

GLOBAL WARMING

Section

This activity introduces the greenhouse effect and global warming through a simple, hands-on experiment. It encourages scientific thinking while gently building emotional resilience and environmental awareness.

What to Keep in Mind:

Create a safe, open space for students to ask questions and share feelings.

Environmental topics can raise concerns, so use hopeful, empowering language.

Use the “greenhouse” analogy to simplify abstract concepts, and help students make connections between the experiment and real-world environmental issues.

Focus on teamwork, shared responsibility, and small actions that can make a difference.

Avoid fear-based messaging. Emphasize that learning about these issues gives us the power to act and help.

If any student becomes overwhelmed, allow them to focus more on the scientific process and teamwork aspects.

This is not only a science lesson — it's also a chance to inspire empathy, cooperation, and a sense of agency in facing global challenges.

Lesson

Science

Grade

4-5

Learning Objectives

Students will conduct experiments to explore matter and natural processes, using scientific inquiry and data analysis to understand environmental phenomena and natural events.

Duration

1 class (40 Minutes)

Required Materials

2 identical glass jars or plastic bottles

2 thermometers

Plastic wrap (or jar lids)

A sunny area

Timer or stopwatch

Labels or sticky notes

Preparation and Implementation

Prepare Materials: Duplicate the worksheet (Observation table) for each student. Set out materials. Ensure you have enough for groups (4-5 students) In this activity, students will explore the greenhouse effect through a simple, hands-on experiment. They will observe how covering a container can trap heat inside, simulating the way greenhouse gases warm our planet. This lesson introduces key environmental science concepts in an age-appropriate and engaging way.

ACTIVITY DESCRIPTION

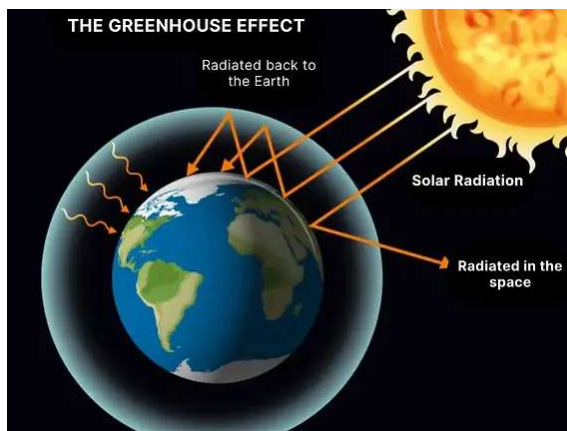
1 INTRODUCTION (10 Minutes)

Before the experiment, lead a short discussion with guiding questions. You can also use news related to the topic to attract attention.

- Why is the Earth getting warmer?
- Have you ever heard about global warming?
- What is the greenhouse effect?
- Can heat get trapped in our atmosphere?
- What do you think will happen if we cover a container and leave it in the sun?

2 DISCUSSION (5 Minutes)

- Provide a summary of the global warming and greenhouse effect. Use visuals if possible (e.g., diagrams of Earth's atmosphere, greenhouse gases, etc.). Underline the cause and results of it.



The teacher can use the analogy as the similarity between the greenhouse and the Earth. The Earth is like a giant “greenhouse” under the effect of the greenhouse gases. The greenhouse effect can be a complex topic for children and require careful discussion since it is impossible to observe it directly.



However, this activity aims to raise awareness of the greenhouse effect and global warming with a supportive approach, away from traumatizing elements. Understanding how to deal with greenhouse gases helps students learn about phenomena. State that global warming and the greenhouse effect are human-caused problems. Emphasize that people must act together to find a solution. Discuss on how the negative effects of greenhouse effect and the global warming issue can be reversed by taking precautions.

Information Note: To prevent feelings of fear, helplessness, and anxiety in the face of environmental issues, communication with students should be based on a hope-centered approach, emphasizing small but impactful actions they can take to protect nature.

3 IMPLEMENTATION (20 Minutes)

Divide the class into small groups. Groups will conduct the experiment by following the steps written below.

Information Note: You can also talk about how helping each other and acting together makes us feel safer and stronger. Remind students that even small actions can have a big impact when shared with kindness and teamwork.

Steps:

1. Label the jars as Jar A (open) and Jar B (covered).
2. Place a thermometer in each jar.
3. Cover Jar B tightly with plastic wrap to simulate the greenhouse effect.
4. Put both jars in direct sunlight at the same time.
5. Record the temperature inside each jar every 5 minutes for 20 minutes.
6. Use the worksheet to record and compare the data.

While waiting for the measurement time, students complete the causes, consequences, and solution suggestions of the global warming section on the worksheet as a group.

FEEDBACK

Information Note: Let students know it's normal to feel concerned when talking about environmental issues. Remind them that understanding the problem gives us power to make changes. Reassure them that their thoughts and feelings are important and can be shared during the activity.

Duration: 5 Minutes

Ask students to analyse their data:

- Which jar got warmer?
- Why did that happen?
- How does this relate to the Earth's atmosphere?
- What would happen if greenhouse gases increased?

- Did sharing ideas and working as a team make the problem feel more manageable?

Encourage students to share their observations and conclusions. Let them share their solution suggestions of global warming.

RECOMMENDATIONS

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- Use general and positive language instead of local disaster examples.
- Extend the activity by experimenting with different materials (e.g., colored jars, adding water or soil).
- Connect the experiment to real-world issues like climate change, melting ice caps, or weather changes.
- Let students draw or write a short explanation of what they learned.

ANNEX

WORKSHEET 1– Observation Table

Time (min)	Jar A (Open) Temperature (°C)	Jar B (Covered) Temperature (°C)	Observations
0			Start
5			
10			
15			
20			
25			
30			End

WORKSHEET 2– Solution Suggestions of Global Warming Table

Causes of GW	Consequences of GW	Solutions of GW