# Camouflage: You Can’t See Me!

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**Grade Level** 3-5  
**Duration** 1-2 class periods

Adapted from AIMS Education Foundation

## National Standards

**GEOGRAPHY STANDARDS**  
**Element Three: Physical Systems**  
8. The characteristics and spatial distribution of ecosystems on earth’s surface.

## NEXT GENERATION OF SCIENCE STANDARDS

**Life Cycles and Traits**  
3-LS3-2. Use evidence to support the explanation that traits can be influenced by the environment.  
3-LS4-2. Use evidence to construct an explanation for how the variations in characteristics among individuals of the same species may provide advantages in surviving, finding mates, and reproducing.

**Ecosystems: Interactions, Energy, and Dynamics**  
5-LS2-1. Develop a model to describe the movement of matter among plants, animals, decomposers, and the environment.

**Earth and Human Activity**  
5-ESS3-1. Obtain and combine information about ways individual communities use

## Common Core Standards (AZ College and Career Ready Standards)

### ELA

**Integration of Knowledge and Ideas**

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<tr>
<th>Standard</th>
<th>Description</th>
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<tr>
<td>3.RI.7</td>
<td>Use information gained from illustrations (e.g., maps, photographs) and the words in a text to demonstrate understanding of the text (e.g., where, when, why, and how key events occur).</td>
</tr>
<tr>
<td>4.RI.7</td>
<td>Interpret information presented visually, orally, or quantitatively (e.g., in charts, graphs, diagrams, time lines, animations, or interactive elements on Web pages) and explain how the information contributes to an understanding of the text in which it appears.</td>
</tr>
<tr>
<td>5.RI.7</td>
<td>Integrate visual information (e.g., in charts, graphs, photographs, videos, or maps) with other information in print and digital texts.</td>
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### Production and Distribution of Writing

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<td>3.W.4</td>
<td>With guidance and support from adults, produce writing in which the development and organization are appropriate to task and purpose.</td>
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<tr>
<td>4.W.4</td>
<td>Produce clear and coherent writing in which the development and organization are appropriate to task, purpose, and audience.</td>
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<tr>
<td>5.WHST.4</td>
<td>Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.</td>
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## Other Arizona Standards

**SOCIAL STUDIES STANDARD**  
**Grade 3 Concept 3: Physical Systems**  
Describe ways species adapt to environments and what happens if they cannot adapt.

**Grade 4 Concept 5: Environment and Society**  
PO 3. Describe the impact of human modifications (e.g., dams, mining, air conditioning, irrigation, agricultural) on the physical environment and ecosystems.

**Grade 5 Concept 3 Physical Systems**  
Explain the impact of natural hazards on habitats.

**SCIENCE STANDARD**  
**Strand 4 Life Science Concept 4: Diversity, Adaptation and Behavior**  
**Grade 3**  
PO 1. Identify adaptations of plants and animals that allow them to live in specific environments.  
PO 2. Describe ways
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Science ideas to protect the Earth’s resources and environment.

that species adapt when introduced into new environments.

Grade 4
PO 1. Recognize that successful characteristics of populations are inherited traits that are favorable in a particular environment.
PO 2. Give examples of adaptations that allow plants and animals to survive.
  • camouflage – horned lizards, coyotes
  • mimicry – Monarch and Viceroy butterflies
  • physical – cactus spines
  • mutualism – species of acacia that harbor ants, which repel other harmful insects

Grade 5
Strand 3: Science in Personal and Social Perspectives
Concept 1: Changes in Environment
PO 1: Explain the impacts of natural hazards on habitats.
PO 2: Propose a solution, resource, or product that addresses a specific human, animal, or habitat need.

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**TESOL Standard(s)**

**Grade 3**

**Goal 2, Standard 2**

To use English to achieve academically in all content areas: Students will use English to obtain, process, construct, and provide subject matter information in spoken and written form:

- listening to, speaking, reading, and writing about subject matter information
- representing information visually and interpreting information presented visually

**Grades 4-5**

**ESL: English for Content**

Through the Use of ESL Methodologies, The Student Will:

EFC-C. Compose in a variety of forms.

- C1. Use Math, Social Studies, and Science target vocabulary.
- C6. Apply English grammar and mechanics to writing.

**Arizona English Language Proficiency Standards**

**Stage III**

**Basic**

**Writing**

Standard 1: The student will express his or her thinking and ideas in a variety of writing genres. The student will express his or her thinking and ideas in a variety of writing genres, as demonstrated by:

- B4: writing an expository paragraph or a simple report containing a topic sentence, supporting details, and a concluding statement using a model.

Standard 2: The student will identify and apply conventions of standard English in his or her communications. The student will identify and apply conventions of standard English in his or her written communications by:

- B4: using capitalization for proper nouns (i.e., names, days, months), titles (including book titles)
- B5: using punctuation for: sentence endings and commas to punctuate items in a series and introductory words

**Overview**

An animal’s ability to blend into an environment is called camouflage. Camouflage can be used for defensive or offensive purposes. A rabbit uses camouflage to hide from predators. A mountain lion uses it to hide until a prey is close enough to attack. Both color and shape can camouflage animals.

**Purpose**

In this lesson, students will apply what they have learned about camouflage to design their own moth that could survive in a classroom environment. Students will also learn about the Peppered Moth and how it rapidly adapted during the Industrial Revolution and then adapted again after air pollution was curbed. This lesson includes strategies for diverse learners (ELLS).
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Key Vocabulary

camouflage: the ability to blend into an environment
environment: the air, water, plants, and other things that surround you
predator: an animal that kills and eats another animal
prey: any animal that is hunted for food
natural selection: the process by which plants or animals change in order to survive in their environment
evolve: to slowly change

Materials

• Moth Environment--Collage of moths on a sheet of newspaper
• Scissors
• Colored pencils
• Tape
• Internet and projector
• Moth pattern (9 paper moths per sheet to cut out and color)
• Vocabulary Cards
• Vocabulary Test and Answer Key

Objectives

The student will be able to:

1. explain how camouflage can affect the ability of an animal to survive in its environment.

Procedures

Explore:
3. Tell students that you have a Moth Environment hidden under the construction paper on the wall, and to see how effective camouflage can be, they will be taking a test of their ability to spot camouflaged animals. Instruct them that they will be given fifteen seconds to study the environment looking for how many total moths and how many different colored moths they see. (Application: Promotes engagement, Scaffolding: Comprehensible input) 4. After fifteen seconds, have students record their observations. How many moths did they see altogether and how many different colored moths did they see? In small groups students can discuss their observations and which moths were the easiest to see. (Grouping option: small group) (Integrating processes: Reading (observing), Writing, and Speaking)

Explain:
5. Come back as a class and uncover the Moth Environment and count the actual number of moths. Discuss why the newspaper print moths were not easily detected.
6. Talk about why camouflage might protect an animal from being easily seen by another animal. What would happen to an animal if that animal’s environment changed? (Application: Linked to objectives) 7. Distribute the Vocabulary Cards. Discuss the cards and place the vocabulary words on the word wall.

Elaborate:
8. Now give each student a paper moth to decorate. Tell them the goal is for their moth to blend into the classroom. Remind them to consider both color and pattern for their moth. Remind them to keep their work secret from classmates. Distribute the art supplies. (Application: Hands on) 9. Once students are done decorating their paper moths, have them line up outside the classroom. Have them enter the classroom, one at a time, to tape their moth in plain sight. The moth should not be hidden behind or under anything. When finished taping his/her moth, he/she will go back outside and another student will do the same procedures. As soon as all students have taped their moths, have them come back inside and sit at their desks. (Application: Hands on) 10. One by one, have students will take a turn at being a predator--finding a moth (prey) and “eating” it. After all students have had one chance to “eat” a moth, have the students whose moths have not
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been eaten show the class the moths that survived. 11. Then conduct a discussion why these moths were not eaten (natural selection) and survived in their environment. (Application: Hands on, Promotes engagement) 12. Show the 2-minute video Evolution of the Peppered Moth. www.youtube.com/watch?v=LyRA807djLc 13. Discuss how the moth evolved first to save itself from predators in times of polluted air and then once pollution was curbed, it evolved again to keep itself safe from predators. (Application: Promotes engagement)

Evaluate:

14. Assess students by having them write the following essay in their science journals.

How does camouflage benefit animals in their environment?
- Describe what happened in the classroom Moth Environment activity
- What happened to your own moth? Why was it eaten or not eaten?
- What did you learn about the Peppered Moth?

Share the Scoring Guide. (Assessment: Individual and Written)

Assessment

For Science, Social Studies, Reading and Writing Grades:
Students will score 24 or more points on the Essay Scoring Guide to be considered mastery.

For a Reading Grade:
Students will score 80% or higher on the Vocabulary Test to be considered mastery.

Extensions

Art and Math: The teacher could turn the original newspaper Moth Environment into a coordinate grid then students could draw moths on a coordinate grid giving each moth a coordinate.

Research: Students could research moths in various regions of the United States and make a poster or report of that moth’s environment.

Research: Students could do a report on any animal that uses camouflage as protection.

Sources

AIMS Education Foundation
Evolution of the Peppered Moth: 2 min 4 sec www.youtube.com/watch?v=LyRA807djLc
25 Incredible Camouflaged Animals: 4:56 www.youtube.com/watch?v=XpdoDBYuHIg

Natural Selection and Speciation Biology.clc.uc.edu/courses/bio106/nat-sel.htm