

Rio Grande Zoo Animal Behavior Study

Ethology is the comparative study of animal behavior. The ultimate goal is to discover the physiological and environmental causes of behavior. The first step, of course, is to carefully observe behavior. The table below is an **ethogram** which helps **ethologists** quantify behavior in terms of *how long*, *how often* and in *what situations* behaviors occur.

Like all scientists, ethologists test hypotheses, or questions, regarding animal behavior. This exercise will take you through the preliminary observation, data gathering and data analysis that ethologists use to come up with a hypothesis, or question.

STEP 1: Choose an animal to observe. Don't forget to include birds, reptiles and amphibians when making your choice! At enclosures with more than one animal, ethologists can watch different individuals and pool or compare results with each other. If you want to choose and research an animal before you come to the zoo, download the Zoo inventory at www.cabq.gov/biopark/zoo

STEP 2: Fill in the animal's name, date, time, weather and other animals or objects your subject can see or hear. Date and time are essential for validating any scientific data. Weather and other nearby animals are factors that may affect behavior.

STEP 3: *Behavior cataloging.* Watch your target animal for about five minutes, noting its behavior. Write these down under 'Catalog of Behaviors' on the data sheet. Examples are: sitting, scratching, chewing, vocalizing etc. You may need to define behaviors more thoroughly, such as "walking four feet", "walking two feet" or "growling, ears back". Avoid assigning meaning to an observed behavior- for example, do not say an animal is "resting" just because it is lying down or sitting. If you assign abbreviations to behaviors, list them here. **IMPORTANT:** *Do not try to interact with the animal you are observing, although other zoo visitors may be doing so.*

STEP 4: *Data gathering.* You can record your animal's behavior by two methods.

- **SURVEY APPROACH:** Choose a time interval, like every half minute, and record what your animal is doing at that instant. For this method, you will probably need two people, one to keep time, the other to record data.
- **FOCAL APPROACH:** Record **ALL** the behaviors your animal does continuously within a given amount of time. You will need to record the exact times at which your animal performs a behavior.

STEP 5: *Data Analyses.*

- Time budget: Count up the number of times (survey approach) or the total length of time (focal approach) an animal performed a behavior. Examples:

Behavior	Number of times performed
Look at people	2
Chew or eat	1

Behavior	Total length of time
Preening feathers	10 seconds
Squawking loudly	17 seconds

Make a bar chart or a pie graph from your data.

You may want to convert time into percentages. Say you watch a parrot for five minutes, and it preens itself for 10 seconds + 18 seconds + 3 seconds which equals _____ seconds. Divide that by the number of seconds in five minutes ($60 \times 5 = \underline{\hspace{2cm}}$), and multiply by 100 to get a percentage.

STEP 6: *Formulate a hypothesis.* Your data should suggest numerous questions about your animal that could be answered by doing further observations at different times and under different conditions. Your data may also suggest a comparison between your data and data one of your classmates collected on a similar or related animal.

Examples (null hypotheses are in parentheses):

- Male _____ birds spend more time vocalizing than female _____ birds (There is no difference in time spend between male and female birds).
- Preening behavior lasts longer after feeding. (There is no pattern to preening behavior)
- Prairie dogs spend more time in their holes when peacocks are around. (Prairie dogs spend no more or less time in their holes when peacocks are around).
- Chimps are mostly right-handed when playing or feeding. (Chimps do not favor one hand or the other).

STEP 7: *Further work.* Your teacher may ask you to go back and do some more observation to test your hypothesis and/or do research on your animal later. Your teacher may also ask you to do a poster presentation of your findings. Ethological studies make good science fair projects, and you can study most any living creature: ants, squirrels or even your little sister!

