

CAVE ECOLOGY

SUMMARY

This program is intended to provide the students with an interactive experience while exploring off-trail cave passageways to discover the unique ecosystem within the cave.

GRADE LEVEL: 4-12 (This program has a maximum of 12 participants.)

ACTIVITY DURATION:

Preparation time - 1 hour
Activity - 2 hours
Clean up - 30 minutes
Total: 3.5 hours

SETTING: Upper passageway of the Lost River Cave. This program requires special clothes, preparation, and clean up time.

SUBJECT AREAS: Molecules to Organisms: Structures and Processes, Earth's Place in the Universe, Earth's Systems, Earth and Human Activity

NGSS: 4-LS1-1, 4-LS1-2, 4-ESS1-1, 4-ESS2-1, 5-ESS3-1

OBJECTIVES: This program provides an unusual experience for students by immersing them into the environment by going off trail and crawling and climbing in the upper passageway of the cave. Students will see cave adapted organisms up close and personal. By the end of the program, students will be able to:

- Discuss the importance of adaptations for the survival of underground organisms
- Identify evidence of the deposition of the local bedrock
- Experience a way in which scientists collect data in the karst system

COOPERATIVE APPROACH: This program works well with the *Cave Boat Tour* by providing the students with a view of the lower passageway of the cave in addition to the upper. The *Animal Encounter* program can also provide students with experiences with animals found on the surface. The *Traits and Adaptions* program can also be added to this program to enhance the discussion of the usual adaptations seen in the cave ecosystem.

MAKING CONNECTIONS: With this program, students better understand what scientists need to do in order to obtain the information and data they share with us. This may inspire more students to pursue science as a career. In addition, students become more attached to the karst system, by experiencing it in a unique way, and therefore become advocates for its health and safety.

EXTENSION:

STEM

The *Cave Ecology* program can be extended into a longer program in which principles of Technology, Engineering, and math are applied. Such extensions can include:

- Add a *Model Water Shed*, *How Wetlands Work*, and/or *Water Quality Parameters*, where students investigate the cleaning power of a wetland to improve the quality of water prior to it entering the cave.
- Perform a biologic inventory and collect water quality data in different areas of the cave and compare the findings. Devise an explanation of why some areas may lack organisms seen in others areas.

VOCABULARY: Bedrock, Groundwater, Aquifer, Karst, Cave, Trilobite, Dark Zone, Habitat, Lithification, Marine, Sedimentary, Fossil, Limestone, Twilight Zone, Ecosystem, Adaptation