CLASSIFICATION AND ADAPTATION
EARLY LEVEL (SCN 0-01a)

This resource was created by Kim Aplin, PSDO, Aberdeenshire Council

Curriculum for Excellence

Planet Earth ⟶ Biodiversity and interdependence

'Learners explore the rich and changing diversity of living things and develop their understanding of how organisms are interrelated at local and global levels. By exploring interactions and energy flow between plants and animals (including humans) learners develop their understanding of how species depend on one another and on the environment for survival. Learners investigate the factors affecting plant growth and develop their understanding of the positive and negative impact of the human population on the environment'

What is 'biodiversity'?

Biodiversity is all the different kinds of life you will find in one area—animals, plants, fungi, and even microorganisms like bacteria that make up our natural world. Each of these work together in ecosystems, like an intricate web, to maintain balance and support life. Biodiversity supports everything in nature that we need to survive: food, clean water, medicine, and shelter.

What is biodiversity? | David Attenborough: A Life On Our Planet - YouTube

What is a 'species'?

'Species' is the word used to describe a group of living things that can reproduce. An example of a species is 'humans' or 'lions.'

Members of the same species look and act similarly; all dogs are one species but you would be forgiven for thinking that a Chihuahua and Great Dane were not that related!

Sometimes members of the same species are hard to tell apart; there are 350,000 species of Beetle which we might find very hard to tell apart!

What is an 'ecosystem'?

An ecosystem is the way that living things work together in their surroundings. An example of an ecosystem is a rainforest.

Eco is the word we use when we are talking about the living things in the environment. So, an ecosystem is a collection of living things in one place that work together. The parts of an ecosystem might be water, soil, plants, animals etc.

An ecosystem is changed if you take one part away and won't work in the same way as it did before which is why we are concerned about extinction of animals and damage to their habitat

I have observed living things in the environment over time and am becoming aware of how they depend on each other. **SCN 0-01a**

Benchmarks:

- Explores and sorts objects as living, non-living or once living.
- Describes characteristics of livings things and how they depend on each other, for example, animals which depend on plants for food.

I can distinguish between living and non-living things. I can sort living things into groups and explain my decisions. **SCN 1-01a**

Benchmarks:

- Explains the difference between living and non-living things, taking into consideration movement, reproduction, sensitivity, growth, excretion and feeding.
- Creates criteria for sorting living things and justifies decisions.
- Sorts living things into plant, animal and other groups using a variety of features.

I can identify and classify examples of living things, past and present, to help me appreciate their diversity. I can relate physical and behavioural characteristics to their survival or extinction.

SCN 2-01a

Benchmarks:

- Classifies living things into plants (flowering and non-flowering), animals (vertebrates and invertebrates) and other groups through knowledge of their characteristics.
- Begins to construct and use simple branched keys which can be used to identify particular plants or animals. · Identifies characteristics of living things and their environment which have contributed to the survival or extinction of a species. ·
- Describes how some plants and animals have adapted to their environment, for example, for drought or by using flight.

Early Level

I have observed living things in the environment over time and am becoming aware of how they depend on each other. ***SCN 0-01a***

Links to:

I can collect objects and ask questions to gather information, organising and displaying my findings in different ways. ***MNU 0-20a***

I can match objects, and sort using my own and others' criteria, sharing my ideas with others. ***MNU 0-20b***

Activity: Treasure Hunt

The children can work in groups of three or four. Give each group a bag or tray and a list of the objects they are going to hunt for in the chosen area; this activity can be timed to limit the time spent on the 'hunt.' When time is up for the hunt, the children bring the objects back to the classroom.

In the classroom, ask the children to sort the objects into two groups, justifying their choice. Discuss as a class the different ways they have grouped the objects. Let them see that trying to sort things into groups can cause problems. Whichever criteria they use, the activity is likely to start making them think about alternative ways of classifying objects (e.g., big, or small, rough, or smooth).

OR:

Take the children outside and put a large piece of paper on the ground and ask them to each go and collect e.g., five things and place them on the paper. Now get the children to sort the objects into groups, justifying their choice. Now sort them in a different way. Again, as in the activity above, let them see that trying to sort things into groups can cause problems. Whichever criteria they use, the activity is likely to start making them think about alternative ways of classifying

objects (e.g., big, or small, rough, or smooth, leaves and non leaves, plants and not plants, colour etc).

Next focus on grouping the items into 'living' and 'non-living.' Discuss why certain objects have been put into the living group and what they all have in common.

Activity: Living vs Non-Living

The children should now start to become aware of whether things are living or non-living/not alive.

Odd one out: Show pictures/objects and get the children to say which object is the odd one out and why (e.g., living/alive, and non-living/not alive).
e.g.

What about leaves? A pencil? Are they living or non-living? They are non-living now but used to be alive: **'once living.'** Show the children pictures/objects and get them to sort them into **living, non-living** and **once living.**

Activity: Go for a walk!

Go for a walk outside and record what 'living,' 'non-living' and 'once living' objects you find. The children could draw what they see on their walk or use an iPad and take photographs. Sort them into 'living, 'non-living,' 'once living' as a class.

https://www.bbc.co.uk/bitesize/topics/zx882hv - short video and interactive activities

Activity: True or False

Seaweed is living

T

F

True

Sand is living

T

F

False

Water is non-living

T

F

True

Early Level

I have observed living things in the environment over time and am becoming aware of how they depend on each other. ***SCN 0-01a***

Possible activities:

- Observation of living things through time e.g., seasonal change to plants and trees. Questions to investigate might be: How does a daffodil bulb change over the year? How does my sunflower change each week? How does the oak tree change over the year?

- If you can get outside regularly, perhaps once a month, then the children can observe how their local environment changes over time. Recording their findings can be done in lots of ways e.g., a floor book, a photo diary, an interactive class display.

Provide a small pond: a water filled plant container sunk into the ground with a plant in it can provide a habitat for many creatures. Use magnifying glasses and containers to scoop water from the pond and observe the pondlife. (Please see resources at the back of this booklet; *due to the hazards presented by any body of water, constructing a pond within school grounds needs careful consideration – even if using a container sunk into the ground*)

- Life cycles of frogs, butterflies, chicks, and ducklings. It is possible to buy caterpillars online (www.insectlore.co.uk) and watch them develop from caterpillars to cocoons to beautiful butterflies!

- Lifecycle of a sunflower – plant, grow and observe (seed planted, starts to grow (germination), seedling, plant grows, flower opens, plant dies, and seeds are dropped).

- Make bug hotels, place them at various places in the school grounds, and the children can compare the different bugs they find inside each day. https://supersimple.com/article/bug-hotel/

- Observe living things in their natural habitat and discuss why some living things might be living and growing in one area and not in another

- Discuss where plants and animals live, list different examples including in water, on land and under the ground. Children could make drawings of the animals and plants they think might be found there. Ask the children what the animal/plant needs to live and where do they think it gets these things from. Think about food, shelter, and warmth.

- Keep a pictorial diary of the plants as they grow and talk about all the changes as they take place.

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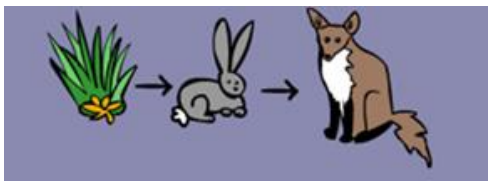
Possible activities:

- Give examples of animals that eat plants and animals that eat animals and discuss how living things depend on each other for food. Construct simple food chains: all living things need food to survive and food chains demonstrate the dependence of living things on each other. If one part of a food chain is reduced or changes, the whole food chain is affected.

Example simple food chains include:

sun – pondweed – tadpole – duck
grass – rabbit – fox
grass – cow – human
seeds – shrew -fox



These could be made as paperchains!

- Animals and their dependence on plants for food could also be related to seasonal changes. If an animal depends on plants for food, explore the type of plants it eats and if the season has an impact on the plant growth etc. what are the alternatives? E.g., hibernation.

- New life and dependence e.g., baby animals and how they are nourished.
- Grow plants which will attract insects and observe the insects that visit the plants. Discuss why they visit the plants. E.g., plants for bees and butterflies.

- In the winter, some birds that feed on insects migrate as the cold weather means they do not have enough to eat, and they return in Spring when the insects are around again.

- Feeding birds and making bird cakes/feeders - look at what birds eat: worms, insects, seeds etc.

- Explain why gardeners like lots of worms in their gardens

- Matching adult animals to their young

General resources:

Aberdeenshire Council Ranger Service Biodiversity Education Pack

Biodiversity Education Interactive Pack - March2022 with video link.pdf (sharepoint.com)

Stories/Books:

The Tiny, Tiny, Tadpole by Judith Nicholls

The very Hungry Caterpillar by Eric Carle

Hello Beaky by Jez Alborough

The Very Busy Spider by Eric Carle

Ladybird (My Little Green World, 2) by Campbell Books

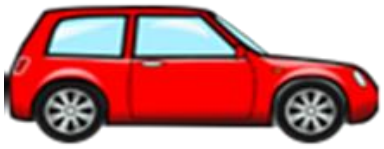
Butterfly (My Little Green World, 4) by Campbell Books

The Tiny Seed by Eric Carle

How Does a Tadpole Grow? By The World of Eric Carle

Teaching resources

Odd one out:



Living, Non-living and once living

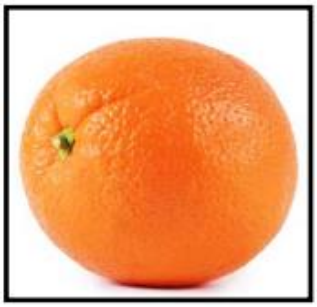















From: ©Teaching Ideas www.teachingideas.co.uk
Images: © ThinkStock

How to create a small pond out of a container:

Due to the hazards presented by any body of water, constructing a pond within school grounds needs careful consideration

See SSERC Bulletin No 77 Spring 2017

You could consider a "pond in a pot" - this is essentially a water container garden. The most basic version is simply an outdoor container filled with water, stones, and water plants. Look for shallow containers without drainage holes or a removable plug. You can purchase kits that contain a water filter or bubbler to keep the water moving.

Advice for siting the container would be like that of a larger pond; it should be sited in a securely fenced off area and access should be restricted when the pond is not in use. Also bear in mind that a small volume of water can reach high temperatures if exposed to direct sunlight for a long period.

Mini Garden Pond Ideas in A Container - (growinghealthykids.co.uk)

Make a mini garden pond - Fun Crafts Kids

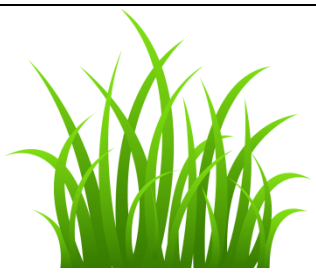
Simple Food Chains

Sort the pictures below to show the correct food chains.

Food Chain 1



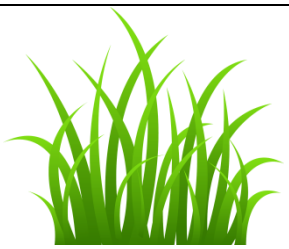
Food Chain 2

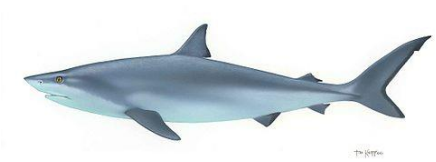

Food Chain 3


Food Chain 4





Food Chain 5



Resource created by the PSDO/ Education Services in Clackmannanshire Council

Matching adult animals to their young

How to make small bug hotels:

From: Small bug homes / RHS Campaign for School Gardening

Equipment

- Two litre plastic milk bottle or 750ml plastic drinks bottle
- Permanent markers
- A newspaper or several sheets of corrugated cardboard
- Scissors
- Optional: string
- Optional: waterproof tape

Step by step

1. Using a permanent marker, draw a line around the circumference (width) of the bottle, equidistant from the top and bottom.
2. Carefully cut along the line (an adult may need to help with this) so that the bottle is now in two evenly sized pieces, perfect to make two bug homes.

3. Take the newspaper or cardboard and cut long strips that are about 5mm shorter than the pieces of your bottle. Tightly roll the strips into tubes, ensuring there is a hole in the centre of them, around 4mm in diameter.
4. Pack the tubes into each half of the bottle, as tightly as possible so that they will not fall out. You might find it easier to keep the lid on the top half. Ensure the hollow ends are facing outwards and will be protected from rain.
5. Decorate the outside of the bug homes using permanent markers.
6. If you are choosing to hang your bug home, add string either by making holes in the home and threading it through or by attaching with waterproof tape.
7. Place/hang the bug home in a warm spot. Bug homes should sit horizontally but with the open end slightly lower to prevent water from getting inside.

Larger ones can be made using old wooden pallets:

https://www.rspb.org.uk/fun-and-learning/for-families/family-wild-challenge/activities/build-a-minibeast-hotel/

Make your own Bug Hotel with the Horniman Museum - YouTube

Or from flowerpots:

How To: Bug Hotel - YouTube

Or from recycled cardboard tubes:

How to build a Bug Hotel - Wildlife Connections - YouTube

How to make birdfeeders

Plastic bottle feeder from:

[How to make a recycled bird feeder | National Trust]

Materials

Empty plastic bottle

scissors (you might want to use a craft knife too if that is easier), bird seed

two plastic or wooden spoons

string

1. Cut two holes in your plastic bottle, make sure they are directly opposite each other. Repeat this with another two holes, slightly higher up.

2. Make sure that your holes are not too small, you might need to open them up a little more with a pair of scissors (aim for the size of a penny).

3. Now push your two spoons through the holes.

4. Fill the bottle with seed and place the lid back on.

5. Tie the string around the top of the bottle and hang it up outside.

[How to Make a Bird Feeder - Woodland Trust]

Pinecone bird feeder:

https://www.nationaltrust.org.uk/features/how-to-make-a-bird-feeder

[12 Easy Homemade Bird Feeders - DIY Bird Feeder Ideas (housebeautiful.com)]