

## Living Things – Biodiversity and interdependence

### Early Level

Lesson 1	What's Out There?
Outcome	I have observed living things in the environment over time and am becoming aware of how they depend on each other.
Resources	Camera    Hand lenses    Bug Viewers
Lesson Outline	<p>Start by getting children to look around the grounds to see what living things they can find. Encourage them to look under stones, in corners etc., but talk to them about the importance of not destroying habitats so replace stones where you found them after having had a look. Talk about ways to record what they have found. Use hand lenses and Bug Viewers to look in detail</p> <p>Don't forget plants are living as well!!</p> <p>Create a wall chart (or even an outdoor display) to identify and draw what they have seen. This can be added to as more living things are found. (See Mini Beast Bingo below)</p> <p>Create a log pile in a corner and see what takes up residence.</p> <p>Mark out an area and carefully record what is seen, perhaps photograph it, then repeat the observations over a period of time to see how time affects what is found.</p> <p>Record and share your results using the Woodland Trust's "Nature's Calendar" <a href="https://naturescalendar.woodlandtrust.org.uk/">https://naturescalendar.woodlandtrust.org.uk/</a></p> <p>Talk about where animals find their food, eg. eating plants</p>

Lesson 2	Looking at Plants
Outcome	
Resources	Card Sticky Back Plastic.
Lesson Outline	<p>Go out and look at plants. Before you go out get the class to generate questions to be investigated:</p> <ul style="list-style-type: none"> <li>- Which are the tallest?</li> <li>- Where are most of them found</li> <li>- Are different types found in different places</li> <li>- Which are the oldest and how would you know (Don't forget trees)</li> <li>- How many different shades of green are there</li> </ul> <p>Give every child or pair, a matchbox and challenge them to fill them with leaves from different plants. How many different plants can they find? (Similarly make sticky back plastic squares to stick samples onto). See below for more details.</p> <p>Other ideas would be to find ten different shades of green / yellow or something smooth or rough etc.</p>

## Living Things – Biodiversity and interdependence

### Level 1

Lesson 1	Is it Alive?
Outcome	I can distinguish between living and non-living things
Resources	Pooters, Nets, Bug Viewers, Identification Charts
Lesson Outline	<p>As a starter pupils run to something Living/ Non-Living/ Never Living each time they find something they come to you to tell you, then go and find the next thing on the list. When all completed share what they found and ask them to describe why they picked the various things. How do they know something is living? (See below)</p> <p>Use a variety of equipment such as pooters and sweep nets to survey the arthropods (animals with exoskeletons such as insects). See below for instruction for using pooters. Sweep nets can be used like a brush through long grass, bushes or trees to dislodge the arthropods. Then flip over the net to capture the samples in the net and take to a piece of fabric where they can be deposited and then put in viewers etc to observe them.</p>
	<p>Characteristics of a living thing – MRS GREN</p> <p><b>M</b>ovement – they move, plants turn to face leaves to sun</p> <p><b>R</b>espiration – take in oxygen and give out carbon dioxide (in animals this is breathing)</p> <p><b>S</b>ense – respond to what is going on in the environment</p> <p><b>G</b>rowth – they grow</p> <p><b>R</b>eproduction – produce offspring</p> <p><b>E</b>xcretion – give out waste products</p> <p><b>N</b>utrition – take in forms of energy giving materials</p> <p>?is a car a living thing – it does most of these but up until now can't reproduce.</p>

Lesson 2	Oooh it's wriggly!
Outcome	To sample living things and by looking at their characteristics identify them.
Resources	Mustard Water, OPAL guide <a href="https://www.opalexplorenature.org/soilsurvey">https://www.opalexplorenature.org/soilsurvey</a>
Lesson Outline	<p>This lesson depends on worm charming to bring worms to the surface of a grassy area where they can be collected and identified and the results recorded.</p> <p>There are at least three ways of getting worms to come to the surface of a grassy area.</p> <ol style="list-style-type: none"> <li>1. "Worm Charming" – the pupils stamp their feet to create a vibrating through the ground. After a few minutes worms (if there are any) will start to come to the surface.</li> <li>2. Mustard water. Make a mix of 1/3 cup of ground mustard in 4 litres of water (use an old milk container). Mark an area (30x30 cm) on the grass with sticks or rope. Pour half the mixture over the area and wait for worms. Collect the worms, then add the rest of the water to see if any more come out.</li> <li>3. Soil pit – Dig a hole, 20x20 cm square and about 10cm deep, put soil into a tray and look for worms.</li> </ol> <p>Use the OPAL guide to identify the worms then carefully return them to the ground.</p>

Lesson 3	Everyone into a Group
Outcome	I can sort living things into groups and explain my decisions
Resources	Lenses, pooters
Lesson Outline	<p>Pupils collect different samples of living things they find in your habitat. They then try and sort them into different groups depending on their characteristics such as:</p> <p>Leaves – shape, colour, texture  Bugs – number of legs, winged or not, colour  Seeds – size, colour, how are they dispersed</p> <p>You could repeat this in different areas of your playground / habitat and see if you find different types of living things in different areas.</p>

## Living Things – Biodiversity and interdependence

### Level 2

Lesson 1	Ooh what's that?
Outcome	I can identify and classify samples of living things.
Resources	Pooters, viewers, lens, identification sheets
Lesson Outline	Pupils use the identification sheets to identify samples of living things found in different environments. Eg trees, bugs, plants and grasses
Extension	

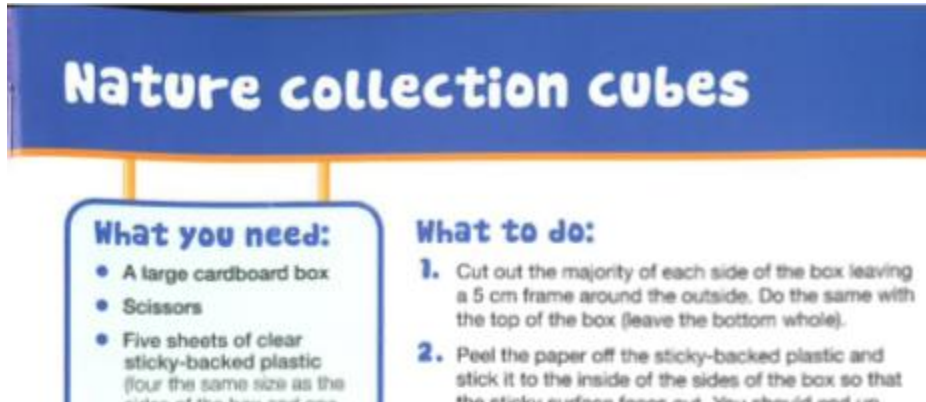
Lesson 2	Pollinators
Outcome	Survey and identify how you help pollinators in your school
Resources	<a href="http://www.polli-nation.co.uk">www.polli-nation.co.uk</a> Pollinator survey booklet
Lesson Outline	Use the resources from the Polli:Nation website to identify the various habitats in your school grounds as well as pollen sources and pollinators.  Then look at how you can change the environment to become pollinator friendly habitats and record how this changes the number and type of pollinators.
Extension	

Lesson 3	Surveys
Outcome	I can give examples of how the conditions can affect the living things I can find.
Resources	Quadrat, identification sheets.
Lesson Outline	Use quadrats to survey different areas of your schools grassy areas. Do you find different plants in shady areas or wetter areas?  Using a quadrat Take the quadrat into the area you are surveying and throw it onto the ground. Then look at each of the small squares and see if there are any plants, for example dandelions in it. Now count the total number of squares where you can see a dandelion and record that number. Repeat for any other plant types until you have recorded all the species. Then pick up the quadrat and throw it down again in an adjacent area and repeat the process. Do this several times and work out averages. You can then go to different type of area, such as under trees and repeat to see if there is any difference.
Extension	

## Resources and Information

Also look at the following for a wide range of ideas to encourage children to look at the environment they live in.

<https://naturedetectives.woodlandtrust.org.uk/naturedetectives/>



### 3 Go find some insects!

When you've replaced the lid, it's time to go pootering! Find an invertebrate, point the long straw at it and suck at the shorter straw. The insect will plop safely into your jar for observation. Once you've had a good look, release the bug carefully where you found it.



## Mini Beast Bingo

Begin by talking about what animals and insects you might expect to see in your habitat and then draw pictures of them. They can be drawn from memory or copied from books. Cut out the pictures and stick on a large piece of card and write the creatures' names under each one. Every time you spot a new creature in your habitat you can tick them off on your chart.

Each time you find a new creature take time to look at it and observe its shape, colour and patterns, and count its legs.



Here are a few more activities from The Primary Science Teaching Trust. [Primary Science Teaching Trust - PSTT](#)

## Observation

A skill that needs to be developed.



### Simple leaf activity:

- Choose a leaf
- Draw it as accurately as possible  
(Labels could be added for colour and texture)
- Place the leaf with others from the class
- Choose a child to mix them up
- Can they find their leaf?





Take a good look at the trees around your school and in the local area. [Use this resource to really look at trees.](#)

## Trees

- Bark - colour, texture, shade...bark rubbings, photographs
- Twigs – type of bud, colour, positional language
- Leaves – observation and classification
- Leaf size - ascending and descending size, area of leaves, average size of trees leaves
- Tree height – thumb or pencil method
- Roots – use string to map out spread
- Age – counting rings, circumference of a tree in cm divided by 2.5
- Timeline of the life time of a tree



Use these simple ideas to survey the different areas around your school. Do you find different things in different areas, why?

## String...line transects

Place your string...

- Along the ground
- Down a tree
- What can you see along your piece of string?
- Does it change if you place it somewhere else?



Place your quadrat...

- In a grassy area
- In an area under trees
- What differences do you notice?
- What could be the reasons behind that?

