Production of tomatoes and use of energy

Grade Level: K-12 (can be adapted for specific ages)

Driving Question:

How does tomato farming contribute to sustainability, and what can we learn about the environmental impact of growing, transporting, and consuming tomatoes?

Project Overview:

This project engages students in exploring the world of tomato farming, from its historical roots to modern production methods. By focusing on the tomato's journey from farm to table, students will learn about sustainable farming practices, global trade, and the importance of environmental stewardship. The project integrates social studies, science, and geography to help students understand the ecological and economic aspects of tomato farming.

Learning Objectives:

- History and Geography: Students will explore the origins of tomato cultivation, tracing its journey from South America to global adoption.
- Science and Sustainability: Learn about the environmental impact of tomato farming, comparing practices in different climates, including greenhouse cultivation in Iceland.
- Economics: Understand how global tomato trade affects local and international markets, focusing on how sustainability and fair labour practices can be maintained.
- Culinary Connection: Explore how tomatoes are used worldwide and investigate the carbon footprint of transporting tomatoes from farm to kitchen.

Key Inquiry Questions:

1. How did the tomato make its way from South America to global prominence?

2. What are the environmental impacts of large-scale tomato farming compared to small-scale farming?

3. How does Iceland's use of geothermal energy in tomato farming reduce the carbon footprint compared to other methods?

4. What sustainable practices can be introduced to reduce waste in tomato production and transportation?

Supporting Video Material:

Co-funded by the European Union

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Tomatoes Part 1, 2 and 3.

Examples of Possible Activities:

1. Research and Storytelling (History and Culture):

Students will create a timeline showing the spread of tomatoes from South America to Europe and eventually worldwide.

2. Environmental Footprint Analysis (Science and Sustainability):

Students will compare the carbon footprint of greenhouse-grown tomatoes in Iceland to tomatoes grown in traditional open fields in Spain and other countries. They will propose ways to reduce the ecological footprint in tomato farming.

3. Culinary Exploration (Cultural Connection):

Students will explore the different types of tomatoes used in various global cuisines and cook simple tomato-based dishes. This can include discussions on how tomatoes are preserved and transported.

4. Sustainable Farming Techniques:

Students will investigate eco-friendly farming methods like those used in Iceland, including the use of geothermal energy and ecological pest control (e.g., using natural predators like bees).

5. Map the Journey:

Students will trace the global trade routes of tomatoes, identifying the countries involved in the import and export of tomatoes to and from their own country.

Final Project Presentation:

Students will present their findings through:

- A timeline of tomato history.
- Models or illustrations of sustainable farming techniques.
- A map showcasing the journey of tomatoes from farm to table.
- A creative presentation on the environmental and economic impact of tomato farming.
- Any other means students and teachers wish to use.

Assessment Criteria:

- Research and Inquiry: Depth of research on tomato farming history, economics, and sustainability.

- Creativity and Communication: Ability to creatively present findings through storytelling, maps, and models.
- Critical Thinking: Participation in group activities, debates, and reflections on sustainable farming practices.

Teacher's tips for Implementing the Project:

1. **Engage with the local context:** Relate Iceland's unique tomato-growing methods to students' local agricultural practices.

2. **Hands-on Learning:** Use culinary projects or greenhouse models to engage students, especially younger ones.

3. **Integrate Subject Areas:** Use the project to connect subjects like history, science, geography, natural sciences, and economics.

4. **Debate and Reflect:** Facilitate discussions on the balance between economic benefits and environmental sustainability.