

LEARN AT CHESTERZOO

POST-16 ANIMAL BEHAVIOUR TEACHERS GUIDE

Studying the behaviour of animals can help you to cover parts of the Psychology, Biology, Information Technology and Mathematics National Curriculums at **AS** and **A2** Level, in a really interesting way! Curriculum links can be found at the end of this guide.

We will show you how to challenge your students and encourage them to take charge of designing their own animal behaviour study!

How an ethogram works...

An ethogram is a cataloguing technique used by researchers to describe how animals behave.

We can then use the **ethograms** when watching behaviour in **time budget** studies, to record data on how individuals and groups of animals spend their time.

The **data** obtained from these behavioural studies are really **important** for us, as they can help us with our conservation work - both *ex-situ* (in zoo) and *in-situ* (out in the wild!).

We've given you two examples of different types of behaviour study – it's up to your students to decide which one is best to use!

At the Zoo!

Coming to the zoo to do your ethograms? When planning your trip, it's good to get your students to consider:

- How long they're visiting for
- Which animal species they're interested in
- Do they want to look at just one animal or a whole group...?

This will help them to choose some good study species in advance, maximising their time spent in the zoo!

LEARN AT CHESTER ZOO

Step 1: Choose a species!

Your class only has a limited time to spend in the zoo – make sure your students pick a species that they're likely to see! A lot of our animals are shy or nocturnal, making the next step really challenging...

Also consider how active the species is likely to be at the time of your visit – many of our reptiles spend most of their day basking, not the most exciting behaviour. We'd recommend focusing on a primate species, as they show a range of interesting behaviours readily in front of the public – check out the Monkey House, Chimpanzees, Realm of the Red Ape and Monsoon Forest!

Note: Occasionally our animals and/or their exhibits need to be removed from public view at short notice to undertake health checks or maintenance work; have back up options to avoid disappointment.

Step 2: Identify your animal's behaviours (aka the Ethogram bit!)

So what do animals get up to? It's time to look at how they behave.

Ask your students to spend a few minutes quietly observing their animal species. Get them to scribble down what behaviours they saw, an abbreviation and a description. Voila! Your very own ethogram!

Here are a few example behaviours we've spotted our chimps doing:

Abbreviation	Behaviour	Explanation of behaviour
LOC	Locomotion	Moving forward or backwards from one space to another using arms or legs
GRO	Grooming	The act of a chimp tidying, cleaning, or brushing its own fur/hair/body
RES	Resting	Lying or sitting down with head in an upright position or in contact with the ground. All limbs are in contact with the floor or other substrate such as a platform. The animal is not moving from place to place.
N/V	Not visible	Animal goes off show/out of camera shot behaviour cannot be seen

If the animal lives in a social grouping, get them to include social behaviours (like allogrooming – grooming each other). If describing dominant or submissive behaviour, make sure they write exactly what they're looking for – for example, dominant behaviour could be chasing another individual or sitting in close proximity and not letting the other animal move away etc.

Step 3: Decide which time budget survey design to use

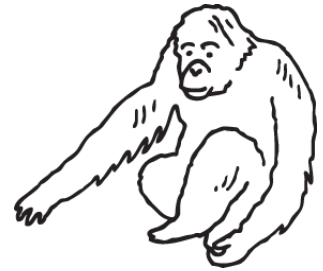
Now your students have found out a little more about their animal species and made their ethograms, they need to decide whether they want to look at an individual or a group. Give them a copy of our examples to read, so they can select the appropriate survey design:

- Just one individual animal; choose instantaneous sampling (Page 3)
- The whole group; choose scan sampling (Page 4)

Tip! If the animal is a solitary species, or lives in a very large active group, it would be best to choose just one individual to look at.

LEARN AT CHESTERZOO

Example 1: Instantaneous Focal Animal Sample



In this survey design, you will **focus** on just **ONE** individual animal and record its behaviour at set times within their study period. So it's like an **instantaneous** snapshot of what the animal was up to at each time interval.

Print off the recording sheet from our online resources folder and decide how long you want to observe the animal for (we recommend a minimum of ten minutes).

Think about how to break down your study duration into regular time slots (these go down the left hand column) and then jot down your behaviour categories or abbreviations in the top row – just like we've done in our table below.

Start timing your study – you could either use a stopwatch, a wristwatch or even a mobile phone (a life essential for most students!).

At each time point, mark down what your individual animal is doing. At the end, you can see how your **individual animal** spent its time.

However, be careful when interpreting results; if a behaviour isn't ticked that doesn't mean it didn't happen – it just didn't happen when we were looking for it!

A five minute example... Orangutan!

Individual: 1							
Time	Resting	Eating	Drinking	Moving	Grooming (Cleaning self)	Other	Not visible
30 secs	✓						
1 min	✓						
1 min 30				✓			
2 mins		✓					
2 mins 30		✓					
3 mins				✓			
3 mins 30	✓						
4 mins	✓						
4 mins 30	✓						
5 mins					✓		

Example 2: Instantaneous Scan Animal Sample



In this survey design, you will be **scanning** a whole **GROUP** of animals and recording their behaviours at regular intervals. So this time you get an **instantaneous** snapshot of what the group was up to at each time interval.

Print off the sheet from our online resources folder and decide how long you want to observe the animal for (we recommend a minimum of ten minutes).

It's the same table layout as the 'instantaneous focal sample' (Example 1).

When thinking about how to break down your study duration into regular time slots (these go down the left hand column), it's best to leave yourself a little more time than in the focal study – remember, there could be lots of individual animals to record!

Once you're happy with the time spacing, jot down your behaviour categories or abbreviations in the top row – just like we've done in our table below.

Start timing your study – another excuse to get the mobile phone out!

At each time point, mark down what behaviour every member of the group is doing. At the end, you can see how the **group as a whole** spent its time.

However, be careful when interpreting results; if a behaviour isn't ticked that doesn't mean it didn't happen – it just didn't happen when we were looking for it!

A five minute example... Chimpanzees!

Group size: 22 individuals							
Time	Resting	Eating	Drinking	Moving	Grooming (Cleaning self)	Other	Not visible
1 min	 	I					
2 mins	 						
3 mins	I						
4 mins	I		I	I			II
5 mins	I						I

POST-16 ANIMAL BEHAVIOUR

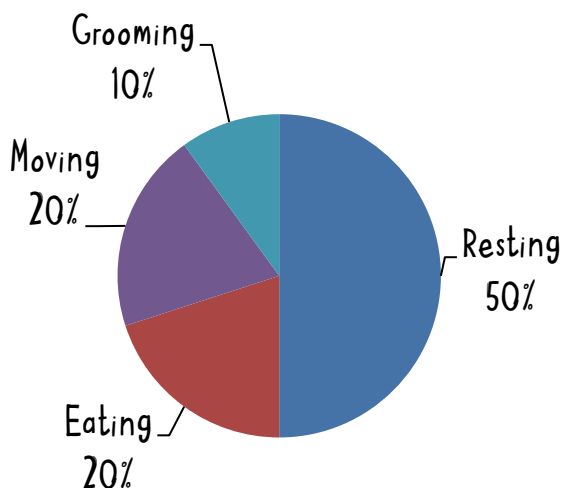
That was fun! What now?

Hopefully your students have filled their ethograms FULL of behavioural observations – so now it's time to make sense of it all! Here are some ideas to help your students to analyse their data:

1. Get Charty!

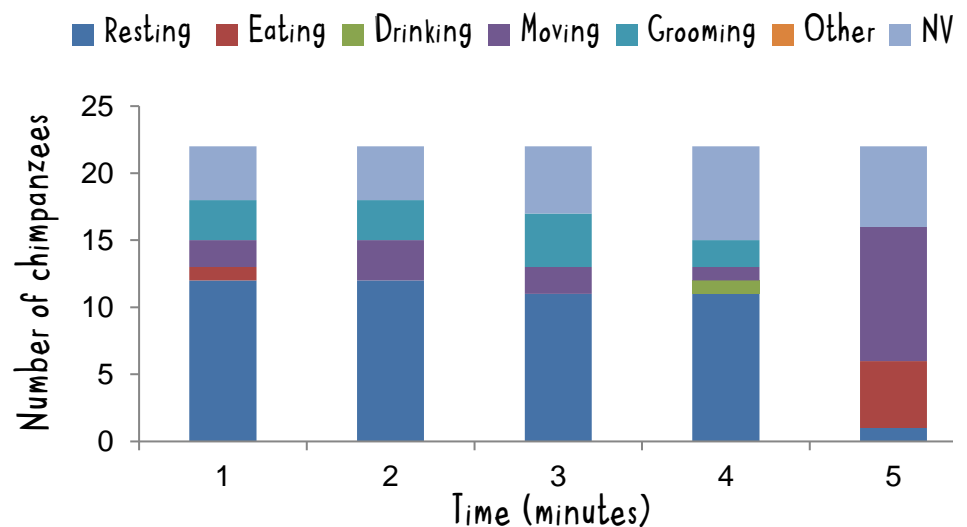
Our scientists use the data collected in ethograms to produce charts and graphs – this is a really effective way of seeing at a glance how the animals spend their time.

We particularly recommend **time budget pie charts** and **stacked bar graphs** like these ones below:



How one Orangutan spent its time...

...compared to a whole TROOP of Chimpanzees!



POST-16 ANIMAL BEHAVIOUR

2. Animal Arithmetic

Get your students to think about **Mean, Median** and **Mode...**

Which of these measures of central tendencies would they choose to do on their data sets and why?

Standard deviation is also important – why do they think this is...?

3. Question Time!

We've come up with some questions for you to ask your budding behaviourists! This could be verbal, or written for added challenge.

Which behaviours were observed most frequently?

Why might this be?

Were any factors that might have affected the animal's behaviour recorded? Was it male or female? What was the weather like? Etc.

Do you think this behaviour would occur in the wild?

Can you think of any survival advantages?

How could the findings of your study be used to help conserve your animal species?

Think about animal welfare, social structure and breeding behaviours, both *in-situ* (wild) and *ex-situ* (zoos/aquariums).

Further [information](#) and [resources](#) can be found on our [website](#).

4. Compare and Contrast

Time to share results! Get your students talking about their behaviour study.

Did anyone else in your class choose your study species?

How did the behaviour of your animal(s) compare to their findings?

Why might there be differences between data sets?

If you wanted to explore the behaviour of this species further, what might you change or add to your current survey design?

LEARN AT CHESTERZOO

POST-16 ANIMAL BEHAVIOUR

Curriculum Links

We thought we'd be extra helpful and show you where this can fit into the curriculum for each examination board! You might even spot some future animal ethologists in your class!

AQA AS and A-Level Psychology

- Research Methods
 - Scientific Methods
 - Data Handling and Analysis

OCR AS and A-Level Psychology

- Research methods and techniques
- Planning and conducting research
- Data recording, analysis and presentation
- Practical activities

AQA AS and A-Level Biology

- Handling data

Edexcel AS and A-Level Biology A

- Working Scientifically and Mathematical Skills

OCR AS and A-Level Biology A

- Development of practical skills in biology

AS and A2 English

AS and A2 Information Technology

