



St Mary's RC Primary School, Sabden Science Long Term Plan KS1 2-year rolling program

Rationale behind KS1 Mixed Age planning (following a 2 year rolling program)

The following 2-year rolling program has been taken from the useful information from the primary-science website (links below) to support the rationale for sequencing units within a mixed-age curriculum map.

- Sequencing learning pgs 6- 10 for mixed age classes - <https://www.primary-science.co.uk/product-page/sequencing-science-topics>
- 2-year mixed age rolling prog example curriculum map – particularly useful for KS1 [Sequencing Science Topics Curriculum Map Example - 2-year-group mixed classes | PSEC](#)

NOTE: The rationale for each topic is below each cycle using the documents above. Adding this beneath each cycle ensures it is clear to all teachers (current, new and temporary, such as students and supply). It will help to make it clear why things are taught in a certain order and within a certain cycle. It will avoid teachers changing things around for reasons that are non-beneficial to science learning. It will also act as a reminder when sharing your rationale to all visitors who enquire as to the thinking behind the decision-making process and the sequence of units. This will also support discussions around progression of key learning over time.





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	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
	Seasons (Y1 NC PoS)					
R/Y1/Y2 Cycle A Plant themes – leaves, trees, weeds, veg and salad Seasonal – changes theme: trees, weeds, human clothing	ANIMALS INC HUMANS – human body parts and senses (from Y1 NC) - drawing and labelling body parts, - making clay models of human body with labels, - draw and label their own face/body (senses) - test different senses and record in simple table – taste/smell/touch PLANTS, SEASONAL CHANGES, WEATHER (Y1) - leaf drawing and identification, observational drawing, recognising and naming common leaf shapes - compare x2 different leaves – what is same, what is different {which part of the plant do we eat? (linked to harvest) – root, leaf, stem, flower}	PLANTS / SEASONAL CHANGES (Y1) - school grounds/local area/park walk - identifying common trees using spotter sheets (take a picture of a tree), - weather in autumn and /or autumn poetry using words from walk - Day length changes – link with bonfire night and clothing we wear to be seen at night (reflective materials) and to keep warm – scarves, hats, gloves, coats and waterproof shoes - wellies) - leaves in autumn, observational skills and details of leaves, leaves changing colour, seeds (acorn, sycamore &/or horse chestnut good eggs) - labelling parts of the tree with focus on root, stem, trunk, bark, branches and leaves,	Y1 & Y2 MATERIALS Identifying and using - identifying and grouping objects by their material, - sort materials by their own criteria then by properties: rough/smooth see through/not see through stretchy/not stretchy bendy/rigid - Describe Object / Material / Properties ... with indoor materials e.g. We have a dog toy, it is made out of plastic and it is rough, bumpy and bendy Y1 SEASONAL CHANGE Linked to weather (which will link well with changes in our habitats) - weather diary in	Y1 & Y2 MATERIALS Testing Link to designing, building, making and testing Properties to Test: ~~Transparency~~ ~~Stretchiness~~ ~~Flexibility~~ Strength Absorbency Waterproofness Reflectiveness (See details in the Rationale above) PLANTS / SEASONAL CHANGES (Y1) Dandelions are prolific in April/early May – dig one up and look at its root (example of a tap root). Draw details. Compare this with another weed with a fibrous root, such as a daisy – draw roots, describe differences and link to the giant	Y1 ANIMALS, INCLUDING HUMANS common animals and their diets - What makes an animal an animal – talk then draw an animal -research from books - Head, body, body covering, way of moving (fly, swim, move on land), senses (eyes, nose, ears, mouth), tail - Classification by own categories then features of animal groups – how they move, body coverings, - Carnivores, herbivore, omnivore – vocabulary matching up, grouping and classifying, - Classification and grouping – identifying 3 things that are similar and 1 thing that is different for animals in grps (mammals, birds, fish, etc.) - Oracy – humans are animals, prove it!	Y1&Y2 PLANTS Naming Plants/plant parts (Y1) And Growing Healthy Plants experience (Y2)– - Growing healthy plants focusing on veg / salad (e.g., lettuce varieties, spinach, radish, carrot and parsnip tops/ plants from food cuttings) Y1 SEASONAL CHANGE Signs of summer. Plus summarise signs of all the seasons Linked to weather (which will link well with changes in our habitats) - weather diary in JUNE (x1 full month) Talk about the weather in diff seasons – use weather diaries to say how many days of rain and sunshine they had in each. – handling data



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		- creating clay model trees with labels, - deciduous and evergreen trees – link with Christmas (also describing holly leaves linked to Christmas) Y1 SEASONAL CHANGE Linked to weather (which will link well with changes in our habitats) - weather diary in OCT (x1 full month)	FEB (x1 full month) - snow/ice day (when it snows). We noticed... - winter poem / acrostic poem PLANTS / SEASONAL CHANGES (Y1) - signs of spring – blossom and buds on trees / hedgerows – (March) - Picture of tree in spring – identify differences and similarities from image in autumn and add to image	turnip story, for example. - Compare the roots of plants i.e. radish and a bedding plant or carrot and a daisy observational drawing - Plant a radish and keeping it healthy	Imaginary animal with a feature from each animal group PLANTS Y1 (leaf shapes – name and identify common examples of weeds such as daisy, dandelion, buttercup, clover, ivy and nettles)	- school grounds/local area/park walk - how many colours can we spot this month? – tally chart - take a picture of a tree – annotate with the differences they notice for summer. - We notice... using the pictures of how the tree changes throughout the year. - Sch grounds / local area / park walk – (identification / spotter sheets and own drawings), From photographs from walk, label parts of the plant once back in classroom - Compare the roots of plants i.e. radish and a bedding plant – observational drawing, - Reflect on weather across the seasons, create a pictogram for weather – link to computing, - Which month had the most... and the least... ? - What do we need to stay safe on sports day – hat, drink, sunscreen
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						• Compare the daylight data collected across the seasons (class teddy bear and when it goes to sleep)
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	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
R/Y1/Y2 CYCLE B Plant themes – seeds, bulbs and flowers, Seasonal change theme – animals and habitats	LIVING THINGS AND THEIR HABITATS Y2 (x2 weeks – see later terms) Habitat visit - Intro to Habitats around our school – under rocks/woodpile, in cracks, minibeast hotel, etc. what is a habitat? - what is found – observational drawings and using spotter sheets - tally chart of number of minibeasts found this month Y2 PLANTS (planning for growing seeds and bulbs outside) include additional statement from Y1 PLANTS (name and identify) - What is a bulb? – compare different bulbs - Planting bulbs to improve our local habitat (just before half term) - What is a seed? – sort/group different seeds, draw seeds, then grow seeds	Y2 ANIMALS, INCLUDING HUMANS (HUMANS - basic needs and keeping healthy) e.g. We saw a <u>bench</u>, it was made out of <u>wood</u> and it was <u>smooth, hard and rigid</u> Y1&Y2 PLANTS Bulb growth diaries from Jan – draw, photograph, measure changes over time until flowering for at least x2 varieties (daffodils give more opportunity for length measurements) Link to signs of spring	Y1 & Y2 MATERIALS Identifying and using - identifying and grouping objects by their material - Tally how any things are made of ... in outdoors and in classroom - sort materials by their properties: rough/smooth see through/not see through stretchy/not stretchy bendy/ridged - material hunt in school grounds Object / material / properties with outdoor objects Y1&Y2 PLANTS Bulb growth diaries from Jan – draw, photograph, measure changes over time until flowering for at least x2 varieties (daffodils give more opportunity for length measurements) Link to signs of spring	Y1&Y2 Materials Testing Transparency Stretchiness Bounciest ~~Flexibility~~ ~~Strength~~ Absorbency Waterproofness ~~Reflectiveness~~ (See details in the Rationale above) LIVING THINGS AND THEIR HABITATS Y2 (main unit content) Plus revisit habitat in school grounds – tally how many things you can find – less due to weather/time of year (do in Feb straight after half term rather than March when it begins to get warmer) Improve school grounds for wildlife e.g. Plant wildflower seeds in school grounds (if not done in Y4)	Main unit Y2 ANIMALS, INCLUDING HUMANS (offspring and new life/lifecycles) X4/5 lessons Y1&Y2 PLANTS (main plant growth teach from Y2 here) Naming Plants/plant parts (Y1) And Growing Healthy Plants (Y2)– flowers and seeds - Recap parts of plant, growth of seeds and bulbs - What do plants need to grow healthily? X2-3 lessons - Grow sunflowers (or similar) - Time for growth to happen to measure/record on growth diaries. Life cycle - see seed to root to shoot to stem to flower. Name plant parts as they grow (Links with Y1)	LIVING THINGS AND THEIR HABITATS Y2 Revisit habitats (basic needs of animals found there), minibeast hunt, tally and draw more examples of creatures found, Visit another habitat, alive/ not alive, food chains Y1&Y2 PLANTS Continue with plant growth diaries. Care for bedding plants in school grounds (water and weed – particularly thro hot days) Identify and draw the different examples of the wildflowers planted in spring. (identification / spotter sheets and own drawings),



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	which comes first, the root or the shoot, do large seeds start to grow quicker than smaller seeds?				Plant statements) – growth diaries will continue into summer term	From photographs label parts of the plant once back in classroom
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Rationale behind KS1 Mixed Age planning (following a 2 year rolling program)

The following has been adapted from the useful information from the primary-science website (links below) to support the rationale for sequencing units within a mixed-age curriculum map. The plans below may be adapted to suit the individual setting in line with the recommendations from the NC2014.

- Sequencing learning pgs 6-10 for mixed age classes - <https://www.primary-science.co.uk/product-page/sequencing-science-topics>
- 2-year mixed age rolling prog example curriculum map – particularly useful for KS1 <https://www.primary-science.co.uk/shop>

Schools that have mixed classes of two year-groups generally adopt a two-year cycle - A and B - for each phase (Key Stage 1, lower Key Stage 2 and upper Key Stage 2). Pupils experience the full National Curriculum content for both years, but some pupils meet the content in cycle A first and others meet the content in cycle B first. For schools adopting this approach, it is important to ensure that the two cycles for each phase are constructed so that the topics included in each do not rely on prior learning that only features in the other cycle.

Plants

If pupils encounter the Year 2 Plants topic as their first cycle, they would not have the necessary prior knowledge from the Year 1 topic to access the learning. Consequently, the following statement from the Plants topic in Year 1 needs to be covered in both cycles.

- Identify and describe the basic structure of a variety of common flowering plants. including trees.

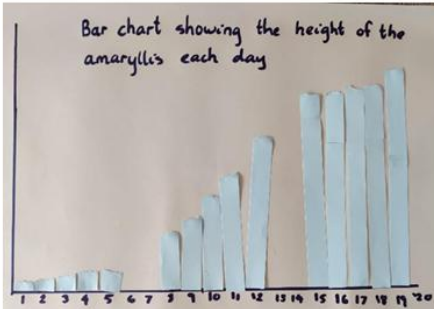
The Y1 Plants topic and the Y2 Plants topic can be taught in different cycles as long as this statement is added to the Year 2 topic. An alternative way of dealing with this issue is to cover all the statements from both Plants topics in both cycles in a distinctly different way. To cover the Year 1 Plants statements in both cycles, pupils could focus on naming trees in the school grounds and observing how they change in cycle A, and then focus on the seeds, bulbs and flowers and flowers in an ornamental bed in cycle B. To cover the Year 2 statements, pupils can grow plants in both cycles but focus on growing different types of plants, such as vegetables and salad in cycle A (linked to leaf shape and roots e.g. lettuce varieties, spinach, radish and/or baby carrots) and seeds/bulbs/flowers in cycle B

e.g. x2 varieties of bulbs outdoors to compare growth and features e.g. daffodils, snowdrops, crocus, tulips and wildflowers and/or sunflowers in the spring term. Amaryllis bulbs are good to grow in a KS1 classroom in Spr1 term –indoors, you can expect visible growth within a couple of weeks and full flowering in roughly **6–8 weeks** so the children see the full cycle from bulb to plant growth to flowering. The main flower stalk grows quickly (can reach 30–60 cm tall). Growth can be noticeably day-to-day and can be plotted on a class 1cm to 1square visual pictogram/bar chart over time.



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Image from www.planassessment.com 'Working Scientifically Examples of Work' for Y2

Description of activity		
The children planted an amaryllis bulb. When a new shoot appeared one Monday morning, they started to measure it each day using a strip of paper.		
EVIDENCE OF LEARNING		ASSESSMENT
		
		This example provides evidence of the child adding the measurement they have taken to the correct place on the bar chart to record the height on that day.

Seasonal change

The NC for Y1 says pupils should be “making observations about the weather and how this affects living things”. To maintain this learning interdependency between the Seasonal change and Plants topics, it is advisable that they are kept in one cycle. Links with the changing seasons can be made with the habitats units in cycle B but most learning about seasons and weather will occur in cycle A in the example above.

Animals, including humans

The NC Y2 statements “Find out about and describe the basic needs of animals, including humans, for survival (water, food and air)” from the Animals, including humans topic and “... describe how different habitats provide for the basic needs of different kinds of animals...” from the Living things and their habitats topic are linked. To maintain this learning interdependency, it is advisable that they are kept in one cycle as shown in the example above.

Materials

If pupils encounter the NC Y2 Everyday materials topic as the first cycle, they would not have the necessary prior knowledge from the Year 1 topic to access the learning. Consequently, the following statements from the Everyday materials topic in Y1 would need to be covered in both cycles.

- 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.

All the materials statements from both year-groups can be covered in both cycles, starting with the Y1 statements. To make the learning distinctly different in both cycles, the focus could be on exploring materials indoors in cycle A and outdoors in cycle B. Alternatively, different properties of materials can be explored in different cycles.



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KS1 cycle 1 – Material 'testing' suggestions

For TAPS references see search engine for 'lesson plan' information and skill focus <https://pstt.org.uk/unique-resources/taps/>

- **Testing waterproof materials** - Testing what happens when we add water to different materials – 'Drops on a coin' TAPS, Y2
- **Testing Absorbency** – which is the best material for mopping up a spill? (linked to Y1 learning)
- **Testing Paper Strength** (linked to Y1 learning) 'What makes a good bridge?' see good video here: [Science Lab with Jules Pottle | Build a paper bridge |](#) (no need to login) and 'Bridge testers' TAPS (Billy Goats Gruff link)
- **Test Reflectiveness** (linked to Y1 TAPS, Materials) (Good link to seasonal change and clothes we wear in winter to be seen in the dark)
- **Testing a new material** – (Linked to Y2 learning) Which is the best glue for Robot Nobot's bottom? – tested by adding the food product or 'glue' to the top of a strip of A4 paper, gluing this to the bottom of a similar strip of A4 paper and then adding pegs to the bottom strip to see how many it takes before the 2 'glued' strips come apart. Skill: Recording 'a number' for their results in a 2-column table.

KS1 cycle 2 – Material 'testing' suggestions

For TAPS references see search engine for lesson plan guidance and skill focus <https://pstt.org.uk/unique-resources/taps/>

- **Materials Hunt** (TAPS Y2)
- **Testing which materials are the stretchiest?** (Linked to Y1 learning). Which is the best material for Elastaboy's/Elastagirl's Lycra leggings? Or for 'pingy pangy' underpants from the book 'Alien's love Underpants'.
- **Ways to Test Transparency** (linked to Y1 TAPS) (can link to sunglasses in summer OR curtains in winter)
- **Testing Materials** (linked to Y2 learning – 'making decisions' from 3 methods given), Either;
 - **Waterproof** TAPS Y2
 - **Boat materials** TAPS Y2 (linked to Handa's Surprise) OR
 - **Rocket Mice** (linked to Y2) – TAPS
- **Applying learning – Problem Solving:** How can we fix the hole in my bucket? (Linked to Y2 learning)– Children have x3 paper cups each with a small hole in the bottom – which material from the selection given is the best to fix their hole? (Sawdust, cotton wool, pet bedding, cooking foil, tissue paper, straw, playdoh, etc.) Can the children say if their best one is because it is waterproof or absorbent? It will depend what material they decide to use. This progresses on from their work on absorbency in Y1. Children can use a handheld microscope (e.g. EasiScope) to observe fabrics closely and identify which have holes in and which don't.
- **New Inventions** (linked to real scientist who invented pneumatic tyres) Testing which balls are the bounciest balls 'Dunlop Balls' TAPS (Y2)