



"Animal Perception" Classroom Activity Guide

Season 1, Episodes 2 & 3

Overview

This classroom activity guide complements Season 1, Episodes 2 and 3 in which Matthew and Amy speak with Esteban Fernandez-Juricic and Eleanor Caves whose research both touches on the topic of sensory modality.

This accompanying classroom activity guide focuses on **how animals perceived the world around them**. This guide includes three activities which address the key concepts and student learning targets described below.

This resource is designed to be flexible and adapt to your specific course. We provide three classroom activities. Each activity can stand-alone, the activities can also be mixed and matched with each other, or these activities can be integrated with your existing materials. These materials are designed as adaptable and editable starting points, feel free to make the changes necessary for these to be useful in your specific classroom.

Key Concepts

- Understanding that different animals may experience the same environment very differently
- Investigating different sensory modalities and how they affect behavior.
- Investigating how understanding animal perception may be applied

Student Learning Targets

- Identify the different senses animals may use (Activity A, B)
- Understand the role of perception when studying animal behavior (Activity B)
- Investigate some practical applications of sensory biology (Activity B, C)
- Practice interpreting results and writing in a style suitable for a scientific article (Activity C)

Prior Knowledge

Before beginning these activities, students should:

- Complete any "Before Class" exercise described in the activity
- Be familiar with the basic sense animals may use

Activity Option A - Warm-up

How do fuzzles perceive their environment?

Target Audience

- Undergraduate students in an animal behavior or behavioral ecology course

Description

This activity helps students apply what they know about sensory modalities to an example animal. We provide a worksheet that can be used as the basis of a discussion/writing task.

Materials Needed

- Copy of "How do fuzzles perceive their environment?" for each student or projector to show to whole class
- Blank paper, markers, and reposition-able tape or magnets (optional)

Implementation

Before Class

- No pre-class work is necessary, this activity is designed to be a first introduction to the topic

During Class

- Ask the students what types of senses animals may use and write them on the board or in their notes.
- Students review the figure and consider which of these senses are most prominent in fuzzles based on the prompts on the figure.
- Ask students to share their ideas in pairs or small groups and to write their ideas on the blank paper. Groups should consider why and why not they think the fuzzles rely on certain senses. For example, fuzzles have prominent eyes and are brightly colored which may suggest that they rely more on vision. On the other hand, they don't appear to have large ears or noses so may not be as reliant on sound or smell.
- Have the groups report back to the class and discuss any agreements and disagreements.
- As an extension, ask the students to research real animals that rely on similar senses to fuzzles (e.g. spiders also have sensitive hairs to detect vibrations) or ask the students to pick an animal of their own to research and write a short summary about which senses they utilize.

After Class

- The last bullet point of the "During Class" activities could easily be formatted as an after class writing assignment, if you prefer.

Activity Option B - Discussion

Applying perception to behavior

Target Audience

- Undergraduate students in an animal behavior or behavioral ecology course

Description

This discussion is a follow up to the podcast episode S1:E3. We provide a few discussion prompts and tips for guiding your class to have a fruitful and informative conversation linking perception and sense to animal behavior using cleaner shrimp as an example.

Materials Needed

- A device capable of playing podcasts
- Discussion Guide Worksheet

Implementation Suggestions

Before Class

- Students should listen to S1:E3 of the Animal Behavior Podcast
- Encourage students to make a few notes while listening -- some specific prompts are included on the student-facing Discussion Guide Worksheet

During Class

(student facing instructions are provided on the Discussion Guide Worksheet)

- Partner discussion activities to warm students up for main class discussion
 - Ask students to review their notes from the podcast and work with a partner or small group, to think about the importance of considering an animal's umwelt and sensual acuity to understand its behavior. Have pairs/ groups share with the class
 - Have students discuss how senses play an important role in facilitating interactions between cleaner shrimp and their clients. Encourage them to think about the complex range of signals that are involved in interspecies interactions like this. Discuss as a class.
- Small group Discussion
 - Allow small groups to choose or assign groups an animal. Animals with fairly well-known sensory systems may save time (e.g. bats using echolocation). Prompt the group to think about what this animal's umwelt might be like based on what they already know or after some brief research. Get each group to nominate a representative to describe their findings/ideas to the class.

After Class

- The last bullet point of the "During Class" activities could easily be formatted as an after-class writing or short presentation assignment if you prefer.

Activity Option C - Data interpretation

Practical applications of sensory and behavioral biology

Target Audience

- Undergraduate students in a any zoology related course but especially those with a focus on animal behavior, behavioral ecology, conservation or animal physiology.

Description

This data interpretation exercise is based on a paper discussed in the podcast S1:E2. The aim of this exercise is to give the students practice interpreting real results and writing about them in a style conventionally used in scientific articles. It is also a great case study showing a practical application of behavioral biology that is a win win for humans and wildlife!

Materials Needed

- Data Interpretation Worksheet

Implementation

During Class

(student facing instructions are provided on the Data Interpretation Worksheet)

- This exercise can be done as a group or individual activity in the class. Alternatively, you could ask students to think about the worksheet before the class and then put them into groups to discuss their ideas.
- Ask the students to read the brief introduction on the worksheet before studying the graphs and answering the questions provided.
- The level of answers expected can be adjusted to the learning stage of the students and how you choose to use the exercise. For example, they could be bullet-pointed for a warm-up exercise or written out fully for a session on scientific writing.

After Class

- Encourage the students to listen to the podcast S1:E2 for Esteban's explanation of the results (they get to hear the answers from the expert!) or to have a look at the paper if they prefer.