

The Climate Change Challenge – An Active Model

Created By	Grades	Subjects	Duration
Pat Heaney, The Watershed Institute	MS and HS	Science / Social Studies	30 - 45 minutes

Lesson Overview

Essential Questions	<ul style="list-style-type: none"> • What is the difference between climate mitigation and adaptation? • What are some of the hazards produced by climate change • How can citizens and organizations work to mitigate and adapt to the changing climate? • What changes are people making to adapt to climate change?
Learning Outcomes	<p>Students will be able to:</p> <ul style="list-style-type: none"> • Explain the difference between climate mitigation and adaptation • Explain several actions that people can take to mitigate and/or adapt to climate change • Understand the link between atmospheric carbon and climate change
Summary	<p>Learners take on the role of a student or teacher living through climate change. They roll the dice and move to stations that either mitigate climate change, require them to adapt, or cause unexpected problems. Throughout the game, students keep track of what happens to them and the consequences of their journey. The activity wraps up with a lively discussion of what happened during the game, and how the results can inform their choices to be part of a solution to climate change.</p> <p>Inquire: Students define terms to understand how atmospheric carbon effects the climate and what it means to mitigate and adapt to the changes.</p> <p>Investigate: Students take part in an active model to find some of the actions they can take to mitigate and/or adapt to the changes</p> <p>Inspire: Students use their “life story” to write about solutions and adaptation strategies.</p>

Instructions

<p>Inquire ≅ 10 minutes</p>	<ul style="list-style-type: none"> • Students review what they know about atmospheric carbon and how it effects climate, and what sorts of hazards it causes • Students think-pair-share: What kinds of hazards might occur because of a changing climate • Students define <i>Climate Mitigation</i> and <i>Adaptation</i> and explain the difference between them
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	<ul style="list-style-type: none"> Students discuss if there are actions that might have co-benefits to help both mitigate and adapt.
<p>Investigate ≈ 20 minutes</p>	<ul style="list-style-type: none"> Explain they are going to play a challenge that is like a board game where you roll the dice to move forward or back. Only the playing board is really big! You will be traveling from station to station. Each station has a card that tells you what to do- you might be required to roll the dice, or it might tell you how many stations to move. Each card has something that could happen due to climate change, or it might suggest something you do to stop (mitigate) or adapt to climate change. You are required to do whatever it says. For example, it might say to dig a hole or swat bugs. Show me what it looks like to dig a hole. Oh, there is another thing that could happen: you could suffer a catastrophic loss and lose your home. If that happens, come back to the start to report in. If you adapt and survive to the end, you should also come back and report in. On your journey you will take a recording sheet. See the two columns? On the green side you will write down any of the positive things that happened, either things you did to help stop climate change (mitigation) or things you did to help survive (adaptation) On the red side you will write down any of the bad things that happened to you along the way. You DO NOT need to write down the number of spaces you moved, or that you rolled the dice; you just have to write down the climate change effects. MAKE THIS SUPER CLEAR so they don't write down the entire text of the card. Each recording sheet is marked with a number from 1-5. It will tell you where to start. If you are at #2 and it tells you to roll to move ahead. You roll a 4, what station should you go to? #6. Remember to go by the numbers. Sometimes you might have to move backwards. And remember THIS IS NOT A RACE. The idea is not to get through life quickly; the idea is to have a long successful life. So be sure to do all the things required by the card. As they complete the circuit, you can ask how many adapted and how many lost their homes.
<p>Inspire ≈ 15 minutes</p>	<ul style="list-style-type: none"> Students share some of the positive and negative things that happened along the way And say whether their activities represented a mitigation, adaptation, co-benefit or something else: <ul style="list-style-type: none"> Mitigation: riding a bike, solar panels, no CFCs, meatless diet, LED bulbs, tree planting, thrift store shopping Adaptation: dumping water, foraging, taking in refugees <i>What are some of the bad things that happened along the way? Would these really happen due to Climate Change?</i> <ul style="list-style-type: none"> heat exhaustion, flooding, hurricanes, tree falling, insects, supply shortages (sandbags), fast fashion, HAB. Ask them which of the scenarios seemed realistic and if they could take any of the positive actions in their own lives. ADDITIONAL IDEAS: Have the students write a story from the point of view of the person they portrayed in the activity. Ask them what things they can do and ask them to make a pledge.

Accompanying Materials (Google Drive)

Game Stations Station List	Student Recoding Sheet Solutions Handout	Original Lesson Plan
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Teaching Tips

Suggestions	<ul style="list-style-type: none"> • The game can be set up indoors or outdoors, with the field of play ranging from a classroom to a giant field or woodland trail. • See the lesson plan script for hints on how to explain the game.
Prerequisites	<ul style="list-style-type: none"> • Set up 24 stations - for outdoors, we put them on Velcro blocks so they don't blow away. • 6 giant dice (you can use small dice if these are not available - but have a box to roll them in so they don't get lost.) • Clipboards and pencils with recording sheet for each player The sheet should have a number 1 -4 so they know where to begin • Results chart (on clipboard or large white board)
Differentiation	<ul style="list-style-type: none"> • For areas where students might have climate trauma, you can make it less personal by giving students a profile card of an imaginary student in middle school, high school or college. They are told to imagine they are going to live that person's life for a short time • This can be done in pairs for students who need assistance reading. • Spread the stations out on a large field to include more PE and kinesthetic learning • Students can conduct further research on any of the actions on the game board

Learning Standards

Standards
Next Generation Science Standards
<i>MS-ESS3-5: Ask questions to clarify evidence of the factors that have caused climate change over the past century.</i>
NJSL



6.3.5.GeoHE.1: Plan and participate in an advocacy project to inform others about the impact of climate change at the local or state level and propose possible solutions.

6.3.8.CivicsPR.4: Use evidence and quantitative data to propose or defend a public policy related to climate change.

8.2.8.ETW.4: Compare the environmental effects of two alternative technologies devised to address climate change issues and use data to justify which choice is best

9.4.8.DC.8: Explain how communities use data and technology to develop measures to respond to effects of climate change

9.4.8.IML.8: Apply deliberate and thoughtful search strategies to access high-quality information on climate change

HS-ESS3-1: Construct an explanation based on evidence for how the availability of natural resources, occurrence of natural hazards and changes in climate have influenced human activity.

HS-ETS1-2: Design a solution to a complex real-world problem by breaking it down into smaller, more manageable problems that can be solved through engineering