



Aquatic Adventure: Animal Behavior

For Parents/Teachers

Topics: Animal Behavior a.k.a. Ethology, Seasonal changes, 5 senses

Grade Level: Best suited for 5th grade and above, AP Biology Curriculum

Vocabulary:

Behavior- anything that an organism does, involving action and response to internal or external stimulation

Cause – a reason for an action or condition, for animal behavior this is the stimulus

Effect – the action or condition resulting from a cause or stimulus

Stimulus – something that causes or incites activity or lack of activity

Ethogram – a comprehensive list, inventory, or description of the behavior of an organism

Sampling – taking, studying, recording, trying, etc. only a part of the whole, in sampling animal behavior we record parts of their whole day of behaviors, for example every 30 seconds or recording everything but only for a few days of the month

Instinct – an innate (born with) behavior, genetically programmed

Habituation – what occurs when an animal is exposed to a stimulus repeatedly, to the point that the stimulus becomes ignored

Stress – an emotional state, often when situations have made the individual uncomfortable or frightened, can be observed by associated behaviors

Ethology - The study of Animal Behavior

A few types of Animal Behavior Studies/Sampling Techniques:

Ad-libitum Sampling – writing down everything you observe, note taking style of studying behavior

Focal Animal & Continuous Sampling – observe 1 animal or subgroup of animals and record everything they do, best for events

Instantaneous or Scan Sampling – observe 1 animal or subgroup and record what the animal is doing at pre-set intervals of time, best for states

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Resources:

- 1) <https://www.animalbehaviorsociety.org/web/downloads/Sampling%20Animal%20Behavior-SM.pdf>
- 2) <https://www.youtube.com/watch?v=6hREwakXmAo>
- 3) <https://www.youtube.com/watch?v=S3JsTHMWgss>
- 4) <https://explore.org/livecams>
- 5) <https://www.generationgenius.com/videolessons/animal-group-behavior-video-for-kids/>

Books

- 1) I am Jane Goodall (Ordinary People Change the World) by Brad Meltzer
- 2) Animal Groups: How Animals Live Together by Etta Kaner and Pat Stephens



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For Students

Spring Behavior Search

Grades: Kindergarten – 3rd, all ages can play

Behaviors of Spring

Let's Find Signs of Spring with Animal Behavior: *You will need a space to observe the outdoors. A window is all you need but going outside is best. You will also need a pencil and paper.*

Before we go outside or look out the window. Make a list of things that happen in the Spring. Focus on things that are different between Spring and other seasons or ways we know Spring is coming such as flower blooming, wearing different clothes, birds singing, etc.

Fill in the Blank:

Now it's time to observe. What is an observation? Observations are things we can sense. Can you think of the 5 human senses? We can use eyes to ee , ears to hrr, hands to ou_h, nose to see, and tongue to as_e. other people or animals doing and things we can see happening such as waves moving on a lake, birds in the trees, cars with windows down, a friend working on a puzzle.

Now we go for a Nature Walk or Look out a Window

Write observations on the next page

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Take a walk outside with a parent or look out a window to see the world around you. Write down all the things you can see or hear or smell or even feel, that show you Spring is coming.

See if you can find all of the things on our list of Spring Behaviors and write 2 of your own!

I can SEE Spring!

- **Robins are looking for food**
- **Flowers are blooming**
-
-

I can HEAR Spring!

- **Birds are chirping**
- **People are mowing lawns**
-
-

I can FEEL Spring!

- **Breeze blowing**
- **Green Grass**
-
-

Circle the things you observed animals or humans DOING, these are Behaviors 😊



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Animal Behavior Observations Part 1 Grades: 4th and Up

Creating an Ethogram: *You will need to find a family pet, family member, or an animal outside that you can observe for at least 5 minutes of continuous time.*

We can create an Ethogram, a list of behaviors for a particular species, by observing an animal (humans included) for a period of time and taking mental or physical note of what behaviors they engage in. Creating an Ethogram will allow us to do study the behaviors in greater detail later.

Once you have found the animal (human allowed) you will observe to create your first Ethogram. Remember, we will focus on one animal or human for this time. Set a timer for 5 minutes. Take mental or physical notes of any different behaviors you can see or hear, they might be small so pay attention to detail.

Here is some space to take notes, you can also use the back – This is a very basic Ethogram



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Animal Behavior Observations Part 2 Grades: 4th and Up

Now we can sort the recorded behaviors by whether they are state or event behaviors.

State Behavior – occurs for a length of time, usually things such as feeding, resting, grooming, and other prolonged and frequent activities.

Event Behavior – something that occurs with a distinct beginning and end, usually happen suddenly and don't last long, often includes aggressive behaviors like a hit or bite and mating behaviors

You will also need to create definitions of behaviors for an Ethogram. This allows for consistent sampling later on by yourself or someone else. What does “standing” or “sitting” or a hit mean in detail?

Here are some examples for a dog.

Ethogram of State Behaviors for Labrador Retriever

Sitting: animal has its hind limbs and bottom on the ground, feet of front limbs touching the ground but erect, back is angled as animal is sitting upright.

Alert: any position, eyes open, pupil movement visible, ears are back listening

Eating: animal is taking food into the mouth, must have mouth to food contact, sniffing not included in eating

Ethogram of Event Behaviors for Labrador Retriever

Bark: animal produces loud, short sound from the mouth with a deep and abrupt pitch

Bite: animal makes contact with another object or individual using its mouth with upper and lower jaw separated over the object, aggressive manor, doesn't include bite contact with pre-identified toy items

Use the next page to make your ethogram for State Behaviors & Event Behaviors. Consider the details of behaviors in your definitions. Make sure to write in what species the Ethograms are for.



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Ethologist Name: _____.

Ethogram of State Behaviors for _____.

| Behavior | Definition |
|-----------------|-------------------|
| 1) | 1) |
| 2) | 2) |
| 3) | 3) |

Ethogram of Event Behaviors for _____.

| Behavior | Definition |
|-----------------|-------------------|
| 1) | 1) |
| 2) | 2) |
| 3) | 3) |

Congratulations! You've made an Ethogram we can use to study Animal Behavior!

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Animal Behavior Sampling Study Grades: 5th and Up

Now that you know your way around an Ethogram, we can use one to study the behavior of a species. We are going to do an Animal Behavior Sampling study for a Gray Seal Pup! We will use footage from a Webcam of Gray Seal Pupping Grounds

The Gray Seal is just one species we work with at the National Marine Life Center. When a Gray Seal is first born, it is called a pup. Pups are dependent on their mother for just between 2 to 3 weeks and then they should be able to survive on their own.

One of the most important things we do as scientists is to develop a hypothesis, also known as a prediction. We ask ourselves “what do we think will happen or what will we see and why.” The why is based on previous knowledge or evidence.

Our question today is will the Gray Seal Pup spend more time being active and alert, or more time sleeping and resting?

Write your prediction below. Why do you think the Gray Seal Pup will spend more time exhibiting that type of behavior?

Prediction:

Evidence to support this:

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Set up for the Animal Behavior Sampling Study

- 1) Review the Ethogram for a Gray Seal Pup below. Make sure you understand the definitions.
- 2) Make sure you have a pencil ready and the Sampling Study page printed or copied by hand.
- 3) Using a computer, open this link to find the Gray Seal Pupping Ground video. <https://explore.org/livecams/oceans/seal-pups-cam>
- 4) Go to the time mark of 45 minutes 55 seconds and pause so you are ready to begin. You should be focused on a plump, light colored Gray Seal Pup.
- 5) You can work with a partner who can announce “time” every 30 seconds via a clock or stopwatch, or you can watch the time bar at the bottom of the video and keep track on your own.

Conducting an Instantaneous or Scan Sampling Study for a Focal Animal

- 1) Beginning at time mark 46 minutes 30 Seconds for the Gray Seal Pupping Video, you will be recording the behaviors of the seal every 30 seconds.
- 2) The behaviors you record must be from the Ethogram for Gray Seal Pup found on the next page. You can write the abbreviations if it’s easier.
- 3) We will conduct the sampling study until time mark 56 Minutes 00 Seconds on the video of Gray Seal Pupping Grounds.
- 4) Further steps for analysis will follow

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Ethogram of State Behaviors of Gray Seal Pups.

| Behavior | Code | Definition |
|----------------------------------|-------------|---|
| Resting | R | Lying either on the back, the stomach, or on the side, without moving and with the head down |
| Alert | A | Lifting the head up with eyes open and sometimes also moving the head from side to side |
| Flush Response Moving | F | Rushing to the water All visible movements where an individual was moving from one place to another on land or in/out of water |
| Nursing/Suckling | S | Pup laying with head close to the teats of the mother |
| Interaction | I | Interacting with another seal, other than nursing/suckling |
| Other Behavior | O | All other behavior |
| Not visible | NV | Animal out of view, not visible |



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Gray Seal Sampling Study Data Sheet

Name:

Date:

Weather:

| Check when Complete | Time | Behavior Observed | Notes |
|---------------------|--------------|-------------------|-------|
| | 46:30 | | |
| | 47:00 | | |
| | 47:30 | | |
| | 48:00 | | |
| | 48:30 | | |
| | 49:00 | | |
| | 49:30 | | |
| | 50:00 | | |
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Analysis the Animal Behavior Sampling Study

- 1) Count up the number of times the Gray Seal Pup was Resting.
Record that number here _____.
- 2) Count up the number of times the Gray Seal Pup was either Alert, Moving, Suckling, Interacting, or Flushing as these are all active behaviors. Record that number here _____.
- 3) Which behavior was recorded the most? _____
- 4) Re-evaluate your prediction. Did the Gray Seal Pup, according to your data, spend more time being active (movement) and or alert or more time resting.
- 5) Calculate what percentage of time the Gray Seal Pup was active or resting during your observations.

You can do this by dividing the number of times the behavior was observed by the total number of times you recorded data (this should be 20).

Consider why it is important for scientists to study Gray Seal behavior. How could the findings help us protect the species?



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Now that you know how to create an Ethogram and how to use it for Animal Behavior Sample studies. You can check out other videos at this link and conduct your own studies. Remember to follow these steps.

- 1) Observe the animal for at least 5 minutes, longer is better, in order to understand their behaviors before creating an Ethogram for the study with definitions and codes.
- 2) Develop a question you want to answer, such as which behavior with the animal participate in most.
- 3) Make a prediction of what the answer to your question will be, this is your hypothesis. Write down why you hypothesize the animal will exhibit that behavioral pattern.
- 4) Set the time for how often you will record data. Is it every 30 seconds, 1 minute, 2 minutes? Usually the more frequently we observe and record instantaneous behaviors, the more reliable the data.
- 5) Observe and record your data.
- 6) Look at the results. Was your prediction right?
- 7) Analyze the results and share with others.
- 8) Consider why studying animal behavior for this species is important.