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Grunnskóli Húnaþings vestra

E10101913

CLIMATE CHALLENGE

Adventure

Game Time for a Green Future:
Make Your Move Against Climate Change!
2024-1-IS01-KA220-SCH-000243341

Activity Title
Climate Challenge Treasure Hunt – Exploring Sustainability, Climate Change & Renewable Energy

Grade Level:	Secondary School (Ages 12–15)
Duration:	2 Lesson Hours (2 x 40 min)
Subject Areas:	Environmental Science, Geography, Citizenship Education
Learning Domain:	Climate Action, Renewable Energy, Sustainable Lifestyles
Key Competences:	Collaboration, Green Competences, Problem-Solving, Creativity, Critical Thinking

Climate Challenge Treasure Hunt –

Exploring Sustainability, Climate Change & Renewable Energy

Authors: Sara Ólafsdóttir and Sólrún Guðfinna Rafnsdóttir

Learning Objectives:

- Students will define what sustainability means in their daily lives.
- Students will explore how renewable energy (water power) and sustainable transport reduce climate impacts.
- Students will observe and reflect on natural elements (plants, insects, weather, ocean).
- Students will collaborate to complete challenges and express their ideas in group videos.

Materials & Resources

- Smartphones or tablets with cameras (for group videos)
- Paper and pens (for sketches and notes)
- Natural and recyclable materials found on-site (leaves, stones, branches, litter for sorting)
- Access to Google Classroom (Class code: `swblaeu6`)
- Trash bag.

Expected Outcomes

- Increased awareness of sustainability and climate change in a local context.
- Practical understanding of renewable energy and carbon footprint.
- Improved teamwork, communication, and creative problem-solving.
- Ability to express environmental messages through video storytelling.

Assessment & Evaluation

- Group videos submitted in Classroom (one per checkpoint).
- Teacher/peer evaluation of creativity, participation, and sustainability ideas.
- Observation of equal participation (all students should speak in at least one video).
- Optional reflection discussion at the end of the activity.

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Session Plan – Treasure Hunt (80 minutes)

👥 Checkpoint 1 – Introduction & Word Sharing

Tasks:

- Each person introduces themselves briefly (name + interest or something connected to sustainability/nature).
- Group takes a selfie-video where everyone is visible.
- Group says 3 words about sustainability in three languages (Icelandic, English + Danish or Turkish).
- **At the end of the video:** the group states together in 1–2 sentences what sustainability means for them as a team.

🌊 Checkpoint 2 – Seashore / Harbor

Tasks:

- Collect **6–8 pieces of litter** at the seashore and sort them into plastic, metal, glass, and other.
- Record a video showing the litter, the sorting process, and the tideline.
- In the video, one or more members explain one solution for reducing plastic in the ocean.

🌱 Checkpoint 3 – Green Area / Park

Tasks:

- Find **3 different plants and/or insects** and show them in the video.
  Create a small **nature mandala** from leaves, stones, or branches (**do not break branches off trees**) and show it in the video before leaving it behind.

💧 Checkpoint 4 – Hvammsá River – Hydropower

Tasks:

- Draw or build a simple **water wheel** from available materials.
- In the video, explain: How could **Hvammsá River** be used to produce electricity in a sustainable way?

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🚲 Checkpoint 5 – Transportation & Carbon Footprint

Assumptions:

- All cars in this task drive **2 km** (one short trip).
- Reference value for cars: **0.2 kg CO_2 per km**.
- Formula: **CO_2 = km × 0.2 kg**.

Tasks:

1. Count for 5 minutes: pedestrians, cyclists, cars (show the process in the video).
2. Calculate in the video:
    - **One 2 km car trip:** 2 × 0.2 = **0.4 kg CO_2**.
    - **Two trips (round trip, 4 km):** 4 × 0.2 = **0.8 kg CO_2**.
3. Compare with air travel:
    - Reykjavík → Copenhagen ≈ **400–500 kg CO_2 per passenger**.
    - Question in the video: "**How many 2 km car trips (0.4 kg each) does this equal?**"

☁️ Checkpoint 6 – Weather & Climate

Tasks:

1. **Cloud line:** Take a picture of the sky and show it in the video.
2. **Weather data:** Use a phone to record wind direction and temperature and read it in the video.
3. **Climate change:** Two members explain in the video (2–3 sentences):
    - "How could climate change affect the seashore here in Hvammstangi?"

🐟 Checkpoint 7 – Life in the Ocean & Message to the Sea

Tasks:

- Imagine sending a message directly to the sea.
- Record a **15–20 second video** where the group speaks to the sea.
- Say what you want the sea to know (e.g., gratitude, concerns, or a promise of protection).
- Use your own words, creativity, and a shared group message.

Treasure Hunt – Climate Change, Sustainability and Renewable EnergyAssessment Tools – Pre- and Post-Test

1. Pre-Test Questionnaire

Objective: To assess students' awareness and basic understanding of the main themes of the treasure hunt.

Total: 5 points (1 point per correct answer).

1. What does sustainability mean?
   a) Using resources without thinking about the future
   b) Using resources in a way that future generations can also use them
   c) Using as much as possible before it runs out
   d) Recycling only

2. Which of these is renewable energy?
   a) Oil
   b) Coal
   c) Wind
   d) Gas

3. What is a carbon footprint?
   a) A measure of how much CO_2 people produce through daily activities
   b) A footprint left in the sand
   c) The total number of cars in a city
   d) The amount of plastic waste in the ocean

4. Climate change can cause rising sea levels and changes to the shoreline.
   a) True
   b) False

5. Which of these helps to protect the ocean?
   a) Leaving rubbish on the beach
   b) Reducing plastic use and recycling
   c) Using more single-use plastic bottles
   d) Throwing waste into rivers

2. Post-Test Questionnaire

Objective: To evaluate what students have learned after the treasure hunt.
Total: 5 points (1 point per correct answer).

1. Which of the following examples did you practice or learn during the treasure hunt?
   a) Sorting litter into categories for recycling
   b) Leaving rubbish on the ground
   c) Always using cars for short trips
   d) Using more plastic bags

2. Why is hydropower considered sustainable?
   a) It uses the natural water flow to produce electricity without fossil fuels
   b) It only produces electricity once
   c) It requires burning fossil fuels
   d) It increases CO_2 emissions

3. Which of the following reduces your carbon footprint?
   a) Walking or cycling instead of driving
   b) Taking more flights
   c) Leaving lights on in empty rooms
   d) Throwing batteries in the trash

4. The weather and shoreline in Hvammstangi can be affected by climate change.
   a) True
   b) False

5. Which of these “Messages to the Sea” best reflects the aim of the activity?
   a) “We want to ignore the sea and focus only on land.”
   b) “We will use the sea more without thinking of the impacts.”
   c) “We thank the sea and promise to protect it.”
   d) “We want to throw our plastic into the sea.”

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Rubric – Treasure Hunt: Climate Change, Sustainability and Renewable Energy

This rubric is used to assess student performance based on the content of the videos produced at the treasure hunt stations.
(Videos are submitted for assessment; they do not need to be technically perfect. The focus is on ideas, solutions, and collaboration.)

Criteria	Excellent (4)	Good (3)	Fair (2)	Needs Improvement (1)
Creativity & Originality	Projects show strong creativity and original approaches; ideas are innovative and engaging.	Projects show some creativity; originality is visible.	Limited creativity; mostly conventional ideas.	No creativity; very superficial or incomplete work.
Response to Tasks & Questions	Responses are clear, well explained, and directly linked to sustainability and climate themes; all group members contribute.	Responses are mostly clear and connected to the theme; most group members contribute.	Responses are vague, incomplete, or only a few students contribute.	Responses are unclear, incorrect, or missing; very few or no students contribute.
Team Collaboration	Excellent teamwork; all members are active, respectful, and roles are clear.	Good teamwork; most members active, group mostly organized.	Uneven participation; limited collaboration or organization.	Little or no teamwork; group appears disorganized.
Solution-Oriented Thinking	Tasks solved with creative, realistic, and well-explained solutions related to climate and sustainability.	Tasks solved with realistic solutions but explanations limited.	Solutions simple or loosely connected to sustainability.	Solutions unrealistic or missing.
Clarity of Message	Messages in videos are clear, organized, and easy to understand; content communicates well to the audience.	Messages mostly clear; minor confusion or gaps.	Messages confusing or poorly linked to the task.	Messages very unclear or missing.

Scoring Guide

- **20–18 points:** Excellent – strong content, creativity, and clear link to sustainability themes.
- **17–14 points:** Good – solid performance with minor weaknesses.
- **13–10 points:** Fair – basic performance; lacks depth, clarity, or full participation.
- **9 points or below:** Needs Improvement – incomplete work, little participation, or weak link to themes.