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Steam4Climate Worksheet for students

Project:

The Sustainability Race

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Contributing organizations: IDL, WUT

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About This Booklet

This educational resource is designed to complement the *STEAM4Climate Teacher's Guide - Booklet Four*. Developed as part of the Erasmus+ STEAM4Climate project, this booklet introduces *The Sustainability Race*, a board game designed to teach students about the environmental impact of food choices. Players must balance their nutritional needs while managing carbon footprint, water usage, and land use. The game encourages strategic thinking and collaborative problem-solving, showing how individual actions contribute to global sustainability.It is designed to guide you through interactive gameplay, decision-making strategies, and post-game discussions.

- Follow the game rules step by step to play effectively.
- Track your progress and environmental impact as you make food choices.
- Engage in post game discussions about sustainability and food choices.
- Reflect on real-world applications to apply your learning beyond the classroom.

By participating in this activity, you will gain a deeper understanding of food sustainability, resource conservation, and environmental responsibility. Get ready to make informed decisions, play smart, and think sustainably!

To explore the full collection of student activity worksheets and related teacher guides, visit 🔗Steam4climate website.

EU Project Consortium

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The Sustainability Race

1.1 Introduction

The goal of this board game is to help you learn how food choices affect the environment. The goal is to choose foods that help you reach your **nutritional goals** while making sure you don't harm the planet by using too many resources like **water, land,** and adding to more **carbon footprint (carbon emissions)**.

Game Objective

The goal of *The Sustainability Race* is to be the first player to reach:

- **1,500 Calories**
- **50g Protein**
- **25g Fiber**

The challenge - Every food choice you make affects the environment! You'll have to keep track of three shared environmental resources:

- **Carbon Footprint (Air Pollution)**: 10 Tokens Available
- **Water Usage (Water Supply)**: 8 Tokens Available
- **Land Use (Farming Space)**: 6 Tokens Available

If the **shared environmental tokens** run out, everyone **loses the game** — even if you are close to your nutritional goals! So, think carefully about your choices. You need to make **smart food decisions** to win without harming the environment.

1.2 Game Components

1.2.1 The Game Board

The game board has **two main sections**:

1. **Nutritional Values Section:** This part of the board tracks your progress toward **Calories, Protein, and Fiber.** Each time you choose food, you move forward on the board based on the nutritional values of that food.
2. **Environmental Impact Section:** This section keeps track of how much damage your food choices cause to the planet. Every time you choose food, you add or remove resource tokens for **Carbon**, **Water,** and **Land**.

Note: The figures assigned to nutritional goals and environmental limits are fictional and intended solely for gameplay purposes.

Fig: The Game board

1.2.2 Food Cards

There are **15 Food Cards**, and each card presents a real-life food choice. Each card has **two food options**, showing:

- **Calories**, **Protein**, and **Fiber** (for your body).
- **Carbon, Water,** and **Land Tokens** (for the planet).

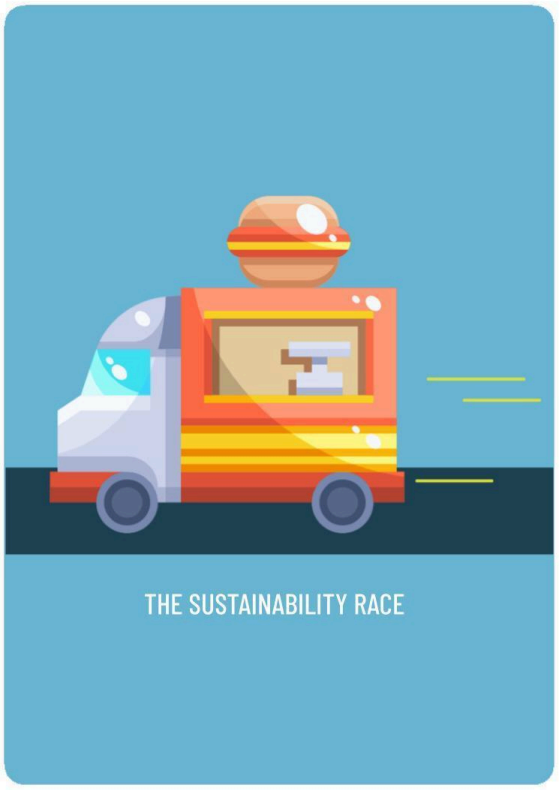

Fig 2: An example of a Food Card (Front)

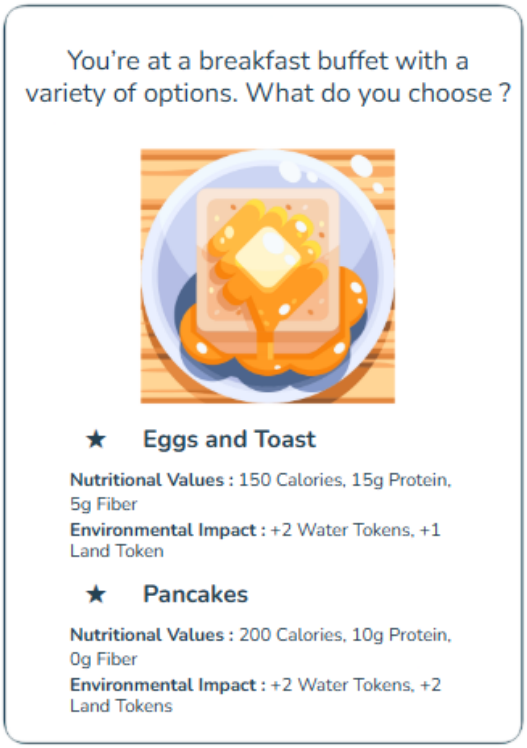

Fig 3: An example of a Food Card (Back)

1.2.3 Game Tokens

- **Character Tokens (12):** These represent you on the game board as you race toward your nutrition goals.
- **Resource Tokens (24):** These include **Carbon Footprint (10)**, **Water Usage (8)**, and **Land Use (6)** tokens. They help track how much damage your food choices cause.

1.3 How to Play

1.3.1 Game Setup

1. Number of Players: 4
2. Time to Play: 40–60 minutes
3. Shuffle the Food Cards and place them face-down on the game board.

4. Place 8 Water Tokens and 6 Land Tokens on the board.
5. Leave the Carbon Section empty for now and place the carbon token on the side of the board.
6. Place your character token at the starting line of the nutritional values section.

1.3.2 Your Turn!

1. **Draw a Food Card**: Pick a card from the deck. The card will show two food options with nutritional values and environmental impacts.
2. **Make a Food Choice**: Choose one of the two options based on what you need to reach your nutrition goals (Calories, Protein, Fiber) while keeping an eye on the environment!
3. **Advance on the Board:**
    - Nutritional Values Section: Move your character forward based on the Calories, Protein, and Fiber you gained from your food.
4. **Environmental Impact Section:**
    - Add Carbon Tokens: If your food choice produces carbon emissions, add tokens to the Carbon Footprint section.
    - Remove Water and Land Tokens: If your food uses water or land, remove tokens from those sections.

Example: If you choose Beef Burger (300 Calories, 25g Protein, 0g Fiber), you:

- Move 3 steps for Calories, 5 steps for Protein, and 0 steps for Fiber.
- Add 4 Carbon Tokens, 3 Water Tokens, and 3 Land Tokens.

1.3.3 How to Win: Winning the Race.

You win the race by being the **first player** to reach:

- **1,500 Calories**
- **50g Protein**
- **25g Fiber**

But watch out! If the environmental tokens run out before anyone reaches these goals, the game ends, and **everyone loses**. This teaches you that we all share the planet, so we need to **work together** to protect it while still meeting our personal needs.

1.3.4 Food Card Example: "Backyard Barbecue"

Scenario: You are at a backyard barbecue. What will you eat?

1. **Grilled Veggies**

    - **Nutritional Values:** 100 Calories, 5g Protein, 5g Fiber
    - **Environmental Impact:** Add **1 Water Token**, Remove **1 Land Token**
2. **Beef Burger**
    - **Nutritional Values:** 300 Calories, 25g Protein, 0g Fiber
    - **Environmental Impact:** Add **4 Carbon Tokens**, Remove **3 Water Tokens**, Remove **3 Land Tokens**

Smart Tip: If you're close to reaching your **Protein Goal** but the environmental tokens are running low, consider picking a **lower-impact food** like **Grilled Veggies** instead of the **Beef Burger**. This will help you avoid **losing the game together!**

1.4 Debriefing and Post-Game reflection

Curious to visually see what the impact of climate-friendly food choices will be on the earth? Scan the QR code on the game board (also found below) to see. After this, engage in a debriefing session with your teacher on the following questions.

- How do food choices impact the environment in terms of carbon footprint, water usage, and land use?
- Why is balancing your food choices and environmental sustainability important?
- How does resource depletion in the game reflect real-world environmental challenges?
- What strategies did you use to win the game, and how do they apply to real-world sustainability efforts?
- In what ways can changing dietary habits help reduce carbon emissions?
- How did this game make you think differently about your own food choices?

- What changes could you make in your daily life to minimize environmental impact?

Scan the QR code to visit our website to access the full toolkit box and additional teaching resources!