

## CLASSROOM ACTIVITY

# Improving Sustainability

### OBJECTIVES

Students will be able to

- **Conduct** research on how to improve sustainability by addressing problems raised by demographic growth, the planet's limited capacity, and social inequality.
- **Create** a multimedia presentation summarizing research gathered.

### OVERVIEW

In this activity, students will develop a multimedia presentation to share with their school for Earth Day. Small research teams will work collaboratively to create a 10-minute presentation addressing one of the following topics: climate change, energy consumption, waste production, threats to public health, poverty, social exclusion, management of natural resources, loss of biodiversity, or land use.

### NATIONAL STANDARDS

Next Generation Science Standards

- **MS-ESS3-4 Earth and Human Activity**  
Construct an argument supported by evidence for how increases in human population and per-capita consumption of natural resources impact Earth's systems.
- **MS-ESS3-3 Earth and Human Impact**  
Apply scientific principles to design a method for monitoring and minimizing a human impact on the environment.

Common Core English Language Arts

- **Speaking and Listening:**  
SL.1: Prepare for and participate effectively in a range of conversations and collaborations with diverse partners, building on others' ideas and expressing their own clearly and persuasively.

SL.2: Integrate and evaluate information presented in diverse media and formats, including visually, quantitatively, and orally.

### BACKGROUND

Sustainability is a word we often hear but do not often understand the extent of its meaning. Sustainability is the key to a better future. Humans rely on natural resources for business, activities, and survival. Ignoring sustainability can lead to the exhaustion of natural resources.

At our current rate, global production and consumption of materials, greenhouse gas emissions, and energy consumption are unsustainable. In fact, the material footprint of high-income countries like the United States is more than ten times higher than that of low-income countries. We need to evaluate and modify how we live our lives, from the food we eat to the energy we consume, how we travel, and the development of new infrastructure. One of the most fundamental elements in creating a sustainable future is education. Governments, industry, and citizens need to understand their environmental impacts as well as what they can do to create a sustainable future. The United Nations created 17 goals in 2015 to promote the need for sustainable development. It is important for everyone to understand the role they can play in achieving sustainability.

## KEY VOCABULARY

- Biodiversity
- Sustainable development
- Carrying capacity

## MATERIALS

- [What is Sustainability](#) video
- Student resource *What is Sustainability?*
- Student resource *Multimedia Presentation—Improving Sustainability*
- Student resource *Improving Sustainability—Research Capture Sheet*

## TEACHER PREPARATION

- Copies of student resources *What is Sustainability?*
- Copies of student resources *Multimedia Presentation—Improving Sustainability*
- Copies of student resources *Improving Sustainability—Research Capture Sheet*
- Divide students into small groups of 4

## PROCEDURE

1. To determine prior knowledge, open the lesson by asking the class to construct a definition of sustainability. Allow students to share their ideas and develop a list on the board.
2. Invite students to construct their own definition of sustainability on the *What Is Sustainability?* student resource.
3. Students will complete the “while you watch” section of their handout during the [What is Sustainability](#) video.
4. After watching the video, place students with a partner to complete the sorting activity. When students are finished, review the correct answers.
5. Explain to students that Earth Day is an annual event on April 22<sup>nd</sup> to demonstrate support for environmental protection. Earth Day was first held on April 22<sup>nd</sup>, 1970, and now coordinates a wide range of global events in more than 193 countries. The official theme for 2023 is “Invest in Our Planet.”

6. Divide students into small research teams of 3–4 and assign each group one of the following topics: climate change, clean energy, battle for food security, loss of biodiversity (habitat loss), food waste, water pollution, sustainable fashion, or regenerative agriculture.
7. Distribute the *Multimedia Presentation—Improving Sustainability* student resource and explain that each group will conduct research on their assigned topic and will collaboratively create a 10-minute multimedia presentation summarizing their research. They will share their presentation with the class to educate others about their topic.
8. During the research phase, each member of the research team will answer one of the questions below as it relates to their assigned topic. Distribute the *Improving Sustainability—Research Capture Sheet* to help students organize the information they gather during their research. Stress the importance of using bullets to summarize information and not to copy sentences from their source.
  - a. What is the central issue?
  - b. How does this issue impact our lives?
  - c. What steps can be taken to address this concern?
  - d. Why does your topic matter on Earth Day?
  - e. Include one video (2–3 minutes in length) to summarize a difficult topic.
9. Teams will collaboratively create a 10-minute multimedia presentation summarizing their findings. Images or graphics should be included for each of the questions addressed. Review the guidelines for successful presentations on the *Multimedia Presentation—Improving Sustainability* student resource.
10. Multimedia presentations can be shared with the class or in a smaller group setting depending upon time.

## EXTENSION

As an extension of this activity, students can post their multimedia presentations on the school website during the week of Earth Day to raise awareness among members of their community.

## SOURCES

- [UCLA Sustainability](#)
- [THE 17 GOALS | Sustainable Development](#)
- [Regenerative Agriculture—Chesapeake Bay Foundation](#)
- [Fashion for the Earth—EARTHDAY.ORG](#)
- [Earth Day 2023—Earth Day](#)

## Before You Watch

You may have heard the term “sustainability” used in topics of discussion. Write a description of what this term means to you.

## While You Watch

How did the video define sustainability?

Describe the term “replacement rate” and how it is related to sustainability.

Identify the three E’s of sustainability.

## After You Watch

Sort the following descriptions into the T-chart below.

- Overfishing
- Habitat loss
- Global warming
- Single use plastic bags
- Recycling
- Buying local foods
- Deforestation
- Using solar panels
- Soil degradation
- Public transportation
- Using less water
- Wasting food
- Depending heavily on fossil fuels

Sustainable Practices	Unsustainable Practices

**Objective**

Your job is to do research on the topic you were given, create a 10-minute multimedia presentation that summarizes your research, and share your presentation with others to raise awareness.

**Research**

Answer the questions below while conducting research on your topic. Make sure to connect your research back to improving sustainability!

1. What is the central issue?
2. How does this issue impact our lives?
3. What steps can be taken to address this concern?
4. Why does your topic matter on Earth Day?
5. Include one video (2–3 minutes in length) to summarize a difficult topic.

**Presenting your research**

Create your multimedia presentation using the presentation software suggestions below or another of your choosing.

- PowerPoint
- Google Slides
- [Canva](#)
- [Piktochart](#)
- [Pitch](#)

**Presentation guidelines**

- Font should be large and easy to read
- Use consistent colors throughout the presentation
- No more than 6 bullets per slide
- No more than 8 words per bullet
- Use graphics for each research topic to provide clarity

When gathering research, make sure you use bullets to list information. Do not copy sentences from your source. Keep track of your sources for your works cited page.

What is the central issue?

How does this issue impact our lives?

My Topic

What can be done to address this concern?

Why does this topic matter on Earth Day?