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# Exploring Climate Change

## SUBJECT AREAS:

Natural sciences

## ACTIVITY DESCRIPTION:

Sustainability, innovation, collaboration, critical thinking, communication, action and advocacy.

## OBJECTIVES:

Students will understand the causes and effects of climate change.

## MATERIALS:

Visual aids (posters, videos, infographics), Writing materials for students, Computers or tablets with internet access for research, Projector or smart board.

## GRADE/LEVEL:

Upper Elementary School (12-14)

## DURATION:

Preparation time: 1 hour

Activity time: 40- 60 minutes

## PLACE:

Classroom

## AUTHOR:

*SYNTHESIS Center for Research and Education*

## INTRODUCTION:

Begin by discussing the concept of climate change and its significance. Prompt students to share their understanding and experiences with climate-related events.

Present visual aids depicting climate change concepts, such as greenhouse gas emissions, temperature rise, and extreme weather events.

## BACKGROUND:

The background for the lesson on climate change involves introducing secondary education students to the causes, effects, and consequences of global climate change. This includes discussing human activities that contribute to climate change, such as burning fossil fuels and deforestation, and exploring the impacts on ecosystems and human societies. Understanding this background is essential for students to grasp the urgency of addressing climate change and to explore potential solutions.

### Procedure:

**1. Instruction** (20 minutes):

Provide an overview of the causes of climate change, including human activities such as burning fossil fuels, deforestation, and industrial processes.

Discuss the effects of climate change on ecosystems, such as rising sea levels, loss of biodiversity, and changes in weather patterns.

Introduce case studies or examples of communities impacted by climate change and their efforts to adapt and mitigate its effects.

**2. Guided Practice** (25 minutes):

Divide students into small groups and assign each group a specific aspect of climate change to research further, such as sea level rise, melting ice caps, or droughts.

Instruct students to use computers or tablets to conduct research on their assigned topic, focusing on causes, impacts, and potential solutions.

Facilitate group discussions where students analyze their findings and brainstorm strategies for mitigating and adapting to climate change.

Summarize the key concepts learned in the lesson and emphasize the importance of collective action in addressing climate change.

## FUN FACTS:

- *The Earth's average temperature has risen by about 1.2°C (2.2°F) since the late 19th century, with the majority of warming occurring in the past few decades.*
- *The Arctic is warming at a rate more than twice the global average, leading to rapid melting of sea ice, glaciers, and permafrost.*
- *Climate change is causing shifts in the timing and distribution of plant and animal species, leading to disruptions in ecosystems and biodiversity loss.*
- *Rising sea levels are threatening coastal communities and low-lying islands, increasing the risk of flooding and erosion.*

## ASSESSMENT:

**4. Formative Assessment** (15 minutes):

Have each group present their research findings and proposed solutions to the class.

Encourage class discussion and critical thinking by asking probing questions about the feasibility and effectiveness of the proposed solutions.

Provide feedback and guidance to students, highlighting strengths and areas for improvement in their analysis and recommendations.

## EVALUATION:

Evaluation of student understanding in the lesson on climate change involves assessing comprehension, critical thinking, and application of knowledge through various methods. Teachers observe students' engagement and participation during discussions and activities to gauge their grasp of climate change concepts. Formative assessment techniques such as questioning and peer discussions provide opportunities for students to articulate their understanding and clarify misconceptions. Performance tasks, written assignments, and summative assessments measure students' ability to analyze data, propose solutions, and communicate their ideas effectively. By employing a range of evaluation methods, teacher's gain insights into students' comprehension of climate change issues and can provide targeted feedback.