

Animal Adaptations

Teacher's Guide

Subject: Integrated Science (Life; Earth-Space; Physical)

Topic: Animal adaptations

Summary:

This lab introduces the different ways that animals adapt to their environment. Students will examine five different animals and look for certain strategies the animals adopt to help them survive in a fire-maintained habitat.

After completing the field lab, students will be able to:

Objective(s):

1. Identify and describe ways in which animals escape fire.
2. Identify and describe the difference between structural, behavioral, and physiological adaptations.
3. Explain a commensal relationship between animals

Ecosystem(s): Mesic flatwoods, scrubby flatwoods.

Equipment:

- Hand lenses
- Field microscope
- GPS receiver

Background:

- Vocabulary: prescribed fire, adaptation, physiological adaptation, structural adaptation, behavioral adaptation
- Reference Material: <http://www.plantatlas.usf.edu/>
- Equipment Training: Field Microscope, GPS Unit

Procedure (Engage; Explore; Explain)

1. Engage the students by asking a specific question that gets to the heart of the activity: What is meant by the term adaptation? Why do plants need to adapt to their environment? Use the students' answers to ascertain what they already know, clarify any misconceptions, and then ask them to formulate their own hypothesis relating to their own expectations of the outcome of the lab.
2. Fill-in your own hypothesis on the top of the student data sheet.
3. In your pre-determined area, complete the observations and measurements identified on the student data sheet.
4. After completing the lab, allow the students to answer the discussion questions as a group and explain their answers relating them to the concepts, processes and skills associated with the activity. Students should record their answers individually. At this time, facilitators can introduce/explain the specific concepts and explanations in a formal manner.

Sunshine State Standards:

Science: SC.D.1.3.1, 3, 4; SC.D.2.3.2; SC.F.1.3.1, 7; SC.F.2.3.2, 3; SC.G.1.3.2; SC.G.2.3.2, 4; SC.H.1.3.4; SC.H.2.3.1

Language Arts: LA.A.1.3.3; LA.C.1.3.1, 4

Mathematics:

Social Studies: SS.A.6.3.2; SS.B.2.3.6, 9

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Student Data Sheet

General Information

Full Name:		Date:	
School (teacher):		Time:	
Latitude:		Longitude:	

Student Hypothesis and Rationale

Mesic flatwoods have fairly dry, sandy soil and many of the plants and animals that live here require regular fire for survival. I expect to see evidence of more animals that are adapted to survive (fire/predation/drought) today because _____

Field Observations/Measurements/Data

Circle the answer that coincides with your observations and fill in the appropriate answers where necessary.

Animal observed	Adapted to survive fire	Structural Adaptation	Behavioral Adaptation	Other Adaptation
	Yes / No	yes / no -----	yes / no -----	Structural or Behavioral -----
	Yes / No	yes / no -----	yes / no -----	Structural or Behavioral -----
	Yes / No	yes / no -----	yes / no -----	Structural or Behavioral -----
	Yes / No	yes / no -----	yes / no -----	Structural or Behavioral -----
	Yes / No	yes / no -----	yes / no -----	Structural or Behavioral -----
	Yes / No	yes / no -----	yes / no -----	Structural or Behavioral -----

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Assessment

1. Can you identify four (4) different ways that animals escape fire?

2. Did most of the animals you observed exhibit structural or behavioral adaptations? Was there a specific type of adaptation that was observed in more than one animal?

3. Does your data support your hypothesis? Whether your hypothesis is supported or not, what can you infer from your observations?

4. Now that you understand how animals adapt to fire, can you think of ways animals might adapt to an environment where fire is not a problem, but *water* is scarce? Hint: Think about what happens to your body and what you do when it's a hot day.

5. Humans are constantly moving around from climate to climate. Give some examples of artificial adaptations that humans have adopted in order to survive comfortably in these various environments.
