive Vocabulary Wet, dry, desert, rainforest, farm, ocean, home, house		Receptive Vocabulary Microhabitat, Deciduous Expressive Vocabulary Dead., Habitats, Living, Never been alive, Plants Predator, Prey, Producer, Survive Food chain

Uses of everyday materials	"Understand some important processes and changes in the natural world around them, including the seasons and changing states of matter." Ongoing within provision **<u>What happens when I make and create: Spring 1</u>** As a scientist, I know that • **Ice is cold and it melts** • **Some things floats and others don't** • An object casts a shadow • A magnet attracts (sticks to) metal As a scientist, I can • **Touch, smell, hear, things around me in the natural environment** (leaves, ice, pine cones, bark, seeds) • Explore natural processes (ice melting, object casting a shadow, magnet attracting an object, things floating on water) • **Choose materials to build with**	"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." **<u>On our Doorstep: Autumn 2</u>** As a scientist, I know that • **Different materials have different names** • **Objects are made from different materials** (e.g pencils – wood, drawers – plastic, radiator – metal, table – wood/ metal) As a scientist, I can • **Describe, sort and compare objects depending on their properties** • **Say what objects are made of (a table is made out of wood and metal)**	"Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock paper and cardboard for <u>particular</u> <u>uses</u>." "Find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching." **<u>Fire, Fire: Autumn 1</u>** As a scientist, I know that • **Different materials have different properties** • **Properties of a material make objects suitable for their use** • Some objects can be made from different materials e.g. spoons can be made from metal, wood and plastic • The shape of an object can be changed by squashing, bending, twisting and stretching As a scientist, I can • **Identify which material is suited for a specific purpose and why** (glass is a good material for a window because it is see though/ transparent) • **Describe what happens to a shape when it is manipulated** (squashed, bent, twisted, stretched)
Vocabulary	<u>Receptive Vocabulary</u> Leak, transparent, flexible, rigid, waterproof	<u>Receptive Vocabulary</u> stretchy/stiff, dull, rough, waterproof/not waterproof, absorbent/not absorbent, opaque/ transparent	<u>Receptive Vocabulary</u> Suitability manipulated
	<u>Expressive Vocabulary</u> Cold, melt Sink, float Shadow Rough/ smooth Wood, clay, squish, squash, Hard/ soft Heavy / light	<u>Expressive Vocabulary</u> metal, wood, plastic, glass, water, rock Properties: hard/soft, heavy/ light, , shiny/~~dull~~, ~~rough~~/smooth, bendy/not bendy,	<u>Expressive Vocabulary</u> Materials Twist Stretch Squash Bend Dull rough

<table>
<tr><td rowspan="3">Seasonal changes</td><td>"Understand some important processes and changes in the natural world around them, including the seasons and changing states of matter."

<u>All year round</u>
<u>How do we celebrate?</u> (Autumnal celebrations)

As a scientist, I know that
• It is hot in the summer and cold in the winter
• There are four seasons
• Some animals hibernate in the winter because it is cold
• There are different types of weather

As a scientist, I can
• Observe the changes of a tree over the four seasons
• Name the 4 seasons
Name different types of weather</td><td>"Observe changes across the four seasons"

"Observe and describe weather associated with the seasons and how day length varies."
<u>Good to be me: Autumn1</u>
<u>Jurassic Journey: Spring 1</u>
<u>Step back in time: Summer 1</u>
As a scientist, I know that
• The weather changes in each season
• The days are longer in the summer and shorter in the winter
The nights are shorter in the summer and longer in the winter
• The spring months are March, April and May
• The summer months are June July and August
• The autumn months are September, October, November.
• The winter months are December, January, February

As a scientist, I can
• Create a weather chart
• Say what the weather is like in each season, e.g. snow, rain, wind, day length, heat, cold, Aut 1, Spr, sum</td><td rowspan="3"></td></tr>
<tr><td rowspan="2">Vocabulary</td><td><u>Receptive Vocabulary</u>

Hibernate
Foggy</td><td><u>Receptive Vocabulary</u>

showers, chilly, warm, heat, light, dry, shadows, cool, darker, storm, mist, storms,</td></tr>
<tr><td><u>Expressive Vocabulary</u>
Day/ night
Spring)
Summer)
Autumn) discussed through year depending on season
Winter)
sunny, cloudy, rainy, windy, icy, snowy, frosty</td><td><u>Expressive Vocabulary</u>
wet, wind, sun, rain, cloud, cloudy,
sun, blue sky
fog, leaves,
Cold, snow, thunder, lightening</td></tr>
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