



"Animal Weaponry" Classroom Activity Guide

Season 1, Episode 4

Overview

This classroom activity guide complements Season 1, Episode 4 in which Amy speak with Ted Stankowich whose research focuses on the topic of mammal weaponry and aposematic coloration.

This accompanying classroom activity guide focuses on **how animals defend themselves**. 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

- Understand why different animals may have different defensive strategies
- Understand what makes an effective conference presentation
- Start exploring how social media and web presence can be used to promote your science

Student Learning Targets

- Explore what behavioral and physiological mechanisms are involved in defense (Activity A, B)
- Start to develop or build confidence in presentation skills (Acitivity A)
- Consider how social media could be useful for public engagement and self promotion (Activity C)

Prior Knowledge

Before beginning these activities, students should:

- Complete any "Before Class" exercise described in the activity

Activity Option A - Paper analysis & presentation

Black and white coloration as a defense

Target Audience

- Undergraduate students in a biology or zoology course

Description

This exercise is a follow-up to the podcast episode S1:E4. The students are put into groups and assigned a paper mentioned in the episode to read before class, discuss in class as a group and then present in the style of a scientific conference presentation. This is suitable for students trying presenting for the first time or for students that have some practice already to build confidence.

Materials Needed

- A device capable of playing podcasts
- A device on which students can make a presentation and present on
- Paper analysis and presentation worksheet

Implementation

Before Class

- Students should be pre-assigned a group and sent the worksheet so they know what paper they are working on. Group size depends on the class but we would suggest 2 - 6 students per group.
- Encourage them to read the paper and take notes to save time during class.

During Class (student facing instructions are provided on the worksheet)

- This is a good exercise to pair with a class on presentation style, the structure of scientific papers or the publishing process in general.
- Get the students to meet up with the rest of their group, introduced themselves and discuss the paper using the worksheet for prompts.
- Float around each group prompting discussion where necessary and answering any questions about paper structure (there is some variation in these papers) and the experiments.
- After the initial discussion encourage the students to move on to preparing the presentation. At this point tell the students what your expectations are. For example, allowing everyone in the group to present one or two slides is a good idea for students presenting for the first time but if they have done it before, consider asking each group to nominate one or two members to present. Be mindful that some students may be unable to present and make fair adjustments to accommodate.
- If you are short on time, make the presentations flash talks instead or don't ask the students to make slides just put the graphs up in the background. This exercise could also be modified to be a writing exercise done after class instead e.g. asking each student to write a Nature scientific report.

After Class

- Encourage the students to listen to Ted talking about these papers on the podcast and suggest they check out his website where he has videos about these projects.

Activity Option B - Scavenger hunt!

Applying theory to museum or virtual specimens

Target Audience

- Undergraduate students in an animal behavior, behavioral ecology or animal physiology course

Description

This activity is a follow up to the podcast episode S1:E4. It involves either taking the class to a natural history museum, zoo or using a university collection if available for a scavenger hunt based on animal weaponry and defensive behavior. There is also the option to use a virtual [museum](#) or [zoo](#) tour to save time and resources.

Materials Needed

- A device capable of playing podcasts
- Scavenger hunt worksheet
- A device to do a virtual tour (if applicable)

Implementation Suggestions

Before Class

- Students should listen to S1:E4 of the Animal Behavior Podcast
- Encourage students to make a few notes while listening - some specific prompts are included on the student-facing scavenger hunt worksheet.
- Check that the museum/zoo has specimens suitable to answer each question and amend the worksheet accordingly. You could also add questions if you are looking to cover other topics during the trip!

During Class (student facing instructions are provided on the worksheet)

- In-person at museum/zoo/university collection
 - group the students into pairs or small groups depending on numbers to go around in a set time and fill out the scavenger hunt worksheet. The worksheet specifies that the students should give a specimen number (or something similar) to make sure they have actually looked around rather than just writing the answer if they already know it!
- Virtually at the museum/zoo
 - The students can look around the collections independently, in pairs, in small groups, or as a whole class on a big screen depending on the resources available.
- Re-group either at the venue or back in class to discuss the answers. This could be done in multiple ways such as mixing up groups and allowing the students to compare their answers or as a whole class discussion.

After Class

- Allow the students to have a wonder around the museum/zoo (virtual or in person) just for some fun!

Activity Option C - Social media

Employability & science communication activity

Target Audience

- Undergraduate students in any science course.

Description

This exercise is based on the discussion in the second half of S1: E4 of the Animal Behavior Podcast. The aim is to encourage students to make either a website or social media account that they can use to improve their employability within or outside of academia or for science communication. It is important to ensure that students are comfortable. There are lots of advice pages about how to be safe online that you can highlight and there is lots of flexibility for the students to make the exercise suit them.

Materials Needed

- Social media worksheet
- a device with access to the internet

Implementation

Before Class

- Students should listen to (at least) the second half of S1:E4 of the Animal Behavior Podcast.
- Encourage students to have a look at some scientists' personal websites and social media accounts and think about what they like and don't like. You could even suggest some of your favorites for them to look at!

During Class (student facing instructions are provided on the worksheet)

- This exercise should be done individually but it might be helpful to seat students in small groups so that they can bounce ideas off each other.
- Start with a small group or a whole class discussion about what made certain websites and social media accounts stand out and why. If possible get students to share examples on a large screen to illustrate their points. Maybe leave a mindmap of the points up during the rest of the activity.
- Introduce the activity and highlight that how they approach the activity is up to them. You could offer the option for students to think about a website design or social media post concepts without actually making it if they would prefer not to. I.e. they could describe what would go on each page of the website etc. if they are uncomfortable actually making one.
- Regularly check in with the small groups but largely allow students to work at their own pace.

After Class

- Encourage the students to consider continuing to work on whatever they created if they would like it. Highlight that it could be very helpful for employability in multiple industries.