Content Spotlight: Earth Day

Connecting STEM to Real-World Problems

Britannica Expedition:LEARN!

The first Earth Day—April 22, 1970—aimed to galvanize the U.S. public to recognize and address environmental issues. Afterward, legislation and public demand drove innovative solutions for protecting the planet. Today, this model guides campaigns for responsible, sustainable stewardship of Earth and its resources.

Earth Day, now observed internationally, can inspire students to investigate authentic environmental challenges. As students analyze environmental issues, they might wonder how these problems can be addressed. Using authentic STEM challenges empowers students to envision a sustainable future. Proposing, testing, and evaluating solutions to environmental issues drives student engagement and encourages students to consider how they can help shape Earth's future.

In the featured lesson, students learn how human demands on natural resources affect the planet, and they consider sustainable solutions. The related **Expedition: Learn!** STEM lessons extend students' exploration of environmental challenges through hands-on STEM activities.

Why It Matters

Exploring socioscientific issues such as water management, resource use, and human impacts on the environment challenges students to think about scientific understandings through a different lens.

See how Britannica experts teach the featured lesson!

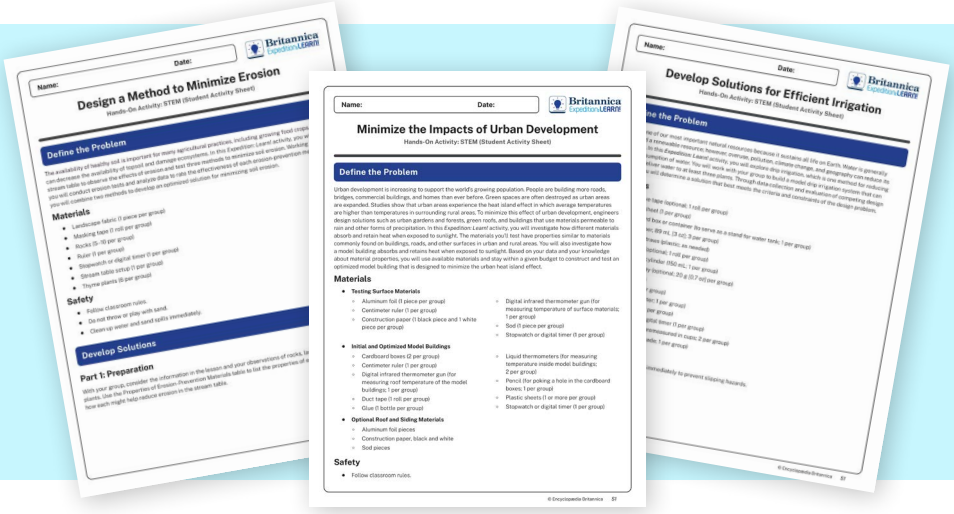
Expedition: Learn! is an instructional platform with standards-aligned, interdisciplinary lessons that build content knowledge, reading comprehension, and critical thinking skills. Explore how our experts use the *Human Impacts on Earth Systems* lesson to introduce students to real-world environmental challenges.

GRADES 6 - 8

Human Impacts on Earth Systems

In Practice *STEM*

In the **Expedition: Learn!** STEM lessons, students explore scientific concepts and the engineering design process while carrying out relevant hands-on activities.



Learn more:
britannicaeducation.com/expedition-learn

Britannica EDUCATION

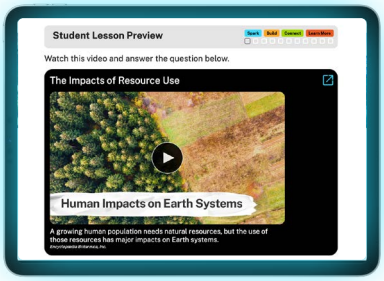
Content Spotlight: Earth Day

Connecting STEM to Real-World Problems

Britannica Expedition:LEARN!

Spark

- Play the **Spark** video and give students time to respond to the question.
- Invite students to share their answers. Use their responses to prompt discussion and elicit questions to be explored during the lesson.
- Then, invite students to make a foldable using the Teach Britannica **Foldables instructional strategy** to organize information about the following vocabulary terms: *mineral, population,* and *system.*
- Encourage students to add information to their foldables as they read the articles in the lesson.



Build

- Model the first two **Build** pages for students by annotating the text and demonstrating how to extract important takeaways.
- Guide students through the two assessment questions by thinking aloud as you critically consider the answer choices and by illustrating how to eliminate incorrect choices.
- For the remaining three **Build** pages, allow students to work on their own or in small groups. Distribute Teach Britannica's **Note-Taking graphic organizer** for students to track their notes.
- Display the following questions to guide students' thinking as they read:
  - How has resource consumption changed through human history?
  - What is one effect of obtaining resources?
  - What is one effect of human resource use?

Connect

- Arrange students in pairs or small groups to complete **Connect** pages 7, 8, and 9.
- Use the Teach Britannica **Assessment Item Analysis graphic organizer** to explain how to break down questions.
- Review responses as a class by discussing key takeaways and highlighting strong student examples of using evidence to support claims.
- For the final short response **Connect** question, prompt students to work independently to write and submit their response. Then, invite them to create a poster based on their response.

Learn More

- Play the video "Who Can Stop Climate Change?" Suggest that each student write and share a short paragraph evaluating approaches to climate change.
- Assign the Hands-On Activity **Construct Arguments on Human Impact** to encourage students to develop argumentation skills by analyzing the real-world consequences of human actions on Earth systems and evaluating potential solutions. In this activity, students practice synthesizing research by writing a cohesive argumentative essay.

Keep the exploration going! Discover these resources and more in Expedition: Learn! on Teach Britannica.

Extend

Britannica Expedition:LEARN!

Research Plastic Usage

- Invite students to work in pairs to research the use of plastics.
- Encourage students to investigate the natural resources that are used in the production of plastics and the effects that the production, use, and disposal of plastics have on the environment. Encourage students to find out more about changes in per capita use and disposal of plastics over time.
- Suggest that each student pair develop a poster to present to the class.
  - Encourage students to use graphics, photos, and text to convey information on the poster.

Explore Resource Management Careers

- Students may be interested in a career in taking care of the environment. Invite students to research a career that involves protecting Earth, such as natural resource management, environmental science, ecosystem science and sustainability, conservation biology, climate activism, and government positions in state and national parks or the Environmental Protection Agency (EPA).
- Have students review the information they have gathered about one specific career and write a three- to five-sentence summary of that career.
- Have students share and discuss their findings with other students in the class.

Develop a Plan: Save a Forest

- Invite students to work in groups to select an old-growth forest that is being deforested and to research the impacts of this example of deforestation.
  - Possibilities include the Amazon Rainforest in Brazil, the Białowieża Forest in Poland, the Tongass National Forest in Alaska, the Cerrado in South America, or the Wallacea region in the Indonesian islands.
- Explain that each group will prepare a presentation that includes the size, location, and age of the forest; the kinds of trees it contains; how the wood is used or what the land is used for; environmental impacts of deforestation; and a plan to address one specific environmental impact of deforestation.

Continue the *Expedition* with these related lessons!

GRADES 6 - 8

STEM: Minimize the Impacts of Urban Development

GRADES 6 - 8

STEM: Design a Method to Minimize Erosion

GRADES 6 - 8

STEM: Develop Solutions for Efficient Irrigation

GRADES 6 - 8

STEM: Evaluate Stormwater Solutions

Learn more:
britannicaeducation.com/expedition-learn

Britannica EDUCATION