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CLIMATE CHALLENGE Adventure

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

Activity Title
Be an Energy Detective! Spot It, Solve It

Grade Level:	Secondary School (Ages 12–15)
Duration:	2 Lesson Hours (2 x 40 min)
Subject Areas:	Environmental Science, Visual Arts, Design & Technology
Learning Domain:	Sustainable Consumption, Energy Awareness, Environmental Problem Solving
Key Competences:	Green Competences, Creativity, Collaboration, Eco-Design Thinking

Be an Energy Detective! Spot It, Solve It

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In a world facing climate change and resource depletion, educating students about energy efficiency is a crucial step toward building a more sustainable future. The activity "Be an Energy Detective! Spot It, Solve It" is a hands-on, inquiry-based lesson designed to raise awareness of everyday energy consumption, encourage critical thinking, and promote problem-solving skills.

By turning students into energy detectives, the activity allows them to observe real-life scenarios of energy waste in their own school environment and develop creative solutions to promote more sustainable behaviours.

Learning Objectives:

At the end of this activity, students will be able to:

- Identify and describe common sources of energy waste in a school setting.
- Understand the importance of energy conservation in daily life.
- Propose practical solutions to improve energy efficiency.
- Collaborate in teams to design and present their findings.
- Develop communication skills through the creation of a visual aid (poster or model).

Materials & Resources

- Observation worksheets
- Poster paper or cardboard
- Markers, glue, scissors, coloured pencils
- Optional: Tablets or phones for documentation
- Tape, ruler, recycled materials for models

Expected Outcomes

By the end of this activity, students will:

- Be more aware of their own energy usage
- Develop problem-solving and critical thinking skills
- Collaborate effectively in teams
- Take initiative in creating environmentally responsible solutions

Assessment & Evaluation

Assessment

Students will be evaluated based on:

Criteria	**Points**
Active participation in the group	25
Quality and accuracy of observations	25
Creativity and clarity in the solution	25
Effectiveness of communication/presentation	25
Total	**100 pts**

Session 1 – Spot the Waste! (40 minutes)

1. Warm-up & Discussion (5 min)
Introduce energy consumption and discuss everyday energy use in school.
Discussion questions:

- Where is energy used in our school?
- What habits might lead to energy waste?

2. Energy Detective Mission (25 min)
Students work in small groups with observation worksheets.

They tour the school to find signs of energy waste, such as:

o Lights left on in empty rooms

o Open windows with heating or AC running

o Unplugged chargers or devices left in sockets

3. Documentation (10 min)
Students take notes and (optionally) photos of energy-wasting behaviours.

Session 2 – Solve it and Share it! (40 minutes)

1. Idea Generation (5 min)
Groups discuss their findings and brainstorm solutions.

2. Poster/Model Creation (25 min)
Each group creates a visual presentation of their solution. Examples:

- Poster: “Our Energy Saving Board”
- Model of an energy-efficient classroom
- Infographic or behaviour-change checklist

3. Group Presentations (10 min)
Groups present their work to the class and receive peer feedback.

Be an Energy Detective! Spot It, Solve It– Assessment Tools

1. Pre-Test Questionnaire

Objective: To assess students' **prior knowledge**, **awareness**, and **basic understanding** of energy consumption, common sources of energy waste, and simple energy-saving behaviors **before** participating in the activity *"Be an Energy Detective! Spot It, Solve It."*

Total 5 points (1 point per question)

1. Which behaviour is an example of energy waste at school?
a) Turning off lights when leaving a room
b) Using sunlight instead of lights
c) Leaving lights on in empty classrooms
d) Unplugging chargers after use

2. What is energy efficiency?
a) Using more energy for faster results
b) Using energy in a smart and effective way
c) Storing unused energy for later
d) Turning off all devices permanently

3. Which of the following is not an energy-saving habit?
a) Switching off devices after use
b) Keeping windows open while heating is on
c) Turning off projectors after class
d) Using motion sensors for lights

4. What does an energy detective do?
a) Builds power plants
b) Looks for energy waste and finds solutions
c) Measures water pollution
d) Repairs broken machines

5. Which of the following is the most energy-efficient action?
a) Keeping the air conditioning on with windows open
b) Leaving devices on overnight
c) Using natural daylight instead of electric lights
d) Leaving chargers plugged in when not in use

2. Post-Test – Be an Energy Detective! Spot It, Solve It

Objective: To evaluate students' learning outcomes, including their ability to recognize energy wasting behaviours, propose solutions, and demonstrate improved awareness of energy efficiency after participating in the activity.

Total 5 points (1 point per question)

1. Which of these examples did you observe or learn as energy waste during the activity?
a) Lights left on in an empty room
b) Students turning off projectors after use
c) Teachers reminding students to close windows
d) Unplugged devices in classrooms

2. Your group's poster or model should:
a) Show your favorite appliance
b) List expensive energy sources
c) Present a solution to an energy problem
d) Compare different types of fuels

3. What is one simple way to help your school become more energy-efficient?
a) Open windows while the heating is on
b) Leave classroom devices running overnight
c) Turn off lights when not needed
d) Always use the air conditioner

4. What was the main goal of this activity?
a) Learn about electricity bills
b) Observe and solve energy waste problems
c) Create art about power plants
d) Learn how to use heating systems

5. Which of the following actions is wasteful?

a) Turning off classroom lights during breaks
b) Using recycled materials for a model
c) Keeping chargers plugged in when not charging
d) Using energy-saving LED bulbs

3. Rubric Assessment Tool

This rubric is used to assess student performance during the e an Energy Detective! Spot It, Solve It' activity.

Criteria	Excellent (4)	Good (3)	Fair (2)	Needs Improvement (1)
1. Participation and Teamwork	Fully engaged; took initiative; supported others actively	Participated well; collaborated with some support	Participated but needed reminders; limited collaboration	Rarely participated; minimal team interaction
2. Observation Skills	Identified multiple relevant and specific examples of energy waste	Identified a few relevant examples of energy waste	Identified vague or general examples	Little or no relevant observations made
3. Problem-Solving / Solution Ideas	Proposed creative, realistic, and well-explained solutions	Proposed realistic solutions with some explanation	Proposed simple or unclear solutions	Solutions were unrealistic or missing
4. Presentation / Communication	Clear, engaging, well-organized presentation or poster; strong visual impact	Clear presentation with mostly organized content	Somewhat unclear or disorganized; visual support was minimal	Unclear or incomplete presentation; lacked visual support
5. Understanding of Energy Concepts	Demonstrates strong understanding of energy efficiency and conservation concepts	Shows a basic understanding with minor gaps	Limited understanding; some misconceptions	Major misconceptions or little understanding shown

Scoring Guide

- Total Points Possible: 20
- Suggested Grade Scale:
    - 18–20: Excellent
    - 14–17: Good
    - 10–13: Satisfactory
    - Below 10: Needs Improvement