

SDG2 From Food Waste to Food Gain



MM1 The Future of Food Research and Development

Micro-Module 1:

From Food Waste to Food Gain

Subjects: Art and Design, Agricultural Science, CPSE, Home Economics, SPHE

Micro-module Summary: From Food Waste to Food Gain

This micro-module From Food Waste to Food Gain aims to draw attention to food waste and how it can impact our environment, economy, and ecology. The micro-module contains 12 lessons that invite learners to explore food management, consumption, waste, and discover how everyday problems can be turned into new opportunities.

In this module, the learner will:

- Understand why food waste is one of the biggest challenges of our time
- Use design thinking to develop empathy, learn how to do basic research, and practice creative problem solving
- Gather information about food consumption and waste on a local level
- Complete lessons both independently and collaboratively
- Learn how to think critically about everyday activities
- Build confidence in presenting and communicating ideas

Materials

- Lesson plans
- Worksheets



From Food Waste to Food Gain



From Food Waste to Food Gain

Lesson 1: What is Circular Design Thinking?

This lesson will introduce learners to the key principles of Circular Design Thinking so that they can understand how to use the process in problem solving scenarios.

Resources: Understanding Circular Worksheet, Introduction to Circular Design Thinking Worksheet

Lesson 2: Food Waste and the Problems it Creates

This lesson will highlight why and how food waste is one of the biggest culprits of the current climate crisis.

Resources: Flipped Classroom: How Much Food Do I Waste? Worksheet: Ireland's Food Waste Problem Worksheet

Lesson 3: Building Empathy for People and Planet

When we can see things from the other person's point of view, we become better designers and decision makers. Learners will begin to understand the importance of empathy during this lesson.

Resources: User Profiles Worksheet, Empathy Map Worksheet

Lesson 4: Combating Food Waste Together

Learners will practice further research and begin to understand the various solutions that can help mitigate food waste.

Resources: Global Problem Solvers Worksheet, Flipped Classroom: Homegrown Heroes Worksheet, Extra Resources Sheet, Homegrown Heroes Research Sources

Lesson 5: Why are we Wasting Food?

This lesson is all about asking questions and listening with intent.

Resources: Flipped Classroom: Food Waste Questionnaire Worksheet, Roleplaying Support Sheet

Lesson 6: Defining the Problem to Solve

In this lesson, learners will define a single problem that they can solve for a user of their choice.

Resources: Persona Worksheet, Problem Definition Worksheet

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Lesson 7: Who Has a Stake to Claim?

Learners will begin to connect the problem of food waste with stakeholders and understand how stakeholder needs are important for problem-solving.

Resources: Stakeholder Map Worksheet

Lesson 8: Blue Sky Ideation

This lesson will support learners in solving food waste problems using creative thinking.

Resources: Diverge and Ideate Worksheet, Converge and Collaborate Worksheet, Sources of Inspiration Support Sheet

Lesson 9: Prototyping Solutions

Learners will use creative thinking and rapid prototyping techniques to transform their ideas for food waste prevention into simple mockups.

Resources: Flipped Classroom: Learn How to Prototype Worksheet, Create a Prototype Worksheet

Lesson 10: Testing Your Prototype

In this lesson, learners will gather feedback on their prototypes created in lesson 9.

Resources: Testing With Your Peers Worksheet

Lesson 11: Refining Your Prototype

Learners will be expected to implement the feedback gathered from their peers and stakeholders during lesson 10.

Resources: Refining your Prototype Worksheet

Lesson 12: Pitching Your Project

In this final lesson, Learners will present their food waste solution in a rapid-fire pitch.

Resources: Pitching your Project Worksheet

Using the Resources:

If you wish to use these resources, we can offer an induction and online support throughout the unit. To register for this option, please contact Rebecca White; e:rebecca.white@ucd.ie

Module development and expertise: Lara Hanlon, Portion Collaborative Founder

Future of Food - From Food Waste to Food Gain



Research and Development Micro-Module 1: From Food Waste to Food Gain

Lesson 1: What is Circular Design Thinking?

Subjects: Art and Design, Agricultural Science, CPSE, Home Economics, SPHE

Lesson Title and Summary: What is Circular Design Thinking

Circular Design Thinking is an approach that helps us to stop taking, using, and wasting natural resources and materials. Using Circular Design Thinking methods, we can discover and create new ways to reuse, recycle, and regenerate important resources such as food.

This lesson will introduce learners to the key principles of Circular Design Thinking so that they can understand how to use the process in problem solving scenarios.

Vocabulary: Circular, Circularity, Design Thinking, Economy, Framework, Principle, Prototype, Research, Scenario, Sustainability, User

In this lesson, the learner will:

- Understand key circular concepts
- Be introduced to Circular Design Thinking
- Explore creative and strategic problem solving methods
- Work with peers to complete activities and practice collaboration
- Begin to adopt a circular mindset

Materials

- Worksheet: Understanding Circularity
- Worksheet: Introduction to Circular Design Thinking
- Internet access
- Markers, paper



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ACTIVITY INSTRUCTIONS

Activity 1 Understanding 'Circularity' (15 mins)

1. As a class, watch Video: Explaining the Circular Economy and How Society Can Re-Think Progress (3:48 mins).
2. Break into groups of 2 and complete the assigned worksheet: Understanding Circularity (10mins).

Activity 2 Introduction to Circular Design Thinking (35 mins)

1. As a class, review the Circular Design Thinking visualisation and read the definitions for each phase (Part 1). Discuss as a class (15mins). Questions and prompts to ask the learners might include:
 - a. Are there new terms or words that you haven't heard before?
 - b. What do you think a 'framework' is? Why would we use one?
 - c. What do you think design is? Do you have an example?
2. Break into groups of 2 and complete the assigned worksheet: Introduction to Circular Design (20mins)
3. At the last step on the worksheet, ask the groups to put their sheets up on the class wall or board and facilitate a short class discussion. Everyone should have a chance to ask questions or give feedback about the activity.
4. Learners should photograph their worksheets and upload the images to their personal portfolio on One Drive or the shared learning environment the school uses.

REFLECTIVE EXERCISE: 3-2-1 (10 mins)

- Three things they feel they have learnt from the tasks.
- Two things they found most interesting and would like to explore more.
- One – their opinion they have about the tasks.

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EXTENSION / REDUCTION ACTIVITIES:

Reduction: For a shorter lesson, remove step 2 from activity 1. Alternatively, you could remove activity 1 entirely by providing a link to the video in advance so that the learners can watch it in their own time before class.

Extension: For a longer lesson, allow more time for the learners to complete activity 2. Encourage learners to write, draw and discuss as much as possible.

MEDIA BOX: (materials, online video links, extra resources, case studies etc)

Video:

Explaining the Circular Economy and How Society Can Re-Think Progress [3:48min]
<https://youtu.be/zCRKvDyyHml>

SDG Goals:

SDG goal 12: Ensure sustainable consumption and production patterns
<https://sdgs.un.org/goals/goal12>

SDG goal 13: Take urgent action to combat climate change and its impact
<https://sdgs.un.org/goals/goal13>

SDG goal 2: End hunger, achieve food security and improved nutrition and promote sustainable agriculture
<https://sdgs.un.org/goals/goal2>

Circuléire: What is the Circular Economy?
<https://circuleire.ie/the-circular-economy/#what-is-the-ce>

LOCAL TRIP / EXPERTISE / ADDITIONAL WORK AND ASSESSMENTS

- Do you know any designers? Can you ask them about their work? Do they practice circular design thinking?
- Can you talk to someone involved in environmental studies or climate policy? How are they implementing 'circular' principles? Do they support a circular economy?

MM1: LESSON 1 WORKSHEET

2 ZERO HUNGER



UNDERSTANDING CIRCULARITY



In one sentence, explain what “circular” means. Work together to write your own group definition.

Why do you think circularity is important?

List 3 problems where you think a circular approach could make things better?

1.

2.

3.

MM1: LESSON 1 WORKSHEET

2 ZERO HUNGER



INTRODUCTION TO CIRCULAR DESIGN THINKING

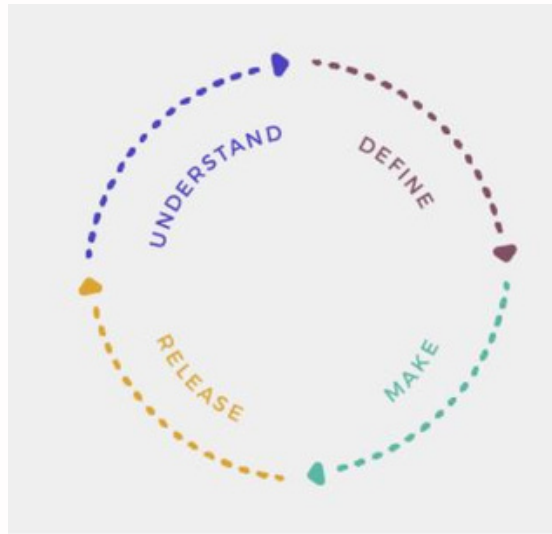


IMAGE SOURCE: Circular Design Guide by Ellen MacArthur Foundation and IDEO

1) Understand:

Learn about the problem or scenario through research. Understand who is involved, how nature is impacted, and what the key challenges are.

2) Define:

Create a point of view that is based on the insights gathered in the understand phase. What are the users' needs or environmental challenges?

3) Make:

Brainstorm lots of concepts in response to the needs and challenges identified. What are your core ideas and how can you show these? Consider drawing or making a simple paper prototype to demonstrate your ideas.

4) Release:

Share your ideas or prototype and get feedback so you can continue to iterate and improve the next version. What worked? What didn't work?

You will use this Circular Design Thinking framework as a guide throughout your project module. Each lesson will give you an opportunity to put each phase into action so you can understand, define, make, and release ideas to help combat food waste issues.

Before the next lesson, let's quickly explore some of the things you might already be thinking about. There is no right answer so don't worry if you don't know too much at this stage!

MM1: LESSON 1 WORKSHEET

2 ZERO HUNGER



INTRODUCTION TO CIRCULAR DESIGN THINKING

Understand: List 3 problems that you believe food waste creates:

1. _____

2. _____

3. _____

Define: Working together, choose 1 problem from your list and explain why we need to solve it:

Make: Can you work together to come up with an idea that might solve this problem?
Try sketching out the idea but remember to keep it simple!

Release: Put your sheets up on the class wall or board for everyone to see. Your teacher will facilitate a class discussion so everyone can have a chance to ask questions or give feedback about the activity.

NOTE: Practicing good time management will be very important during this activity.

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From Food Waste to Food Gain



Micro-Module 1: From Food Waste to Food Gain Research and Development

Lesson 2: Food Waste and the Problems it Creates

Subjects: Art and Design, Agricultural Science, CPSE, Home Economics, SPHE

Lesson Title and Summary: Food Waste and the Problems it Creates

When it comes to the climate crisis, food waste is one of the biggest culprits with approximately 10% of all greenhouse gas emissions being caused by food that is thrown into landfill. However, food that is wasted is often perfectly good to eat! We are simply throwing away good food when we don't need to. This causes lots of problems for our food system, not just environmental ones.

Reducing food waste is something everyone can do and there are many exciting opportunities and solutions to explore.

Vocabulary: Document, Environmental, Food Loss, Food Waste, Research

In this lesson, the learner will:

- Conduct research on food waste in Ireland
- Learn how to gather and collate research findings
- Practice research synthesis
- Build up presentation and communication skills

Materials

- Worksheet: Flipped Classroom: How Much Food Do I Waste?
- Worksheet: Ireland's Food Waste Problem
- Internet access
- Markers, paper



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L2: Food Waste and the Problems it Creates



ACTIVITY INSTRUCTIONS

Activity 1: Flipped Classroom: How Much Food Do I Waste?

This activity requires learners to record and report the amount of food they waste for a duration as directed by the teacher (minimum 1 day, maximum 1 week). Use FLIPPED CLASSROOM WORKSHEET: HOW MUCH FOOD DO I WASTE?

1. Learners are tasked with recording every piece of food that they waste daily. They should document their food wastage by writing a log (see worksheet) and/or taking photos of the wasted food if they have the means to do so.
2. At the end (duration at the discretion of the teacher), each learner should have a total amount of each food wasted during that time. For example: 3 half-eaten apples, 4 spoonfuls of cereal and milk, 1 uneaten banana, ½ ham sandwich.

NOTE: This activity can be conducted on site at school whereby the learners gather data on the school's food waste (via canteen, staff kitchen, etc.) and document their own discoveries of discarded leftovers in school bins, lunch trays, lunch boxes, etc.

Activity 2: Flipped Classroom Playback (25 mins)

1. Ask the learners to share their food waste report with the rest of the class. They can work in groups or, if time permits, each learner can present to the entire class.
2. Discuss the findings as a class. Was anyone surprised by how much food they wasted? Did they waste more or less than they thought they would? Was food wasted more in school or at home, for example?

Activity 3: Ireland's Food Waste Problem (25 mins)

This activity requires learners to use the internet for research purposes. If classroom computers are available and accessible, learners should work in groups of 3. Otherwise, this activity can be run as a flipped classroom.

1. Break into groups and complete the assigned worksheet.
2. Each group should assign a timekeeper to manage time, a researcher to type queries and discover information, and a scribe to document the findings. If conducting this as a flipped classroom, each student will have to fulfill all 3 roles independently.
3. Ask the learners to present their findings – discuss as a class.

REFLECTIVE EXERCISE: 3-2-1 (10 mins)

- Three things they feel they have learnt from the tasks.
- Two things they found most interesting and would like to explore more.
- One – their opinion they have about the tasks.

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L2: Food Waste and the Problems it Creates



EXTENSION / REDUCTION ACTIVITIES:

Reduction: For a shorter lesson, run activity 3 as a flipped classroom and have the learners present a summary of their research findings in class.

Extension: For a longer lesson, allow more time for the learners to document their/the school's daily food waste (suggested 1 week maximum).

Extend activity 3 by allowing learners to create additional research questions and self-direct further investigation into food waste in Ireland.

- For this option, learners should work in pairs to think about what they would like to know more about and write down any new questions or thoughts.
- Allow for a class discussion where each group can share their questions.
- This will help the learners to develop critical thinking and communication skills.

MEDIA BOX: (materials, online video links, extra resources, case studies etc)

Video:

Food Waste: The Hidden Cost of the Food We Throw Out [4:52 mins]

<https://youtu.be/ishA6kry8nc>

Articles:

Food Waste in Europe: statistics and facts about the problem

<https://www.eufic.org/en/food-safety/article/food-waste-in-europe-statistics-and-facts-about-the-problem>

Why Avoid Food Waste?

<https://stopfoodwaste.ie/resource/whyavoidfoodwaste>

LOCAL TRIP / EXPERTISE / ADDITIONAL WORK AND ASSESSMENTS

- Look at the different waste bins around your village or town. Are there separate ones for food items versus paper and cardboard, for example? How much food can you see in your average waste bin?
- Are there local compost centres or do you have a compost bin at home? Talk to the composters and ask how it works.

MM1 LESSON 2 WORKSHEET

2 ZERO HUNGER



IRELAND'S FOOD WASTE PROBLEM

Food waste is a global problem, but first, let's understand it from a local perspective.

1. How much food is wasted in Ireland every year?

Source where this information was found: e.g. company website, report, news article

2. What is the difference between food loss and food waste?

Source where this information was found: e.g. company website, report, news article

3. On average, how much money does a family lose due to food waste?

Source where this information was found: e.g. company website, report, news article

4. List 3 problems that food waste creates

1. _____

2. _____

3. _____

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Micro-Module 1: From Food Waste to Food Gain

Research and Development

Lesson 3: Building Empathy for People and Planet

Subjects: Art and Design, Agricultural Science, CPSE, Home Economics, SPHE

Lesson Title and Summary: Building Empathy for People and Planet

When we're designing or making choices on behalf of others, it's important to understand who we're designing for and what the impact of our choices will have. Empathy is the ability to understand how others feel and what their concerns and motivations are.

When we can see things from the other person's point of view, we become better designers and decision makers.

Vocabulary: Behaviour, Design Thinking, Empathy, Users

In this lesson, the learner will:

- Understand the importance of empathy
- Practice critical thinking skills
- Develop an understanding of human behaviour
- Work in groups

Materials

- Worksheet: User Profiles
- Worksheet: Empathy Map
- Markers/pens/pencils, paper





ACTIVITY INSTRUCTIONS

Activity 1: Understanding Our Users (20 mins)

1. Split the class into groups of 4–5 and distribute the user profiles document (one per group).
2. As a class, read aloud each of the user profiles.
3. Ask each group to pick 2 of the user profiles. They will use these profiles to complete the subsequent activity: empathy map.

Activity 2: Building Empathy (30 mins)

1. Distribute the worksheet: empathy map (two per group).
2. Ask each group to draw and name their user profiles in the centre of the map (one user profile per map).
3. Working in groups, learners should fill each quadrant of the empathy map following the questions and prompts on the worksheet. Time management will be important here to ensure each group completes both of their empathy maps.
4. Ask each group to share a summary of their completed empathy maps. Encourage them to tell a story about their users.
 - a. What did they discover about the user when completing the empathy map?
 - b. What do their users care about?
 - c. Why is food waste a problem for each user?

REFLECTIVE EXERCISE: 3-2-1 (10 mins)

- Three things they feel they have learnt from the tasks.
- Two things they found most interesting and would like to explore more.
- One – their opinion they have about the tasks.

SDG2 Future of Food

Lesson 3: Building Empathy for People and Planet



EXTENSION / REDUCTION ACTIVITIES:

Reduction: For a shorter lesson, assign user profiles to groups in advance (instead of asking the learners to choose themselves). Reduce number of user profiles per group from 2 to 1.

Extension: Encourage learners to find “proxy users” to inform their empathy map. See local trip / Expertise / Additional Work and Assessments for details

Note: Proxy users are people who represent the values and characteristics of the assigned users (see user profiles). For example, a proxy user for Marcus, the café owner, might be a local coffee shop owner or barista who would be willing to speak to the learners about their project and help them understand what it’s like to run a café.

Allow more time for the empathy map activity and class discussion.

MEDIA BOX: (materials, online video links, extra resources, case studies etc)

Videos:

Design Thinking – The Power of Empathy [2:53mins] https://youtu.be/747u3_Ms2tU

Design Thinking: Empathize (4:18mins) <https://youtu.be/q654-kmF3Pc>

LOCAL TRIP / EXPERTISE / ADDITIONAL WORK AND ASSESSMENTS

Find someone in your family, school, or community who you think represents your user(s). Talk to them and ask them questions about food waste.

- Do they think about food waste at all?
- Do they care about food waste?
- Are they aware of the problems surrounding food waste? What do they do to manage their food?

Listen to them and try to understand their point of view even if it is different from your own experience.

MM1: LESSON 3 WORKSHEET

2 ZERO HUNGER



USER PROFILES

1



Peter is a Dad of 3.

He tries to buy and cook food that everyone in his family likes but at the end of the day there is always something thrown in the bin because someone didn't eat it. He spends a lot of time and money shopping for groceries, a lot of which unfortunately goes to waste.

2



Sara is a teenager who plays a lot of sports.

Because she's so active and busy, she's always hungry. Sometimes, though, she forgets to finish her snacks and leaves them in her bag after her school matches and training. Sara is always getting in trouble at home for throwing out spoiled food.

3



Marcus is a Café owner.

He loves to serve delicious food to his customers but gets frustrated when people don't finish their meals. After hours of preparing and cooking healthy, tasty meals that can cost customers a lot of money, he regularly has no choice but to throw much of it in the trash.

4



Trish is a Farmer.

She grows vegetables including carrots, broccoli, potatoes, onions and lettuce. She works hard to sell her produce to local supermarkets, but they don't want any vegetables that look wonky or imperfect - even if they are healthy and edible. She ends up with lots of unwanted produce that often goes to waste.

5



Mother Nature.

With climate becoming more extreme, parts of the planet are hurting due to severe weather events like drought and flooding. With so much Carbon and other greenhouse gases being released into the atmosphere - much of it coming from food waste - Mother Nature wishes people could help more.

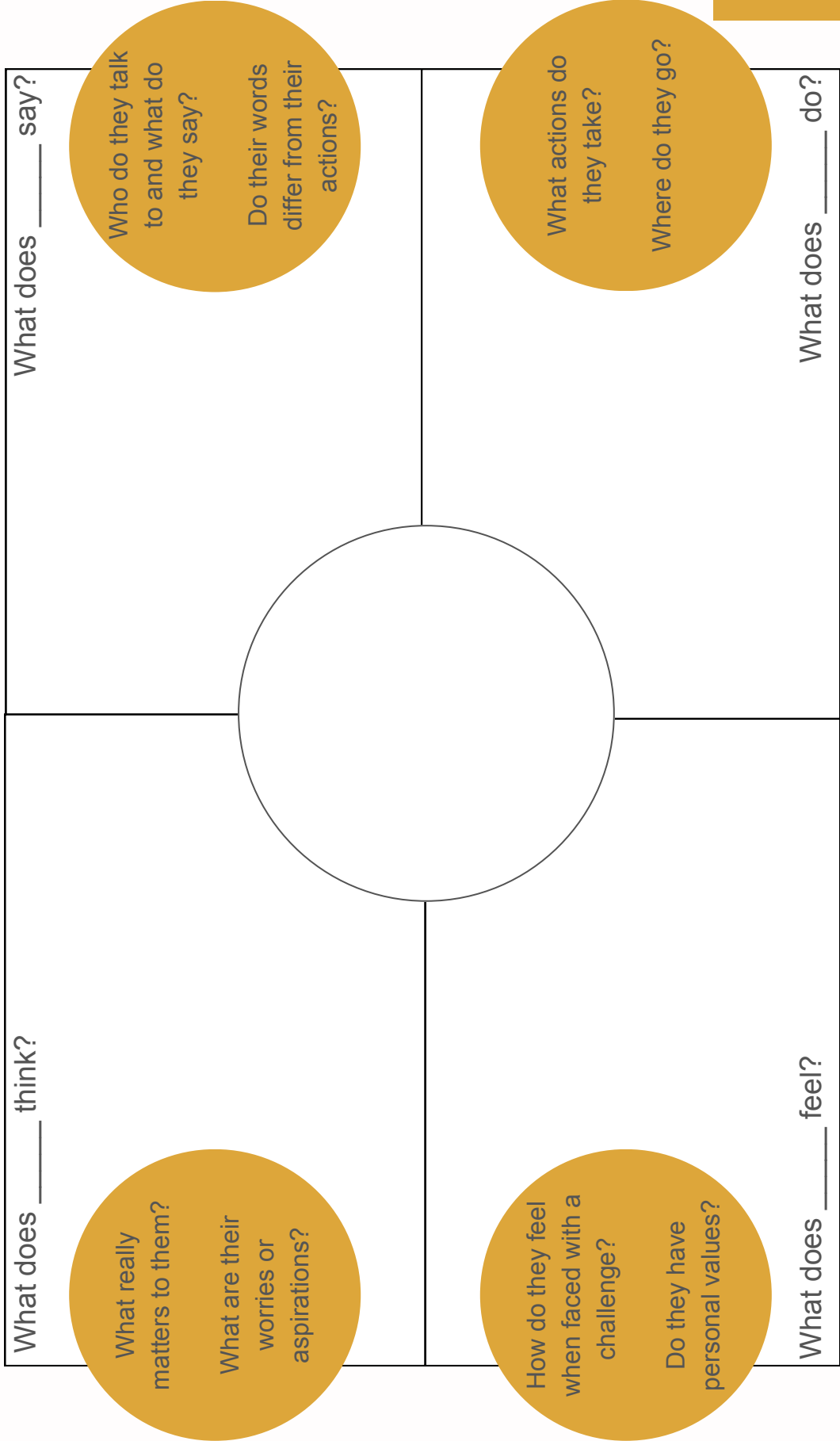
MM1: LESSON 3 WORKSHEET



EMPATHY MAP

You will use this worksheet to gain a deeper understanding of your user. This will help you to paint a picture of their needs, motivations, concerns, and actions when it comes to food waste.

For this activity you will need to make some assumptions. That means what you think and write may not be true, but it's okay for now as you will learn to test assumptions later.



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Research and Development Micro- Module 1: From Food Waste to Food Gain

Lesson 4: Combating Food Waste Together

Subjects: Art and Design,
Agricultural Science, CPSE,
Home Economics, SPHE

Lesson Title and Summary: Combating Food Waste Together

Learners will develop their research skills further and begin to understand the various solutions that can help mitigate food waste.

Understanding current concepts and existing solutions is an important step in deepening knowledge of key problems and opportunities, and identifying gaps where new ideas could develop.

Vocabulary: Case Study, Organisation, Research, Solutions, Sustainability.

In this lesson, the learner will:

- Investigate market solutions (global and local)
- Understand how businesses can align and implement Sustainable Development Goals
- Be introduced to circular / sustainable solutions
- Practice how to collate research to build a usable case study
- Be inspired by the potential of STEAM and entrepreneurialism

Materials:

- Worksheet: Global Problem Solvers
- Worksheet: Flipped Classroom: Homegrown Heroes
- Support Sheet: Homegrown Heroes Research Sources
- Internet access
- Local newspaper or other local news sources
- Markers/pens/pencils, paper



SDG 2 MM3 Future of Food

From Food Waste to Food Gain



ACTIVITY INSTRUCTIONS

Activity 1: A Call to Action (20 mins)

1. As a class, watch the video: Food Waste, Global Hunger and You #StopTheWaste by World Food Programme (1:19 mins).
2. This short video outlines why we need to solve food waste and inspires us to find ways to act. While watching the video, ask the learners to make notes about what they are hearing and seeing. Here are some prompts to guide them:
 - What facts did you learn about food waste during the video?
 - What are some of the key problems?
 - What can we do to make things better?

1. Discuss as a class.

Activity 2: Global Problem Solvers (30 mins)

Learners will need to access the internet to complete this activity.

1. Divide the class into groups of 2.
2. Complete assigned Worksheet: Global Problem Solvers.

REFLECTIVE EXERCISE: 3-2-1 (10 mins)

- Three things they feel they have learnt from the tasks.
- Two things they found most interesting and would like to explore more.
- One – their opinion they have about the tasks.

SDG 2 MM3 Future of Food

From Food Waste to Food Gain



EXTENSION / REDUCTION ACTIVITIES:

Reduction: For a shorter lesson, skip or reduce time spent on activity 2.

Extension: For a longer lesson, gather, print, and distribute local newspapers / food journals / articles containing food waste stories and updates (see Flipped Classroom: Homegrown Heroes research). Allow learners to review these resources in class. Encourage learners to discuss their findings and who/what they intend to investigate for their Homegrown Heroes case study.

FLIPPED CLASSROOM: Homegrown Heroes (Part 1). This activity requires learners to investigate a food waste company or individual of their choice and build a case study on them.

Use FLIPPED CLASSROOM WORKSHEET: HOMEGROWN HEROES.

1. Learners can continue working in pairs if remote group work is possible. Otherwise, learners should work independently.
2. Distribute the assigned Worksheet: Flipped Classroom: Homegrown Heroes.

FLIPPED CLASSROOM Playback (Part 2)

1. Ask the learners to present each of their completed case studies in class. The objective here is for the learners to share their research and inspire others.

MEDIA BOX: (materials, online video links, extra resources, case studies etc)

Videos:

Food Waste, Global Hunger and You #StopTheWaste by World Food Programme [1:19min]
https://youtu.be/TVP3j7_W7og

See also Flipped Classroom for H for Homegrown Heroes research sources.omegrown Heroes research sources.

LOCAL TRIP / EXPERTISE / ADDITIONAL WORK AND ASSESSMENTS

Does your town council have a food waste programme? Is there a local initiative that teaches people how to compost at home or can you find a chef in a local restaurant who makes recipes from surplus food? Look for people in your village or town who are spearheading these kinds of activities – they might just be your homegrown hero.

MM3 LESSON 4 WORKSHEET

2 ZERO HUNGER



GLOBAL PROBLEM SOLVERS

Working in pairs, use the Internet to find 3 people who are working to reduce food waste in different parts of the world. Follow the prompts to formulate your search queries then fill out the profiles on the following pages with the information you find.

Search prompt 1:

Find someone who is passionate about reducing food waste in supermarkets. Keywords might include food waste reduction, supermarket, retail, grocery store, activist, campaigner, influencer, enterprise.

Search prompt 2:

Find a problem solver who uses technology to stop food from going to waste. Keywords might include stop food waste, hospitality, tech, app, social impact, startup, founder.

Search prompt 3:

Find somebody who encourages organisations to make food waste reduction a priority. Keywords might include food waste, education, strategy, policy, researcher, advocate.

LESSON 4 WORKSHEET

2 ZERO HUNGER



GLOBAL PROBLEM SOLVERS

Profile 1

DRAW AVATAR HERE

Problem Solver's Name:

Where are they located?

Job Title / Role / Company:

What do they do to help solve food waste?

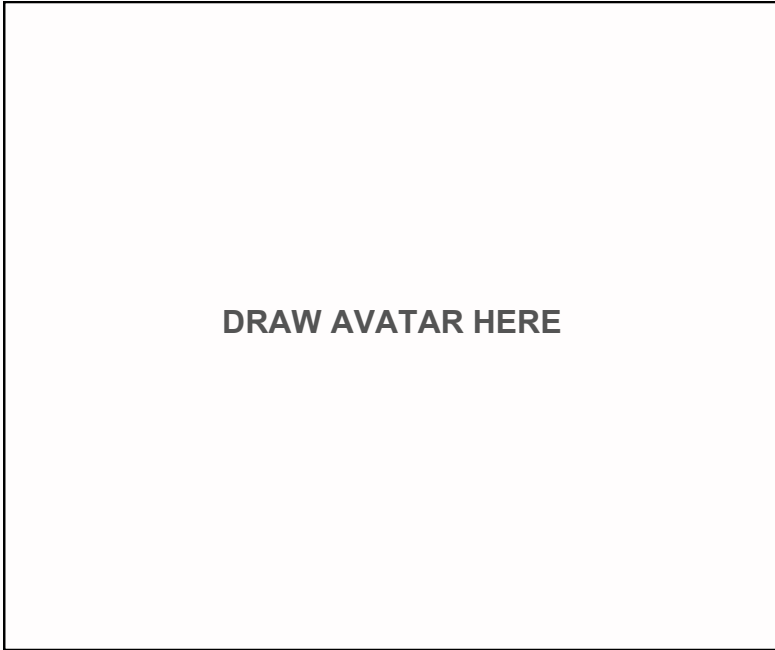
LESSON 4 WORKSHEET

2 ZERO HUNGER



GLOBAL PROBLEM SOLVERS

Profile 2



Problem Solver's Name:

Where are they located?

Job Title / Role / Company:

What do they do to help solve food waste?

LESSON 4 WORKSHEET

2 ZERO HUNGER



GLOBAL PROBLEM SOLVERS

Profile 3

DRAW AVATAR HERE

Problem Solver's Name:

Where are they located?

Job Title / Role / Company:

What do they do to help solve food waste?

MM3 LESSON 4 FLIPPED CLASSROOM

2 ZERO HUNGER



HOMEGROWN HEROES

You are tasked with building a case study to show how an existing company (this could be a startup/charity/agency etc.) or individual in Ireland is combating food waste.

You can work independently or in pairs to conduct this research (discuss with teacher first).

NOTE: A case study is an in-depth investigation of a particular subject such as a trend, person, event, organisation, or technology.

Examples of a solution might include a digital app, an advertising campaign, a physical product, a toolkit, or a series of videos.

Steps:

1. Use the internet or local newspaper to research food waste in Ireland. Look for news articles, features and reports that highlight companies or individuals with solutions that aim to solve the problem at hand.
2. When you find a solution that is interesting to you, investigate who is responsible for creating, building, and implementing it.
3. Fill in the fields on the following pages to build your case study.

MM3 LESSON 4 FLIPPED CLASSROOM

2 ZERO HUNGER



HOMEGROWN HEROES

My Homegrown Hero Case Study

Company or Person's name:

Type of company:

Tick the appropriate box or skip to next question if focusing on an individual

- Agency
- Charity
- Enterprise
- Startup
- Volunteer group
- Other: _____

Person's role:

Tick the appropriate box or skip if you completed previous question

- Activist
- Entrepreneur
- Chef
- Influencer
- Volunteer
- Other: _____

Where is the company/person located:

What is the mission of this company/person:

Why do they exist? What do they want to achieve?

MM3 LESSON 4 FLIPPED CLASSROOM



HOMEGROWN HEROES

How do they achieve their mission?
What do they do? Who are their users?
Do they sell a product or provide a service?

Which SDG do you think they align closest with, and why?

Why did you choose them as your Homegrown Hero?
What inspired you the most?

Where can people learn more about this company/individual and their solution?
Insert a website name or URL, business address or social media handle.

MM3 LESSON 4 EXTRA RESOURCES

2 ZERO HUNGER



HOMEGROWN HEROES RESEARCH SOURCES

Irish Farmers Journal:

- Article: This Irish catering company has purchased a 20ac farm in Co Limerick <https://www.farmersjournal.ie/this-irish-catering-company-has-purchased-a-20ac-farm-in-co-limerick-767480>
- Article: National food waste recycling week encourages anaerobic digestion <https://www.farmersjournal.ie/national-food-waste-recycling-week-encourages-anaerobic-digestion-766900>

RTE:

- How do we fix Ireland's food waste problem? <https://www.rte.ie/brainstorm/2023/0228/1359258-reducing-food-waste-ireland/>
- Smart bin firm aims to reduce food waste in hospitality <https://www.rte.ie/news/2023/0215/1356841-smart-bins/>
- Government plans a 50% reduction in food waste by 2013 <https://www.rte.ie/news/ireland/2022/1130/1339315-food-waste/>

Radio Kerry:

- Kerry County Council supports National Food Recycling Week <https://www.radiokerry.ie/news/kerry-county-council-supports-national-food-recycling-week-333909>

Cork Independent:

- Take the seven day Stop Food Waste Challenge <https://www.corkindependent.com/2023/03/03/take-the-seven-day-stop-food-waste-challenge/>

Department of Enterprise, Trade and Employment:

- Enterprise Ireland hosts inaugural Food Innovation Summit in Cork <https://enterprise.gov.ie/en/news-and-events/department-news/2023/may/enterprise-ireland-hosts-inaugural-food-innovation-summit-in-cork.html>

Food Cloud:

- Campaign: All Taste Zero Waste <https://food.cloud/all-taste-zero-waste>

SDG2 Future of Food

MM1: From Food Waste to Food Gain



Micro-Module 1: From Food Waste to Food Gain

Research and Development

Lesson 5: Why are We Wasting Food?

Subjects: Art and Design, Agricultural Science, CPSE, Home Economics, SPHE

Lesson Title and Summary: Why are We Wasting Food?

This lesson is all about asking questions and listening with intent. When we practice curiosity and empathy, we increase our knowledge and understanding of the world.

Learners will have the chance to hone these skills through interviewing and roleplaying activities.

Vocabulary: Empathy, Interview, Research, Roleplaying

In this lesson, the learner will:

- Learn new user research methods
- Learn interviewing techniques
- Practice empathic listening
- Use roleplaying as a method of communication
- Practice rapid ideation
- Develop storytelling skills

Materials

- Worksheet: Flipped Classroom: Food Waste Questionnaire
- Support Sheet: Roleplaying
- Ability to interview adults such as parents, guardians, homemakers, grandparents, teachers
- Pens/pencils
- Projector or shared classroom digital display
- Open space, eg. empty or partially cleared classroom, school hall, school yard



MM1: From Food Waste to Food Gain

Lesson 5: Why are We Wasting Food?



ACTIVITY INSTRUCTIONS

Activity 1: Flipped Classroom: Food Waste Questionnaire

This activity requires learners to interview an adult about their food preparation, usage, consumption, and waste habits. Learners can choose who they would like to interview as long as the interviewee is responsible for their own (and/or others') consumption and management of food.

Interviews should take no longer than 20 minutes to complete. Use FLIPPED CLASSROOM WORKSHEET: FOOD WASTE QUESTIONNAIRE.

1. Distribute the Worksheet: Food Waste Questionnaire. One worksheet per learner.
2. Learners should seek out a willing interviewee at home (eg. parent, guardian, older sibling), at school (eg. teacher, assistant, caretaker), or elsewhere (eg. local community centre, sports club) and ask for their permission to be interviewed.

Activity 2: Roleplaying (50 mins)

1. Divide the class into groups of 2.
2. Working in pairs, the learners should present their own questionnaire results to each other. Only one learner should be presenting at a time while their partner is listening carefully.
3. When each learner is finished presenting, they should prepare to act out a scenario that encapsulates how their partner's interviewee deals with food waste. This will test their listening, communication, and storytelling skills.
4. Follow GUIDE: ROLEPLAYING for activity instructions. Ideally this activity should be conducted in an open space where learners can move around.

See also resource videos in the media box, which can be shared with learners in advance and used to think about the benefits and process in teaching

REFLECTIVE EXERCISE: 3-2-1 (10 mins)

- Three things they feel they have learnt from the tasks.
- Two things they found most interesting and would like to explore more.
- One – their opinion they have about the tasks.

MM1: From Food Waste to Food Gain

Lesson 5: Why are We Wasting Food

11 SUSTAINABLE CITIES AND COMMUNITIES



12 RESPONSIBLE CONSUMPTION AND PRODUCTION



13 CLIMATE ACTION



15 LIFE ON LAND



EXTENSION / REDUCTION ACTIVITIES:

Reduction: For a shorter lesson, leave out the roleplay and conduct a playback of the flipped classroom to allow the learners to discuss what came up and what they found as a group. Are there any common themes or patterns? Was anyone surprised by what they discovered?

Depending on time after the discussion, learners could consider their findings to develop user profiles or developing role play characters

Extension: For a longer lesson, allow more time for roleplaying activity. Allow all learners to role play in front of the class, group by group. Use one of the roleplaying videos to open the activity

MEDIA BOX: (materials, online video links, extra resources, case studies etc)

Videos:

What is Roleplay? [5:30 mins] <https://study.com/academy/lesson/what-is-role-play-definition-scenario-ideas-activities.html>

Teaching Technique 23: Role Play [2:43 mins] <https://www.youtube.com/watch?v=ztCYENO1ydA>

Role Play Method of Teaching: Definition & Benefits [4:55 mins]
<https://study.com/academy/lesson/role-play-method-of-teaching-definition-benefits.html>

Communication Skills: Empathic Listening – Inside Out, 2015 [1:44 mins]
<https://youtu.be/t685WM5R6aM>

LOCAL TRIP / EXPERTISE / ADDITIONAL WORK AND ASSESSMENTS

If there is a school drama group or theatre production, encourage the class to attend so they can see role playing / performance in action.

Extend the work of the flipped classroom to consider their findings to develop user profiles or developing role play characters

MM1: LESSON 5 FLIPPED CLASSROOM

2 ZERO HUNGER



FLIPPED CLASSROOM QUESTIONNAIRE

You are tasked with interviewing an adult on the topic of food waste. Use this worksheet to structure your interview by asking the questions below.

Before you start, consider the following:

1. Once you identify who you'd like to interview, always ask them for permission. Tell them about your module so they understand the purpose of the interview.
2. Be respectful of their time. The interview should take no longer than 20 minutes.
3. Read your questionnaire in advance so you are comfortable with the questions and options.
4. Listen carefully and write down as much as you can.
5. Always thank your interviewee for their time at the end.

You can rehearse your interviews - saying the questions out loud will give you a sense of the length of the interview and how the questions might sound to your interviewee. Many interviewers practice using a mirror so they can also think about making their interviewees feel comfortable as we also 'read' body language.

Questionnaire

1. Thank you for agreeing to be interviewed today. To start, what is your full name?

2. What is your role or occupation? E.g. parent, guardian, aunt, uncle, teacher, coach

3. Can you tell me how often you cook meals at home?

Read aloud the following options and ask the interviewer to choose one.

- Never
- Once a week
- Most days of the week
- Every day

MM1: LESSON 5 FLIPPED CLASSROOM

2 ZERO HUNGER



FLIPPED CLASSROOM QUESTIONNAIRE

4. Do you usually cook for yourself or others? Read aloud the following options and tick all that are relevant.

- Just myself
- For my family
- For my spouse
- For my parents
- For my housemates
- For my friends
- Other: _____

5. Where do you shop for groceries?

6. Can you tell me how much, on average, you spend on food per week?

€ _____

7. How do you feel about the money you spend on food?

Read aloud the following options and ask the interviewer to choose one.

- Not happy – food is too expensive
- Okay – most things are priced fairly
- Happy – I get a lot for what I pay

MM1: LESSON 5 FLIPPED CLASSROOM

2 ZERO HUNGER



FLIPPED CLASSROOM QUESTIONNAIRE

6. Do you throw away a lot of food?

Read aloud the following options and ask the interviewer to choose one

- Yes
- No
- Sometimes, please explain: _____

7. What do you think is the main reason causing you to throw away food?

8. Do you compost your food waste? Read aloud the following options and ask the interviewer to choose one.

- Yes
- No

9. Did you know that food waste causes climate change? How does that make you feel?

10. Finally, is there anything else you'd like to share?

Thank you for your time.

MM1: LESSON 5 SUPPORT SHEET

2 ZERO HUNGER



ROLEPLAYING

Roleplaying is a representation technique that is often used during user research and co-design projects. It is a fun way for you to explain how something is or might be, by acting out a scenario that encapsulates the essence of the person, idea, product, or service you are researching or designing for.

Note: If you feel your class needs a warmup before the roleplay, put learners into pairs and conduct a 10 minute 'reflection' warmup:

1. Two learners face each other
2. One learner moves and the other learner mimics / follows their movements as if they are the reflection in a mirror
3. Switch roles

Instructions:

1. Working in pairs, present your questionnaire results to each other. Make sure to listen closely to your partner when they are telling you about their interview. Pay attention as much as possible because you will need to represent the information using role play.
 - a. You have 5 minutes each.
2. When you are both finished, turn your partner's interviewee into a character. Use the questionnaire to build character and craft a story about them. Consider the following:
 - a. What did you learn about the interviewee and how can you best describe them?
 - b. Can you recreate a scene that they described in their interview for example: when they are shopping for groceries or throwing away unwanted food?
 - c. What are they thinking, feeling, doing or saying in that scenario?
 - d. You have 15 minutes.
3. Now take it in turn to act out the story by role playing the character.
 - a. Reflect what you learned by representing the ideas, concerns, and goals that were expressed in the interview.
 - b. You can use props if available.
 - c. You have 5 minutes each to role play.
 - d. Keep it simple!

SDG2 Future of Food

MM1: From Food Waste to Food Gain



Micro-Module 1: From Food Waste to Food Gain

Research and Development

Lesson 6: Defining the Problem to Solve

Subjects: Art and Design, Agricultural Science, CPSE, Home Economics, SPHE

Lesson Title and Summary: Defining the Problem to Solve

At this stage in the module, learners should have a good understanding of the various problems that food waste causes and the problems that can lead to excessive food waste.

In this lesson, learners will define a single problem that they can solve for a user of their choice. The lessons completed and information discovered up to this point should inform and inspire them in their choices.

Vocabulary: Define, Document, Pain Points, Persona, Problem-solving, Users

In this lesson, the learner will:

- Rely on previous research findings to inform next steps
- Define a problem to solve based on user needs
- Practice human-centered design
- Understand the importance of research
- Collaborate in groups and learn how to negotiate
- Exercise critical thinking and decision making
- Develop evaluation, articulation and writing skills

Materials

- Worksheet: Persona
- Worksheet: Problem Definition
- Markets/pens/pencils, paper



MM1: From Food Waste to Food Gain

Lesson 6: Defining the Problem to Solve



ACTIVITY INSTRUCTIONS

Activity 1: Who Are We Solving For? (20 mins)

1. Divide the class into groups of 3–4.
2. Distribute the worksheet: persona (one worksheet per group).
3. Learners need to work together to pick a user they feel would benefit from having a food waste solution. They should draw from all previous research to inform their decision.
4. Once they have decided who their user is, complete the worksheet: persona.

NOTE: Learners should continue working in their group formed in this class for the rest of the module.

Activity 2: Problem Definition (30 mins)

1. Continue working in assigned groups.
2. Distribute the worksheet: problem definition.
3. Assist the learners where possible by helping them to write, edit and refine their problem.
4. Learners can share their initial draft problem statements with other groups, encouraging their constructive feedback skills and understanding of collaboration and collective learning.

See also Media Box for links to additional Design Thinking lessons and worksheets

REFLECTIVE EXERCISE: 3-2-1 (10 mins)

- Three things they feel they have learnt from the tasks.
- Two things they found most interesting and would like to explore more.
- One – their opinion they have about the tasks.

MM1: From Food Waste to Food Gain

Lesson 6: Defining the Problem to Solve

11 SUSTAINABLE CITIES AND COMMUNITIES



12 RESPONSIBLE CONSUMPTION AND PRODUCTION



13 CLIMATE ACTION



15 LIFE ON LAND



EXTENSION / REDUCTION ACTIVITIES:

Reduction: For a shorter lesson, assign a user to each group instead of allowing the learners to choose. Users might include: a parent, a working professional, a teenager, a chef, a café owner, a supermarket manager, a community gardener.

Learners will then focus on activity 2

Extension: For a longer lesson, as a class, watch the videos provided in the multimedia box before undertaking Activity 2

Option B: Allow more time for both activities. Encourage the class to reflect by sharing their learnings and questions after each activity.

MEDIA BOX: (materials, online video links, extra resources, case studies etc)

Videos:

Defining The Problem <https://youtu.be/2rJRVv-NOaA> [1:25 mins]

How to Write a Great Problem Statement https://youtu.be/cZLgh5JF_a8 [1:36 mins]

For additional support in defining the problem use the worksheets and lesson plans from the standalone unit: Problem to Pitch - Defining the Problem.

This unit is a project based programme taking learners through the process of Design Thinking and has additional activities and worksheets on each stage of the process.

LOCAL TRIP / EXPERTISE / ADDITIONAL WORK AND ASSESSMENTS

Who in your community would benefit from a food waste solution? Recall your homegrown heroes research: is there someone close to home that could be your user?

MM1: LESSON 6 WORKSHEET

2 ZERO HUNGER



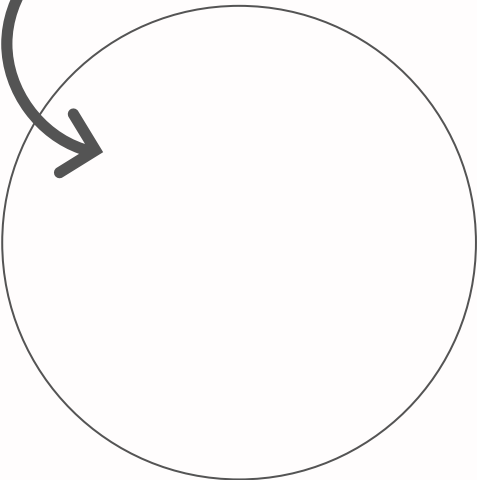
PERSONA

A persona is a simple document that provides an overview of the user or audience you are researching or designing for.

A personal helps you to describe and document aspects of a user such as their occupation, goals, and pain points.



Your persona should be inspired from previous research, e.g. interviews, so that it represents an actual person or group of people who have shared values, skills or concerns.

Add a photo or draw and avatar here



Give them a name

What is their job role or occupation?
What do they do?



List 3 of their pain points when it comes to food waste. These are things that frustrate, challenge, or stop them from doing what they need to.

List 3 of their goals when it comes to food waste. These are aspirations and include things that they would like to achieve, do, or change.

1

2

3

1

2

3

MM1: LESSON 6 WORKSHEET

2 ZERO HUNGER



PROBLEM DEFINITION

For the rest of this module, you will focus on solving a specific food waste problem on behalf of your user so it's important that your definition is understandable and realistic.

This activity will help you to outline, write, edit and, refine the problem so that your team has a clear reference and goal from here on in.

Things to think about:

- What do we know already about the problem? Make a list.
- Can a picture or diagram help ? Try to visually draw or map the problem.
- Who's telling us about this problem? What is their perspective? What else do I need to find out?
- Do we need to speak with anyone else about this problem?
- What do you think the main problem is?
- Does everyone in the group agree? It's important that everyone understands why the problem exists and why it needs to be solved.

Next, work together to define the problem by writing it down in your own words. Follow the format below:

Part 1:

____[insert user name]____ wastes food because they ____[insert reason / challenge]____

Part 2:

How might we solve this problem so that ____[insert user name]____ can or is able to ____[insert an activity / goal that your user wants to achieve]____

Now combine part 1 and part 2 and write it down. This is your final problem definition. Make sure to keep this within your group as you will need to reference it later!

SDG2: Future of Food

MMI: From Food Waste to Food Gain



Micro-Module 1: From Food Waste to Food Gain

Research and Development

Lesson 7: Who Has a Stake to Claim?

Subjects: Art and Design, Agricultural Science, CPSE, Home Economics, SPHE

Lesson Title and Summary: Who Has a Stake to Claim?

We can't solve complex problems on our own so it's important to recognise who can help us along the way or indeed, who might challenge us. When we're designing, we must consider the different people who will interact or use our design – what are their needs, wants, and concerns. This is where stakeholders come into play.

In this lesson learners will begin to connect the problem of food waste with stakeholders and understand how stakeholder needs are important for problem-solving.

Vocabulary: Impact, Influence, Interest, Invest, Stakeholders, Users

In this lesson, the learner will:

- Understand the role of stakeholders
- Map out connections and relationships
- Collaborate and negotiate with peers
- Begin to apply this understanding to the problem of food waste
- Begin to think in systems

Materials

- Markers/pens/pencils
- Paper (A3 or larger, if available)
- Worksheet: Stakeholder Map
- Internet access
- Shared computer / TV display



MM1: From Food Waste to Food Gain

Lesson 7: Who Has a Stake to Claim?



ACTIVITY INSTRUCTIONS

Activity 1: Stakeholder Map (10 mins)

1. As a class, watch Design Thinking for Education, Ep. 8: Stakeholder Mapping [7:57 min] and discuss. Learners are not expected to follow the process activity in the video so feel free to end the video at 1:33 min.
 - a. What did the class learn from this video?
 - b. Is there a shared understanding of what a stakeholder map is?
 - c. Spend no more than 10 minutes on this step.

Activity 2: Stakeholder Map (40 mins)

1. Learners should continue working in the groups formed during lesson 6.
2. Distribute the worksheet: Stakeholder Map (one worksheet per group).
3. Learners should work together to list all possible stakeholders who might have an impact or be impacted by the group's focus on the problem of food waste.
4. When all potential stakeholders have been listed and agreed upon, they should identify any connections that might exist between the different stakeholders. See worksheet for instructions and prompts.

NOTE: Learners are free to redraw the stakeholder map on a separate sheet of paper, if additional materials are available.

REFLECTIVE EXERCISE: 3-2-1 (10 mins)

- Three things they feel they have learnt from the tasks.
- Two things they found most interesting and would like to explore more.
- One – their opinion they have about the tasks.

MM1: From Food Waste to Food Gain

Lesson 7: Who Has a Stake to Claim?



EXTENSION / REDUCTION ACTIVITIES:

Reduction: For a shorter lesson, spend less time completing the stakeholder map in class and allow learners to finish the map at home if additional time is required.

Extension: For a longer lesson, encourage each group to redraw their stakeholder map on a large blank sheet. Learners can create a sketch to visually represent their stakeholders and add more information about them such as their occupation, location, goals or pain points.

MEDIA BOX: (materials, online video links, extra resources, case studies etc)

Video: Design Thinking for Education, Ep. 8: Stakeholder Mapping (7:57 mins)

<https://youtu.be/7SAJPR1ph6s>

Key food waste stakeholders and organisations in Ireland:

- Zero-Waste Chef Conor Spacey <https://www.independent.ie/life/zero-waste-chef-conor-spacey-we-did-eight-courses-all-made-from-food-that-would-usually-go-in-the-bin/41610252.html>
- Zero-Waste Weddings by Orla McAndrew <https://omcatering.ie/zerowastewedding/>
- Interview with Iseult Ward, founder of FoodCloud [2:26min] <https://youtu.be/d6qDOTINJkY>
- This Irish catering company has purchased a 20ac farm in Co Limerick <https://www.farmersjournal.ie/this-irish-catering-company-has-purchased-a-20ac-farm-in-co-limerick-767480>
- Smart bin firm aims to reduce food waste in hospitality <https://www.rte.ie/news/2023/0215/1356841-smart-bins/>
- Government plans a 50% reduction in food waste by 2013 <https://www.rte.ie/news/ireland/2022/1130/1339315-food-waste/>
- Kerry County Council supports National Food Recycling Week <https://www.radiokerry.ie/news/kerry-county-council-supports-national-food-recycling-week-333909>
- Enterprise Ireland hosts inaugural Food Innovation Summit in Cork <https://enterprise.gov.ie/en/news-and-events/department-news/2023/may/enterprise-ireland-hosts-inaugural-food-innovation-summit-in-cork.html>

LOCAL TRIP / EXPERTISE / ADDITIONAL WORK AND ASSESSMENTS

- Consider additional research to understand who a stakeholder in your project might be. Talk to people in your school or community who you think care about the problem you're trying to solve. For example, who is your local authority officer, and do they have a food waste management programme for your community? Does your house or school bin collector provide compost services, and can you speak to them about it?
- Use the internet to learn about the different stakeholders involved in food waste solutions and businesses. See Multimedia Box for stakeholder articles, interviews and reports.

MM1: LESSON 7 WORKSHEET



Stakeholders are people who have an interest in a particular activity, organisation, product, service, or idea.

There are different types of stakeholders. Some of them are more involved than others, but it is important to understand all roles so that your ideas reflect their different needs and concerns where appropriate.

Instructions:

1

Think of all the different people who might play a role in the problem you are solving.

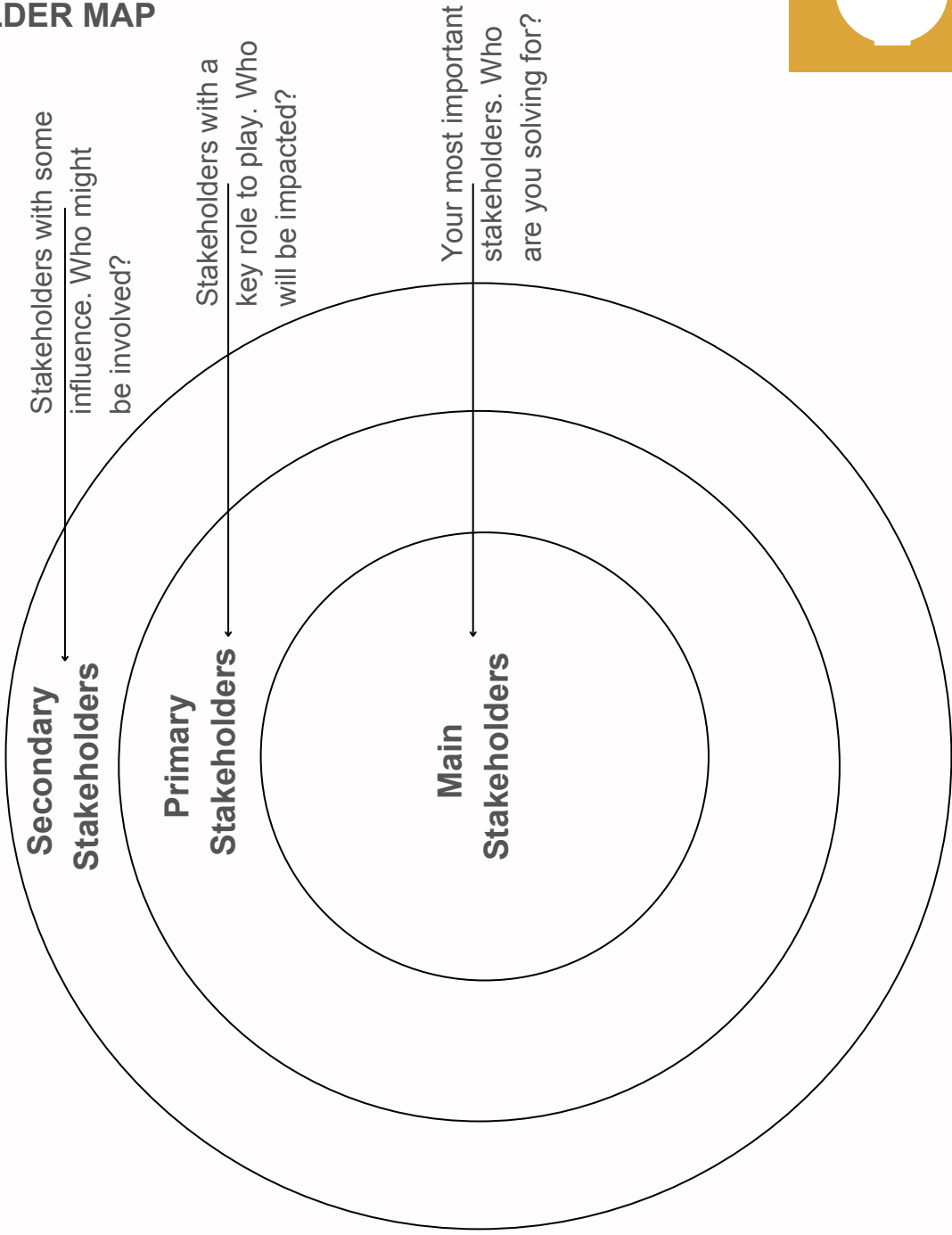
2

Looking at the map, where do you think they belong? Write their names and title into that zone.

3

Do any of your stakeholders rely on each other or work together? Draw lines to connect them across the map.

STAKEHOLDER MAP



SDG2 Future of Food

MM1: From Food Waste to Food Gain



Micro-Module 1: From Food Waste to Food Gain

Research and Development

Lesson 8: Blue Sky Ideation

Subjects: Art and Design, Agricultural Science, CPSE, Home Economics, SPHE

Lesson Title and Summary: Blue Sky Ideation

Ideation is a creative process and a key step in design thinking. Ideation is all about generating as many ideas as possible and often with different materials and methods. During an ideation session, quantity is more important than quality.

This lesson will support learners in solving food waste problems using creative thinking.

Vocabulary: Brainstorm, Brainwriting, Co-Create, Converge, Diverge, Generation, Ideation, Visualise

In this lesson, the learner will:

- Generate lots of concepts
- Practice brainstorming and brainwriting
- Learn different design thinking ideation techniques
- Practice rapid ideation
- Exercise critical thinking
- Share ideas and practice peer-to-peer critique

Materials

- Markers/pens/pencils/paint
- Paper
- Clay
- Cardboard
- Worksheet: Diverge and Ideate
- Worksheet: Converge and Collaborate
- Support Sheet: Sources of Inspiration



SDG2 From Food Waste to Food Gain

L8: Blue Sky Ideation



ACTIVITY INSTRUCTIONS

Activity 1: Diverge and Ideate (25 mins)

1. Learners should work independently for this first activity.
2. Ask the learners to gather different materials for drawing and making. Materials might include pencils, pens, markers, paper, clay, cardboard.
3. Load the video: 20 / 5 Pomodoro Timer (see multimedia box) onto the classroom display/computer, if possible.
4. Distribute the worksheet: Diverge and Ideate (one per learner) and read the instructions aloud.
5. Start the Pomodoro Timer when everyone is ready.

Note: During this activity, it will be important to support the learners by reading aloud the prompts and questions highlighted on the worksheet. This will help to keep them on track and clarify what they need to think about.

Activity 2: Converge and Collaborate (25 mins)

1. Learners should work in their groups for this activity.
2. Distribute worksheet: Converge and Collaborate.
3. Once everyone has joined their group, each learner should take it in turn to show their ideas to each other, taking no more than 2 minutes each to explain their thinking. Learners will have to practice time management, communication, and empathetic listening for this step.
4. Restart the Pomodoro Timer when everyone is ready.
5. At the end of this activity, gather the ideas from each group and keep for the next lesson. Consider asking each group to write or stick 3 ideas on a class posterboard that can be kept safely and revisited in the following lesson.

Note: As with the previous activity, supporting the learners by reading aloud the prompts and questions highlighted on the worksheet will help to keep them on track.

REFLECTIVE EXERCISE: 3-2-1 (10 mins)

- Three things they feel they have learnt from the tasks.
- Two things they found most interesting and would like to explore more.
- One – their opinion they have about the tasks.

SDG2 From Food Waste to Food Gain

L8: Blue Sky Ideation



EXTENSION / REDUCTION ACTIVITIES:

Reduction: For a shorter lesson, remove additional arts and crafts materials. Ask the learners to simply sketch or write down their ideas on paper. Spend less time on activity 2 – there will be more time for collaborative ideation in the following lessons.

Extension: For a longer lesson, as a class, watch the video: Design Thinking – Ideate provided in the multimedia box.

Spend more time on both activities and encourage learners to think of as many ideas as possible. When working in their groups, allow more time for them to discuss and agree on the ideas that have the most potential. Encourage them to work together to combine ideas or create new ones together.

Any ideation methods used could be shared with another group to develop, add to, or use. This supports another level of collaboration and team building.

MEDIA BOX: (materials, online video links, extra resources, case studies etc)

Video: 20 / 5 Pomodoro Timer (2:05:41 mins) <https://youtu.be/9LuQ8Ep0REE>

Video: Design Thinking – Ideate (4:03 mins) <https://youtu.be/zbLxs6te5to>

Video: Rapid Ideation Process (1:27 mins) <https://youtu.be/FVx9RLCnJH8>

Video: Lego Serious Play – introduction (1:36 mins) https://youtu.be/bep_IhLS_bc

Design Thinking Activity: Storyboards by IBM

<https://www.ibm.com/design/thinking/page/toolkit/activity/storyboard>

LOCAL TRIP / EXPERTISE / ADDITIONAL WORK AND ASSESSMENTS

- Suggestion: This lesson could be delivered by an art teacher during a dedicated art class as linked learning.
- Extra Class: Problem to Pitch Lesson 5: Generating and Remixing Ideas 2.0 Good Idea / Bad Idea
- See Sources of Inspiration Support Sheet

MM1: LESSON 8 WORKSHEET

2 ZERO HUNGER



DIVERGE AND IDEATE

During the ideation phase, it's important to diverge. This means to work independently to generate concepts in response to the problem you are trying to solve. Diverging is an important step as it allows you to think about how you would approach the problem and what ideas you can come up with.

Things to think about:

- What is the problem you are solving? Remember your problem definition? Right it down.
- What might solve that problem? Try drawing a mind map /spider diagram with all of the possible solutions to that problem.
- Who are you solving for? Remember your personas and stakeholders? What do they need?
- Don't overthink your ideas. Start writing, drawing, or making whatever comes into your mind. There's no bad idea!
- Go wild. What is the craziest solution you can think of? Draw it out!

Choose a minimum of two ideation methods below to form some of your ideas:

- Create a mind map/spider diagram to think of all the possibilities
- Sketch a scene to show where your idea takes place
- Draw stick figures to represent your stakeholders
- Write down a list of ideas and how they might work
- Use clay or cardboard to turn an idea into something physical

When the timer is up, gather all your ideas and get ready to share them with your group.

MM1: LESSON 8 WORKSHEET

2 ZERO HUNGER



CONVERGE AND COLLABORATE

Now that you've had a chance to diverge and work alone, it's time to converge! This means to come together with your peers to share ideas and collaborate. Converging is an important step in collaboration because it allows you to learn from each other, use different skills, and inspire new concepts.

Steps:

1. Taking it in turn, show your ideas to each other. If you have a lot of ideas, choose your top 3.
2. When presenting, try to explain what inspired your idea. Who is it for? Why do you think it's a good idea? How does it solve the problem?
3. When someone else is presenting, remember to listen carefully and don't judge their ideas.
4. Once everyone has had the chance to share their ideas, work together to decide which ones have the most potential. Consider the following:
 - a. Would your person(s) or stakeholder(s) find this useful? Does it meet their needs?
 - b. Is it realistic? Could we imagine this in the real world?
 - c. Which idea stands out? What have you not seen before, but is exciting?
 - d. Are there ideas that support nature or cause less harm than some of the other ideas?

Remember: there is no right or wrong answer, no good or bad idea. It's important to respect all ideas but work together to figure out what is best for your stakeholders.

SOURCES OF INSPIRATION

1. Visit the EPA for statistics <https://www.epa.ie/our-services/monitoring--assessment/waste/national-waste-statistics/food/>
2. Visit the school canteen or favourite takeaway / restaurant to find out more about how they are challenged by food waste.
3. Search the ppn for food waste / initiatives. Invite the local authority officer to talk about the waste action plan for circular economy in their county as it pertains to food.
4. Ireland's National Waste Policy (PDF) <https://www.gov.ie/pdf/?file=https://assets.gov.ie/86648/9ccb20a3-49b8-40f6-af1f-0832dbc139.pdf#page=null>
5. Learn about the A-Z of Foods and how different foods can be saved from becoming waste <https://stopfoodwaste.ie/resources/storage-cooking/a-z>
6. Speak to the Home Economics teacher (if subject is taught) about food waste and how the school might educate learners about it.
7. Visit a local grocery store or fruit and veg shop and ask how they stop food from going to waste at the end of the day, when it's not all sold.

SDG2 Future of Food

MM1: From Food Waste to Food Gain



Micro-Module 1: From Food Waste to Food Gain

Research and Development

Lesson 9: Prototyping Solutions

Subjects: Art and Design, Agricultural Science, CPSE, Home Economics, SPHE

Lesson Title and Summary: Prototyping Solutions

Prototyping is the next step in design thinking and a useful method for any creative project. It is a fun way to develop concepts further by turning an idea into something tangible that can be tested and validated.

Learners will use creative thinking and rapid prototyping techniques to transform their ideas for food waste prevention into simple mockups.

Vocabulary:

Concept, Ideate, Prototype, Stakeholders

In this lesson, the learner will:

- Build on early-stage ideas
- Develop concepts into prototypes
- Practice communication and negotiation skills
- Understand how to make decisions in a group setting
- Use creative problem solving and critical thinking

Materials

- Markers/pens/pencils/paint
- Paper
- Cardboard
- Glue/Blu Tack/Stapler/Tape
- Worksheet: Flipped Classroom: Learn How to Prototype
- Worksheet: Create a Prototype



SDG2 From Food Waste to Food Gain

Lesson 9: Prototyping Solutions



ACTIVITY INSTRUCTIONS

Activity 1: Flipped Classroom: Learn How to Prototype

1. Distribute the Worksheet: Flipped Classroom: Learn How to Prototype
2. Ask learners to watch a minimum of 2 videos from the list to learn about prototyping.

Activity 2: Concept Selection (15 mins)

1. Learners should work in their groups for this activity.
2. Revisiting the ideas gathered at the end of the previous lesson. Each group will need to choose just one idea to carry forward.
3. To help the group decide fairly, allow each group to rank their ideas together. Write the following 3-point scale on the class board and ask each group to rank their top 3 ideas using this scale:
 - a. The idea is not effective at solving the problem and meeting stakeholder needs
 - b. The idea is somewhat effective at solving the problem and meeting stakeholder needs
 - c. The idea is most effective at solving the problem and meeting stakeholder needs.

Something to consider: Learners may need to revisit their problem definition and stakeholder map to make a fair and informed decision.

Note: Every group dynamic will be different and some learners will feel more confident than others when it comes to expressing their opinions. Therefore, the method in which they make decisions together is likely to differ. The key learning outcome for this activity is to understand how to find balance between collective and independent decision making.

Activity 3: Create a Prototype (35 mins)

1. Learners should continue working in their groups.
2. If possible, provide the class (or each group) with simple arts and craft materials, such as pencils, pens, markers, paper, cardboard, sellotape.
3. Distribute worksheet: Create a Prototype
4. Although this is a group exercise, learners are free to create their own prototypes if group collaboration is proving to be a challenge. In this scenario, everyone in the group should still focus on the same problem definition and concept that they selected earlier.

REFLECTIVE EXERCISE: 3-2-1 (10 mins)

- Three things they feel they have learnt from the tasks.
- Two things they found most interesting and would like to explore more.
- One – their opinion they have about the tasks.

SDG2 From Food Waste to Food Gain

Lesson 9: Prototyping Solutions



EXTENSION / REDUCTION ACTIVITIES:

Reduction: For a shorter lesson, remove steps 1 and 2 from the prototyping activity (2). Learners can jump straight to creating a prototype.

Extension: For a longer lesson, as a class, watch the video: Design Thinking – Prototype (4:53mins) provided in the multimedia box.

For activity 1, allow the whole class to participate in the ranking of ideas for each using the posterboard from the previous lesson.

Allow as much time for prototyping as possible. This activity could be run over two lessons, if preferred.

MEDIA BOX: (materials, online video links, extra resources, case studies etc)

Video: Design Thinking – Prototype (4:53 mins) <https://youtu.be/Q4MzT2MEDHA>

Video: What is a Prototype (1:47 mins) <https://youtu.be/XpifpyjkFgE>

Video: Design Thinking – Paper Prototypes (2:36 mins) <https://youtu.be/85muhAaySps>

Video: Low Fidelity Prototyping Workshop (1: 53 mins) <https://youtu.be/zFF5wRRszoA>

Video: How To Make A Cardboard Prototype (2:02 mins) https://youtu.be/k_9Q-KDSb9o

Video: Mobile Application Design : Paper Prototype (1:16 mins) <https://youtu.be/y20E3qBmHpg>

Video: Game Paper Prototype (3:13 mins) <https://youtu.be/dt1bQsZ68iw>

LOCAL TRIP / EXPERTISE / ADDITIONAL WORK AND ASSESSMENTS

- During the prototyping phase, it can be fun and effective to use materials other than pencil and paper. Props and craft materials could be helpful for learners who wish to express their ideas in other ways. Consider reusing materials that are available in school or at home. For example, discarded household items like containers or boxes can be helpful, especially if they are recyclable, compostable, or reusable.
- Suggestion: Similar to lesson 8, this lesson could be delivered by an art teacher during a dedicated art class as linked learning.

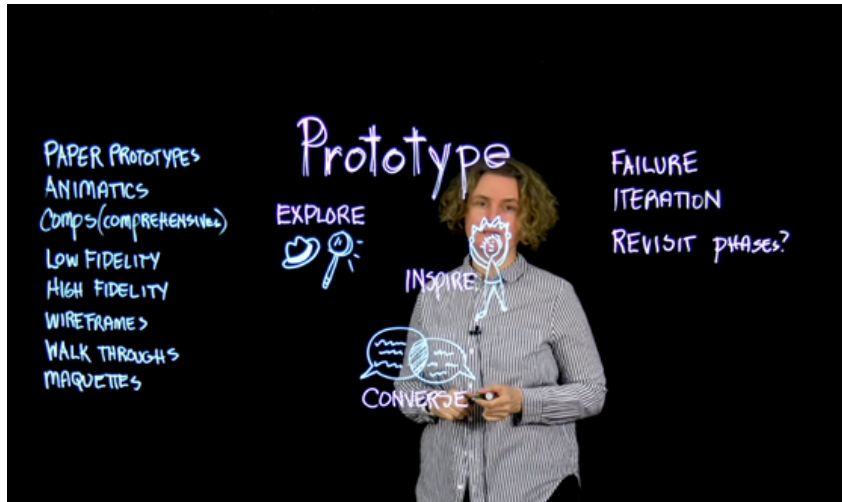
MM1: LESSON 9 FLIPPED CLASSROOM

2 ZERO HUNGER

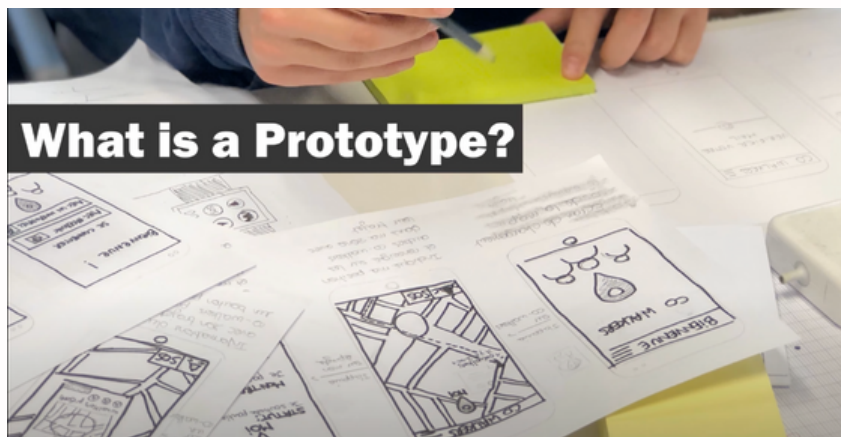


LEARN HOW TO PROTOTYPE

Choose at least 2 videos from the following list and watch before class. These will help you understand the basics of prototyping and show you some quick techniques for making rapid mockups.



Design Thinking – Prototype (4:53min) <https://youtu.be/Q4MzT2MEDHA>



What is a Prototype (1:47min) <https://youtu.be/XpifpyjkFgE>



Design Thinking – Paper Prototypes (2:36min) <https://youtu.be/85muhAaySps>

MM1: LESSON 9 FLIPPED CLASSROOM

2 ZERO HUNGER



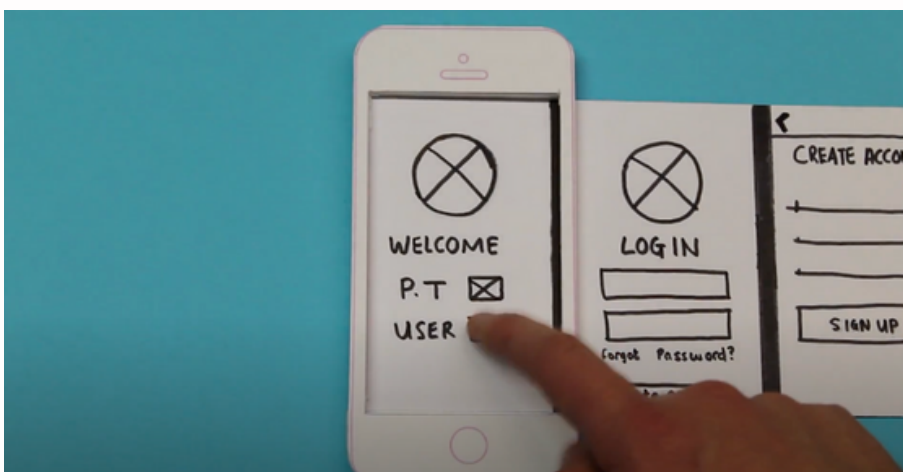
LEARN HOW TO PROTOTYPE



Low Fidelity Prototyping Workshop (1:53min) <https://youtu.be/zFF5wRRszoA>



How To Make A Cardboard Prototype (2:02min) https://youtu.be/k_9Q-KDSb9o



Mobile Application Design : Paper Prototype (1:16min) <https://youtu.be/y20E3qBmHpg>

MM1: LESSON 9 WORKSHEET

2 ZERO HUNGER



CREATE A PROTOTYPE

The first step is to determine what you want to learn from creating a prototype. For example: Does it meet the needs of our stakeholders? Is it effective at reducing food waste? Can it be used with other solutions that exist already? Are there things we didn't think about?

Working as a team, decide what you want to learn and write it out below:

2. Next, who will this prototype be for? List your ideal stakeholder(s) below:

3. Now, create your prototype! You can make any number of prototypes using whatever material you think would be most effective. For example: if your concept involves an app, you might consider drawing out the different app screens on some paper. If your concept involves physical structures like buildings or machinery, then you might consider making a prototype out of cardboard or Lego.

Things to think about:

- How can you develop your initial concept further? Prototyping is about adding more information or details so you can paint a bigger picture of how your idea might exist in the real world.
- There's no need to make it perfect. Prototyping is about making something quick and simple so you can learn what is good about it and what needs improvement.
- Remember your stakeholders. The prototype should be for them not you.
- What skills do you each have? Are there different parts of the prototype that each of you can create?

SDG2 Future of Food

MM1: From Food Waste to Food Gain



Micro-Module 1: From Food Waste to Food Gain

Research and Development

Lesson 10: Testing Your Prototype

Subjects: Art and Design, Agricultural Science, CPSE, Home Economics, SPHE

Lesson Title and Summary: Testing Your Prototype

In this lesson, learners will gather feedback on their prototypes. They will learn how to test their food waste prevention ideas and basic prototype functionality with users, or in this case with their peers and stakeholders.

This lesson will highlight the importance of sharing and testing a design so that they can learn new things about food waste and their stakeholders. Taking those learnings, they will then iterate on their ideas and improve them.

Vocabulary: Iterate, Mockup, Prototype, Stakeholders, Test, Users

In this lesson, the learner will:

- Present prototype designs with peers, stakeholders, and other users
- Develop basic user testing skills
- Understand the importance of feedback
- Reflect on decisions made in previous lessons
- Develop a deeper understanding of user/stakeholder needs

Materials

- Markers/pens/pencils
- Paper
- Worksheet: Testing With Your Peers



MM1: Food Waste to Food Gain

L10 Testing Your Prototype



ACTIVITY INSTRUCTIONS

Activity 1: Video - Design Thinking Test (5 mins)

1. As a class, watch the video: Design Thinking – Test (3:19mins).

Activity 2: Testing With Your Peers (45 mins)

1. Learners should rejoin their groups and gather their prototype.
2. Distribute worksheet: Testing With Your Peers.
3. Each group will need to divide and conquer for this activity.

Half of each group should remain in place with their prototype and worksheet (called testers) while the other half joins the group to their right (called users). The objective is for learners to experience the various prototype designs created by their peers.

- Consider if the class need the activity modelled for them first
 - Consider splitting the activity to allow learners to switch roles so each learner has been a tester and a user. Perhaps 15 - 20 mins each part and use the reflective exercise to elicit their learning / discussion.
4. Ask the learners to follow worksheet instructions when everyone has settled.
 5. Learners will need to document the feedback gathered. Ensure learners have additional paper for notetaking.

REFLECTIVE EXERCISE: 3-2-1 (10 mins)

- Three things they feel they have learnt from the tasks.
- Two things they found most interesting and would like to explore more.
- One – their opinion they have about the tasks.

MM1: Food Waste to Food Gain

L10 Testing Your Prototype



EXTENSION / REDUCTION ACTIVITIES:

Reduction: For a shorter lesson, skip the video and move straight to testing. Allow groups to test their prototype at least one time.

Extension: For a longer lesson, allow groups to rotate multiple times.

Option B: Allow learners to test their prototype(s) with stakeholders and/or school staff eg. teachers, groundskeeper, canteen manager, principal. Consider running a flipped classroom activity so learners can run the prototype test outside of class.

MEDIA BOX: (materials, online video links, extra resources, case studies etc)

Video: Design Thinking – Test (3:19 mins) <https://youtu.be/UVEQCNM6X-A>

See also Muinín Catalyst Sustainable STEAM Standalone Unit, Problem to Pitch a generic project development module based on circular design thinking and the SDGs

This builds on the Junior Cert Graphics SOL and supports learners with skills that are increasingly required by colleges and employers.

See also Divergent Thinking in the Classroom <https://www.jct.ie/perch/resources/art/designskills-2019-information-leaflet.pdf>

LOCAL TRIP / EXPERTISE / ADDITIONAL WORK AND ASSESSMENTS

Can you test the prototype with others? Can you bring it to local stakeholders in your community, school or home? Remember to document any feedback you get along the way.

Learners could develop social media content about their prototype or use social media as a way of testing their ideas. This is an increasingly standard practice by entrepreneurs and innovators.

MM1: LESSON 10 WORKSHEET

2 ZERO HUNGER



TESTING WITH YOUR PEERS

Now that you have created a prototype, it's time to test it! Testing is a way to get feedback on your prototype. Ideally you should test with the people you are designing for – your users and stakeholders – but to get started you will practice testing with each other.

Steps:

1. Your group should divide and conquer for this activity. Half of your group should stay at your desk with your prototype – you will be called the Testers. The other half of your group should move to the group on your right – you will be called the Users.

The goal is to share your prototype with peers in your classroom who were not involved in the ideation and design process.

2. For all the Testers: use the questions below to gather feedback. Your role is to gather as much feedback as possible.

You will practice your interview skills and empathic listening skills from earlier lessons. One of you should write down notes while the other asks the questions.

Questions to ask:

- Can you tell me what you think this prototype is for?
 - What do you like most about this?
 - Do you think this would be useful for others?
 - Who do you think might use it?
 - Do you think it will help to solve food waste? Why?
3. For all the Users: explore the prototype, listen to the questions asked by the Testers and give feedback.

Your role is to help the other group improve their designs where possible. Your feedback should be honest but not harsh. Start with what you like, then what might be improved and ending with the positives e.g. what has been achieved.

Things to think about when giving feedback:

- Who was the user? Try to think about what they might need from the design.
- What works well about the design?
- Is the concept interesting?
- Can you imagine the prototype being useful for others?

SDG2 Future of Food

MM3: From Food Waste to Food Gain



Micro-Module 1: From Food Waste to Food Gain

Research and Development

Lesson 11: Refining Your Prototype

Subjects: Art and Design, Agricultural Science, CPSE, Home Economics, SPHE

Lesson Title and Summary: Refining Your Prototype

This lesson is all about improving designs so that they become clearer, more usable, and closer to a realistic food waste solution. Learners will be expected to implement the feedback gathered from their peers and stakeholders in the previous lesson.

Vocabulary: Iterate, Mockup, Prototype, Refine, Solutions, Stakeholders, Test, Users, Version

In this lesson, the learner will:

- Implement feedback from prototype testing
- Create a new and improved prototype
- Work in groups
- Learn that failure can lead to new opportunities
- Experience the iterative process

Materials

- Markers/pens/pencils/paint
- Paper
- Glue/Blu Tack/Stapler
- Clay/Putty
- Lego/K'Nex/Blocks
- Worksheet: Refining your Prototype



SDG2 From Food Waste to Food Gain

MM1: L2 Refining Your Prototype



ACTIVITY INSTRUCTIONS

Activity 1: What Did We Learn? (15 mins)

1. Learners should work in their groups for this activity.
2. Following the previous lesson, each group should revisit the feedback gathered during the testing lesson.
3. Ask the learners to review their notes so that everyone in the group understands what might be improved, changed, or retained.

Activity 2: Prototype Refinement (35 mins)

1. Learners should continue working in their groups.
2. If possible, provide the class (or each group) with a range of arts and craft materials. Like the initial prototype lesson, materials might include pencils, pens, markers, paper, cardboard, scissors, clay, thread/twine, paint, Lego, etc.
3. Each group is tasked with updating their prototype design based on feedback learned in the last lesson. Working together, they should create a new version of their prototype to reflect the user/stakeholder comments and needs. It's important that they keep the original prototype so they can see the progress made between each iteration.
4. Distribute the worksheet: Refining your Prototype.
5. Check for understanding and have learners begin to work through the worksheet to refine their prototype for the duration of the class

REFLECTIVE EXERCISE: 3-2-1 (10 mins)

- Three things they feel they have learnt from the tasks.
- Two things they found most interesting and would like to explore more.
- One – their opinion they have about the tasks.

SDG2 From Food Waste to Food Gain

MM1: L2 Refining Your Prototype



EXTENSION / REDUCTION ACTIVITIES:

Reduction: For a shorter lesson, if there is not enough time to create an entire new prototype, learners can always sketch or make the new parts only. Alternatively, ask the learners to write a list of any new ideas or changes they would make to their prototype.

Extension: For a longer lesson, allow groups as much time as possible to review their feedback and refine their prototype. They might make multiple prototypes – learning, iterating, and refining the design every time.

As a class, watch some of the prototyping videos included in the multimedia box for further inspiration.

MEDIA BOX: (materials, online video links, extra resources, case studies etc)

- Video: Design Thinking – Prototype (4:53 mins) <https://youtu.be/Q4MzT2MEDHA>
- Video: What is a Prototype (1:47 mins) <https://youtu.be/XpifpyjkFgE>
- Video: Design Thinking – Paper Prototypes (2:36 mins) <https://youtu.be/85muhAaySps>
- Video: Low Fidelity Prototyping Workshop (1: 53 mins) <https://youtu.be/zFF5wRRszoA>
- Video: How To Make A Cardboard Prototype (2:02 mins) https://youtu.be/k_9Q-KDSb9o
- Video: Mobile Application Design : Paper Prototype (1:16 mins) <https://youtu.be/y20E3qBmHpg>
- Video: Game Paper Prototype (3:13 mins) <https://youtu.be/dt1bQsZ68iw>

LOCAL TRIP / EXPERTISE / ADDITIONAL WORK AND ASSESSMENTS

Can you find examples of other prototypes that are like yours? What can you learn from them? How were they made?

- Example of a paper prototype for a food waste app: <https://youtube.com/shorts/xlszuHZN-yE?feature=share>

Are real-world solutions similar to your idea that are already available to use? How might they help you improve your design or make it stand out?

- For an extended prototype assignment, try creating your prototype using one or some of the following free software applications:
Canva (for storyboards) <https://www.canva.com/templates/?query=storyboard>
Tinkercad (for 3D designs) <https://www.tinkercad.com/>

MM1: LESSON 11 WORKSHEET

2 ZERO HUNGER



REFINE YOUR PROTOTYPE

Now that you've tested your prototype and gathered useful feedback, it's time to update your design based on what you've learned. You will refine, i.e. improve your prototype.

The goal is to work together to make an updated version of your prototype (or part of it) that reflects the needs and feedback of the people you tested with. You don't have time to create a very detailed prototype so consider using paper or card to show the refinements and changes only.

Things to think about:

- What were the main challenges with your first prototype? Can you remove anything that was confusing or frustrating?
- What worked well for users and stakeholders? What can you do to make that even better?
- Did you learn anything new during the testing phase? How can you add that to your next prototype?
- Can you make your prototype look or work better than before? For example, can you use pictures, words, or colours to improve its visual appearance or make it easier to use?
- How effective were the materials that you used to create the first prototype? Should you consider using different materials for this version?
- Remember your early research. Do you need to revisit your problem statement or persona? Don't forget to use your research for inspiration.

You can use the space below to make team notes or jot down ideas from your discussion.

SDG2 Future of Food

MM1: From Food Waste to Food Gain



Micro-Module 1: From Food Waste to Food Gain

Research and Development

Lesson 12: Pitching Your Project

Subjects: Art and Design, Agricultural Science, CPSE, Home Economics, SPHE

Lesson Title and Summary: Pitching Your Project

In this final lesson, learners will present their food waste solution in a rapid-fire pitch. This is a moment for everyone to reflect on their learnings and showcase their hard work.

Vocabulary: Pitch, Presentation

In this lesson, the learner will:

- Create a short pitch to summarise their project
- Reflect on what they have learned throughout the micro-module
- Delegate roles and share tasks with peers
- Practice decision making under pressure
- Develop basic pitching skills

Materials

- Markers/pens/pencils
- Large sheets of paper
- Worksheet: Pitching your Project



SDG2 From Food Waste to Food Gain

MM1: Lesson 12: Pitching Your Project



ACTIVITY INSTRUCTIONS

Activity 1: Pitching Your Project (50 mins)

1. Each group should prepare to pitch their project. Each pitch should be quick and agile. Groups need “just enough” to share their learnings, ideas, and final prototype with their peers and teacher(s).
2. Ask the groups to focus on 3 main areas:
 - a. their problem to solve
 - b. their user(s)/stakeholder(s)
 - c. their final prototype
3. Distribute the worksheet: Pitching Your Project.
4. Allow the groups 10–15 minutes to complete the worksheet and prepare. There isn't a lot of time for this activity so quick decision making and efficient time management will be important here. Remember: we are looking for rapid-fire pitches, so the learners do not need to worry about perfection.
5. Every learner should have an opportunity to present some aspect of their group work. It is important that each learner has a role to play in the final pitch – this might include speaking or demonstrating the prototype. Learners might take one question each from the worksheet, for example.
6. When the groups are ready, they should each pitch their project to the classroom using the worksheet as a guide. Depending on the size of the class, each group should have approx. 1 minute to talk about their project. Use a buzzer to keep everyone on time!

REFLECTIVE EXERCISE: 3-2-1 (10 mins)

- Three things they feel they have learnt from the tasks.
- Two things they found most interesting and would like to explore more.
- One – their opinion they have about the tasks.

SDG2 From Food Waste to Food Gain

MM1: Lesson 12: Pitching Your Project



EXTENSION / REDUCTION ACTIVITIES:

Reduction: For a shorter lesson, have the groups present their prototypes only. In this case, they don't need to use the worksheet.

Extension: For a longer lesson, give more time to each group to pitch their project.

Learners might also include earlier research artifacts, concept sketches, or their first prototype.

Watch the videos included in the multimedia box for inspiration.

MEDIA BOX: (materials, online video links, extra resources, case studies etc)

Video: High Energy Pitch – Dragon's Den (5:26 mins) <https://youtu.be/RsTaThjbZGk>

Video: Youngest Ever Entrepreneur – Dragon's Den (5:15 mins) <https://youtu.be/v2Wp0tHplkM>

Video: The B!G Idea – Ireland Student Pitch (0:57 min) <https://youtu.be/l3dzFnIbqGc>

Video: Design Thinking – Outdoor Classroom Elevator Pitch (1:00 min)
<https://youtu.be/QXLK8LRJ58c>

LOCAL TRIP / EXPERTISE / ADDITIONAL WORK AND ASSESSMENTS

Take a look at these interviews with BT Young Scientists and see how they pitch their projects (8:46min): https://youtu.be/nq_S8Fwl2nY

Here's a project pitch from a group of TY students who also used design and creative thinking to solve problems and create prototypes (0:57min): <https://youtu.be/l3dzFnIbqGc>

Have you ever watched Dragon's Den? Take a look and notice how the entrepreneurs pitch their ideas to the panel of investors. What do they say and how do they say it? How long does it take? Are they convincing? Do you understand their idea?

Dragon's Den Youngest Ever Entrepreneur (5:16min) <https://youtu.be/v2Wp0tHplkM>

MM1: LESSON 12 WORKSHEET

2 ZERO HUNGER



REFINE YOUR PROTOTYPE

Well done on getting to this point in the micro-module! For this final activity, you will deliver a rapid-fire pitch to your teacher and peers. A pitch is a short presentation that allows others to understand your project and why your idea is so brilliant.

Your pitch will be quick – approx. 1 minute per group – so follow the prompts below to keep yourselves on track!

Instructions:

1. Fill in the fields below – you can use this as a guide when pitching your project. You have 15 minutes to complete this task.
2. You will need to work together, in your group, to create your pitch and deliver it.

Our problem to solve is:

Remember your problem definition?

Explain it briefly.

Our user(s) (or stakeholder(s)) is:

Who are you designing for?

We are solving food waste for them because:

What did you learn about your user?

What are their pain points?

Why do they need a solution?

LESSON 12 WORKSHEET

2 ZERO HUNGER



REFINE YOUR PROTOTYPE

Our idea is:

It's time to show your prototype.

Explain the concept behind it and how you made it.

What did you learn during testing that made it better?

Why does it work for your user?
