

CAVE GEOLOGY

SUMMARY

This program is intended to provide students with an interactive experience while exploring off-trail cave passageways to discover the geologic principles surrounding cave development.

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: Earth's place in the Universe, Earth's Systems, Earth and Human Activity

NGSS: 4-ESS1-1, 4-ESS2-1, 5-ESS3-1, MS-ESS2-2, HS-ESS2-2

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

- Identify evidence of the deposition of the local bedrock and of sedimentary rock beds
- Use observations to support evidence that chemical and physical weathering create underground karst features
- 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 *Geology Rocks* program will also provide students with an added dimension in the understanding of differences in rocks and minerals. The *Sinking into Karst* program will help students connect surface karst features with the water sources and subsurface karst features they experience on the tour.

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 Geology* program can be extended into a longer program in which principles of Technology, Engineering, Math, and Writing 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.

-Test water quality from various areas within the park, surface and subsurface and compare various chemical and physical property. Create an explanation as to why the differences exist.

VOCABULARY: Bedrock, Groundwater, Aquifer, Karst, Cave, Lithification, Marine, Sedimentary, Fossil, Limestone