ACET Junior Academies'

Scheme of Work for Science

Big Idea – Living Things

Year 1 – Identifying animals

About this unit:

PoS – Animals, including humans

Animals are either vertebrates (fish, mammals, amphibians, reptiles and birds) or invertebrates (minibeasts such as slugs, snails, worms, insects, or sea creatures other than fish). This unit involves learning about vertebrates, but it's important that students know that there are other types of animals too. Basically, if it's alive, and not a plant, it must be an animal! *Some students express surprise that humans are animals, or that snails or worms are animals – they have come to believe that 'animals' means one of the 5 vertebrates. It's important not to leave them with this misconception.*

This season is ideal to grow some frogspawn or caterpillars in the classroom. This will tie in with both this unit and the Seasonal Changes unit.

There will be opportunities to gather data for the class year book. Bear in mind again the Seasonal Changes unit from the beginning of the year, and ensure that you refer back to it to put the changes you discussed then in context.

Unit structure

This unit is structured around six science enquiries:

1. What has changed since the autumn?
2. What makes animals different?
3. Can you group animals like a scientist does?
4. Can you explain why an animal is in its group?
5. What do animals eat?
6. How do animals eat?

Links to previous and future National Curriculum units

- Y2 – Habitats
- Y4 – Classification and keys
- Y5 – Lifecycles
- Y6 – Classification

<table>
<tr><th colspan="4">Enquiry 1: What's changed since the autumn?</th></tr>
<tr><th>Links to previous learning</th><th>Scientific skills</th><th>Assessment criteria</th><th>Curricular links</th></tr>
<tr><td rowspan="3">EY – Comment and question about the world around them

Y1 – Seasonal changes</td><td>EA – Observation over time (long term)

Asking questions
Making predictions
Observing and measuring</td><td rowspan="3">Can your children:
- Recall the names of the seasons
- Take measurements that are comparable to previous ones

GD – can they attempt to explain why the changes have happened?</td><td rowspan="3">Horizontal:
Seasonal changes

Vertical:</td></tr>
<tr><td>Key concepts:</td></tr>
<tr><td>Be observational, and compare what you found about your local environment in the autumn with what you can see now.
Take careful measurements, being mindful that you want to make comparisons.</td></tr>
<tr><th colspan="2">Key terms</th><th colspan="2">Common misconceptions</th></tr>
<tr><td colspan="2">Season, spring, summer, autumn, winter, weigh, measure, compare, change</td><td colspan="2">Remember that when you weigh something you are measuring its mass. Try not to refer to 'weight' – but no need to correct, or confuse students. It is ok at this stage to use the terms interchangeably, but good practise to say that we are measuring mass.</td></tr>
<tr><th colspan="2">Suggested activities</th><th>Resources</th><th>Useful links</th></tr>
<tr><td colspan="2">Go back to the class 'year book'. What did you observe about your school environment then? Can you spot the same things now? How have they changed?
Collect data to put in your class year book.

Before you go out, remind the students of what they found, and ask them to predict what they think will have changed, and how.</td><td>Class year books
Hand lenses
Scales
30cm rulers</td><td></td></tr>
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<table>
<tr><th colspan="4">Enquiry 2: Are animals all the same?</th></tr>
<tr><th>Links to previous learning</th><th>Scientific skills</th><th>Assessment criteria</th><th>Curricular links</th></tr>
<tr><td rowspan="2">Children should be able to talk about things they have observed including animals.
Be able to show care and concern for living things.</td><td>EA – Identifying, grouping and classifying

Asking questions
Making predictions
Observing and measuring</td><td rowspan="2">Can your children:
- Recognise a range of common features that animals have
- Name the five vertebrate groups</td><td rowspan="2">Horizontal:
Y1 – Everyday materials
Y1 – Human body and senses

Vertical:
Y4 – Classification
Y6 - Classification</td></tr>
<tr><td>Key concepts:
There are many different animals with different features.
We can put things with similar features into groups.</td></tr>
<tr><th colspan="2">Key terms</th><th colspan="2">Common misconceptions</th></tr>
<tr><td colspan="2">Animal, fish, mammal, amphibian, reptile, bird, features</td><td colspan="2">Students often think that only the vertebrates are ‘animals’, and that humans, insects, sea creatures & other living things are ‘something else’.</td></tr>
<tr><th colspan="2">Suggested activities</th><th>Resources</th><th>Useful links</th></tr>
<tr><td colspan="2">Teacher to choose examples of different animals from books, films etc. that are familiar or easily accessible to the students – 1 or 2 each of fish, reptiles, mammals, birds, amphibians. Make sure that they have a relatively realistic lifestyle. Try to choose examples that the students will have seen in context, rather than obscure examples/pictures from the internet. You should be able to see birds from the window – choose pigeons or blackbirds or crows. The Gruffalo/Stick man books have examples of animals living in their habitats. You could introduce them from the book, and then find a range of pictures of actual examples from the internet. Try and find examples of UK/local examples rather than exotic ones.

Students should be aware that minibeasts are different types of animals, with groups of their own. Today we are studying the larger animals – we will be looking at minibeasts again in the summer, and in Y2.

Study the animals – what do they look like, where do they like to live, what do they eat. Teacher can name the group that they are in. Students can record the name and a description.

We will be studying materials later in the year – where we look at ‘properties’ in the same way as ‘features’ here. Students will also be learning about their senses later in the year – encourage them to consider what the animals will feel/sound/smell like – you can come back to this next term.</td><td>A range of familiar books or pictures containing information about animals.</td><td></td></tr>
</table>

Enquiry 3: Can you group animals like a scientist?			
Links to previous learning	**Scientific skills**	**Assessment criteria**	**Curricular links**
Students should look closely at similarities, differences, patterns and change	EA – Pattern seeking Asking questions **Making predictions**	**Can your children:** - Put common examples of vertebrates into the correct group - Apply what they know to unfamiliar animals	**Horizontal:** **Vertical:** Y4 – Classification Y6 - Classification
	Key concepts: There are lots of different ways of putting things into groups. We are learning how scientists put animals into groups, so we can learn more of the things that scientists know in future lessons.		

Key terms	**Common misconceptions**
Animal, fish, mammal, amphibian, reptile, bird, features	*Students often think that only the vertebrates are 'animals', and that humans, insects, sea creatures & other living things are 'something else'.*

Suggested activities	**Resources**	**Useful links**
Point out that you can group things in many different ways – e.g. you could group animals according to colour or size. This is not wrong! Can the students think of alternative ways of grouping the animals? E.g. all brown ones, ones with legs. However scientists group animals together in a certain way – they put animals with similar features together. We will be reviewing this in the materials unit. Garden organisms – watch the clip and try and name as many different types of animals as you can. Give the students a range of pictures of animals, including pets and minibeasts, and some areas (e.g. hula hoops) with names on them – fish, amphibians, reptiles, birds, mammals **and minibeasts**. Can the students put the animals in the right places? *They do NOT need details about minibeasts – just an awareness that they are animals too, and that they can be different types (e.g spiders, worms, woodlice). They are the animals that don't fit into the 5 groups we already know. Today we're just focusing on the 5 groups we've studied.*	A range of pictures of animals, including unfamiliar animals and some invertebrates	https://www.bbc.co.uk/teach/class-clips-video/biology-ks1-ks2-wonders-of-nature-wildlife-in-our-gardens/zkx2t39

Can they help each other? Try and record what words they are using to justify their choices.		

Enquiry 4: Can you explain why an animal is in a group?			
Links to previous learning	**Scientific skills**	**Assessment criteria**	**Curricular links**
	EA – Problem solving Asking questions **Making predictions** **Key concepts:** Scientists use the characteristics of animals to group them, just like we use the properties of materials to group them. Each group of vertebrate animals has some special characteristics we can learn.	**Can your children:** - Describe the features of animals in each vertebrate group - Explain why a particular organism is in a group	**Horizontal:** **Vertical:** Y4 – Classification Y6 - Classification

Key terms	**Common misconceptions**	
Fur, scales, leathery, moist, eggs, feathers, beaks, wings, eggs		
Suggested activities	**Resources**	**Useful links**
Using the pictures from the last lesson, recap which group they are in. Can the students **explain why** they are in the group? This should be like the materials lesson, where they apply descriptive words to the animals. The features they use should be physical (e.g. they have fur) rather than behavioural (they feed their babies with milk) at this stage, where possible. Mammals – have fur. Give birth to live babies. Reptiles – have scaly skin and breathe air. Lay leathery eggs. Birds – have feathers, beaks and wings. Lay hard eggs. Amphibians – have soft, moist skin. Live in water and on land. Lay soft eggs. Fish – have scaly skin and breathe underwater. Lay soft eggs. *They can relate to other features if they like, but need to learn these basic features. Greater Depth could consider animals that don't quite fit into the group. Let them know that this is ok – if we were to group people in the class according to hair colour, it may be difficult to decide who has 'brown hair' or 'blonde hair'. This is often true of groups. However this discussion shouldn't undermine their confidence in the main features of vertebrate groups – nearly all animals do easily fit into one of these!*	Examples of different vertebrates – see previous lessons	

They can design their own animal – they should decide what group it's in first, then it can have whatever features they like, as long as the key features match the group (e.g. an amphibian should have smooth soft skin, a mammal should have fur).		

Enquiry 5: What do animals eat?			
Links to previous learning	**Scientific skills**	**Assessment criteria**	**Curricular links**
EY – Children can talk about things they have observed, including animals	EA - Pattern seeking Asking questions Making predictions **Observing** and measuring **Key concepts:** Different animals eat different things. Animals have different teeth, depending on what they eat.	**Can your children:** - Recognise that some animals eat plants, and others eat other animals - Identify what an animal eats by looking at its teeth	**Horizontal:** Y1 – Everyday materials **Vertical:** Y4 – Classification Y6 - Classification

Key terms	**Common misconceptions**
Carnivore, herbivore, omnivore, bite, chew	*A cat or a dog taking some bites of grass doesn't mean they're not a carnivore.* *A carnivore is an animal that eats mostly meat.*

Suggested activities	**Resources**	**Useful links**
Think about different stories – what do the animals eat? *This unit may coincide with World Book Day – there may be opportunity to develop this as a theme.* Show a range of pictures of familiar animals. What do they eat? How do you know what they eat? Could you guess what they eat, if you hadn't seen them before? Carnivores – big, sharp pointy teeth at the front and side Herbivores – flat, ridgy teeth at the back for grinding. Some, like sheep, have sharp flat teeth at the front for cutting grass or leaves Omnivores – some of each type of teeth – like humans! Show some pictures of less familiar animals showing their teeth – e.g. kangaroo, manatee. Piranha, brown bear – can the students guess what	Books and pictures of herbivores, carnivores and omnivores (a pig is a good example).	https://www.youtube.com/watch?v=VejLXTsJrJc

they eat? Their reasons/explanations are more important than the 'correct' answer.		

<table>
<tr><th colspan="4">Enquiry 6: How do animals eat?</th></tr>
<tr><th>Links to previous learning</th><th>Scientific skills</th><th>Assessment criteria</th><th>Curricular links</th></tr>
<tr><td rowspan="2">EY – Children can talk about things they have observed, including animals</td><td>EA – Pattern seeking

Asking questions
Making predictions</td><td rowspan="2">Can your children:
- Recognise that invertebrates have to eat food – either plants or animals
- Describe the differences between carnivore and herbivore teeth

GD – make links between the different types of teeth and how they work</td><td rowspan="2">Horizontal:

Vertical:
Y2 – Health & hygiene
Y3 - Nutrition</td></tr>
<tr><td>Key concepts:
Invertebrates eat food – and can be carnivores or herbivores too.
Animals with different teeth have to eat their food differently.</td></tr>
<tr><th colspan="2">Key terms</th><th colspan="2">Common misconceptions</th></tr>
<tr><td colspan="2">Carnivore, herbivore, omnivore, sharp, pointy, ridgy, cut, grind, chew</td><td colspan="2"></td></tr>
<tr><th>Suggested activities</th><th>Resources</th><th colspan="2">Useful links</th></tr>
<tr><td>Collect woodlice – see if you can use a hand lens to see what their mouths look like.

Collect snails – put them on a sheet of glass so that you can see them from underneath. Can you see their mouths?

Watch the tiger and giraffe clip (or other clips of a carnivore and herbivore eating). Can the students act out the mouth action of carnivores (up and down motion, strongly holding on to the meat) compared to herbivores (initial cutting, then side-to-side motion). They should be able to describe the difference in motion, and why they are doing it.

Carnivores – big, sharp pointy teeth at the front and side
Herbivores – flat, ridgy teeth at the back for grinding. Some, like sheep, have sharp flat teeth at the front for cutting grass or leaves</td><td>Hand lenses

Woodlice
Snails
Appropriate containers</td><td colspan="2">https://www.youtube.com/watch?v=2KjNH2_QDVs snail eating lettuce (play on mute)

https://www.youtube.com/watch?v=VejLXTsJrJc
Compare the tiger and giraffe.</td></tr>
</table>

Omnivores – some of each type of teeth – like humans!		