

SDG13 Climate Change Engage Game Design



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Lesson 4: Climate Action

Subjects: Design, Environmental Science, Game Design, Geography, Science, Technology

Lesson Title and Summary: Climate Action

In this lesson, learners are introduced to the concepts of mitigation and adaptation, as well as encouraging them to take climate action, by looking at their own behaviour and how they might reduce their impact.

Learners will explore local and global impacts and actions around greenhouse gas and energy reduction, expanding their knowledge for potential themes in their game design.

Vocabulary: Climate Action; Climate Change Adaptation; Climate Change Mitigation; Carbon Dioxide (CO₂); Methane (CH₄)

In this lesson, the learner will:

- Understand the difference between climate change mitigation and adaptation
- Understand what they can do to cut greenhouse gas emissions
- Understand how we can live in a changed climate and adapt to it
- Be empowered to take positive action for the climate

Materials

- Video: 'Climate action- part 1-mitigation'
- Video: 'Climate action- part 2-adaptation'
- Support: Lesson 2-4 Teachers' Guide
- Support: Climate Mitigation Chart
- Internet access
- Pens, pencils
- paper
- Blackboard / Whiteboard

4 QUALITY EDUCATION



9 INDUSTRY, INNOVATION AND INFRASTRUCTURE



11 SUSTAINABLE CITIES AND COMMUNITIES



12 RESPONSIBLE CONSUMPTION AND PRODUCTION





Activity Instructions

Activity 1 Climate mitigation: how can we cut greenhouse gas emissions? (25 mins).

1. Elicit possible definitions of climate change mitigation. Allow learners to refer to dictionaries to gather 2 - 3 definitions and share ideas with a partner.
2. Elicit ideas as a whole class to create a definition together.
3. Reintroduce the concept of Greenhouse Gases, Carbon Dioxide (CO₂) / Methane (CH₄) emissions and the areas where CO₂ / CH₄ are produced:
 - burning wood or fossil fuels, like oil, coal and gas
 - heating our homes
 - transport and energy systems
 - livestock agriculture's digestion producing methane

and discuss - refer to support: 'Lesson 2-4 Teachers' Guide' for additional support if required.

5. Watch video 'Climate action- part 1- mitigation' (4:46 mins): ask learners to list the activities mentioned that use energy.
6. Divide learners into pairs, ask them to write a list describing the activities that they carry out during the day e.g. taking a shower, washing clothes, eating breakfast, going to school, etc.
7. Ask them to compare their list with the list they made from the video and discuss how less energy could be used by them personally, the local community, and the country.
8. Use the Climate Mitigation Chart to consider what they already do and what are the obstacles to things they don't do. Compare with another pair.

Activity 2: Adaptation (25 mins)

1. Elicit possible definitions of climate change adaptation. Allow learners to refer to dictionaries to gather 2 - 3 definitions and share ideas with a partner.
2. Elicit ideas as a whole class to create a definition together. Introduce the concept of climate change adaptation - see support: 'Lesson 2-4 Teacher's Notes'.
3. Working in the same pairs as Activity 1, look up how much the sea level has already risen (in Ireland/ in the world) - see Media Box.
4. Discuss the following questions as a whole class or in small groups:
 - Have you seen any coastal erosion?
 - Have you seen any flooding?
 - Are you aware of any houses or roads that were built close to the coast/ in flood plains?

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L4: Climate Action



REFLECTIVE EXERCISE: 3-2-1 (10 mins)

- Three things they feel they have learnt from the tasks
- Two things they found most interesting and would like to explore more
- One opinion they have about the activities, what did they like or how they would improve them

Use Post-its or a mentimeter survey - www.mentimeter.com to gather reflections

EXTENSION / REDUCTION ACTIVITIES

Reduction: For a shorter lesson, reduce the amount of time spent on Activity 1.

Extension: For a longer lesson, share the case studies on seagrass or salt marsh / dune system with the learners and discuss if they would rather have a sea wall to prevent coastal erosion or plant seagrass / create a salt marsh/dune system?

Option B: Consider the adaptations outlined in the support: 'Climate Game Themes' for their potential for integration into their game design

Option C: Calculate their carbon footprint: <https://www.carbonfootprint.com/calculator.aspx>

MEDIA BOX: (materials, online video links, extra resources, case studies etc)

Activity 1 Video: 'Climate action- part 1-mitigation' (4:46 mins) <https://youtu.be/ptV2xXiDXAc>

Activity 2 Video: 'Climate action- part 2-adaptation' (2:37 mins) https://youtu.be/eoY7N7QKI_o

Climate Change Post (2022) <https://www.climatechangepost.com/ireland/>

Coastal Floods in Ireland <https://www.climatechangepost.com/ireland/coastal-floods/>

Coastal Risk Screening Tool <https://coastal.climatecentral.org/>

History of CO2 concentration animation <https://gml.noaa.gov/ccgg/trends/history.html>

Local Trip / Expertise / Additional Work and Assessments

Contact a planner from the local or information on their climate change mitigation and adaptation projects.

Contact any local engineering companies to find out more about any climate change mitigation and adaptation projects.



How to cut greenhouse gas emissions? Climate change mitigation

Make your voice heard

Educate yourself and others Organize Vote Protest



Transport

Walk

Bike

Use public transport



Save Energy

Use energy efficient light bulbs Turn down the heat in your house Switch off lights and computers Wash clothes cold



Food Choice

Eat less meat and dairy

Eat more fruit and vegetables



Consume Less

Buy less

Buy second hand

Recycle



Help Nature

Go for walks – observe nature Plant trees Help pollinators



Control invasive species

Restore peatlands