

WEATHER AND WOOL

SUMMARY

This program is intended to help students construct an argument that animals are able to develop adaptations based on their surroundings to better survive.

GRADE LEVEL: 3-5

ACTIVITY DURATION: 1 hour

SETTING: Classroom

SUBJECT AREAS: Interdependent Relationships in Ecosystems, Inheritance and Variation of Traits: Life Cycles and Traits, Structure, Functioning, and Information Processing, Structure of Properties of Matter, Earth's Systems

NGSS: 3-LS2-1, 3-LS3-2, 3-LS4-2, 3-LS4-3, 4-LS1-1, 4-LS1-2, 5-PS1-3, 5-ESS3-1

OBJECTIVES: This program uses both traditional lecture and hands-on experimentation. Students use information presented to them, applied to the results of the hands-on experimentation, to determine answers. At the end of the program, the student should be able to:

- Explain 3 types of traits that influence survival
- Recognize some of the environmental controls of animal population
- Explain three types of symbiotic relationships
- Determine an organism's best habitat by examining traits and structures
- Construct an argument about the origin location of selecting sheep species by identifying characteristics of their wool.

COOPERATIVE APPROACH: This program works great with the *Cave Boat Tour* by providing students with a view of an ecosystem in which extreme conditions result in amazing adaptations.

MAKING CONNECTIONS: Students are capable of identifying certain animals' home environments. However, they may not understand why the animal could not successfully survive outside of its home environment. When introduced to new animals and insects, this program helps students consider the organism's traits and adaptations when comparing it to its home environment.

ALTERATIONS:

GRADES K-2

Without changes, this program may be too intense for a K-2 audience. Therefore to provide a K-2 group with the *Weather and Wool* program several alterations would be required. Changes would include:

- Use visual examples and a brief explanation of structural, psychological, and behavior adaptations for survival.
- Reduce the number of examples in the symbiotic relationship exercise.
- Allow the students to identify tactical and visual clues of the different characteristics of wool.

GRADES 7-12

Without changes, this program may not reach the expectations of the 7-12 knowledge base. Therefore, to provide grades 7-12 with the *Weather and Wool* program, guides will incorporate more of the background information within each presentation. It is recommended that one of the STEM extensions also be applied.

EXTENSION:

STEM

The Weather and Wool program can be extended into a longer program in which principles of creating and evaluating are applied. Such extensions include:

- Design a new genetically engineered sheep adapted to specific climate conditions.
- Extend the discussion to include inheritance of traits and complete an experiment in which the students extract their own DNA.

VOCABULARY: Adaptations, Structural, Physiological, Symbiotic, Parasitic, Habitat, commensalism, behavior, mutualism