

# ACET Junior Academies'

## Scheme of Work for Science

### Big Idea – Living Things

#### Year 1 – Plants



#### **About this unit:**

##### **PoS – Plants**

Revisit 'Seasons' – this is where most of the learning about Seasons will come together, as the students compare the changes that have happened in the school grounds over the year.

This unit is about plants, introducing students to their features, and in particular the range of different plants that are around us. The main objective is to get them to notice as much as possible about plants, and to observe those differences. They should be as aware of the features of different plants as they are of different animals. While teaching them about these differences, it's important to also highlight the common features that plants have – those things that make them plants, like green leaves, roots and stems. Students often think of trees and flowers as something 'other' than plants – it's important that they know that most living things that we can see are either plants or animals.

While there is no need to discuss photosynthesis, it will be important not to introduce misconceptions. The most common misconception is that plants get 'food' from the soil. It's important that the students don't think this – the leaves make food for a plant, and they get extra nutrition from soil – just like humans taking a vitamin tablet. Although this doesn't need to be taught to the students, it's important to avoid reference to food from the soil – and correct any reference to it from students.

#### **Unit structure**

This unit is structured around seven science enquiries:

1. What has changed since the autumn?
2. What are the parts of a plant called?
3. How different are leaves to each other?
4. What are the names of the trees around us?
5. How different are flowers to each other?
6. What are the names of the small plants around us?
7. What is the weirdest plant on the planet?

#### **Links to previous and future National Curriculum units**

EY – Make observations of plants

- Know some names of plants, trees and flowers
- May be able to name and describe different plants
  
- Y2 – plant needs and growth
- Y3 – plant lifecycles

Enquiry 1: What has changed since the autumn?			
Links to previous learning	Scientific skills	Assessment criteria	Curricular links
Make observations of plants	EA – Observation over time (long term)	<b>Can your children:</b> <ul style="list-style-type: none"> <li>- Observe and notice changes that that have happened over time</li> <li>- State what changes happened in which season</li> </ul>	<b>Horizontal:</b> Y1 - Seasons  <b>Vertical:</b> Y2 – plant needs and growth Y3 – plant lifecycles
	Asking questions <b>Observing</b> and measuring		
	<b>Key concepts:</b> Plants change during the seasons. Different things happen to trees during different seasons.		
Key terms		Common misconceptions	
Seasons, spring, summer, autumn, winter, trees, leaves, bigger, smaller			
Suggested activities		Resources	Useful links
<p>Review the year book.</p> <p>In Autumn 1, the students made lots of observations, and some predictions. Begin by looking back at their records in the year book – can they make similar observations now? Was there something they should have recorded, but didn't? If they could go back in time to last Autumn, would they do anything differently? A good scientist always considers what they have done, and decides whether they would do anything differently.</p> <p>Students to compare the pictures of a particular tree. Can they draw the tree at different times of the year? <i>Review work from 'Seasons' at the beginning of the year – what are the differences between the seasons in general? Relate this to when trees lose their leaves.</i></p>		Outside, making observations of trees	

<b>Enquiry 2: What are the parts of a plant called?</b>			
<b>Links to previous learning</b>	<b>Scientific skills</b>	<b>Assessment criteria</b>	<b>Curricular links</b>
<p>EY – make observations of plants Name and describe different plants</p>	<p>EA – identifying, grouping, classifying</p> <p>Asking questions Making predictions <b>Observing</b> &amp; measuring</p>	<p><b>Can your children:</b></p> <ul style="list-style-type: none"> <li>- Name the common parts of plants</li> <li>- Describe the function of some parts of the plant</li> </ul>	<p><b>Horizontal:</b> Y1 – parts of the body</p> <p><b>Vertical:</b> Y2 – plant needs and growth</p>
	<p><b>Key concepts:</b></p>		
	<p>The parts of a plant have names, just like the parts of our body do. The different parts of a plant all have different jobs to do</p>		
<b>Key terms</b>		<b>Common misconceptions</b>	
<p>Roots, stem, trunk, leaves, flower</p>		<p><i>People often refer to plants as 'flowers'. Try and make sure you always use the correct term – a plant is the 'whole thing' – always say plant when you mean this, and encourage the students to do so. The flower is just the part with petals.</i></p>	
<b>Suggested activities</b>		<b>Resources</b>	<b>Useful links</b>
<p>Review work from Spring 1 – the parts of your body have particular names – and they all have particular jobs to do. Did you know that plants do too?</p> <p>Introduce names for different parts of a tree – leaves, trunk/stem, roots.</p> <p>Students should go out and find their favourite small plant from the school ground. Does it have the same features as a tree? <i>Stem instead of trunk, possibly flowers. It will probably be difficult to see the roots – perhaps you could show the roots of a small plant/weed. For a tree – how do you know the roots are there? Try and push the tree over – how does it stay anchored in the ground? There must be something down there, holding on to the soil. Point out that this is science – figuring out answers even when we can't see what's there!</i></p> <p>Point out that not all plants have flowers on them all the time. Most plants will have flowers at some point in the year – we will be looking at this in subsequent lessons.</p> <p>Draw a big tree, and a small simple plant. Label the leaves, trunk/stem, roots.</p> <p><i>Greater depth – will the small plant grow as big as a tree if we leave it long enough? Get them to consider that there are as many different types of plant as there are animals. Perhaps they could consider grouping them? Finding similarities and differences between different types of plant.</i></p>		<p>Outside, observing trees and smaller plants</p>	

<b>Enquiry 3: How different are leaves to each other?</b>			
<b>Links to previous learning</b>	<b>Scientific skills</b>	<b>Assessment criteria</b>	<b>Curricular links</b>
EY – make observations of plants	EA – Identifying, grouping and classifying  Asking questions Making predictions <b>Observing and measuring</b> <b>Key concepts:</b> Nearly all plant leaves are green, and most have veins/tubes running along them. They are usually wide and thin. Leaves have different features and shapes, depending on which plant they're from.	<b>Can your children:</b> - Identify some key features of leaves - Group leaves with common features <i>GD – explain why they have made their groups</i>	<b>Horizontal:</b> Maths – measuring & comparison Science – properties of materials  <b>Vertical:</b> Y2 – plant needs and growth
<b>Key terms</b>		<b>Common misconceptions</b>	
Leaves, big, small, thick, thin, wide, narrow, pointy, round, bumpy, smooth		<i>Students often don't understand that pine needles are leaves.</i>	
<b>Suggested activities</b>		<b>Resources</b>	<b>Useful links</b>
<p>Collect a range of leaves from the school ground. Include pine needles if possible, and grass leaves. Try and note/photograph/record somehow which plant the leaf came from*.</p> <p>Remind students of their work on properties (everyday materials) and features (identifying animals). We are going to use those skills to look at leaves today.</p> <p>Students can describe leaves, and think of their own words for the properties. Can they group them according to those properties?</p> <p>A good scientist always tries to find answers with numbers, if possible. Students could say 'the leaves from this tree are bigger than that tree', - and then they could measure them to say how much bigger they are.</p> <p>Opportunities for measuring – maths.</p> <p><i>GD* - look at the plants the leaves came from. Consider the groups you put the leaves in to. Would you expect those plants to be in groups together?</i></p>		<p>Outside – collecting leaves</p> <p>Rulers Hand lenses</p>	

Enquiry 4: What are the names of the trees around us?			
Links to previous learning	Scientific skills	Assessment criteria	Curricular links
EY – Children may be able to name and describe different plants	EA – identifying, grouping and classifying	<b>Can your children:</b> <ul style="list-style-type: none"> <li>- Name some of the trees that they see around them</li> <li>- Recognise which features to look for in order to identify a tree</li> </ul>	<b>Horizontal:</b> Y1 – identifying animals <b>Vertical:</b> Y2 – plant needs & growth Y3 – plant lifecycles
	Asking questions <b>Making predictions</b>		
	<b>Key concepts:</b> Trees can be put in to groups, just the same as we put animals in to groups. We need to look at the features of trees to know which groups to put them in.		
Key terms		Common misconceptions	
Deciduous, evergreen, leaves			
Suggested activities		Resources	Useful links
<p>What plants do the students know the names of?</p> <p>Take the students outside with some identification keys, and try and name the trees that you can see. Do this collaboratively - students are not expected to be able to use keys in Y1! At this stage, they should be able to pick out distinctive features of trees, and then become familiar with the names of those trees.</p> <p>They should be familiar with the names of some of the trees in the school grounds, and be able to identify the ones that are most distinctive.</p> <p>They should <i>practise</i> using the keys, and know that they are looking for certain features – e.g. does a tree have pointy leaves, or round leaves? Even if they can't identify a tree, they should know which 'clues' to look for that will help to identify it.</p>		Outside to look at trees  Tree identification keys	

Enquiry 5: How different are flowers to each other?			
Links to previous learning	Scientific skills	Assessment criteria	Curricular links
EY – make observations of plants	EA – Identifying, grouping and classifying  Asking questions Making predictions <b>Observing and measuring</b>	<b>Can your children:</b> <ul style="list-style-type: none"> <li>- Identify some key features of flowers</li> <li>- Group flowers with common features</li> </ul> <i>GD – explain why they have made their groups</i>	<b>Horizontal:</b> Y1 – properties of materials Y1 – features of animals Maths - measuring <b>Vertical:</b> Y2 – plant needs and growth
	<b>Key concepts:</b>		
	Flowers are usually colourful, with petals around a centre. Sometimes they smell nice. Flowers have different features and shapes, depending on which plant they're from.		
Key terms		Common misconceptions	
Petal, sepal, stem, centre, colours, long, short, wide, narrow, round, straight, scent			
Suggested activities		Resources	Useful links
Students do not need to be able to identify the stigma, style, anthers etc – just refer to the 'centre' of the flower. They can use generic terms to describe them – the important thing is that they notice what they all have in common, and that they identify features which can differentiate between them.  <i>GD</i> - Students often don't realise that the top part of long grass is a flower, and that catkins/pussy willow on trees are flowers too. There is no need to specifically teach this – concentrate on 'typical' flowers – but Greater Depth students may want to explore it.		Outside to look at flowers  A range of flowers for students to study  Hand lenses  Close up pictures of a range of flowers – try to use British native plants, or common garden plants which the students may have seen	

<b>Enquiry 6: What are the names of the small plants around us?</b>			
<b>Links to previous learning</b>	<b>Scientific skills</b>	<b>Assessment criteria</b>	<b>Curricular links</b>
EY – Children may be able to name and describe different plants	EA – identifying, grouping and classifying	<b>Can your children:</b> <ul style="list-style-type: none"> <li>- Name some of the small plants that they see around them</li> <li>- Recognise which features to look for in order to identify a small plant</li> </ul>	<b>Horizontal:</b> Y1 – identifying animals <b>Vertical:</b> Y2 – plant needs & growth Y3 – plant lifecycles
	Asking questions Making predictions <b>Observing and measuring</b>		
	<b>Key concepts:</b> Plants can be put in to groups, just the same as we put animals in to groups. We need to look at the features of plants to know which groups to put them in.		
<b>Key terms</b>		<b>Common misconceptions</b>	
Deciduous, evergreen, leaves, stem			
<b>Suggested activities</b>		<b>Resources</b>	<b>Useful links</b>
<p>What plants do the students know the names of?</p> <p>Take the students outside with some identification keys, and try and name the small plants that you can see. Do this collaboratively - students are not expected to be able to use keys in Y1! At this stage, they should be able to pick out distinctive features of trees, and then become familiar with the names of those trees.</p> <p>They should be familiar with the names of some of the small plants in the school grounds, and be able to identify the ones that are most distinctive.</p> <p>They should practise using the keys, and know that they are looking for certain features – e.g. does a plant have pointy leaves, or round leaves? Even if they can't identify a plant, they should know which 'clues' to look for that will help to identify it.</p>		<p>Outside to look at small plants</p> <p>Identification keys – wild plants and garden plants</p>	

Enquiry 7: What is the weirdest plant on the planet?			
Links to previous learning	Scientific skills	Assessment criteria	Curricular links
EY – Make observations of plants	EA – Research Asking questions <b>Interpreting &amp; communicating data</b>	<b>Can your children:</b> <ul style="list-style-type: none"> <li>- Describe the common features that all plants have</li> <li>- Describe some unusual adaptations that some plants have</li> </ul> <i>GD – can they suggest why the plants have those unusual adaptations</i>	<b>Horizontal:</b> Y1 – properties of materials Y1 – features of animals <b>Vertical:</b> Y2 – plant needs & growth Y3 – plant lifecycles
	<b>Key concepts:</b>		
	All plants have common features, but there is a wide range of features that different plants have. Plants adapt to their environment, and find different ways of doing things.		
Key terms		Common misconceptions	
Root, stem, leaves, flowers, tall, small, smell		<i>Carnivorous plants don't 'eat' flies!*</i>	
Suggested activities		Resources	Useful links
<p>What is the biggest/weirdest/smelliest/oldest/prettiest plant on the planet?</p> <p>The students should try and find out about weird plants. As they do this, they should be looking for the common features that plants have, as identified in previous lessons – these should be reinforced. Any 'weirdness' is an adaptation of one of these common features.</p> <p>*If they research carnivorous plants, ensure that they know that the flies the plant catches give it 'extra' nutrients – like humans taking vitamin tablets. The plants get most of their food from their leaves, like all other plants</p> <p><i>GD students could try and make links between the adaptations of the plants and their purpose.</i></p>			