Old Town Infant School and Nursery

Science Year 2
Core Purpose Long Term Overview

Our Rationale

Term	Autumn 1 *NB bulbs will need to be planted Sept/Oct time in order to flower in Spring	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Context / Big idea	N/C Animals **(incl humans)** **Living Things** Big Idea: There are a wide variety of living things which have similar and different characteristics and need different conditions to thrive	N/C **Use of Everyday Materials** **Materials** Big Idea: That there are different materials that are made out of particles; have different properties and are used for different things	N/C **Animals** (incl humans) **Living Things** Big Idea: There are a wide variety of living things which have similar and different characteristics and need different conditions to thrive	N/C **Plants** **Living Things** Big Idea: There are a wide variety of living things which have similar and different characteristics and need different conditions to thrive	N/C **Living Things and their habitats** **Living Things** Big Idea: There are a wide variety of living things which have similar and different characteristics and need different conditions to thrive	N/C **Living Things and their habitats** **Living Things** Big Idea: There are a wide variety of living things which have similar and different characteristics and need different conditions to thrive
Core purpose of unit	**Offspring grow into adults** **What humans need for survival** **Exercise** **Food groups (**fruit and vegetables, carbohydrates, protein, dairy, fat and sugary foods) **Hygiene**	**SUITABILITY** Know that the properties learnt in Year 1 is **what makes a material SUITABLE for its purpose**	**How to recognise that something is alive (growth, reproduction etc)** **Offspring (animals) and growth**	**How plants grow** **What they need to stay alive (water, light, suitable temperature)**	**What animals need to survive** **Habitats and an animals suitability to a habitat**	**Food chains** That the sun is the start of each food chain.
Rationale	We believe that children learn best when it is relatable and close in meaning to them. We have therefore decided to teach children about human growth and development, to ensure that the processes are fully understood before they start to apply the knowledge and understanding towards animals.	Children will build on their existing knowledge of properties of materials(Y1) and now start to think about the suitability of materials for solving different problems. *Whilst we do not follow a specific topic-driven curriculum at Old Town, we recognise the benefit of making links to learning when relevant- the investigation makes suitable cross curricular links to their History curriculum.)*	The children, having previously learnt about how they themselves as humans grow and have basic survival needs, can now revisit and apply this knowledge towards animals.	Spring 2 is the time of year when the children will be able to observe visual changes to the bulbs planted in Autumn 1. They will have find hand experience of seeing the changes made as the seedling turns into a flower. Having been previously taught the different parts of a plant (Y1), the children will be able to draw on subject specific vocabulary when discussing the changes that they observe	Children will have previously covered the different things that animals need to survive during Spring Term 1. This knowledge will then be built upon and will support the children in their understanding of (a) what constitutes a habitat, and (b) the different things that habitats need to provide to animals in order for them to survive.	Children will continue to build on their knowledge of habitats, identifying which animals live in specific habitats. The children will make the link between habitats and food chains, understanding how food chains are formed, and where particular food sources can be found.

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National Curriculum statement	- Notice that animals, including **humans**, have offspring which grow into adults - Find out about **humans** basic needs for survival (food, air and water) - **Describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene (SC1 LINK)**	- Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses	-Notice that **animals** including humans have offspring which grow into fully grown animals -Find out about and describe the basic needs of animals, including humans, for survival (food, water and air)	- Observe and describe how seeds and bulbs grow into mature plants - To recognise when things are alive/dead/never lived - That all plants and animals need certain things to stay alive water, food and air - That things that are alive all display the same behaviours (grow - plants and animals /reproduce just animals at this stage) - 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 (SC1 LINK)**	- Explore and compare the differences between things that are living, dead, never been alive - **Identify that most living things live in habitats to which they are suited (SC1 LINK)** 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
Teacher Assessment Framework 'Must have'	**Describe the importance of exercise, a balanced diet and good hygiene for humans.**	**Compare a materials suitability for different uses.**	**Describe the basic needs of animals for survival and the main changes as young animals grow into adults.**	**Describe the basic needs of plants for survival and the impact of changing these, and the main changes as seeds and BULBS grow into mature plants.**	**Identify whether things are alive, dead or have never lived.** **Name different plants and animals and describe how they are suited to different habitats.**	**Describe how animals get their food from other animals and/or from plants and use simple food chains to describe these relationships.**
Working Scientifically BIG IDEA- Year 2: That the enquiry approach is about the asking and answering of questions *Y2 Plan and conduct simple tests to answering specific questions, know to change one variable and control the others, answer the specific question*						
Working Scientifically N/C and (in bold) KS1 Assessment framework **(The highlighted skills will be covered (but not solely) within the unit, demonstrating where skills will be covered and revisited throughout the year)**	- Ask simple questions, recognising they can be answered in different ways -Observing closely, using simple equipment, **changes over time** **-noticing patterns** -Performing simple **comparative** tests -Identifying, grouping and classifying -Using their observations and ideas to answer questions	- Ask simple questions, recognising they can be answered in different ways -Observing closely, using simple equipment, **changes over time** **-noticing patterns** -Performing simple **comparative** tests -Identifying, grouping and classifying -Using their observations and ideas to answer questions	- Ask simple questions, recognising they can be answered in different ways -Observing closely, using simple equipment, **changes over time** **-noticing patterns** -Performing simple **comparative** tests -Identifying, grouping and classifying -Using their observations and ideas to answer questions	- Ask simple questions, recognising they can be answered in different ways -Observing closely, using simple equipment, **changes over time** **-noticing patterns** -Performing simple **comparative** tests -Identifying, grouping and classifying -Using their observations and ideas to answer questions	- Ask simple questions, recognising they can be answered in different ways -Observing closely, using simple equipment, **changes over time** **-noticing patterns** -Performing simple **comparative** tests -Identifying, grouping and classifying -Using their observations and ideas to answer questions	- Ask simple questions, recognising they can be answered in different ways -Observing closely, using simple equipment, **changes over time** **-noticing patterns** -Performing simple **comparative** tests -Identifying, grouping and classifying -Using their observations and ideas to answer questions

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	-Gather and record data to help answer questions **-finding things out using secondary sources of information**	-Gather and record data to help answer questions **-finding things out using secondary sources of information**	-Gather and record data to help answer questions **-finding things out using secondary sources of information**	-Gather and record data to help answer questions **-finding things out using secondary sources of information**	-Gather and record data to help answer questions **-finding things out using secondary sources of information**	-Gather and record data to help answer questions **-finding things out using secondary sources of information**
Experiment/investigations We have agreed **that 3 main investigations** will occur throughout the year, with a development of teacher led and pupil led SC1 skills.	***"What are the best forms of exercise to raise your heart rate?"***	**1: LINK TO GREAT FIRE OF LONDON** ***"What is the most suitable material to make the fire buckets?"*** Needs to be strong and waterproof (2 properties suitable for purpose).		**2: *"What conditions does a plant need to grow?"*** - Removing light (cupboard) - Not watering - One control plant (receiving water and light)	Sorting things that are living, dead, never alive ***3: "What habitats suit the needs of woodlice best?"*** Create an environment with several habitats within… which habitat do the woodlice move towards the most?	
Working Scientifically focus covered from HLP BIG IDEAS DOCUMENT: **(Focus which will be primarily child led/independent. There is a focus on developing SC1 skills, which should be first modelled and allow a chance for the children to develop indep)**	**PLAN** -That each experiment is a test that will generate a clear outcome and that predictions can be made about what this will be. **CONDUCT** -That they can set up and perform simple tests e.g. how seeds and bulbs grow into mature plants -That systematic observation will gather results to answer their question. -That observation is a valid way of collecting data about changes. **RECORD** -That results to experiments can be recorded in different ways: a table, a labelled diagram **CONCLUDE AND EXPLAIN** -That they can use their observations and knowledge to suggest **plausible** answers to questions	**PLAN** -That each experiment is a test that will generate a clear outcome and that predictions can be made about what this will be. **CONDUCT** -That they can set up and perform simple tests e.g. how seeds and bulbs grow into mature plants -That systematic observation will gather results to answer their question. -That observation is a valid way of collecting data about changes. **RECORD** -That results to experiments can be recorded in different ways: a table, a labelled diagram **CONCLUDE AND EXPLAIN** -That they can use their observations and knowledge to suggest **plausible** answers to questions	**PLAN** -That each experiment is a test that will generate a clear outcome and that predictions can be made about what this will be. **CONDUCT** -That they can set up and perform simple tests e.g. how seeds and bulbs grow into mature plants -That systematic observation will gather results to answer their question. -That observation is a valid way of collecting data about changes. **RECORD** -That results to experiments can be recorded in different ways: a table, a labelled diagram **CONCLUDE AND EXPLAIN** -That they can use their observations and knowledge to suggest **plausible** answers to questions	**PLAN** -That each experiment is a test that will generate a clear outcome and that predictions can be made about what this will be. **CONDUCT** -That they can set up and perform simple tests e.g. how seeds and bulbs grow into mature plants -That systematic observation will gather results to answer their question. -That observation is a valid way of collecting data about changes. **RECORD** -That results to experiments can be recorded in different ways: a table, a labelled diagram **CONCLUDE AND EXPLAIN** -That they can use their observations and knowledge to suggest **plausible** answers to questions	**PLAN** -That each experiment is a test that will generate a clear outcome and that predictions can be made about what this will be. **CONDUCT** -That they can set up and perform simple tests e.g. how seeds and bulbs grow into mature plants -That systematic observation will gather results to answer their question. -That observation is a valid way of collecting data about changes. **RECORD** -That results to experiments can be recorded in different ways: a table, a labelled diagram **CONCLUDE AND EXPLAIN** -That they can use their observations and knowledge to suggest **plausible** answers to questions	**PLAN** -That each experiment is a test that will generate a clear outcome and that predictions can be made about what this will be. **CONDUCT** -That they can set up and perform simple tests e.g. how seeds and bulbs grow into mature plants -That systematic observation will gather results to answer their question. -That observation is a valid way of collecting data about changes. **RECORD** -That results to experiments can be recorded in different ways: a table, a labelled diagram **CONCLUDE AND EXPLAIN** -That they can use their observations and knowledge to suggest **plausible** answers to questions

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Science Medium Plan Year 2
TERM: Autumn 1
CONTEXT: Humans

Big Idea	Knowledge and facts (NC)	Key knowledge
Living Things (1) There are a wide variety of living things which have similar and different characteristics and need different conditions to thrive	- To notice that animals, including humans have offspring which grow into adults - To find out and describe the basic needs for humans and animals to survive (food, water, air) - describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene	That animals, including humans need food, water and air to survive The basic food groups; fruit and vegetables, carbohydrates, protein, dairy, fat and sugary foods That more than half of our diet should be made up of carbohydrates, fruit and vegetables That fats and sugary foods should only be eaten occasionally and in small amounts That people need to exercise often to help their body stay strong and fit Know that keeping clean, incl washing and brushing teeth, is an important part of staying healthy
Prior Learning: Year 1	Next Steps: Year 3	Key Language
Year 1 - identify, name, draw and label the basic body parts of the human body and say which part of the body is associated with each sense	Year 3 – That bodies are complex systems that need to be taken care of. That plants and animals have more complex needs than just food and water, air and light. That plants, like animals, have parts of their structure that helps them to reproduce. That animals (including humans) have structures to help them move	Reproduction, offspring, adult, bulb, seed survival, hygiene, exercise, growth, nutrients, temperature,
Opportunities for Scientific Enquiry	Cross Curricular Links	Link to Scientist/Key Books
To gather and record data to help in answering questions, *by recording the ways that exercise affects the body.*	LINK WITH HEALTH WEEK/SPORTS DAY	*A desert island* by Georgia Bankes *Moomins desert Island* by Tove Jansson

HEALTH AND SAFETY NOTES:

Lesson 4: usual risk assessments for PE lessons must be followed (appropriate clothing, footwear, no jewellery etc) Observe children with Asthma conditions closely during exercise.

- Lesson 5: check list for known food allergies prior to food tasting

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Science Medium Plan Year 2 TERM: Autumn 2 CONTEXT: Materials		
Big Idea	**Knowledge and facts (NC)**	**Key knowledge**
Materials That there are different materials that are made out of particles; have different properties and are used for different reasons	- Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses - **performing simple tests** - **identifying and classifying**	Know that materials can have useful properties for a given job (including being waterproof, strong, flexible, rigid, light or heavy) Know that many types of plastic are waterproof, that steel (a type of metal) is strong, that rock is hard, that cotton wool is soft, that rubber is flexible, that rock is rigid, that polystyrene (a type of plastic) is light and that iron (a type of metal) is heavy) That the same material can be used for different jobs That different materials can be used for the same job. To know that materials can be manmade and natural (link to Y1 Geography) To Know that Charles Macintosh invented a material that was waterproof Know that he was from Scotland (Geography link) That he discovered using dissolved rubber on pieces of fabric made them waterproof That he used this method to make coats which he called a 'Macintosh'.
Prior Learning: Year 1	**Next Steps: Year 3**	**Key Language**
Year 1 There are different materials all which have different properties -That there are different types of materials and that these have physical properties -That you can group objects depending on their materials or properties	**Year 3 ROCKS That there are different types of rock that have different physical properties** -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	Absorption, matter, property, suitability, conductor, friction, movement, surface, stretch, twist, waterproof, deformation, flexible, rigid
Opportunities for Scientific Enquiry	**Cross Curricular Links**	**Link to Scientist/Key Books**
	Geography- materials (Man made or natural)	Charles Mackintosh
HEALTH AND SAFETY NOTES: - Ensure children are suitably supervised when handling potentially more dangerous materials e.g. glass, brick, metal, wood and rock.		

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Science Medium Plan Year 2
TERM: Spring 1
CONTEXT: Animals

Big Idea	Knowledge and facts (NC)	Key Knowledge
Living Things There are a wide variety of living things which have similar and different characteristics and need different conditions to thrive	- 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 (food, water and air)	- Know that animals produce offspring that will grow into adults - Know that animals need air, water and food to survive

Prior Learning: Year 1	Next Steps: Year 3	Key Language
Year 1 - **That animals and plants have characteristics / structures and can be grouped according to these-** fish, amphibians, reptile's birds, and mammals (including humans) - That the weather can have an impact upon animals as they interact with their environment.	- Plants and animals have more complex needs than just food, water and air - That animals have parts of their structure that help them to reproduce and move	Growth, nutrients, consumption, Reproduction, offspring, adult, survival

Opportunities for Scientific Enquiry	Cross Curricular Links	Link to Scientist/Key Books
Thinking of and developing ideas for a shelter for a chosen animal.	DT – making a shelter	'Amazing Animal Babies' Chris Packham Chris Packham

HEALTH AND SAFETY NOTES: Visiting animals would need a risk assessment to be completed. Tools when making a shelter.

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Science Medium Plan Year 2
TERM: Spring 2
CONTEXT: Plants

Big Idea	Knowledge and facts (NC)	Key knowledge
Living Things There are a wide variety of living things which have similar and different characteristics and need different conditions to thrive	- 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 - That all plants (and animals) need certain things to stay alive water, food and air - That things that are alive all display the same behaviours (plants grow) - Observe and describe how seeds and bulbs grow into mature plants. - **observing closely, using simple equipment performing simple tests**	- That seeds and bulbs need to be buried underground in soil and they will grow into adult plants under the right conditions - That seeds/bulbs need food, water, light and a suitable temperature to grow and if they do not have these, they will die - That plants grow from seeds and bulbs - That seeds are dispersed through different means, including travelling on and in animals, exploding, float in the wind or on water and falling to the ground - That things that are alive all display the same behaviours (grow - plants and animals)
Prior Learning: Year 1	**Next Steps: Year 3**	**Key Language**
Year 1: (a) Grouping: That animals and plants have characteristics / structures and can be grouped according to these. -To recognise when things are alive/dead/never lived -That plants have different names, characteristics and can be grouped e.g. deciduous and evergreen trees -That plants have the same basic structure	Year 3: Plants and animals have more complex needs than just food, water air and light That plants like animals, have parts of their structure that helps them to reproduce	Plant, grow, seed, **bulb**, root, stem, leaf, branch, trunk, flower, warmth, light, water, food, soil, Evergreen, branches, roots, shoots,
Opportunities for Scientific Enquiry	**Cross Curricular Links**	**Link to Scientist/Key Books**
2: "*What conditions does a plant need to grow?*" - Removing light (cupboard) - Not watering - One control plant (receiving water and light) **PLAN** -That each experiment is a test that will generate a clear outcome and that predictions can be made about what this will be. **CONDUCT** -That they can set up and perform simple tests e.g. how seeds and bulbs grow into mature plants -That systematic observation will gather results to answer their question. -That observation is a valid way of collecting data about changes. **RECORD** -That results to experiments can be recorded in different ways: a table, a labelled diagram	History – Sir David Attenborough	Daffodil Book Sir David Attenborough (link to History topic 'Real Life Heroes Now') work on plants and nature **https://www.stem.org.uk/resources/elibrary/resource/33360/plants-ready-steady-grow**

HEALTH AND SAFETY NOTES:

- Children handling bulbs with skin irritation. Ensure children are carefully washing hands prior and post handling bulbs.
- Remind children not to ingest the bulbs or place them in their mouths.

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Science Medium Plan Year 2
TERM: Summer 1
CONTEXT: Living Things and their Habitats

Big Idea	Knowledge and facts (NC)	Key knowledge
Living Things Big Idea: There are a wide variety of living things which have similar and different characteristics and need different conditions to thrive	- Explore and compare the differences between things that are living, dead, never been alive - **Identify that most living things live in habitats to which they are suited (SC1 LINK)** 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	- **A habitat is the place where a living thing lives** (home environment). - A habitat will have everything a living thing needs to live. **Basic needs are met.** - Identify what a living thing is using MRS GREN. - **In Britain there are variety of habitats including urban, woodland, pond and coastal.** - **Poole Park has a wetland habitat as it has lakes and a lagoon.** - **Baiter has coastal habitats.** - **There are a variety of birds that live in Poole park and Baiter including duck, geese, swans** and a range of wild birds. - **These birds need water to swim in as well as marshland to nest in.** Marshlands have long reeds and grass to nest in. - **Poole Park has muddy, grassy islands safe for birds to nest.**

Prior Learning: Year 1	Next Steps: Year 3	Key Language
There are different types of plants and animals that all have different names (revise these) That animals interact with their environment (seasonal change) -To recognise when things are alive/dead/never lived	-That there are different types of plants and that the requirements of plants vary from plant to plant **(air, light, water, (Y2)** nutrients from soil, and room to grow) WS investigate the way in which water is transported within plants **-Bodies are complex systems that need to be taken care of (Y2)** Bodies need the right types and amount of food for good nutrition - That humans and some other animals have skeletons and muscles for support, protection and movement	Habitats, animals, plants, living, dead, alive, needs, microhabitats, urban, woodland, pond and coastal,

Opportunities for Scientific Enquiry	Cross Curricular Links	Link to Scientist/Key Books
What animals need to survive **Habitats and an animals suitability to a habitat** Sorting things that are living, dead, never alive ***3: "What habitats suit the needs of woodlice best?"*** Create an environment with several habitats within… which habitat do the woodlice move towards the most? - Ask simple questions, recognising they can be answered in different ways -Observing closely, using simple equipment, **changes over time** **-noticing patterns** -Performing simple **comparative** tests -Identifying, grouping and classifying -Using their observations and ideas to answer questions -Gather and record data to help answer questions **-finding things out using secondary sources of information**	Geography – Brazil (rainforest) – compare and sort animals/plants. Geography – Rainforests – climate and weather patterns. Opportunities for possible educational visits (local area) to observe and notice habitats (Poole Park, Baiter – birds) https://pooleprojects.net/pooleparklife/ http://www.surfbirds.com/community-blogs/poolebirds/2011/03/02/poole-park-and-baiter/#:~:text=Poole%20Park%20is%20obviously%20well,also%20hosts%20huge%20gull%20roosts.	David Attenborough – discovery of new habitats and wildlife.

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PLAN -That each experiment is a test that will generate a clear outcome and that predictions can be made about what this will be. **CONDUCT** -That they can set up and perform simple tests e.g. how seeds and bulbs grow into mature plants -That systematic observation will gather results to answer their question. -That observation is a valid way of collecting data about changes. **RECORD** -That results to experiments can be recorded in different ways: a table, a labelled diagram **CONCLUDE AND EXPLAIN** -That they can use their observations and knowledge to suggest **plausible** answers to questions	Helpful website: https://teachers.thenational.academy/units/habitats-c850	

HEALTH AND SAFETY NOTES:

- Experiment – handling live animals (woodlice)
- Observing safely
- Local area walk to spot habitats

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Science Medium Plan Year 2 **TERM: Summer 2** **CONTEXT: Living Things and their Habitats (food chains)**		
Big Idea	**Knowledge and facts (NC)**	**Key knowledge**
Year 2: (a) That plants and animals interact and are interdependent within their habitat. (b) Knowing what plants and animals need to stay alive (and healthy)	-To recognise when things are alive/dead/never lived -That all plants and animals need certain things to stay alive light, water, food and air **-That plants and animals within a habitat depend on and interact with each other (including food chains and food sources) and that all life on the planet begins with the energy that the sun provides.**	Children will know that all living things are part of a food chain. Food chains mean all animals can continue to survive. If one part of the food chain breaks the animals further up the chain will be without food. All food chains start with a plant (that grows with the help of the sun) and ends with a predator. Consumers eat the plant, prey eat the consumers and predators eat the prey.
Prior Learning: Year 1	**Next Steps: Year 3**	**Key Language**
-To recognise when things are alive/dead/never lived -that animals have different characteristics by which they can be grouped: fish, amphibians, reptiles birds, and mammals - herbivore, carnivore and omnivore	**-Bodies are complex systems that need to be taken care of** (Y2) Bodies need the right types and amount of food for good nutrition - That humans and some other animals have skeletons and muscles for support, protection and movement	Food chain Living things Animals Plants Producer Consumer Prey Predator Energy
Opportunities for Scientific Enquiry	**Cross Curricular Links**	**Link to Scientist/Key Books**
- Ask simple questions, recognising they can be answered in different ways -Observing closely, using simple equipment, **changes over time** **-noticing patterns** -Performing simple **comparative** tests -Identifying, grouping and classifying -Using their observations and ideas to answer questions -Gather and record data to help answer questions **-finding things out using secondary sources of information**	DT – Food tech PE – Healthy bodies	


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