



St Marys Catholic Primary School
Living and Learning Together – Shining in our Faith
Science Essential Knowledge EYFS & KS1

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 inline 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>

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 and seeds/bulbs/flowers in cycle B.

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. 7

- Distinguish between an object and the material from which it is made.



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- 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.

KS1 cycle A – Material 'testing' suggestions

For TAPS references see search engine for lesson plan guidance 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.
- **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.

KS1 cycle B – 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 Waterproof 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) – TA



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Cycle A	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
EYFS	All About Me Seasonal change Plants	Celebrations Seasonal change weather	People who help me Seasonal change Signs of Spring	Lifecycles Seasonal change Flowers	Things that move Seasonal change Minibeasts	The Farm Seasonal change Summer
Y 1 / 2	Animals including Humans Body parts / senses Seasonal change Weather	Plants Name of plant parts Seasonal change Autumn	Everyday materials Seasonal change Signs of Spring	Testing Materials Seasonal change Changing plants	Animals including Humans Common animals and their diet Seasonal change Changing weather	Plants Name of plants How to grow plants Seasonal change Summer

Cycle B	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
EYFS	All About Me Seasonal change Plants in our school	Celebrations Seasonal change Plants in our school	People who help us Seasonal change Observing growth	Lifecycles Seasonal change What can we see ?	Things that Move Seasonal change Observing changes	The Seaside Seasonal change Summer
Y 1 / 2	Living things and their Habitats Seasonal change Plants in school grounds	Animals including Humans Basic needs / keeping healthy	Everyday Materials Seasonal change Plants	Testing Materials Seasonal change Habitats	Animals including Humans Offspring / lifecycles Seasonal change Observing plant growth	Living things and their Habitats Needs / alive & not alive Food chains



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CYCLE A	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
EYFS	<p>All About Me</p> <ul style="list-style-type: none"> *Body parts – draw, paint, labels *Healthy Eating – healthy and unhealthy foods *Healthy lifestyles – hygiene, exercise, etc <p>Seasonal changes</p> <ul style="list-style-type: none"> *Leaves -shapes, colours, sizes *Seeds – shapes, sizes, colours, how they move. *Parts of a plant / tree 	<p>Celebrations</p> <ul style="list-style-type: none"> *Changes of states *Light and dark relate to fireworks *reflective materials relating to bonfire night <p>Seasonal changes</p> <ul style="list-style-type: none"> *What is the weather like? *What kinds of things do we wear as the weather changes? 	<p>People Who help us</p> <ul style="list-style-type: none"> *What are the emergency services? *How do they help us? <p>Seasonal changes</p> <ul style="list-style-type: none"> *Changes we see in the spring time *Signs of new growth *How do the clothes we wear change? 	<p>Lifecycles</p> <ul style="list-style-type: none"> *Lifecycles of plants *Main parts of a plant *Relate new life to seeds seen in Autumn 1 term. <p>Seasonal changes</p> <ul style="list-style-type: none"> *Flowers, colours we see *Draw and label flowers *Record the weather for a week. 	<p>Things that move</p> <ul style="list-style-type: none"> *How do we make things move? *Push and pull *Can we make things move faster or slower? *Does the surface make a difference? <p>Seasonal changes / Minibeasts</p> <ul style="list-style-type: none"> *What kind of minibeasts can we find in the school grounds? *Where do we find minibeasts? *What habitats do they like? 	<p>The Farm</p> <ul style="list-style-type: none"> *What animals live on a farm *Adult and baby animals *What else do we see on the farm? <p>Seasonal changes</p> <ul style="list-style-type: none"> *How has the weather changed in the summer? *What clothes do we wear in the summer? *What activities can we do?
<p>Y1/Y2</p> <p>Plant themes – leaves, trees, weeds, veg and salad</p> <p>Seasonal – changes theme: trees, weeds,</p>	<p>ANIMALS INC HUMANS – human body parts and senses</p> <ul style="list-style-type: none"> • drawing and labelling body parts, • making pictures / paintings / drawings / 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 	<p>PLANTS</p> <ul style="list-style-type: none"> • school grounds - identifying common trees using spotter sheets (take a picture of a tree), • autumn poetry using words from tree walk • Day length changes – link with bonfire night and clothing we wear to be seen at night (reflective materials) and to keep warm – 	<p>Y1 & Y2 MATERIALS Identifying and using</p> <ul style="list-style-type: none"> • 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 	<p>Y1 & Y2 MATERIALS Testing</p> <p>Link to designing, building, making and testing</p> <p>Properties to Test:</p> <p>Transparency Stretchiness Flexibility Strength Absorbency Waterproofness Reflectiveness</p> <p>(See details in the Rationale above)</p>	<p>Y1 ANIMALS, INCLUDING HUMANS common animals and their diets</p> <ul style="list-style-type: none"> • 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 	<p>Y1&Y2 PLANTS Name plants/plant parts (Y1) Growing Healthy Plants (Y2)</p> <ul style="list-style-type: none"> • Growing healthy plants focusing on veg / salad (e.g., lettuce varieties, radish, peas, carrot and parsnip tops) <p>SEASONAL CHANGE Signs of summer. Plus summarise signs of all the seasons</p>



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<p>human clothing</p>	<p>PLANTS, SEASONAL CHANGES, WEATHER (Y1)</p> <ul style="list-style-type: none"> leaf drawing and identification, observational drawing, recognising and naming common leaf shapes compare x2 different leaves – what is same, what is different Compare the roots of plants i.e. radish and a bedding plant or carrot and a daisy observational drawing or which part of the plant do we eat? (linked to harvest) – root, leaf, stem, flower 	<p>scarves, hats, gloves, coats and waterproof shoes - wellies)</p> <ul style="list-style-type: none"> leaves in autumn, observational skills and details of leaves, leaves changing colour, seeds (acorn, sycamore &/or horse chestnut, etc) labelling parts of the tree with focus on root, stem, trunk, bark, branches and leaves, creating clay model / paintings / drawings of trees with labels, deciduous and evergreen trees – link with Christmas (also describing holly leaves linked to Christmas) <p style="text-align: center;">SEASONAL CHANGE</p> <p>Linked to weather (which will link well with changes in our habitats)</p> <ul style="list-style-type: none"> weather diary in OCTOBER (x1 full month) 	<p>... with indoor materials e.g. We have a dog toy, it is made out of plastic and it is rough, bumpy and bendy</p> <ul style="list-style-type: none"> Silly and sensible materials and properties (chocolate teapot, rubber pencil, paper jumper <p style="text-align: center;">PLANTS / SEASONAL CHANGE</p> <p>Linked to weather (which will link well with changes in our habitats)</p> <ul style="list-style-type: none"> weather diary in FEB (x1 full month) snow/ice day (when it snows). We noticed... winter poem / acrostic poem 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 	<p style="text-align: center;">PLANTS / SEASONAL CHANGES</p> <ul style="list-style-type: none"> 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 turnip story, for example. 	<ul style="list-style-type: none"> 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 groups (mammals, birds, fish, etc.) Oracy – humans are animals, prove it! Imaginary animal with a feature from each animal group <p style="text-align: center;">PLANTS / SEASONAL CHANGE</p> <p>(leaf shapes – name and identify common examples of weeds such as daisy, dandelion, buttercup, clover, ivy and nettles</p>	<p>Linked to weather (which will link well with changes in our habitats)</p> <ul style="list-style-type: none"> weather diary in JUNE (x1 full month) <p style="text-align: center;">Talk about the weather in different seasons – use weather diaries to say how many days of rain and sunshine they had in each. – handling data</p> <ul style="list-style-type: none"> school grounds - 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. School grounds (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
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						<p>and a bedding plant – observational drawing,</p> <ul style="list-style-type: none"> • 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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CYCLE B	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
EYFS	<p>All About Me</p> <ul style="list-style-type: none"> *Body parts – draw, paint, labels *Healthy Eating – healthy and unhealthy foods *Healthy lifestyles – hygiene, exercise, etc <p>Seasonal change</p> <ul style="list-style-type: none"> *What can we see growing in the school grounds? *What clothes do we need in Autumn? 	<p>Celebrations</p> <ul style="list-style-type: none"> *Changes of states *Light and dark relate to Divali *reflective materials relating to bonfire night clothing <p>Seasonal change</p> <ul style="list-style-type: none"> *What can we see changing in our school grounds? *Do all trees have leaves? What clothes do we need in Winter? 	<p>People who help us</p> <ul style="list-style-type: none"> *What people help us in our community? *What things do they do to keep us safe? *Do they wear a uniform? <p>Seasonal change</p> <ul style="list-style-type: none"> *Planting bulbs *Naming parts of a plant *Observing plant growth over time 	<p>Lifecycles</p> <ul style="list-style-type: none"> *Lifecycles of chicks and ducks. *What changes can we see from baby to adult? *What can we find out about ducks and chicks? <p>Seasonal change</p> <ul style="list-style-type: none"> *What can we find in the school grounds? Can we count what we find? 	<p>Things that move</p> <ul style="list-style-type: none"> *How do we make things move? *Push and pull *Can we make things move faster or slower? *Does the surface make a difference? <p>Seasonal change</p> <ul style="list-style-type: none"> *What can we see changing in our school grounds? *Do all trees have leaves? What clothes do we need in Winter? 	<p>The Seaside</p> <ul style="list-style-type: none"> *What can we see at the seaside? *what do we do at the seaside? *Floating and sinking *Building with sand <p>Seasonal change</p> <ul style="list-style-type: none"> *How has the weather changed in the summer? *What clothes do we wear in the summer? *What activities can we do?



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<p>Y1/Y2</p> <p>Plant themes – seeds, bulbs and flowers</p> <p>Seasonal change theme – animals and habitats</p>	<p>LIVING THINGS AND THEIR HABITATS Y2 habitat visit</p> <ul style="list-style-type: none"> 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 <p>PLANTS / SEASONAL CHANGE (planning for growing seeds and bulbs outside) include additional statement from Y1 PLANTS (name and identify)</p> <ul style="list-style-type: none"> 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 which comes first, the root or the shoot, do large seeds start to 	<p>Y2 ANIMALS, INCLUDING HUMANS (HUMANS – basic needs and keeping healthy)</p> <ul style="list-style-type: none"> What are the basic needs for human life? How do we keep our bodies healthy? What foods are good for us and why, what foods are bad for us and why? How do we keep our bodies clean? Why do we need to do this? Why do we need to exercise? How does this help us to stay healthy? Why do we need to sleep? What happens if we don't get enough sleep? 	<p>Y1 & Y2 MATERIALS Identifying and using</p> <ul style="list-style-type: none"> identifying and grouping objects by their material - Tally how many 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 <p>e.g. We saw a bench, it was made out of wood and it was smooth, hard and rigid</p> <p>SEASONAL CHANGE Y1&Y2 PLANTS</p> <p>Bulb growth diaries from Jan – draw, photograph, measure changes over time until flowering for at least x2 varieties (daffodils give more</p>	<p>Y1&Y2 Materials Testing</p> <p>Transparency Stretchiness Bounciest Flexibility Strength Absorbency Waterproofness Reflectiveness</p> <p>(See details in the Rationale above)</p> <p>LIVING THINGS AND THEIR HABITATS Y2</p> <ul style="list-style-type: none"> Explore different habitats in the school grounds. Record and label different types of habitats and the animals that are found there. Understand simple food chains that start with a plant (producer). Be able to construct simple food chains and label the producer, 	<p>Y2 ANIMALS, INCLUDING HUMANS (offspring)</p> <ul style="list-style-type: none"> Know that animals have offspring which grow into adults. Be able to match and name offspring and adults. Know the basic needs of animals to grow and survive. <p>Y1&Y2 PLANTS Name Plants/plant parts (Y1) And Growing Healthy Plants (Y2)– flowers and seeds</p> <ul style="list-style-type: none"> Recap parts of plant, growth of seeds and bulbs What do plants need to grow healthily? How could we test this? Grow sunflowers (or similar) - Time for growth to happen to measure/record on growth 	<p>LIVING THINGS AND THEIR HABITATS Y2</p> <ul style="list-style-type: none"> 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 <p>Y1&Y2 PLANTS</p> <ul style="list-style-type: none"> Continue with plant growth diaries. Care for bedding plants in school grounds (water and weed – particularly through hot days) Identify and draw the different examples of the wildflowers planted in spring.
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	grow quicker than smaller seeds?		opportunity for length measurements) Link to signs of spring	predator and prey.	diaries. Life cycle - see seed to root to shoot to stem to flower. <ul style="list-style-type: none">Name plant parts as they grow (Links with Y1 Plant statements) – growth diaries will continue into summer term	(identification / spotter sheets and own drawings), <ul style="list-style-type: none">From photographs label parts of the plant once back in classroom
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