

Greenhouse Gas Game

“Explore the Greenhouse Effect”
#112

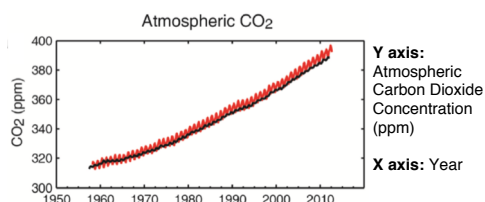
Why this game?

Greenhouse gases act as a blanket over the earth, keeping it warm.



Since the industrial revolution, human activities have led to an increase of greenhouse gases in the atmosphere.

In the last **800,000** years, there have not been as many greenhouse gases in the atmosphere as there are now.



CO₂, a key greenhouse gas, has caused the most warming so far

(graph, Mauna Loa, Hawaii, United States: IPCC, 2013)

Link with Climate Change

Understanding the greenhouse effect and the link with human activity, enables players to deduce the cause of global warming and climate change.

Participants explore the links between climate change and extreme events.

This highlights why actions are needed to deal with the impacts of climate change (adaptation) as well as the causes of climate change (mitigation).

Game overview

Description: An energetic, physical game in which participants simulate the greenhouse effect, becoming either heat from the sun or greenhouse gases.

Learning outcomes: To learn about the greenhouse effect. To learn that human activities which release greenhouse gases have amplified the greenhouse effect over the last century. To learn that this has resulted in global warming and climate change, exacerbating hazards and impacts across the world.

Facilitator skill level: ★★ Somewhat challenging, needs careful facilitation, check if this is appropriate for the group

Intended audience: youth and adults

Note: not for settings where touching is inappropriate

Number of players: 12 - 30

Time needed for gameplay/discussion: 20 minutes

Playspace Requirements: A large space where 30 people can run around

Materials:



1. String, masking tape or chalk

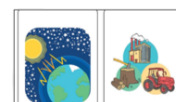


2. Ca. 100 pieces of scrap paper

3m 00s

START RESET

3. Timer



4. Optional - debriefing cards



See link to more resources

All Climate Centre games can be found on: www.climatecentre.org/games

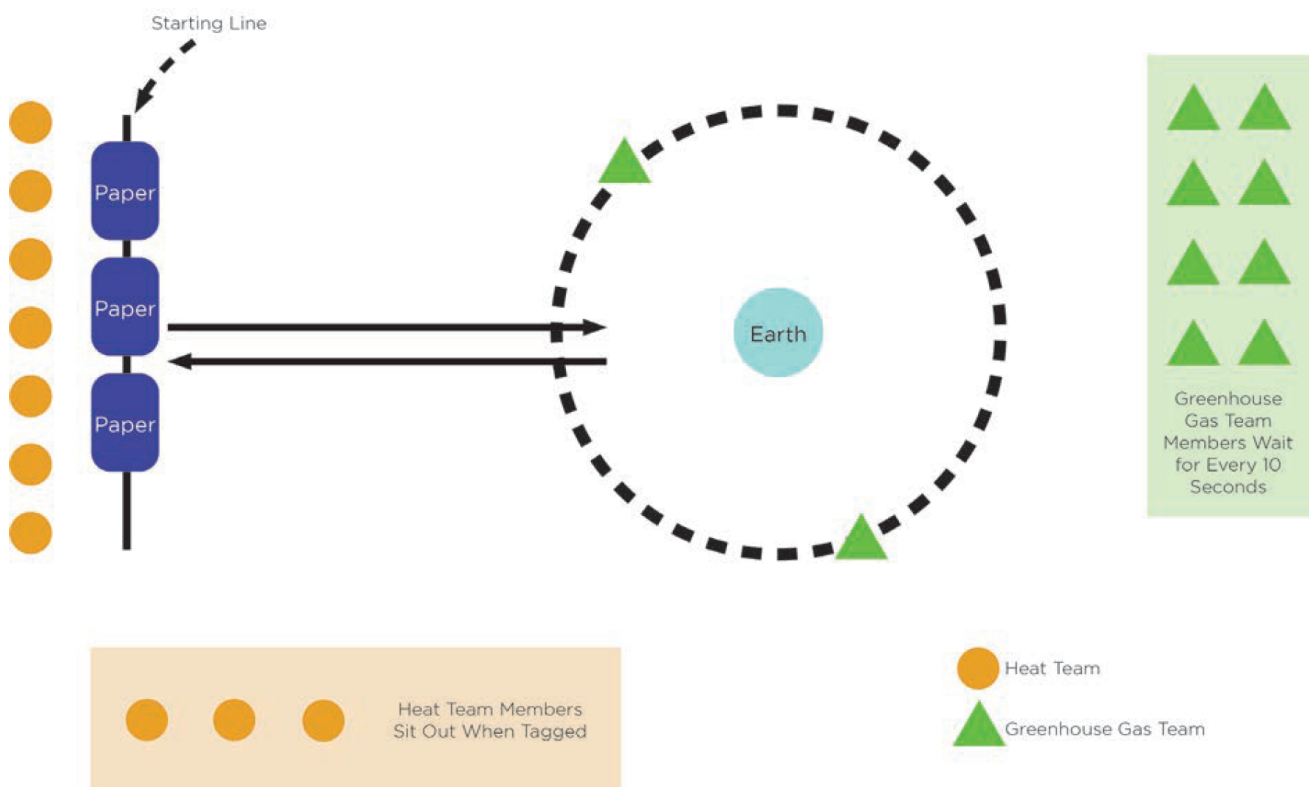


Facilitation guide

Rules and game play:

Set up:

1. Holding hands, have everyone form the largest circle that they can without letting their hands go.
2. Release hands, and have everyone take two big steps back.
3. Mark a circle on the ground/floor around (just outside) the circle of people. If indoors, use a string or chalk. If outdoors on dirt, mark by having everyone drag their feet to make a circle.
4. Create a Starting Line Area (for Heat Team) 3-5 meters (10 to 15 feet) from the circle.
5. Place the scrap paper in 3 piles on the Starting Line for the Heat Team. You can use something safe to hold them down or put them in bags/buckets. IMPORTANT: Do not use objects that could hurt someone if they fell on them.
6. Divide all the players into two teams by having them count off A and B.
7. Make a circle of 1 meter across in the middle of the large circle.
8. Tell everyone the small circle represents the earth and the large circle represents the atmosphere and the starting line represents the sun.



How to win this game:

- The team with the most cards at the end wins.

Facilitation guide



Game play:

1. Start by making Team A the “Heat Team” and Team B the “Greenhouse Gas Team”.
2. The Greenhouse Gas Team should pick their two fastest players to start on the circle. For the entire game any player on the Greenhouse Gas Team MUST keep both feet on the circle. The rest of the Greenhouse Gas Team waits on the side until it is their turn.
3. The Heat Team starts behind the starting line.
4. The Heat players:
 - Grab a card from one of the three piles behind the starting line.
 - Run into the circle and touch the earth with one foot.
 - Return to the starting line area, and give that card to the facilitator.
 - Pick up a new card and repeat this as often as possible.
5. The Greenhouse Gas Team must run around on the circle and try to tag the Heat Team.
 - The Greenhouse Gas Team can only tag a heat player AFTER they have entered the circle and are trying to escape back out.
 - The Greenhouse Gas Team MUST keep both feet on the circle at all times and can move around the circle moving to the left, or to the right.
6. If a Heat player is tagged, they must give their card to the Greenhouse Gas Player that tagged them and then sit out [see drawing on page 2].
7. Demonstration: ask one player of each team to demonstrate the rules and clarify any questions.
8. At the start of game there are 2 Greenhouse Gas players.
9. Every 10 seconds you will add a Greenhouse Gas player to the circle. Note: be strict with the timing.
10. The game ends after 3 minutes.
11. At the end of 3 minutes add up the TOTAL number of cards that the Heat Team retrieved and gave to the facilitator. This is their score.
12. Have the teams switch roles and play for 3 minutes again.
13. Whichever team gets the most cards wins.

Debrief:

- Ask below questions. You can wrap up and share a brief explanation of what happened.
1. What did you experience playing this game?
 2. What do you think this game represents?

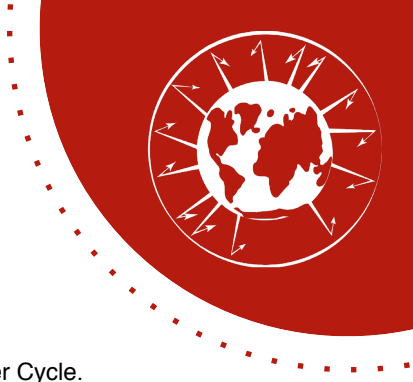
Explanation of what happened

In the game, the heat team run from the sun, through the atmosphere to the earth. They tap the earth and then run back out through the atmosphere. This represents what happens in real life. The sun’s rays pass through the atmosphere to the earth. When they reach the earth’s surface they are reflected and pass back out through the atmosphere to space.

However! Sometimes when the heat team try to escape back out of the atmosphere they are caught by the greenhouse gas team. This also represents real life. When the sun’s rays are reflected from the earth, natural gases can trap this reflected heat in the atmosphere. These heat trapping gases are called **GREENHOUSE GASES**. Without Greenhouse gases the earth would be very cold – about minus 18 degrees celcius. This would be too cold to sustain life as we know it!

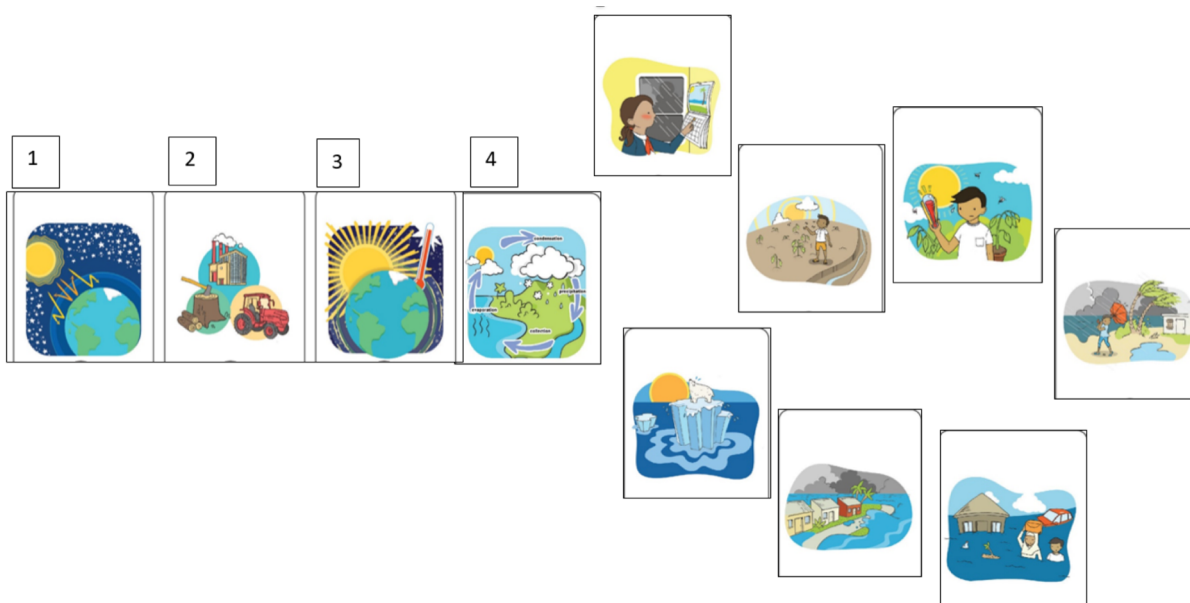
We call this process **THE GREENHOUSE EFFECT** because it is similar to what happens in a greenhouse. The sun’s rays enter the greenhouse through the glass, but then get trapped inside. This keeps the greenhouse warm.

Facilitation guide



Extended debrief:

1. Arrange the 'Greenhouse Gas Debrief Cards' on a wall or table as per the image below.
 2. Present cards 1-4 in order: 1. The Greenhouse Effect; 2. Causes; 3. Global Warming; 4. The Water Cycle.
- Tip! You can read the back of the cards to help you explain the cards.
3. Ask if anyone can name any of the impacts of climate change. They can look at the images for ideas.
 4. Distribute the cards among the players and ask them to discuss and pick 1 interesting fact from the back.
 5. Recap the sequence from the greenhouse effect to the hazards.



Acknowledgements:

This game is created as part of Y-adapt. Y-adapt is a curriculum consisting of games and playful activities, which helps youth to both understand climate change and to take practical action to adapt to the changing climate in their community.



This game is the product of a collaboration between PLAN International, the Red Cross Red Crescent Climate Centre, the Engagement Lab at Emerson College, the Philippines Red Cross, and PLAN Philippines.



We are grateful to the Noun Project for the following images: Greenhouse Gas by Mark S Waterhouse, Global Warming by Ben Davis.

For further information on these materials please contact:
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