

# ECO ENGINEERS

## SUMMARY

Students learn how fragile the environment is by recognizing karst hazards. Students learn about karst investigation techniques and analyze data to choose the best solutions to design a safe industrial site. After reviewing the costs to implement their design, students compare whose scenario is successful and cost efficient.

**GRADE LEVEL:** 4-12

**PROGRAM DURATION:** 2 hours

**SETTING & ACTIVITIES:** Classroom; Project-Based Learning with Concept Design

**OBJECTIVES:** Teams of students will be given an industrial site scenario in which they have to recognize karst hazards by interpreting data and then determine a solution. Following the program students should be able to:

- List at least 2 karst hazards.
- Provide a solution to remediate particular karst hazards.
- Provide a solution to best prevent possible karst hazards.
- Recognize certain best management practices seen in our daily lives.

**KAS:** 3-5 ETS1-1, 3-5 ETS1-2, 3-5 ETS1-3, 4-ESS2-2, 4-ESS3-2, 5-ESS3-1, 5-ESS3-2, MS-ESS3-2, MS-ESS3-3, HS-LS2-7, HS-LS4-6

**FORGING ASSOCIATIONS:** The program content can be used as a transition or extension between associated standards. Some examples include:

- 4-LS1-1: Wetlands use the bioremediation functions of specific plants to remediate and control pollution through use of internal and external structures.
- 5-ESS2-2: The dangers of pollution to fresh-water habitats can be even more emphasized when students learn just how little of the Earth's waters are fresh.

**COLLABORATIVE PROGRAMS:** When paired with the *Guided Cave Tour* or *Immersion Off-trail Tour*, students can see underground Karst features. The program *Where does all the Pollution Go?* will help the students understand the impact certain karst hazards have on the regional water quality. *Cave Creatures* will show students that besides humans, many other organisms depend on clean groundwater. Displays in the museum also show sources and prevention methods for water quality.

