Pioneer Federation
Medium term plan
KS1- Cycle 1 Term 1
Science

Subject: Science

Key question: What are some common plants and trees and what is their structure?

Key Concept/ Theme:

- Identify and name a variety of common plants, including garden plants, wild plants and trees, and those classified as deciduous and evergreen
- Identify and describe the basic structure of a variety of common plants including roots, stem/trunk, leaves and flowers.

Prior Learning links: Children in Reception will have looked at the seasons and how things change and grow.

Vocabulary:

Trees - deciduous, evergreen, ash, birch, beech, rowan, common lime, oak, sweet chestnut, horse chestnut, apple, willow, sycamore, fir, pine , holly, etc
Wild flowering plants - cleavers, coltsfoot, daisy, dandelion, garlic mustard, mallow, mugwort, plantain, red clover, self heal, shepherd's purse, sorrel, spear thistle, white campion, white deadnettle and yarrow.
Garden plants – crocus, daffodil, bluebells, etc
Parts of plants – roots, branch, trunk, stalk, leaf, flower, petal, seeds, bulbs and twigs

1.	Prior learning reconnection (year group, cycle & term): EYFS – New life and growing Enquiry skill: Observe LO: To be able to identify and name a variety of common plants, including garden plants, wild plants and trees. Activity: Observation - Become familiar with the habitats Try to get in the habit of observing the same outdoor spaces at different times of the year. Not only will children be able to reinforce their knowledge of plant names, but they will experience the changes and life cycles of the plants at first hand. From an early age it would be useful if children were helped to understand the range of plants that exist and know the different structures that they have – e.g. trees and grass are both plants, and the flower is a particular part of a plant. The following video introduced the term 'plants' to the children: http://www.bbc.co.uk/learningzone/clips/how-plants-are-different/2482.html Being a camera - In the outdoor environment allow the children to form a field of vision by holding up their thumbs and looking between them.

Pioneer Federation
Medium term plan
KS1- Cycle 1 Term 1
Science

	• 'How many different plants can you see?' 'How can we recognise a plant?' • 'Which plant is the tallest/shortest, widest, thinnest?' etc. By increasing the distance between you thumbs you can get the children to observe through a 'wide-angled lens'. Form your hands into tubes, place one above the other and use them to zoom in on particular plants. What do you want to know? As a class gather children' questions about what they want to know about plants in the local habitats. These could be recorded on the white board and/or floor book. Being a detective This game is designed to enable the children to first recognise that there are a range of ways we can find out things in science, and then secondly for them to choose the most appropriate method for a particular question Begin by sharing with children the ways in which we can find things out in science. You could show these on the white board alongside a symbol or picture that they would recognise as that method again in the future: 1. Survey – count the number of things 2. Do a test - find out what happens to something when we change something about it 3. Classifying – put things into groups 4. Investigation over time – watch or measure something over time 5. Secondary source – use a book or internet Each of these different types of enquiry could be displayed on posters at the front of the room. Call out one of the children's questions. With help, in a group, they can decide which type of enquiry/enquiries would be best for finding out the answer. When asked, one member from each group can place sticker on the poster showing the enquiry that they have chosen. Resources: • Posters showing the different types of scientific enquiry • Plaques around the outdoor area indicating to children where you would like them to be
2.	Reconnection: Name some common plants e.g daffodil, daisy, rose, oak LO: To be able to identify and describe roots. Enquiry skill: Observe Activity: Observing – How many different roots can be found? Can we describe what they look like close-up? Explore the outdoor area with the children. Introduce the terms 'shoot' and 'root'. Shoot being the parts of the plant above the ground and 'root' the parts below the ground. Use some marker with plant names on to show children which plant you would like them to investigate, and also to help reinforce the learning of the names. Ask the children to try and pull up a few weeds. Ask them to talk about the job of the roots. Take the children to some trees. Ask them to describe what they think these plants will look like under the ground.

Pioneer Federation
Medium term plan
KS1- Cycle 1 Term 1
Science

	Dig up some 'weeds' with a ball of undisturbed soil around their roots. Put these uprooted plants into a bowl of water for a few minutes, and then shake the root system to dislodge the soil. Now place the washed roots into a small clear plastic bottle filled with water. The children could use microscopes and hand lenses to look carefully at the roots. The children can now describe the roots, compare them to the shoot of the plant, and begin to think about why these roots are good for the plant in the environment in which it was found Recording Take photos of the children's plant they find, the children could also draw a range of different roots that they have found. They could label each one with the name of the plant. Resources: • 'Weeds' with roots • Plastic bottles/pots • Microscopes • Hand lenses • Markers with plant names on
3	Reconnection: What are the shoots and the roots? LO: To be able to identify and describe trees. Skill: identifying and classifying Activity: Observing – How many different types of trees can be found? Can we use the leaves to work out the name of the tree? Prepare your identification chart of the trees that children will find in your outdoor areas. If possible, include leaves with different colours and shapes. Twinkl identification charts will help you to identify some of the trees. You will need to make these charts close to the time that you want the children to go out and find them as whether you want evergreen or deciduous 1. Colour – Provide the children with paint charts from DIY shops. They can try to find the nearest shade of a particular colour that matches the colour of the leaves. 2. Shape of leaves– Encourage the children to look carefully and describe the different leaf shapes. Recording Take photos of what the children find, ask the children to draw some of the leaves in situ.

Pioneer Federation
Medium term plan
KS1- Cycle 1 Term 1
Science

	Resources: • A tree identification chart with photos • Paint colour charts from DIY shops
4	**Reconnection:** Show picture of a flower, can the children describe the tree **LO:** To be able to identify and describe trunks **Enquiry skill:** observe **Activity:** Observation - How are the trunks of trees similar and different from each other? Rotation of activities around trees: 1: Bark rubbings. Attach a sheet of paper with masking tape to a tree. Rub over with a wax crayon. Encourage children to describe the texture of the bark. Ask the children to group trees according to their texture and/or colour. Recording: Children can label their bark rubbings with the name of the tree. They can label with descriptive words. Again, they might have matched a DIY colour chart to each one. The relevant part of the colour chart can be cut out and stuck alongside the rubbing of the tree bark. 2: Measuring - How far is it around the trunk of the tress? The children can use a length of string to measure how far it is around the circumference of a tree. Ask these children to work out how the diameter of the trees helps to work out the tree's age. If possible, show a cut-out section from a tree's trunk so that children can see and possibly count the growth rings. Recording An adult could record the children's measurements in a table that could be shown to the children on the white board. It would be usefully to have photos of the tree as well as its name so that all the children are always clear which trees are being discussed. 3: Measuring – How tall are the trees?

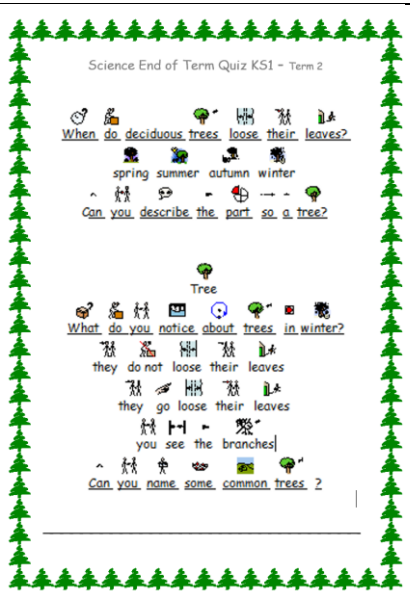
Pioneer Federation
Medium term plan
KS1- Cycle 1 Term 1
Science

	a. To estimate the height of a tree, walk a distance away from the tree that you think is the same as its height. Turn your back to the tree, stand with your legs wide apart and then look through your legs. Adjust how far you are away from the tree until you can just see the top through your legs. The distance from you to the tree will roughly be its height. The children can measure this distance in number of steps. Ask these children to work out why trees grow to different heights (i.e. to get more light). b. Child A stands in front of a tree. Child B walks away from the tree and closes one eye. He holds up a pencil so that top of it is in line with the top of the tree. He/she places their thumb on the pencil to mark the bottom of the tree. Child B turns the pencil carefully so that it appears to be lying on the ground. Their thumb is kept level with the base of the tree. Child A then walks away from the tree until he/she appears to reach the end of the pencil. The distance from child A to the tree is the height of the tree. The children can measure this distance in number of steps. Resources: • Paper and wax crayons for bark rubbing • Plasticene • Card for making frames • String • A cut-out piece of tree trunk showing its growth rings.
5	Reconnection: Show the children a picture of two different tree trunks how are they similar how are they different. LO: To be able to describe and identify trees by looking observing their leaves. Activity: Identifying and classifying – What are the leaves like on the different trees? The easiest way to identify trees is by looking at their leaves. Possibly construct your own identification chart that children can then use. Alternatively use free charts from Woodland Trust, or buy some from Gatekeeper. Obviously, try not to pick too many leaves; use ones that have fallen if you can. Leaf hunt. a.Give the children a purpose for their hunt. 'Who can find the biggest leaf/smallest leaf/the leaf with the most colours/fewest colours/most holes/two leaves that are exactly alike. Ask children to try and describe the different leaves. Challenge the children to find different ways of comparing the leaves: width, length, shape, number of leaves on a stalk, and colour (compare to green paint charts from DIY shops).

Pioneer Federation
Medium term plan
KS1- Cycle 1 Term 1
Science

	Recording Place a leaf, lower side up, on a folded newspaper which acts as a smooth pad. Place a sheet of paper on top. Rub a crayon over the paper. Cut out when finished and stick in their books. They could add any descriptive words. Recording Children can press their leaves between two pieces of blotting paper, or old newspaper, weighted down with heavy books to keep them flat. After a week or two they should be properly dry and can be stuck in the whole-class floor book. b. Deciduous and evergreen In each of the four seasons, allow the children a chance to look at trees to find out which ones have leaves (evergreen) and which haven't (deciduous).The children could take photos of these trees so that can compare these to the same trees later in the year. Recording Stick maybe photos of 6 or so different trees in the class floor-book. Label these with the season in which they were taken. Leave three spaces next to each of the photos for more photos of the same trees to be stuck in the three remaining seasons. Resources: • OPAL tree identifier - http://www.opalexplorenature.org/sites/default/files/7/file/OPAL-Tree-chart-web.pdf • Woodland Trust tree leaves identifier - http://www.naturedetectives.org.uk/download/hunt_leaves
6	**Reconnection:** Why are leaves different on trees? **LO:** To be able to identify the weather in winter and how it affects the trees in their local area. **Activity:** Begin by discussing with the children: 1. It is winter in the UK in December, January and February. 2. In winter, the days are colder and there are fewer hours of daylight. 3. We can see signs of winter by observing the weather, plants and animals. 4. We can make and compare seasonal maps of the school grounds to help us talk about changes. Go through https://www.bbc.co.uk/bitesize/articles/zbxh47h with your class Take them for a winter walk- around the field or around the village if you can (EH and SMV?) (PM and CHIDD could do to field, Chidd across to playing field, PM go to Bedes field?) then discuss the signs of winter on the trees. Get the children to point out and take photos of them identifying the signs.
7	**Quiz/assessment**

Pioneer Federation
Medium term plan
KS1- Cycle 1 Term 1
Science



End points:

To know how to observe and identify trees in their local environment.
To name a range of trees in their local environment.
To sort deciduous and evergreen trees.
To identify the weather in autumn and how it affects the trees in their local area.
To record their observations and understanding when asking questions.
To know the structure of trees, roots, trunk, leaves and flowers.

Future learning links:

Y2:

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. C2T2

Pioneer Federation
Medium term plan
KS1- Cycle 1 Term 1
Science

Y3:

Identify and describe the functions of different parts of plants; roots, stem, leaves and flowers.

Explore the requirements of plants for life and growth (air, light, water, nutrients from soil and room to grow) and how they vary from plant to plant.

Investigate the ways in which water is transported within plants.

Explore the role of flowers in the life cycle of flowering plants, including pollination, seed formation and seed dispersal