

# Connected Experience: Eat or Be Eaten

## GRADE LEVELS

3<sup>rd</sup>-8<sup>th</sup>; California Content Standards for 3<sup>rd</sup>, 4<sup>th</sup>, 6<sup>th</sup>, and 7<sup>th</sup>

## SUBJECTS

Life Sciences, English-Language Arts

## DURATION

Pre-Visit: 30 minutes    Academy: 20 minutes    Post-Visit: 45 minutes

## SETTING

Classroom; African Hall at the California Academy of Sciences

## Objectives

Students will:

1. compare defensive strategies of the natural world with familiar examples.
2. analyze the diverse physical and social adaptations of predators and prey.
3. apply learned principles to design their own ideal prey animal.

## Materials

images of African savanna communities from calendars, magazines, books, or websites

[Scenario Chart](#)

note cards

[Eat or Be Eaten Scavenger Hunt](#) worksheet

paper

markers, crayons, or colored pencils

## Vocabulary

- ❖ predator: an animal that hunts other animals
- ❖ prey: an animal that is hunted by a predator

## Before your Visit

### Preparation

1. Read the scenarios listed in the Chart to learn the many ways antelopes can defend themselves using physical and behavioral adaptations. Examples specific to antelopes that you will see at the museum are included for your reference, but you may wish to keep the introductory activity generic.
2. Write brief descriptions of the strategies onto note cards for use during **Part II** of the activity (e.g. “Use hidden cameras”; “Say a secret word of warning”; “Hide in a bush”; “Freeze in place”). Use different color cards or markers for the Cafeteria and Savanna options, respectively, and make enough matching pairs so that each student will get one card.

### Procedure

#### Part I: Connecting Animal Defense Mechanisms to Human Behavior

1. Tell a brief story about a cafeteria bully who has been bothering students every lunch period by stealing popular snacks. Elicit ideas from the class as to how one might prevent this situation, and list them in a column on the board. (The Scenario Chart provides numerous ideas for teacher reference; don’t aim to create such a comprehensive chart!).

2. Introduce the concept of predator and prey using the African savanna, an expanse of grassland in eastern Africa with scattered trees and herds of large mammals (elephants, giraffes, zebras, gazelle). Since a **predator** is an animal that hunts, its role is to catch, kill, and eat other animals. As the object of the hunt, a **prey** animal is forced to hide, escape, or defend oneself. In order to survive potential attacks, prey must have a defense strategy, just like students need a strategy to protect their favorite snacks.
3. Show the class an image of an exemplary species or population. Ask students to suggest what strategy the prey animal(s) might employ in real life to defend itself against an African predator such as a lion, cheetah, or leopard.
4. Does this strategy relate to any of the solutions proposed for the problem in the cafeteria? Write parallel defense mechanisms next to their equivalent on the board. Feel free to complete the chart in reverse as students chime in ideas sparked from struggles on the savanna: how might you react like a gazelle to avoid a dangerous bully?

### **Part II: Match it Up and Sort it Out**

1. Pass out the scenario cards randomly, and instruct students to find the partner that completes their matched pair (the separate colors for Cafeteria and Savanna strategies make for helpful hints!). Have each pair of students present their matched set, and allow trades to clear up any mismatches.
2. Collect the Cafeteria cards. Tell pairs to focus on their Savanna card, as the class will now play a sorting game to learn how antelope survival strategies can fit into different categories.
3. For each round, have students head to three separate areas of the classroom according to the type of defensive strategy used by their animal. Tell students to make their 'best guess' if they are unsure.
  - ❖ **Round 1:**
    1. **structures** (physical body part) vs.
    2. **behaviors** (what you do, how you react) vs.
    3. **both** (e.g. running with stripes)
  - ❖ **Round 2:**
    1. **avoidance** (how to hide, stay far away, alert others) vs.
    2. **escape** (how to run away if approached) vs.
    3. **defense** (how to fight back if attacked)

## **At the Academy**

### **Preparation**

1. Make copies of the [Eat or Be Eaten Scavenger Hunt](#) worksheet.

### **Procedure**

1. Assign a time limit to complete the scavenger hunt in the gallery. The exhibit is contained in a singular rectangular room, so students may roam freely from display to display.

## **Back at School**

### **Procedure**

1. Review student discoveries from the scavenger hunt.
2. Have each student design, draw, and label characteristic features of their own ideal prey animal. Although the creature should be imaginary, the design should take into account factors from the real world:
  - ❖ What, when, and where does it eat?
  - ❖ Where does it live? Does it live alone or in groups?
  - ❖ How does it hide or escape from others?
  - ❖ What physical adaptations help it survive? (color; senses; poison; size; structures like horns, claws, teeth, feathers)
  - ❖ What behavioral adaptations help it survive? (use of body parts; running; hiding; looking out with others; making noise)
3. Have students present their creature to their group members, explaining its adaptations and responding to questions from peers.
4. Tell the students that the class will now hold a competition for the “Perfect Prey.” Be clear that students should make judgments based on whether an animal would successfully evade capture, not on artistic merit or fantastical features.
5. Consider awarding 1<sup>st</sup>, 2<sup>nd</sup>, and 3<sup>rd</sup> places, and dividing the contest into categorical competitions (e.g. Best Protective Structure; Best Use of Cryptic Coloring; Most Likely to Detect Ambush; One who Flees the Fastest). Have student groups nominate candidates from within their own group, and then let the class vote anonymously for the winner. Alternatively, let students propose awards for each animal.
6. **OPTIONAL:** Consider limiting the activity to a particular habitat type, such that the animals’ suitability to that environment can be considered during the judging. Perhaps announce potential predators (lion, dogs, crocodile, jackal, weasel, hawk, baboon, hyena, snake, lizard) before students start their work, so they can design with an ‘enemy’ in mind.

## References

Gould, E. and McKay G. (Eds). (1998). *Encyclopedia of Mammals*. San Diego, California: Academic Press.

Estes, R.D. (1999). *The Safari Companion: A Guide to Watching African Mammals Including Hoofed Mammals, Carnivores, and Primates*. Post Mills, Vermont: Chelsea Green Publishing Company.

## Correlated California Content Standards

### Grade Three

#### Life Sciences

- 3a. Students know plants and animals have structures that serve different functions in growth, survival, and reproduction.

### Grade Four

#### Life Sciences

3b. Students know that in any particular environment, some kinds of plants and animals survive well, some survive less well, and some cannot survive at all.

**Grade Six**

Life Sciences

5c. Students know populations of organisms can be categorized by the functions they serve in an ecosystem.

**Grade Seven**

English-Language Arts: Listening and Speaking

- 1.1 Ask probing questions to elicit information, including evidence to support the speaker's claims and conclusions.
- 1.3 Respond to persuasive messages with questions, challenges, or affirmations.
- 2.4 Deliver persuasive presentations: b. Describe the points in support of the argument and employ well-articulated evidence.