



## The Grains to Cereals for breakfast

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

This project explores the historical, agricultural, and environmental journey of cereals, from grains in the field to the breakfast table. Students will investigate how cereals like muesli and cornflakes are produced, processed, and packaged, considering sustainable practices and the impact of their food choices.

### Driving Question:

How does the journey of breakfast cereals from farm to fork connect history, agriculture, food processing, and sustainability, and what choices can help reduce the environmental impact of our breakfast?

### Key Inquiry Questions:

1. How did breakfast cereals like muesli and cornflakes evolve from health foods to global breakfast staples?
2. What processes transform grains into cereals, and how do these processes affect nutrition and environmental impact?
3. How can eco-friendly practices in cereal farming, processing, and packaging help reduce the carbon footprint?
4. How can we make informed choices as consumers to support sustainable cereal production?

### Supporting Video Material:

Cereals Part 1, 2 and 3

### Examples of Possible Activities:

1. **Recipe Reconstruction and Taste Test (History and Food Science):**
  - **Activity:** Students recreate original recipes for muesli and cornflakes based on historical methods. For muesli, students can try the traditional mix of oats, apples, and nuts. For cornflakes, they can cook cornmeal and dry it into flakes. They then conduct a taste test to compare these homemade versions with commercial options.
  - **Objective:** Students gain hands-on experience with food preparation, discover historical food-making techniques, and discuss how commercial production has altered taste, texture, and nutritional content.
2. **Cereal Ingredient Sourcing Project (Geography and Economics):**



- **Activity:** Students research where the main ingredients of popular cereals are grown globally (e.g., oats, corn, rice) and create a world map showing these regions. They can also identify which regions supply ingredients to local cereal brands, examining the economic and environmental impact of sourcing from different countries.
- **Objective:** Students learn about the global supply chain and how ingredient sourcing affects local economies, food miles, and environmental impact.

### 3. Grain Growth Experiment (Agriculture and Botany):

- **Activity:** Students grow small pots of grains commonly used in cereals, such as oats, wheat, or corn. They monitor the growth stages from seed to sprout, recording observations about soil needs, water, and sunlight. If possible, they compare the growth of organically treated grains with conventionally treated ones.
- **Objective:** This activity provides a hands-on understanding of the environmental needs of cereal grains, introduces concepts of organic vs. conventional farming, and teaches the basics of plant biology.

### 4. DIY Cereal Design Challenge (Creativity and Food Technology):

- **Activity:** Students design their own cereal, creating unique flavour combinations and ingredient lists focused on health and sustainability. They can sketch packaging with eco-friendly materials and write a short marketing pitch about why their cereal is nutritious and environmentally friendly.
- **Objective:** This project promotes creativity and critical thinking as students consider how to balance taste, nutrition, and sustainability in food products, simulating real-world product development.

### 5. Carbon Footprint Board Game (Environmental Science and Math):

- **Activity:** Students design a simple board game where each stage in the cereal production process has a carbon cost (e.g., farming, processing, packaging, and transportation). Players "pay" in carbon credits as they progress, with the goal of reaching the final destination with the lowest carbon footprint.
- **Objective:** This fun, math-based activity helps students understand the environmental impact of cereal production and think critically about how small decisions can add up to reduce carbon emissions.

### 6. Nutritional Label Analysis and Health Debate (Health and Nutrition):

- **Activity:** Students examine the nutritional labels of various breakfast cereals, comparing sugar content, fibre, vitamins, and added ingredients. They conduct a debate on "What makes a cereal healthy?" and discuss how the processing of grains affects nutritional value.
- **Objective:** This activity enhances students' health literacy and critical thinking skills, encouraging them to assess the impact of processing on food quality and to make healthier food choices.



## Final Project Presentation:

Students showcase their research, designs, and findings in a multi-part presentation, including:

1. **Recipe Re-Creation and Taste Test Summary:**
  - A display or video that shows students' experiences with historical cereal recipes versus commercial options, with their taste-test results and reflections on how ingredients and methods impact flavour and nutrition.
2. **Global Ingredients Map and Sourcing Report:**
  - A map of major cereal-growing regions and a summary of sourcing practices, highlighting the countries supplying ingredients to popular cereals and discussing the impact of global sourcing.
3. **Grain Growth Display:**
  - A visual display of students' grain-growing experiments, with growth observations, photos, and comparisons of organic vs. conventional growing methods if conducted.
4. **Cereal Box Prototype and Marketing Pitch:**
  - Students present their own eco-friendly cereal packaging and give a brief marketing pitch for their product, focusing on its nutritional benefits and environmental friendliness.
5. **Carbon Footprint Board Game:**
  - Students demonstrate their board game, showing how different choices in the production process affect the carbon footprint. They can invite classmates to play and learn about the impact of each stage in cereal production.
6. **Nutritional Comparison Chart and Debate Highlights:**
  - A chart comparing nutritional labels of cereals along with summaries of their debate on cereal health, featuring their conclusions about choosing cereals that balance taste, health, and sustainability.

## Assessment Criteria:

- **Research and Inquiry:** Depth of research on cereal history, processing, nutrition, and sustainability.
- **Creativity and Presentation:** Ability to communicate findings through interactive projects, maps, and prototypes.
- **Critical Thinking and Problem-Solving:** Engagement in thoughtful discussions and activities on making cereal production and consumption more sustainable.

## Teacher's Tips for Implementing the Project:



- **Hands-On Learning:** Encourage students to try growing grains, making cereal prototypes, and designing eco-friendly packaging for a tangible understanding of food production.
- **Encourage Cross-Subject Connections:** Use this project to tie together science, history, geography, and math through activities that explore cereal production from multiple perspectives.
- **Facilitate Reflective Discussion:** Guide students in debates about cereal health and sustainability, helping them connect their findings to real-life food choices and sustainability.