Our Hungry Planet: Design Thinking Challenge

Teacher's Guide

Are your students ready to tackle a food system issue at home or in their school? The following guide will help you facilitate a structured design challenge in your classroom related to food at home, at school, or in the community.

Grade levels: 6-8

Total activity time: Variable

Materials needed:

- Food Topic Design Challenge Spectrum
- Student Guides

Introduction

This Food Solutions Design Challenge is the final activity in the **Flipside Science: *Our Hungry Planet: Food For a Growing Population*** unit. Before implementing this design challenge in your classroom, it is recommended you start with the preceding activities in the unit:

1. **Food for Thought: Defining a Problem to Find a Solution**
2. **Exploring the Impacts of Feeding the World**
3. **Rapid Brainstorming: How Can We Improve Our Global Food System?**
4. **Sustainable Food Solutions: Weighing the Pros and Cons**

If you are using this design challenge independently of the unit, your students can become more familiar with issues surrounding our global food system and some proposed solutions by watching the videos in Flipside Science: ***Our Hungry Planet: Food For a Growing Population***:

1. *The Environmental Impact of Feeding the World*
2. *Urban Farming: Can Our Cities Grow Local, Affordable Food?*
3. *Vertical Farming: Growing in New Directions*
4. *Reducing Food Waste: Save Food to Save the Planet*
5. *Think Before You Eat: How Your Food Choices Can Save the Environment*

Using This Design Thinking Guide

'Design thinking' is a structured method that can be used to create a product, or to develop and implement solutions to a problem. Through the design thinking process, students can "*learn to sharpen the focus of problems by precisely specifying criteria and constraints of successful solutions, taking into account not only what needs the problem is intended to meet, but also the larger context within which the problem is defined, including limits to possible solutions*" (Engineering Design in the NGSS for Middle School).
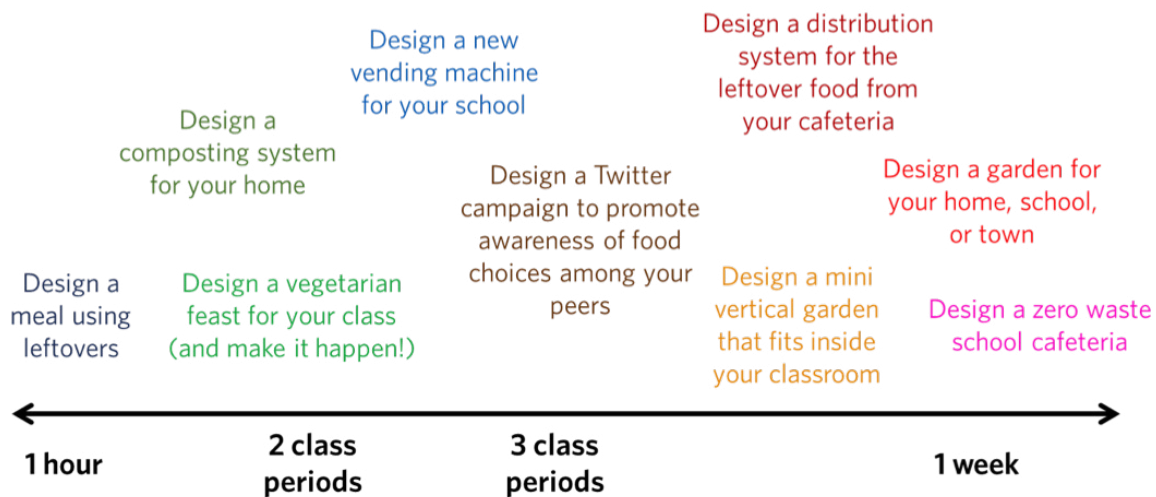
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The goal of this design challenge is for students to **practice** design thinking and how to structure a design process. Honing one's skills in the design thinking process takes a lot of practice!

The **Design Challenge Levels** outlined in the **Student Guide** are adapted from *Design for Change's design thinking toolkit.* Each level can be printed off and given to students as a handout as they work through the challenge. Encourage students to keep track of their ideas and progress in a design notebook or on a blog.

How to Choose a Food Topic for your Design Challenge

Encourage your students to brainstorm together food system issues that they would feel empowered to tackle either at home, at school, or in their broader community. You can make this a whole class discussion, small group brainstorm, or individual homework. Check out examples of design challenge food topics on the **Food Topic Design Challenge Spectrum** below that vary from one day challenges to week-long challenges:

Food Topic Design Challenge Spectrum

Design a new vending machine for your school

Design a composting system for your home

Design a distribution system for the leftover food from your cafeteria

Design a Twitter campaign to promote awareness of food choices among your peers

Design a garden for your home, school, or town

Design a meal using leftovers

Design a vegetarian feast for your class (and make it happen!)

Design a mini vertical garden that fits inside your classroom

Design a zero waste school cafeteria

| 1 hour | 2 class periods | 3 class periods | 1 week |

Students should work through the challenge in groups. Choosing a challenge that incorporates the *whole class* can not only help your students build teamwork skills, but can bring comradery to your classroom as your students empower not only each other, but youth outside of their own communities through the sharing of their designs.

Need some inspiration?

Watch stories of successful design thinking challenges in the classroom *(from the Teaching Channel)*:

- **STEM Design Challenge: Edible cars**

- **Roller Coaster Physics: STEM in Action**

- [Scooter Design Challenge: Newton's 3rd Law in Action](#)

Or, read these stories:

- [Creative Thinking in the Classroom: Learning through a design challenge](#)
- [Global Teacher Prize blog: Kiran Bir Sethi: Empowering Students with Design Thinking](#)
- [KQED News: How to Apply Design Thinking in Class, Step By Step](#)

Additional resources

- [Edutopia: SMART Goal Setting With Your Students by Maurice Elias](#)
- [Edutopia: *Blogging in the 21st Century* by Michelle Lampinen](#)
- [Education Week: How Blogging Can Improve Student Writing by Ben Curran](#)

About Flipside Science

Flipside Science is a youth-powered series that tackles complex environmental topics and empowers viewers to make a difference. This engaging and upbeat collection of videos, hosted by Academy youth, explores how local communities are addressing environmental problems with solutions ranging from vertical farming to greywater recycling.

Head to **[Flipside Science](#)** to find the complete list of videos and activities in this series.

Our Hungry Planet: Food For a Growing Population

Food for Thought:
Defining a Problem to Find a Solution

Sustainable Food Solutions:
Weighing the Pros and Cons

Exploring the Impacts of Feeding the World

Our Hungry Planet:
Design Thinking Challenge

Rapid Brainstorming:
How Can We Improve Our Global Food System?