Imagine, Believe, Achieve

Springdale First School

Year 1 / Science /Plants

Children's prior learning in this area	Cultural Capital Opportunities	Key vocabulary and glossary
Reception: Explore the natural world around them, making observations and drawing pictures of animals and plants. Know some similarities and differences between the natural world around them and contrasting environments, drawing on their experiences and what has been read in class.	Learn about English naturalist and botanist, John Ray (1627-1705). Learn about the work of botanists today in their role of conservation. Experience the natural world in school grounds. Sow seeds and care for the plants as they grow. 	plant tree flower leaves stem fruit seed branch trunk petal blossom root deciduous evergreen bud bark Autumn Spring Summer Winter names of common trees and plant

AUT 1 Enquiry Questions What is a botanist? Who was John Ray? What do botanists do today?	**AUT 1 Enquiry Question** What are the parts of a flowering plant? Do all flowers have the same number of petals?
Working scientifically skills: Interpret results -answer the question **Enquiry type:** Research using secondary sources  	**Working scientifically skills:** Gather and Record results; Interpret results - answer the question **Enquiry type:** Pattern seeking   
Children will know: a botanist is a scientist who studies plants. Plants are living things that use sunlight to make food. There are plants that don't have flowerssuch as grass and ferns but many plants have flowers.  ***Practise:*** *Group activity: Sort pictures of living things according to whether they are plants or not plants. Include images of trees, grass, fern, bamboo etc as pupils are likely to think of plants as a flowering plant found in a plant pot.* **Children will know:** John Ray was born in 1627 and was an important botanist because he observed plants closely and worked out how to put them into groups. He created a book called the Catalogue of English Plants and one called the History of Plants that show his careful observations and how he grouped plants. **Children will know:** just one of the many jobs of botanists today is to protect plants that are in danger of becoming extinct. They do this by collecting seeds, storing them and growing them in botanical gardens. Clips could be taken from example videos: (46) Conserving the world's endangered plants at Kew Gardens - YouTube (46) These Botanists Are Scaling Cliffs to Save Endangered Plants - YouTube **Children will know how to:** research using secondary sources. They will know scientists can't always do an invesigation to find an answer. Sometimes, they will research information to find out an answer. They will know to read/watch a relevant piece of information and use key words to retrieve answers. ***Apply:*** *Retrieve information from the text/video to answer the research enquiry questions. Present findings using scaffolds e.g. true/false, cloze procedure, matching, stem sentences if required. This could be carried out as a guided group rather than individually.* ***Deepen:*** *How would our world be different without botanists such as John Ray and the botanists working for botanical gardens? (either the Hawaiian or Kew Gardens example will work for this question). Thoughts scribed in Big Book.*	**Children will know:** flowering plants have common parts and these include: leaves, flowers, petals, fruit, roots, seeds and a stem (branches and trunks for trees). Children will know you can't always see all the parts on the plant – roots are hidden in the soil; parts grow at different times. Safety knowledge: Never eat fruits from a tree or other plant without permission as some can be poisonous.  ***Practise:*** *Label the appropriate common parts above on a diagram of a strawberry plant, and a tree displaying either fruit or flower.* ***Apply:*** *Discussion - compare the structure of the strawberry plant and tree, explaining the similarities and differences between the common parts. Thoughts scribed in Big Book.* **Children will know how to:** gather results by counting the petals carefully, knowing which one they started with by placing a marker or pointing a finger at the starting petal. They will know that we record results so we don't forget them and so that we can later answer the question. ***Apply:*** *Do all flowers have the same number of petals? If cut flowers are used, make sure the children know the flower and stem has been cut off of the rest of the plant. Option a) all children use the same flowering plant, e.g. a daisy/dandelion and looking for a pattern across the same species. Option b) each group count the petals of a different type of flowering plant and report back to see if different types of plant have the same or different amount of petals. Children count petals and record amounts on a pre-made table.* **Children will know how to:** interpret results and answer the question by comparing the results for each flower and seeing if the number is the same or different. ***Deepen:*** *With teacher's guidance, interpret results and discuss what they have found out. Complete a stem sentence to show what they found out.*

AUT 1Enquiry Questions How do we identify trees?	**AUT 1 AND ONGOING Enquiry Questions** How does our tree change with the seasons?
Working scientifically skills: Observe closely **Enquiry type:** identifying, grouping and classifying  	**Working scientifically skills:** Observe closely; gather and record results **Enquiry type:** observing over time   
Children will know: trees can be deciduous (drops leaves) or evergreen (keeps leaves). They will know that plants (including trees) can be identified by the colour, size and shape of their differerent parts.  **Children will know:** the names of the following common trees and be able to identify the trees by leaf shape/colour/texture/thickness:: oak, birch, beech, holly and pine. They will know appropriate vocabulary to describe the leaves to identify them. **Children will know how to:** observe closely by examining a tree's leaf and comparing it to the identifcation key/laminated leaf and looking for the same shape. ***Practise:*** *Match image of leaf to correct tree name. Identify which are evergreen and which are deciduous.* ***Practise 2:*** *Orally describe a leaf for a partner. Can partner identify which tree the leaf comes from?* ***Apply:*** *Go on a tree hunt. Use identification key/laminated leaves to identify oak, birch, beech, holly and pine trees in school grounds. Have a spotter sheet and tick off trees found. (Collect photos/fallen leaves for big book).* ***Deepen:*** *Which of the trees were the easiest to identify? Which were the hardest? Why?*	**Children will know:** trees can look different in different seasons. Trees can be deciduous (drops leaves) or evergreen (keeps leaves). They will know that plants (including trees) can be identified by the colour, size, shape, thickness and texture of their differerent parts. Trees are often identified by the shapes of their leaves but bark, flowers and fruit also help, particularly if the tree is deciduous and the leaves have fallen.  **Children will know how to:** observe closely using a magnifying glass. hold the magnifying glass close to eye. Then move slowly towards the object until it is in focus. (46) How to Use a Magnifying Glass? - YouTube They will know how to record observations using descriptive vocabulary and careful sketching. ***Practise:*** *Look at images of a tree (one from the common trees from last lesson) showing how it changes with the seasons. Children annotate the images or write simple sentences (scaffolds if necessary) to demonstrate their understanding of how the tree changes.* ***Apply:*** *As a class, 'adopt' a tree. (It should be deciduous). This will be the class tree for the year. Have a photo taken with the class by the tree as well as clear photos of the tree in full and close up of leaves/bark. Children should be like botanist , John Ray, observing closely and recording observation by annotating photos.* ***Assessment opportunity for observing closely and recording observations: target these children in subsequent visits to the tree.*** ***Deepen:*** *What do you think our tree will look like in the next season?* *REPEAT THIS LESSON THROUGH THE SEASONS, WHEN A CHANGE HAS OCCURRED WITH THE ADOPTED TREE. RETRIEVAL OF IDENTIFICATION OF OTHER TREES CAN ALSO OCCUR. THIS LESSON ALSO LINKS TO SEASONAL CHANGE LESSONS AND REFERENCE TO THIS SHOULD BE MADE.*

SUM 2 Enquiry Questions How are the parts of flowering plants different?	**SUM 2 Enquiry Questions** What are the names of some common wildflower and garden plants? What do they look like?
Working scientifically skills: Observe closely; Interpret results -answer the question 	**Working scientifically skills:** Observe closely; Present findings **Enquiry type:** Identifying, grouping and classifying 
Children will know: although flowering plants have common parts, these parts can look different. Colour, size and shape are some ways in which they may be different.  *__Practise:__ Look at images of stems, leaves and petals, matching to correct descriptive vocabulary, e.g. veiny, smooth, shiny, fuzzy, green, yellow, streaked, small, large, long, thin, broad, pointy, curved.* **Children will know how to:** observe closely using a magnifying glass. First, hold the magnifying glass close to your eye. Then move slowly towards the object until it is in focus. (46) How to Use a Magnifying Glass? - YouTube They will know how to record their observations using descriptive vocabulary. *__Apply:__ Observe closely using magnifying glass of real common flowering plants (learning their names). Have photos of the same plants and label the leaves, stem and flower with descriptive vocabulary.* *__Deepen:__ Compare two other common plants (learning their names), using magnifying glasses to observe closely. Oral discussion of similarities and differences of the flower, leaves and stem using sentence stems. They both have _____.* *The x plant has _____ but the y plant has ____. If appropriate, use sentence stems in writing.*	**Children will know:** Pupils will know that colour and shape of petals and leaves are features that help us identfiy and name plants. They will know the names of four/five wild plants and four/five common garden plants.  **Children will know how to:** observe closely by comparing a plant to an identification key. *__Practise:__ Play matching pairs with plant names and photos of plants.* *__Apply:__ Go on a hunt in our school grounds, identifying plants using an identification key and ticking off on a spotter sheet.* *__Deepen:__ Work in pairs/small groups to present findings – a poster to help others on how to identify a particular plant that could be laminated and placed near the plants in the grounds.* *Cultural capital – plants a common garden plant, know its name, observe the different parts of the structure growing.*

SUM 2 Enquiry Questions What are the names of some common vegetable and fruit plants? How could we classify these plants?	**SUM 2 Enquiry Questions** What do we know about plants?
Working scientifically skills: Observe closely **Enquiry type:** Identifying, grouping and classifying 	**Working scientifically skills:** Observe closely; Present findings **Enquiry type:** Identifying, grouping and classifying 
Children will know: Pupils will know that colour and shape of leaves, petals and fruits/vegetables are features that help us identfiy and name plants. They will know that a fruit is the part of the plant that contains the seeds for a new plant to grow. Humans like to eat many fruits but not all can be eaten. Vegetables are the parts of a plant that we can eat such as roots, stems and leaves. Vegetables do not contain seeds.  ***Practise:*** *Draw lines to match the names of a plant to an image.* ***Apply:*** *Compare an isolated image of vegetables to their plants. What part of the plant's structure do we eat? Stem/root/leaves/flower.* **Children will know how to:** classify into two groups by identifying one criterion and making the second group NOT that criterion. ***Deepen:*** *Children consider different ways in which the plants could be classfied – e.g. fruits/not fruits; eat the leaves/don't eat the leaves; eat the roots/don't eat the roots.*	**Children will review all the sticky knowledge of the unit.** **Children will know:** John Ray classified plants by observing their similarities and putting them into groups.  **Children will know how to:** classify plants by identifying a similarity between several and naming that group and presenting the groups in sorting rings. They will know the overlap of a sorting ring is for when the object has both criteria. ***Practise:*** *Retrieval of names of plant parts and plant names.* ***Apply:*** *Classify photos of all the plants learnt in different ways. E.g. Yellow flowers; plants that we eat. Explain criteria for grouping and identify when a plant can be put in more than one group. Present findings in sorting rings. Take photos of groupings for big book.* ***Deepen:*** *Which is the odd one out? Sentences that justify one is the odd one out by using descriptive vocabulary related to similarities and differences. Have options that make it possible for the odd one out to be more than one choice.*