

SDG 15 Seeding Sustainability

MM1: Problem to Pitch The Ice Cream Olympics



MM1: Problem to Pitch - The Ice Cream Olympics

Programme Phase 2: Experimentation and Exploration

Subjects: Climate Action and Sustainable Development, Design, Technology, Science

Problem to Pitch is a generic project management module that can be adapted to any topic. It introduces learners to the concept and process of Design Thinking; the cognitive, strategic and practical processes for creative problem solving.

The module encourages learners to engage with their local context to enable them to explore real-world problems in meaningful and tangible ways that are manageable. The module encourages the development of 21st Century skills supporting learners to keep up with the lightening pace of a constantly changing technologised world.

Design Thinking helps the learners to understand that they can create their own future by enabling them to design their own experiences and participation. Using linked learning and systemic thinking with practical methods of learning, including inquiry and project-based methods, the activities support teachers and learners to undertake projects that address contemporary issues on a local scale, in line with the Sustainable Development goals and the 2030 agenda.

In this Project Management module, the learner will...

- develop skills of organising, planning and scheduling
- develop awareness of the basics of Design-Thinking for problem-solving
- practice problem solving and critical thinking skills as individuals and part of a group
- be introduced to project management tools such as Lean Canvas, Logic models, 5Ws (who, what when, why where)
- Vision boards and a Pecha Kucha presentation

This module includes:

- Lesson plans
- Accompanying resources
- Project-specific worksheets related to specific goals and other project modules,
- Optional assessments Skill support resources

9 INDUSTRY, INNOVATION
AND INFRASTRUCTURE



10 REDUCED
INEQUALITIES



12 RESPONSIBLE
CONSUMPTION
AND PRODUCTION



13 CLIMATE
ACTION



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Problem to Pitch – The Ice Cream Olympics

The module leads learners through the design thinking process in preparation for the final event _ The Ice Cream Olympics, a food sovereignty and security project designed to introduce learners to the concept of local food, grown, foraged and produced. The project ends in an event where all the games are devised to churn ice cream and the Olympic Gold is awarded for the 'best ice cream made from local ingredients grown and wild.

Lesson 1: What is Design Thinking?

Design Thinking is the cognitive, strategic and practical process for creative problem-solving. This lesson introduces learners to the 5 stages of Design Thinking.

Resources include: Introduction to Design Thinking, Stakeholder Mapping, Flipped Classroom

Lesson 2: Empathy 1:

Stanford Design School's five-chairs exercise encourages learners to learn how to develop design principles for a user profile. Learners consider the 5 users' needs and develop ideas on paper and create 3D prototypes of their designs, encouraging learners to design with a user in mind.

Resources include: User profiles worksheet, Empathy Map, Step into the Problem worksheet.

Lesson 3: Defining the Problem:

In this lesson, learners will begin to understand how to define a problem. Learners are asked to begin to identify a real problem they have wanted to address on a local or global level, using the SDGs as a starting theme. Learners also have an opportunity to develop awareness of a local problem.

Resources include: Define the Problem support sheet, Problem Tree worksheet

Lesson 4: Ideate, Generating and Remixing - Ideas: This lesson enables learners to develop an understanding of the process of generating ideas starting with their personal experience and then moving into project themes.

Resources include: Ideate Remix worksheet and Remix SWOT worksheet

Lesson 5: Ideate 2

Generating and Remixing Ideas 2.0 - Worst Idea Ever. This lesson builds on lesson 4 and enables learners to develop an understanding of the importance of developing ideas and looking for opportunities to iterate and improve on existing ideas. Learners are also introduced to Open Source concepts, e.g. iteration and collaboration.

Resources include: Teachers Guide: Facilitating Worst Idea Ever

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Lesson 6: Prototype Your Idea:

In this lesson, learners will begin to consider their ideas for prototyping, develop a concept statement and look at ways to prototype their ideas depending on their users / audience.

Resources Include: Rapid Response prototyping worksheet and Ready, Set, Design worksheet

Lesson 7: Test Your Idea:

Creating and Using Vision Boards - Evaluating an idea is a key aspect of Design Thinking. In this lesson, learners will begin the process of testing their ideas with potential users. Learners will learn that this is not the end of the process and that they may learn something that means they might need to return to an earlier stage, e.g. Define or Ideate.

Worksheets include: Vision Board Support Support Resource: Creating a Vision Board, 5 Ws of Business planning, 8Ws Business planning, Lean Canvas and Zone Map

Lesson 8: Pecha Kucha Presentation - Planning

In this lesson, learners will be introduced to the Pecha Kucha format and begin to analyse what makes a good presentation so they can prepare to create their own Pecha Kucha presentation.

Resources Include: Pecha Kucha Analysis

Lesson 9 - 10: Pecha Kucha Presentation - Planning and Delivery

In this lesson, learners will continue to plan, create and present a Pecha Kucha by using the lean canvas and the 5 Ws of business planning to gather the information to present their project.

Resources Include: Pecha Kucha Planning Guide, Pecha Kucha Outline, Pecha Kucha Checklist, 5 Ws Business Planning and Lean Canvas

Module development and expertise:

Dr Anita McKeown, the Ice Cream Olympics was developed and produced during an Artists' Residency in the Rio Grande Del Norte National Monument, Northern New Mexico, with the Bureau of Land Management and LEAP arts organisation. The Seeding Sustainability programme evolved from this project and was devised as an educational programme with Ms Rebecca White and a number of experts - see module overviews. The Problem to Pitch module emerged during the CoDesRes project (McKeown et al, 2018 - 2021)

Using the Resources:

If you wish to use these resources, we can offer an induction and online support throughout the module to help you plan integration into your projects and timetable. To register for this option, please contact us e:hello@futurefocus21c.com

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For more information on the resources please visit www.muinincatalyst.com

Setting up an online learning environment for the lessons on this module:

Our lessons integrate the use of virtual learning environments. To ensure seamless use of our lessons, a module should be setup on your school's virtual learning environment such as Teams, Google Classroom, etc. Learners are encouraged to upload documents to share with their peers. If your virtual learning environment does not support document sharing, we recommend OneDrive or Google Drive.

You can also use Google Sites or Microsoft Sway to encourage learners to present their work over the year - this can easily be set up to reflect the aims of TY and provide a showcase for their work as well as assessment tool.

Setting up a Canva Education account:

As our lessons integrate design, our lessons also refer to Canva. Educators and schools are able to open a free Canva for Education account by registering here: <https://www.canva.com/education/> Canva for Education provides primary and secondary school teachers and students with premium features and templates. You can then also set up lessons and invite your learners to the class.

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Programme Phase 2: Experimentation and Exploration

Lesson 1 Introduction to Design Thinking

**Subjects: Climate Action
and Sustainable
Development, Design,
Technology, Science**

Lesson Title and Summary: What is Design Thinking?

Design Thinking is the cognitive, strategic and practical processes for creative problem solving. This lesson will introduce learners to the 5 stages of Design Thinking to build a foundational understanding of the process.

Vocabulary: Empathy; Context, Culture; Qualitative; Users; Stakeholders

In this lesson, the learner will:

- be introduced to Design Thinking
- explore the 5 stages of Design Thinking create their own understanding of the stages through quick practical tasks
- work as pairs and individuals to begin to
- understand the iterative processes
- practice time management

Materials:

- Worksheet: Introduction to Design Thinking
- Worksheet: Stakeholder Mapping
- Flipped Classroom Worksheet: Stakeholder mapping activity
- A4 paper
- Internet access



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L1: Introduction to Design Thinking



Activity Instructions

Activity 1 Introduction to Design Thinking (20 mins)

- 1) If working digitally ask learners to go to the worksheet: Introduction to Design Thinking in the learners download of this module. Alternatively this can also be projected or if necessary you can also circulate handouts and ask learners to keep all their work in a folder. This can be assessed at the end of the module, if you are undertaking assessments.
- 2) Activity 1, learners should complete the worksheet up to the section on titled - Define.
- 3) Begin by watching the short video Worksheet: Introduction to Design Thinking
- 3) Have learners work in pairs to find the definitions of the words and re-write them in their own words.
- 4) Have each pair share their meanings with the class, photograph each group's answers and use this to create a 'group' design thinking vocabulary list / glossary.
- 5) As a class, discuss the 5 stages of Design Thinking image – reviewing any terms that are new.

Activity 2 – Worksheet Part 2: Ideate - Good Idea / Bad Idea – (30 mins)

- 1) Allow learners 30 minutes to complete the Ideate and Prototype task of the Worksheet: Introduction to Design Thinking in pairs.
 - 2) Remind them that they will have to manage their time to allow for the prototyping and testing stage.
 - 3) The aim is not to create masterpieces but to work quickly and experimentally – it should be made clear that given the limitations, the purpose is to show how its important to quickly and cheaply *.
 - 4) Have learners complete the Flipped Classroom worksheet before the next lesson.
- 3)* Explain to learners the puropse of prototyping is to enable feedback and input to their ideas as a user's needs or a client's desires can change a design radically and its important to not waste time and money during the early stages of design.

REFLECTIVE EXERCISE: 3-2-1 (5-10 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

Use Post-its or a mentimeter survey - www.mentimeter.com - to gather reflections

Problem to Pitch – Lesson 1



EXTENSION / REDUCTION ACTIVITIES

Reduction: For a shorter class, remove activity 2 and spend more time in building the collective vocabulary list – have each learner type up their words and definition and add to a shared document

Extension: For a longer class, give learners more time and materials for the Ideate – Prototype stages of Design Thinking.

Option B: Learners can also begin to think about the final project, The Ice Cream Olympics and how it relates to the Sustainable Development Goals highlighted on the lesson plans - see media box for links.

Option C: Learners can use the worksheet: stakeholder mapping to begin to consider their stakeholders and the local organisations that could be involved in a community wide event

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

- Introduction to Complex Systems: Patterns in Nature [7:51] https://www.youtube.com/watch?v=g5evD6AQeCQ&ab_channel=IlanaSchoenfeld
- Applying Design Thinking in Schools poster - <https://www.makersempire.com/design-thinking-for-schools-poster/>
- Introduction to SDGs for Young People <https://www.un.org/sustainabledevelopment/youth>
- Explore the SDGs <https://sdgs.un.org/>

SDG Focus: See Introduction to Sustainable Development Goals lessons

- Introduction to SDGs for Young People <https://www.un.org/sustainabledevelopment/youth/>
- Explore the SDGs <https://sdgs.un.org/>

Local Trip / Expertise / Additional Work and Assessments

Worksheet: Stakeholder Mapping supports learners to focus on their local place, its issues and its audience.

Linked learning: Communication Skills and Media Communication Skills micro-modules support the development of the 4Cs skills – Creativity, Communication, Critical Thinking and Collaboration. Tutors are encouraged to work with other tutors to develop the project through multiple outcomes such as video, poster, Pecha Kucha, Interviews or Podcasts see The Future of the Ocean, Micro Module MM7: Media Communication 1 - 4



WHAT IS DESIGN THINKING?



Working in pairs google these words (or use a dictionary) to find out what they mean and re-write the definitions in your own words

1. Ergonomic -

2. Context -

3. Culture -

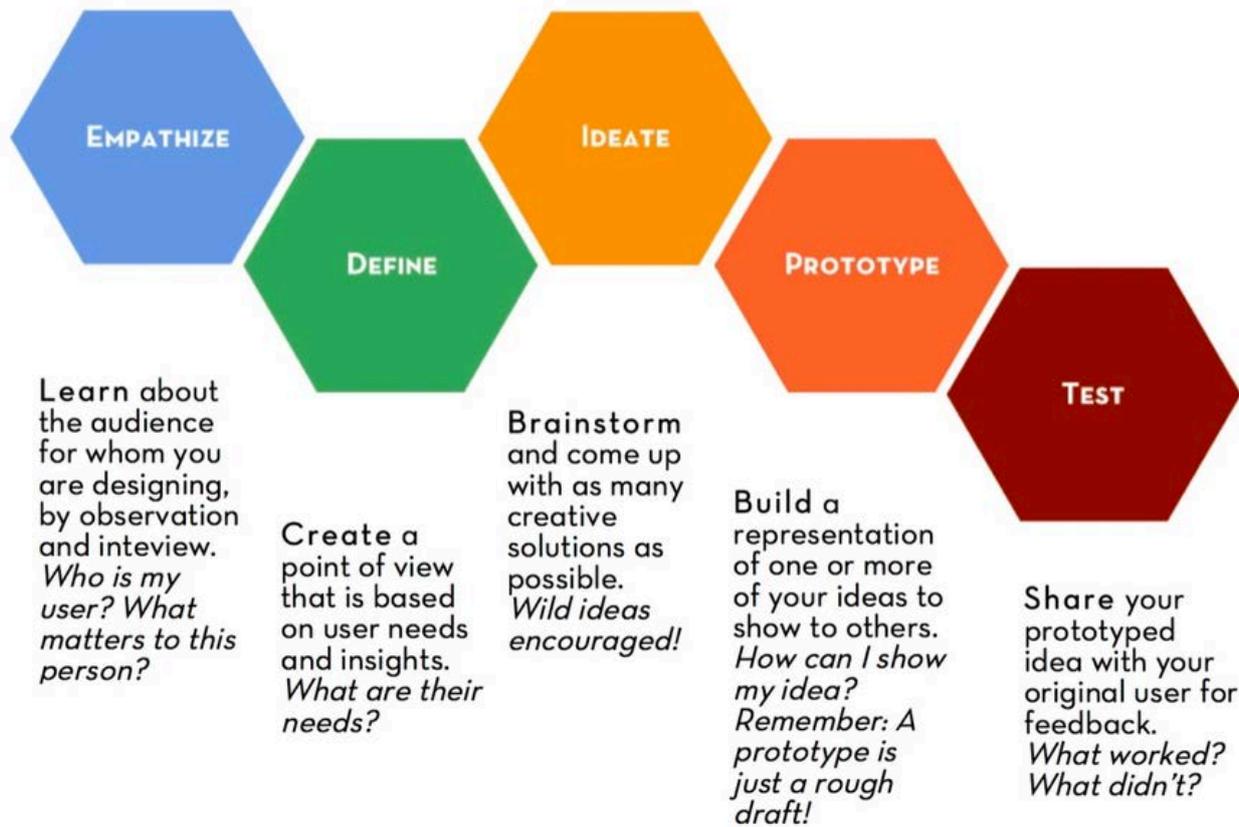
4. Stakeholders -

Your answers will be shared with the other teams to build a vocabulary list and definitions - this is called a glossary





The 5 stages of Design Thinking:



Before you start to work on your problem or project have a look at each stage and see what you need to think about in any project. You will also have to manage your time as the last three tasks will take more time.



Empathise - Most projects will involve people at some point. What might you need to think about - Discuss with your partner and write down 3 things that might matter to a user / audience member.

- 1.
- 2.
- 3.



Define - What's your problem? Often we deal with symptoms - a runny nose, a sore throat but we need to deal with our immune system. In defining your problem you will look at the whole system. Write down 3 problems you know of in your community or the world.

- 1.
- 2.
- 3.



The 5 stages of Design Thinking:



Ideate - This is the stage in the process to think about as many ideas as possible. For now, write down the 2 worst ideas you can think of - swap them with your partner and try to create three good ideas from each others bad ideas.

Bad Ideas.

Good Ideas

1.

1.

2.

2.



Prototype- using only one piece of paper, build or make one of the good ideas above. You will have to be creative, how will you make the shapes; folding, tearing? If you are to fix it together, how might you do this - links, cutting, what other ways of joining things together can you experiment with?

Remember: There is no right answer this is about experimentation - have fun!



Test - The final stage is testing. In this stage you learn about the product, service or idea you have created . Share your 'good idea' prototype with your partner and they will share with you.

Things to discuss / consider:

Test - The final stage is testing. In this stage you learn about the product, service or idea you have created . Share your 'good idea' prototype with your partner and they will share with you.

Things to discuss / consider and questions to ask:

1. Who might the user be?
2. Look at how it is made - remember there were limits to materials so you are looking at their problem solving and creativity.
3. Is there anything they could try to make it better or improve it using the materials they had?
4. How might you explore the idea further if time and materials were not a limit?

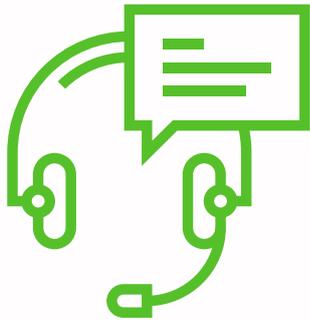


Stakeholder Mapping

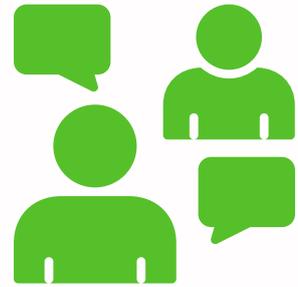
A project's stakeholders are the people or groups of people who can impact or are impacted by a project. If doing a project you will need to understand the different parties involved and how you will need to communicate and engage with them.

You will now begin to undertake a stakeholder mapping of your local place. Usually you will start this by having your decision challenge at the centre of your mapping.

Individually or as a class, create a list of all the different individuals, groups, or organisations that you can begin to identify and categorise who you might need to discuss or share your project with.



SERVICES / PROVIDERS



**USERS /
BENEFICIARIES**



**YOUR
Place**



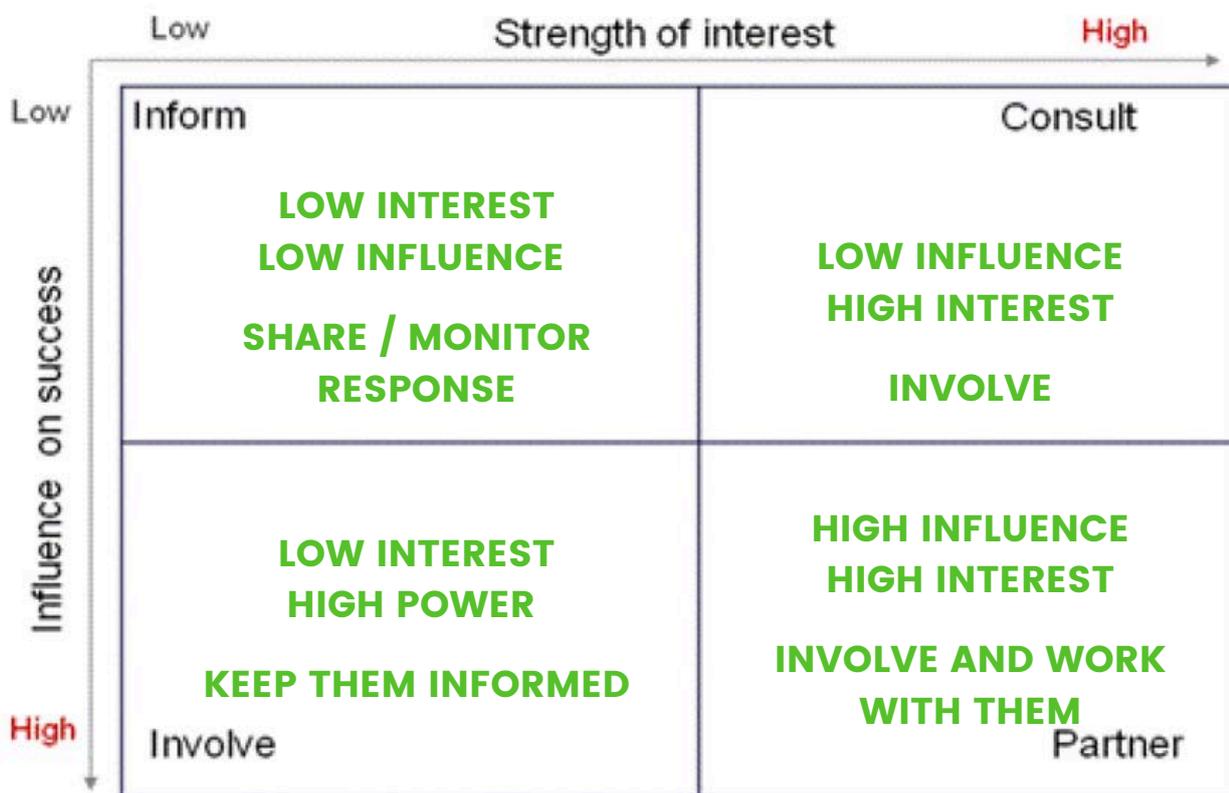
GOVERNANCE



INFLUENCERS

DIFFERENT WAYS OF MAPPING

Now you have a list you are going to practice organising them with project samples.



1. Think about your project - The Ice Cream Olympics, will it be for your school only or will you create a public/community event, perhaps as a fundraiser for a school trip, or a local charity or sustainable projects in your school?
2. Either way, you will need to think about audience, participants, social media, marketing, ingredients and more. Who might be involved? Use the list you created using the image on page 1.
3. Then use the grid above to organise your list of stakeholders and how you will need to communicate and engage with them.



You will undertake another stakeholder mapping during the event production and management activities as you begin to plan your final event

MM1: LIWS FLIPPED CLASSROOM ACTIVITY

15 LIFE ON LAND



Learning about Complexity

Why are systems complex https://www.youtube.com/watch?v=FW6MXqzeg7M&ab_channel=SustainabilityScienceEducation



What is a Wicked Problem (Rittel, 1973)?

What is a wicked problem <https://www.youtube.com/watch?v=IOKpB4KtUZ8>

Watch the video and give 4 qualities of a wicked problem.

- 1.
- 2.
- 3.
- 4.

Climate Change is a Wicked Problem

<https://www.youtube.com/watch?v=XR0CxS6n53U>

How can Design Thinking help with wicked Problems?

<https://www.youtube.com/watch?v=WrdSkqRypsg>

Watch both the videos above and give 3 areas you might use Design Thinking to work on an aspect of climate change



SDG 15 Seeding Sustainability

MM1: Problem to Pitch The Ice Cream Olympics



MM1: Problem to Pitch - The Ice Cream Olympics

Programme Phase 1: Research and Development

Lesson 2 Design Thinking - Empathy

Subjects: Climate Action
and Sustainable
Development, Design,
Technology, Science

Lesson Title and Summary: Empathy and Empathic Design?

Stanford Design School's five chairs exercise encourages learners to learn how to develop design principles for a user profile. This has been adapted to suit the Ice Cream Olympics project.

Learners will consider the 5 users' needs (this sets the design principles) and develop ideas on paper. In this lesson they will also complete a user empathy map and create 3D prototypes of their designs. This activity encourages students to iterate on their designs and practice using different materials.

This lesson, while unrelated to Ice Cream it builds foundational skills required if undertaking the final event e.g. devising inclusive games and ice cream recipes depending in dietary requirements.

Vocabulary

Assumptions; (Biases, Judgement) Design Principles; Empathy; Identify; Immersion

In this lesson, the learner will:

- understand empathy in design
- develop critical thinking through the practical tasks of asking learners to analyse their user's profile to find their needs
- build, test and iterate design ideas grounded in a user's needs
- practice group work and develop the ability to work through design challenges collaboratively

Materials:

- Worksheet: User profiles worksheet
- Worksheet: Empathy Map
- Pens, pencils
- Paper



MM1: Problem to Pitch - The Ice Cream Olympics

L2: Design Thinking - Empathy



Activity Instructions

Activity 1 Developing design principles from user profiles (10 mins)

1. Organise learners into groups of 2 or 4.
2. Introduce the lesson and the importance of empathy in design.
3. Hand out the user profile worksheet, one per group.
4. Explain the task to the learners and ask different groups to read out each of the user profiles from the user profile worksheet.
5. Learners will develop the design principles (rules / needs) for the users' chairs based on needs of user for all profiles.

Activity 2 – Developing paper designs – (20 mins)

1. Have learners select a two users they wish to work on and identify two - three needs (design principles) they see in the description of their user.
2. Learners will develop ice cream design ideas on paper for two of the users that integrates the users' needs (design principles).
3. Discuss the challenged and the flavour ideas learners have developed based on their users' needs.

Activity 3 – Using an Empathy Map – (20 mins)

1 Through discussion or writing the questions on the board for learners to answer, discuss the empathy questions Checklist - use the empathy map to expand on the users:

- Did you identify the design principles required for your user?
 - Did you make any assumptions about your user?
 - Did you discover any biases / judgments about your user that you might have?
 - How much do you think you really know about your user - do you need to do more research?
 - How will you do more research on your user?
2. Using the Worksheet: Empathy Map - learners will complete the activity based on one or both of their selected users, depending on time from activity 2.

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

- 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: Problem to Pitch - The Ice Cream Olympics

L2: Design Thinking - Empathy



EXTENSION / REDUCTION ACTIVITIES

Reduction: For a shorter class, undertake activity 1 and 2 only and make paper designs only for one user in activity 2. Use any remaining time to ask learners to watch the video empathy mapping at home and complete an empathy map for the user they worked on in class.

Extension: For a longer class, integrate either Video: Design Thinking 1 - 'Empathise' or 'The Importance of Empathy' before activity 1 and Video: 'Empathy Mapping' in advance of activity 3 - see media box.

Develop a class discussion based on the empathy questions in activity 3 and learners' empathy maps.

Option: 2 Learners can research ice cream company's and develop questions to email to them based on how they do their market research and use inclusive design to develop ice cream for a diverse range of consumers, e.g. dietary needs.

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

Video: Design Thinking 1 - Empathise (3:08 min) <https://www.youtube.com/watch?v=LSXop-NTfR0>

Video: 'The importance of Empathy' (3:30min) <https://www.youtube.com/watch?v=UzPMMSKfKZQ>

Video: 'Empathy mapping' (5:36min) <https://www.youtube.com/watch?v=QwF9a56WFWA>

Video: 'Empathy not Sympathy' (2:32min) <https://www.youtube.com/watch?v=HznVuCVQd10>

Linked learning: Media Communication Skills micro-modules support the development of the 4Cs skills – Creativity, Communication, Critical Thinking and Collaboration

Local Trip / Expertise / Additional Work and Assessments

Connect to one of the organisations in the local town or village to research ice cream preferences, undertake a survey of local unusual ice cream flavours that people know about or have tried.

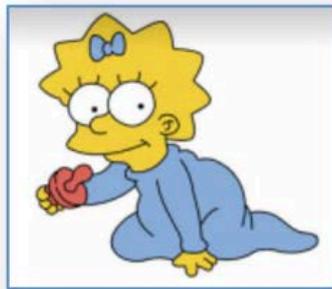
Linked learning: Tutors are encouraged to work with other tutors to develop the project through multiple outcomes such as video, poster, Pecha Kucha, Interviews or Podcasts and SDG 4 supporting Skills - reports.

MM1: L3WS 5 USER PROFILES

15 LIFE ON LAND



Grandad is getting on an can be a bit cranky. Nothing cheers him up like a walk to get ice cream. Grandad has to watch his cholesterol and sugar intake. He has also been told to limit dairy in his diet, but he loves ice cream and his favourite flavour is mint chocolate chip.



Maggie is 9 months old and she loves to play and crawl. When her brother and sister have ice cream she wants some too. Marge tries to limit added sugar as she doesn't want Maggie to have a 'sweet tooth'. She gives Maggie bananas or nut butter as a treat. Maggie also loves avocado and mango.



Neil is an astronaut who travels to space. When he is in his space ship he is in a weightless environment. This is cool most of the time, but it is a challenge when he wants to have an ice-cream. After a few months on the International Space Station, Neil is desperate for fresh fruit and loves to get some ice-cream.



Lisa is a marathon runner who runs every single day and her metabolism is very high and she can eat what she likes. She snacks a lot on nuts as they are high in protein and eats food with a lot of ginger, turmeric, cardamom or cloves to help with aches and pains. She also drinks a lot of milk after her run for calcium.



Ralph is in secondary school and spends about 6 hrs a day sitting down. In the summer he likes to go for ice cream with his friends, but no 99s for Ralph as he is lactose intolerant. He's lucky the shop they go to have other frozen options, but he has to be careful as he is also allergic to nuts and strawberries.

MM1: L2WS Empathy Map

15 LIFE ON LAND



What does your user think and feel?

- What really matters to them?
- What do they think about?
- What are their worries, dreams or aspirations.

THINK AND FEEL

What sort of things does your user hear / listen to?

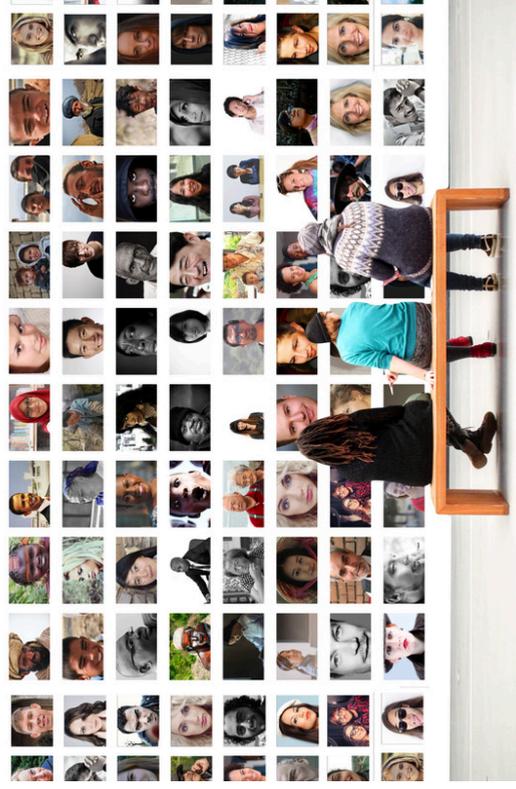
- Where does your user get information?
- Who might your user listen to or be influenced by?

HEAR

What does your user see?

- When do they use the town and what do they see? Do they walk, cycle or drive through the town?
- What might they notice?

SEE



WHAT DO THEY SAY AND DO

- What other things might your user do?
- What other things are they interested in?

SDG 15 Seeding Sustainability

MM1: Problem to PitchThe Ice Cream Olympics



MM1: Problem to Pitch - The Ice Cream Olympics

Programme Phase 1: Research and Development

Lesson 3 Design Thinking - Define

Subjects: Climate Action
and Sustainable
Development, Design,
Technology, Science

Lesson Title and Summary: Defining The Problem?

In this lesson learners will begin to understand how to define a problem.

Learners are asked to begin to identify with the real problem using the Sustainable Development Goals (SDGs) to connect to aspects of the Ice Cream Olympics. Learners will use SDG 2 and 3 as a way to consider food production, nutrition, and exercise for health and well being. They will look at SDG 10 to begin to identify how they might make the Olympic games and the flavours more inclusive to address diverse health needs and abilities.

This lesson is the foundation for lessons in the other Micro-Modules where they will consider these aspects more systemically.

Vocabulary

Assumptions; Analyse; Conflicts; Define; Source

In this lesson, the learner will:

- understand the importance of getting to the source of a problem
- become more accustomed to the SDGs
- develop and awareness of how to localise the SDGs
- develop an understanding of the connection of local and global issues
- complete a problem tree
- understand the complexity of wicked problems in their location
- develop critical thinking about problem solving

Materials:

- Worksheet: Problem Tree
- Support Sheet: Define the Problem
- Pens, pencils
- Paper

9 INDUSTRY, INNOVATION
AND INFRASTRUCTURE



10 REDUCED
INEQUALITIES



12 RESPONSIBLE
CONSUMPTION
AND PRODUCTION



13 CLIMATE
ACTION



MM1: Problem to Pitch - The Ice Cream Olympics

L2: Design Thinking - Define



Activity Instructions

Activity 1 Aligning your problem area to the Sustainable Development Goals (10 mins)

1. Organise learners into groups of 2 or 4.
2. Have groups randomly choose a piece of paper / posit with an SDG on it. This is the SDG this group will focus on.
3. Visit the Sustainable Development Goals (SDGs) knowledge platform - see Media Box. Learners will use the SDGs knowledge platform to consider SDG 3 Health and Well-being; SDG 11 - Sustainable Cities and Communities; SDG 13 - Climate Action and SDG 15 - Life on Land.
4. In their groups, ask them to look at the targets and indicators of their selected SDG and begin to think about the potential impact their solution might need to address Activity 3 – Worksheet: Problem tree (20 mins).
5. Discuss as a class what they have discovered.

Activity 2 Finding and defining problems in your local Ice Cream Olympics landscape (20 mins)

1. Organise learners into groups of 2 or 4.
2. Give each group of learners a local news paper and ask them to search for food and related articles that might help identify local problems issues or concerns in this area, e.g. farming, advertising local food businesses or products, sustainability and environment.
 - Alternatively, if using the internet, ask students to search online versions of local newspapers for local problems, issues and concerns.
 - Ask each group to feedback at least one problem, issue or concern.
 - As a class begin to think about your local area list of problems, issues and concerns.

Activity 3 Use a Problem Tree (20 mins)

1. As a class watch the Video: Defining the Problem - see Media Box.
2. After visiting the SDG knowledge platform write your selected SDG challenge from the Ice Cream Olympics on the problem tree trunk.
3. As a group, discuss the causes of this problem and write them underneath the problem. These become the “roots” of the tree.
4. Discuss the effects or consequences of this problem and write them above the problem. These become the “branches” of the tree.
5. For each cause, ask what causes it? For each effect, ask what the consequences are?

Continue this process until no further causes and effects are mentioned. You may not have all the answers at this point, so make notes of any assumptions, questions, conflicts, or gaps in knowledge.

MM1: Problem to Pitch - The Ice Cream Olympics

L2: Design Thinking - Define



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

- 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

EXTENSION / REDUCTION ACTIVITIES

Reduction: For a shorter class, undertake activities 1 and 2 only.

Extension: For a longer class, watch the Video: 'How to Design a Problem Statement' and begin to try to develop a problem statement in canva as guided in the video. In addition, ask learners to read the Support Sheet: P2P define supporting sheet and discuss as a class.

- Discuss the SDG diagram https://www.researchgate.net/figure/The-interconnected-nature-of-the-SDGs-Credit-Adopted-from-Azote-Images-for-Stockholm_fig1_327884976
- Learners can also begin to research the organisations and stakeholders for their problem area, learners can undertake a stakeholder mapping.

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

- UN SDGs Knowledge Platform <https://sdgs.un.org/goals>
- Video: Design Thinking 2 - Define (4:34 min) <https://www.youtube.com/watch?v=TNAdanuvwtc>
- Video: Defining the Problem (3:08 min) <https://www.youtube.com/watch?v=2rJRVv-NOaA>
- Video: How to Design a Problem Statement (5:38 min) https://www.youtube.com/watch?v=w7l8qEj1JX0&ab_channel=Canva
- Linked learning: Media Communication Skills micro-modules support the development of the 4Cs skills – Creativity, Communication, Critical Thinking and Collaboration - video, poster, Pecha Kucha, Interviews or Podcasts and SDG 4 supporting Skills - reports.

Local Trip / Expertise / Additional Work and Assessments

Contact the local librarian to collect back issues of the local news paper for learners look for information on the project focus.

Learners can interview local organisations to find out more about their problem issue through primary source research. Learners can begin develop an empathy map for a user of a local service / business that seeks to 'solve' their problem area, e.g. access to healthy food or local food producers.

MM1: L3WS USING A PROBLEM TREE

PROBLEM SOLVING TREE

Find out different ways to solve a problem.
Pick the best one.

I choose solution number _____
because _____



SOLUTION 3

SOLUTION 2

SOLUTION 1

PROBLEM (Roots)





Problem Solving

First Step in problem-solving - Understand the Problem:

While it may seem obvious, identifying the problem is not always as simple as it sounds. The biggest issue can be identifying the wrong source of a problem. This could mean your attempts to solve it are inefficient or even useless. Remember: Once the correct source of the problem has been identified you need to fully define it before it can be solved effectively.

Things to think about:



- What do I know already about the problem? Make a list.
- Can a picture or diagram help you? Try to visually draw or map the problem.
- Who's telling me about this problem? What is their perspective?
- What do I need to find out?
- Do I need to speak with anyone else about this problem?
- Try rewriting the problem in your own words?
- What do you think the problem is?

Step two: BRAINSTORM

In this phase, you will need to think, talk, sketch, doodle, contemplate, or journal, in order to start allowing ideas to formulate. Then, set aside some daydreaming time and get started. Think big and let all the ideas you have hit the page without editing them.



Step Three: Research: How are you going to turn the idea into a reality?



Brainstorming, researching and refining your problem go hand in hand. You will be going back and forth between the three until you come up with a plan. Once you brainstorm some great ideas for your business, you will need to research to learn more about the problem, product or service. In turn, that leads to more brainstorming and refining your problem.

In the next phase you will think of how to turn your idea into a reality. Start to make a make a list of any questions or concerns that come to mind. Its never too eqrly!

- What materials do you need?
- What will it cost?
- Can you build it yourself or will you need help?
- If you will need to collaborate on this piece, decide who that will be and make plans to work together?

SDG 15 Seeding Sustainability

MM1: Problem to Pitch The Ice Cream Olympics



MM1: Problem to Pitch - The Ice Cream Olympics

Programme Phase 1: Research and Development

Lesson 4 Design Thinking - Ideate

Subjects: Climate Action
and Sustainable
Development, Design,
Technology, Science

Lesson Title and Summary: Ideate, Generating and Remixing Ideas

In this lesson learners will begin to understand how to define a problem. This lesson enables learners to develop an understanding of the process of generating ideas starting with their personal experience and then moving into project themes.

This process used in this lesson can be developed and the skills applied in other micro-modules of The Ice Cream Olympics, particularly Churning Games and Event Management.

Vocabulary

Agility; Creativity; Disruptive Innovation; Enterprise; Problem Finding and Solving

In this lesson, the learner will:

- explore their own experience as a source of ideas
- feel comfortable with exploring experimental approaches
- develop skills around idea generation
- accommodate variables and limits into design
- processes
- learn to transfer and apply skills

Materials:

- Worksheet: Ideate Remix
- Worksheet: Remix SWOT extension task
- Pens, pencils
- Paper



MM1: Problem to Pitch - The Ice Cream Olympics

L4: Design Thinking - Ideate



Activity Instructions

Activity 1 Remixing ideas – Rapid Response (20 mins)

1. Explain the activity – learners will use aspects from their own experience to practice the concept and begin to understand how to develop creative problem solving skills.
2. Organise learners into groups of 3.
3. Working in groups, each person in the group fills in a row on the Worksheet: Ideate Remix 1:
 - naming a hobby,
 - what they like about it,
 - the obstacles - what annoys them or stops them from doing it,
 - and how they would change that.

NB: Learners can make this up – encourage them to be creative, be funny but make sure that the row entries are related - put on 10 min timer.

Teacher Prompt - Ask the group for input from the grid randomly e.g. “Group one tell me what’s written in the second column, row 2, write their answer on the board.

Repeat three more times until you have something on the board from each of the columns, e.g. group 4 tell me what’s written in the column 3, row 1, group 2 tell me what’s in column 4, row 2, group 3 tell me what’s in the column 2 row 3 – see example.

Hobby	What they like about the hobby	Obstacles to undertaking the hobby	What change would remove the obstacles
Football	Meeting others	Not enough opportunities to meet others	Transport

Tutor models the activity. Ask the groups to start coming up with possibilities for a business, activity or service that include the 4 variables, the more random the variables the better to push their creativity.

Activity 2 Remixing ideas Rapid Response 2 (20 mins)

1. Repeat the activity replacing the category headings with learners local theme / issue (This can build on lesson 3 outcomes, recreating the grid from the SDGs they researched, e.g. SDG X).

	A local aspect / take on SDG X	Obstacles restricting reaching target	How can the obstacles be removed
--	--------------------------------	---------------------------------------	----------------------------------

MM1: Problem to Pitch - The Ice Cream Olympics

L4: Design Thinking - Ideate



REFLECTIVE EXERCISE: 3-2-1

- 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

EXTENSION / REDUCTION ACTIVITIES

Reduction: For a shorter class, watch the Video: 'Design Thinking Ideate' and undertake activity 1 only. Use activity 2 in a follow up class and ask students to generate 2-3 business, enterprise, product or service ideas from the variables used in the previous class.

Extension: For a longer class, use the work in activity 2 with the Remix SWOT worksheet. Ask the class to use one of the businesses, services or activity 1 ideas that has come out of the first part of the lesson.

Learners can begin to develop an empathy map for a user of the ideas, products or service that have come out of activity 1.

Learners can also integrate learning from DT 1 Empathy by using the 'Step into the Problem' worksheet or undertake a stakeholder mapping to work through the ideas generated.

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

Video: Design Thinking Ideate (4:03 min) - <https://www.youtube.com/watch?v=zbLxs6te5to>

UN SDGs Knowledge Platform <https://sdgs.un.org/goals>

Linked learning: Media Communication Skills micro-modules support the development of the 4Cs skills – Creativity, Communication, Critical Thinking and Collaboration - video, poster, Pecha Kucha, Interviews or Podcasts and SDG 4 supporting Skills - reports.

Local Trip / Expertise / Additional Work and Assessments

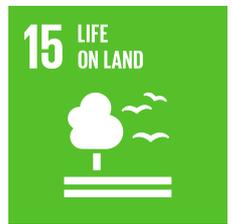
Learners can contact local businesses that may be aligned to work linked to the SDGs they researched in relation to the Ice Cream Olympics.

They can interview local organisations to find out more about the SDG and the problem / issue the organisations are addressing. Learners can also develop an empathy map for a user of a local service / business that seeks to 'solve' their problem area, e.g. access to healthy food or local food producers.

MM1: L4WS Design Thinking Ideate - Idea Remix 1

Name _____

Date _____



This worksheet will help you play with ideas using your own experience and pastimes.

Fill in the boxes - we will then work with the whole group to develop a number of possible ideas.



DO YOU HAVE A HOBBY OR PASTIME



WHAT IS IT YOU LIKE ABOUT YOUR HOBBY



OBSTACLES TO UNDERTAKING YOUR HOBBY



WHAT WOULD MAKE IT EASIER TO DO YOUR HOBBY

HOBBY

LIKES

OBSTACLES

CHANGE

HOBBY

LIKES

OBSTACLES

CHANGE



MM1: L4WS - DESIGN THINKING IDEATE - REMIX SWOT

Name _____

Date _____

This worksheet will help you play with ideas using a SWOT analysis. Fill in the boxes for three ideas, businesses, services or products your team came up with from Lesson 4 and the Ideate exercise.



PURPOSE



STRENGTHS



WEAKNESSES



USERS

PURPOSE

STRENGTHS

WEAKNESSES

USERS

PURPOSE

STRENGTHS

WEAKNESSES

USERS

SDG 15 Seeding Sustainability

MM1: Problem to Pitch The Ice Cream Olympics



MM1: Problem to Pitch - The Ice Cream Olympics

Programme Phase 1: Research and Development

Lesson 6: Design Thinking Prototype

**Subjects: Climate Action
and Sustainable
Development, Design,
Technology, Science**

Lesson Title and Summary: Prototype Your Idea

In this lesson, learners will begin to consider their ideas for prototyping, develop a concept statement and look at ways to prototype their ideas depending on users / audience. They will also develop their designs on paper using their concept statement and prototyping support sheets. This lesson can be delivered over a number of sessions depending on learners timetable and lesson options selected.

Learners can use the Ready Set Design Challenge as a vehicle to develop the skills of Prototyping some of their ideas that came from Lesson 3 or 4. These skills will be applied within the Ice Cream Olympics' in other micro-modules Ice Cream Remix, Churning Games.

Vocabulary

Concept Statement; Enterprise; Innovation; Prototype

In this lesson, the learner will:

- explore how to evolve and iterate their ideas
- develop a concept statement
- explore prototyping methods
- develop prototyping skills

Materials

- Video: 'Design Thinking - Prototype'
- Worksheet: Rapid Response Prototyping
- Worksheet: Concept Statement
- Worksheet: Ready Set Design Challenge
- Materials: Ready Set Design (RSD) bags
 - A fastener, e.g. pipe cleaner, pin, paper clip
 - A surface, e.g. material, tin foil, card
 - A structure, e.g. sticks, straws, box,
- Craft / recycled materials (paper, card, glue, etc.)



MM1: Problem to Pitch - The Ice Cream Olympics

L6: Design Thinking - Prototype



Activity Instructions

Activity 1 Prototyping – Rapid Response (15 mins)

1. Watch the video What is a prototype.
2. Discuss the benefits of prototyping.
3. Go through the Support: Sheet Rapid Response Prototyping skills to give learners tools they can use for making models / prototypes.

Activity 2 Creating a Concept Map (20 mins)

1. Review Worksheet: Concept Statement to ensure task understanding.
2. Ask learners to complete a concept statement for their project.
 - Learners focus on their project and its selected problem area e.g. climate adaptation. Using their empathy maps and the project's driving questions learners will create a concept statement. It is important that learners document this process as they will use images in their vision board and if doing the Pecha Kucha lessons.
 - Learners could use this opportunity to design an ice cream flavour based on a user's needs or a concern identified in the local landscape or the SDGs.

Activity 3 Developing your Prototype – Rapid Response (20 mins)

1. Using their Concept Map - Learners can begin to prototype an aspect of their concept.
 - *The Ice Cream Olympics: Learners can focus on the selected SDG problem / issue or concern they explored in relation to the Ice Cream Olympics in Lesson 3 and continue to work on those activities as a team. Teams can be grouped by selected SDG.*

Option B: Learners undertake a Ready Set Design design challenge using the Worksheet: Ready Set Design, selecting an open ended problem aligned to the SDGs and a global challenge or a challenge set by the teacher. Each team will use the 3 items in the bag for this.

REFLECTIVE EXERCISE: 3-2-1 (5 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

Use Post-its or a mentimeter survey - www.mentimeter.com - to gather reflections

MM1: Problem to Pitch - The Ice Cream Olympics

L6: Design Thinking - Prototype



EXTENSION / REDUCTION ACTIVITIES

Reduction: For a shorter class undertake activity 1 and 2 only.

Option B: Ask learners to watch the Video: 'What is Prototyping' and complete the concept statement at home and come into class with the 3 benefits of prototyping for a class feedback session and undertake activity 3.

Extension: For a longer class, Watch the Video: Design Thinking - Prototyping before activity 3.

Option B: Ask learners' teams to present their concept statement and a prototype or design ideas for an Ice Cream Flavour.

Option C: Learners can undertake a Ready Steady Design - see Media Box and P5 Rapid Response Prototyping worksheet - in preparation for activity 3.

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

'Design Thinking: Prototyping' (4:54min) <https://www.youtube.com/watch?v=Q4MzT2MEDHA>

'What is a Prototype?' (4:11min) <https://www.youtube.com/watch?v=4XengN5lb9o>

'Paper Prototyping' (2:36min) <https://www.youtube.com/watch?v=85muhAaySps>

'Rapid Prototyping' (7:31min) <https://www.youtube.com/watch?v=JMjozqJS44M>

'Ready Steady Design' (3:26min)
https://www.youtube.com/watch?v=jlXSuZg2awA&feature=emb_logo

Local Trip / Expertise / Additional Work and Assessments

Enterprise and Innovation Centres in Munster

- Kerryscitech <https://kerryscitech.com/>
- The Tom Crean Business Centre <https://www.creancentre.com/>
- RDI Hub Killorglin (home to the NDRC in the South West <https://rdihub.com/>
- HQ Kerry <https://hqkerry.com/locations/hq-tralee/>
- Cork Bic <https://www.corkbic.com/>



INTRODUCTION

Watch the following video: 'What is Design Thinking?'

<https://www.youtube.com/watch?v=a7sEoEvT8l8>

Answer the questions below. You can re-watch the video as many times as you need to.

a) What or who does design thinking help you focus on?

b) How do design thinkers learn?

c) What do simple prototypes do?

d) What do rapid prototypes do?

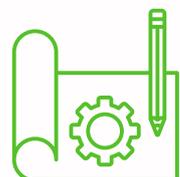
e) If you ideate, prototype and test too early - what are three mistakes that can be made?

f) Write down the two reasons for using design thinking.

g) What are the five stages of design thinking?

Watch the video: 'How to make a cardboard prototype'

https://www.youtube.com/watch?v=k_9Q-KDSb9o Write down as many tips as you can.





READY, STEADY, BUILD: KNOWLEDGE GATHERING

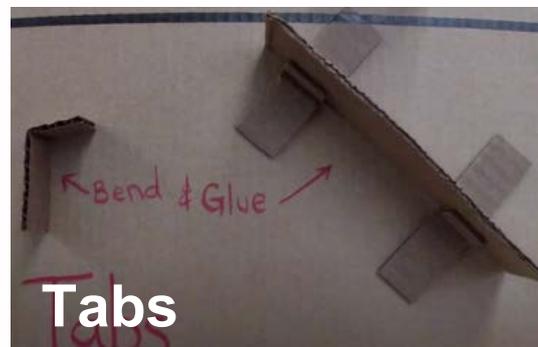
Today we are going to experiment with rapid prototyping with materials that we have to hand. You will explore three basic elements - useful for rapid prototyping:

- Structure
- Fastening / Joining
- Surface

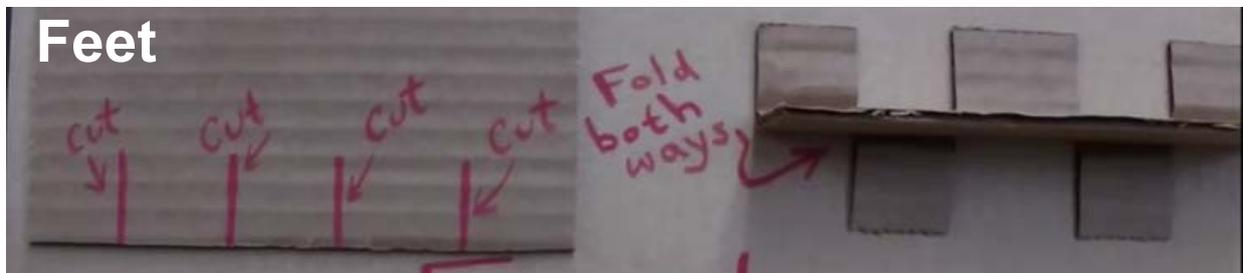
1. Structure - this will provide support and form to your prototype. The structure provides strength by load-bearing if re-enforced or solid, e.g. columns or supports for covering, or other materials, e.g. tent poles. Here's some simple tips for creating structure.



Flange



Tabs



Feet



Watch the short video on structural techniques - all these processes can be scaled up to make bigger models and forms.

Write down the key ideas in the video. Use bullet points.



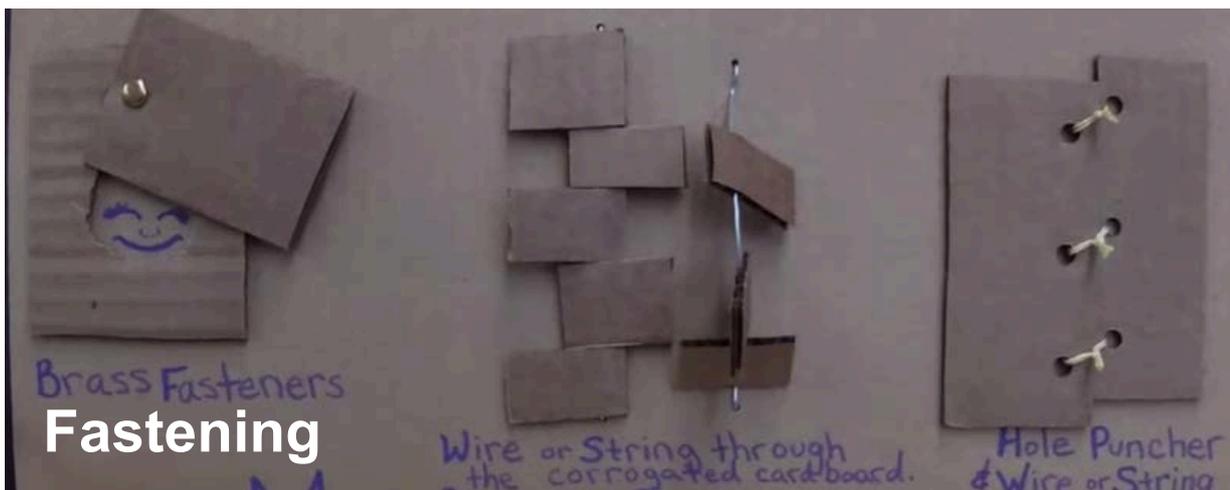
Creating 3D sculptures <https://www.youtube.com/watch?v=pi6Y7yCz7Y8>



2. Fastening / joining and attaching - this can be done using structural approaches, such as slots and tabs, or using other materials like pins, paperclips, string tape or glue.



Tabs and Slots



Fastening



Some techniques can be both structural and used to join things together like the slots / tabs here on the left.

What other ways do you know of joining things together? Discuss this in your group and make a list.

Knots are another useful joining technique- here's a useful website for learning to tie knots <https://www.animatedknots.com/complete-knot-list>



3. A surface - a surface has a number of functions, such as protection, decorative, textural, adhesive, and are made from numerous materials, e.g. plastic, wood, fabric, paper, both natural and synthetic.



Sometimes they can be structural as well as serving other functions. This surface material could provide support and be used as an attachment or joining function as well as offering a decorative purpose.



Natural materials often have other properties such as insulation, waterproofing, protection as well as being structural, making them good for outdoor construction.



Waterproof, or those that are water repellent materials (hydrophobic), are often inspired by nature, whether a rough surface that minimises water contact and absorption or the nanopatterns of insects who fly in the rain undisturbed. You can also treat materials with sprays to make them waterproof.



Safety surfaces can be both decorative and functional. They often use bright colours and recycled materials from other processes. They can be highly durable and so reduce maintenance.



Interior design surfaces, e.g. upholstery, curtains, wallpaper, bedding, worktops, are increasingly synthetic and made from recycled materials, e.g. SeaQual or Econyl from recycled fishing nets. They can be durable, easily cleaned and pleasurable to look at.

MM1: L6WS CREATING A CONCEPT STATEMENT



What is a Concept Statement?

A concept statement summarises a project's meaning, purpose, direction and depth. Concept statements are used at the beginning of the project planning stage. Within innovation and product development, the concept statement helps to focus ideas and keep the team on task.

Use the prompt boxes below to help your team create a concept statement for The Ice Cream Olympics event, game or Ice Cream flavour.

1. Define the need in two sentences



You are developing The Ice Cream Olympics event, game or Ice Cream flavour for... Who? (tell us about your attendee / player / consumer). To do what? (This is the purpose of the event, include your specific theme / SDG focus).

2. The problem / issue - explain how your concept will address the problem



3. Your people / person's needs - tell us about your user and their needs from your solution



4. Details- explain how your solution's concepts meets this need





READY, STEADY, BUILD: THE CHALLENGE

The Challenge:

1. Indoor activity- set by the teacher
2. Outdoor activity- selected from the list below in Challenge 2

The rules of the challenge:

1. 5 minutes to plan + 15 mins to build a prototype
2. You must include at least one material / object from each element
 - o Structure
 - o Fastener / Joiner
 - o Surface

Challenge 1 (Indoor): Set by the teacher.

Challenge 2 (Outdoor):

Select one of the following challenges to complete in your team.

1. Create something to shelter from the weather - wind, sun, rain.
2. Create something to encourage more biodiversity or wildlife to the area.
3. Create a raised bed that stops animals eating what's growing but looks good and is interesting.
4. Create a table / seating that allows buggies, and wheelchairs to fit comfortably

Post-Challenge Discussion

Let's discuss each teams' design. Use these questions to help focus the discussion:

- o How would you help them?
- o What might be the next stage of the project?
- o If this was to be developed, what are the issues that should be considered e.g. users' needs, surveys, market research?
- o Is there anyone local that they could talk to if this was a real project?



SDG 15 Seeding Sustainability

MM1: Problem to Pitch The Ice Cream Olympics



MM1: Problem to Pitch - The Ice Cream Olympics

Programme Phase 1: Research and Development

Lesson 7 Design Thinking Test 1.0 - Vision Boards

Subjects: Climate Action
and Sustainable
Development, Design,
Technology, Science

Lesson Title and Summary: Creating and Using Vision Boards

Evaluating an idea is a key aspect of Design Thinking. In this lesson learners will begin the process of testing their ideas with potential users.

This lesson prepares learners to present their work in a structured way and prepares them for organising documentation (images, details) of their idea development and process. Learners will learn that this is not the end of the process and that they may learn something that means they might need to return to an earlier stage, e.g. Define or Ideate.

This lesson will begin to help them test their ideas by developing their vision boards using the Vision Board support worksheets and prepare them for their final pitch - their Pecha Kucha presentation.

Vocabulary: Documentation; Test; Vision Board; Visualisation

In this lesson, the learner will:

- further define key elements of their idea
- structure their thinking
- understand the purpose of a Vision Board
- present their thinking visually

Materials

- Support Resource: Creating a Vision Board
- Internet Access
- Pens, pencils
- Large pieces of paper
- Whiteboard

9 INDUSTRY, INNOVATION
AND INFRASTRUCTURE



10 REDUCED
INEQUALITIES



12 RESPONSIBLE
CONSUMPTION
AND PRODUCTION



13 CLIMATE
ACTION



MM1: Problem to Pitch - The Ice Cream Olympics

L7: Design Thinking - Test 1.0 Vision Boards



Activity Instructions

Activity 1 Testing and Defining your elements of your idea (20 mins)

1. Watch the video 'Design Thinking TEST'.
2. As a class, discuss each of the boxes on the Vision Board Support so that learners understand the task and its purpose.
3. Using their work from the prototyping process, ask learners to fill in the Worksheet: Vision Board Support, which will help them to define the key elements of their project idea.
4. Once they have completed this activity they will be ready to develop their Vision Boards.

Activity 2: Using and Creating your Vision Boards (30 mins) and either additional lessons or complete in their own time or other supportive classes e.g. English, CSPE.

1. Explain the activity, going over the key elements of the Support: Vision Board.
2. Watch the video 'Create a Digital Vision Board'.
3. Ask learners to google 'vision boards' and select 3 styles that they like and take a screen grab as inspiration for their own vision boards.
4. Ask learners to decide if they want to create a digital vision board or use physical materials.
5. Once decided, learners can either make a list of the materials they will need to create their vision board, or set up a Canva account for a digital vision board.
6. Learners will begin to think about the materials and images required to help them present the key elements of their project ideas and their paper designs and paper prototypes.
7. Learners will begin to work through the worksheet: Vision board required to create and complete their vision board.
8. Learners can begin to gather images including any they may have from the prototyping sessions and start their preparation work for their vision board.

Evaluating an idea is a key aspect of Design Thinking. Learners will see that this is not the end of the process and that it may reveal something that means they might need to return to an earlier stage, e.g. Define or Ideate. They will begin to create their vision board in preparation for creating their design and pitch.

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 opinion they have about the tasks

Use Post-its or a mentimeter survey - www.mentimeter.com - to gather reflections

M1: Problem to Pitch - The Ice Cream Olympics

L7: Design Thinking - Test 1.0 Vision Boards



EXTENSION / REDUCTION ACTIVITIES

Depending on class duration and number of teams, it is suggested that two lessons are used to allow learners to create their vision boards which will form the initial steps in helping them develop their Pecha Kucha's - see Media Communication Module 3.

Learners will be able to gather images and use their vision boards and the vision board support worksheet as prompts to think about some of the ideas within their project.

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

Video: 'Design Thinking TEST' (3:19min) <https://youtu.be/UVEQCNM6X-A>

'Create a Digital Vision Board' <https://www.canva.com/create/vision-boards/>

'How to make a pitch using a mood board' (4:00min) <https://www.youtube.com/watch?v=8dG--KvDIX8>

'Paper Prototyping' (2:36min) <https://www.youtube.com/watch?v=85muhAaySps>

Local Trip / Expertise / Additional Work and Assessments

Invite the Local Enterprise Officer to the learners' final pitch presentations - share their vision boards in advance.

Present their vision boards to a Local Development Company or Community and Business Alliance /or Chamber of Commerce.

Organise a visit from the Local Enterprise Office to discuss Enterprise.

Create a local enterprise event / exhibition to share their vision boards and present their Pecha Kucha, e.g. in school at the end of school year, in the local library or online - align to National Enterprise Month.

Develop a Rocket Pitch event - 3 mins 3 slides – create an event to share the learners ideas.

Look at enterprise competitions encouraging this as part of the students learning process, e.g. Eco-Unesco, Cool Projects.

MM1: L7WS Design Thinking - Test 1.0 Vision Boards

CREATE A VISION / MOOD BOARD



Develop the central message this is an image that will represent your solution.

Keep it colourful and visual
Our brains love images.



STEP 1 THE 'WHAT' OF YOUR SOLUTION

Develop an image that represents the reason behind your solution – the 'problem' you want to fix. Use pictures, texts or quotes that help you tell what your business is.



STEP 2 THE 'WHY' OF YOUR SOLUTION

Develop an image that will show what your solution will provide for people or fix their problem. Use pictures, texts and quotes that help you show how your business helps your customers.

Use can use Pinterest, Google images, cut out images and texts from magazines and drawings

Vision board examples on Pinterest.
<https://www.pinterest.ie/scrap-pinmichele/vision-board-samples/?lp=true>

Develop the central message this is an image that will represent your solution.
Keep it colourful and visual
Our brains love images.

STEP 3 THE 'WHO' OF YOUR SOLUTION

Develop an image of the people who will use your solution. Use pictures, texts, quotes, statistics that help to you define your users



STEP 4 THE 'HOW' OF YOUR MARKETING

How will you reach your users or consumers? Use pictures, texts and quotes, that help you tell the reason for our business.



CREATING A DIGITAL VISION BOARD USING CANVA

Step 1: Gather and share your digital Images

When you have decided who is working on what section – gather your digital images and save them all together in a folder. You can create and use a shared drive folder to work in a group.

Step 2: Open an account in Canva

<https://www.canva.com/>

Step 3: Open a new design in Canva

Once you're signed in, you'll want to click "Create a Design," and choose the template you like, perhaps mood board, poster or photo collage.

If you plan on printing your vision board, you can choose **USE CUSTOM DIMENSIONS**. You can see this in the top right of the screen.

Step 4: Import your images into Canva



[HTTPS://WWW.PINTEREST.IE/SUNFLOWERWAYS/CREATING-A-VISION-BOARD/](https://www.pinterest.ie/sunflowerways/creating-a-vision-board/)

SDG 15 Seeding Sustainability

MM1: Problem to Pitch The Ice Cream Olympics



MM1: Problem to Pitch - The Ice Cream Olympics

Programme Phase 1: Research and Development

Lesson 8 Design Thinking Test 2.0 Pecha Kucha 1

**Subjects: Climate Action
and Sustainable
Development, Design,
Technology, Science**

Lesson Title and Summary: Preparing to Pitch- Pecha Kucha 1

A Pecha Kucha ('chit chat' in Japanese) is a presentation format that encourages presenters to be concise and use the relationship between image and text. The Pecha Kucha format is 20 slides with a 20 second limit – 400 seconds.

In this lesson, learners will be introduced to the Pecha Kucha format and begin to analyse what makes a good presentation so they can prepare to create their own Pecha Kucha presentation.

Vocabulary: Outline; Pecha Kucha; Pitch

In this lesson, the learner will:

- learn about the Pecha Kucha format
- develop research and analysis skills
- share ideas and opinions
- develop an understanding of what makes a good presentation
- develop an awareness of presentation skills

Materials

- Video: A Pecha Kucha About Pecha Kucha
- Video: Bad Presentation 1
- Video: Bad vs Good Presentation
- Worksheet: Pecha Kucha Analysis
- Internet
- Paper
- Pens, pencils or markers



MM1: Problem to Pitch - The Ice Cream Olympics

L8: Design Thinking - Test 2.0 Pecha Kucha 1



Activity Instructions

Activity 1 What is a Pecha Kucha? (25 mins)

1. Watch Video: 'A Pecha Kucha About Pecha Kucha' and ask learners to answer the following:
 - a. What is different between a Pecha Kucha and a traditional presentation?
2. Visit www.pechakucha.com in pairs and select 1-2 Pecha Kucha presentations to watch and complete Worksheet: Pecha Kucha Analysis.
4. As a whole class, discuss responses in the Pecha Kucha Analysis worksheet.
 - a. Does this feel easier or harder as a format for a presentation?
 - b. Did you notice anything interesting about the presentations?
 - c. What did you like about the format?
 - d. Was there anything you didn't like?

Activity 2 What makes a good presentation? (25 mins)

1. Watch Video: Bad Presentation 1 - review in pairs.
2. Share your thoughts with your partner, then share your comments with the whole class.
3. Repeat Steps 1 & 2 with Video: Bad vs Good Presentation and watch up to up to 1:24 min.
4. Compare the two bad presentations. What was similar between the two?
5. After the comparison and discussion, begin the video from 1:24 min and watch the good presentation example.
6. Compare the good presentation with the bad ones.
 - a. What made it good?
7. Ask learners to think about anything else that is important for a good presentation.

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 opinion they have about the tasks

Use Post-its or a mentimeter survey - www.mentimeter.com - to gather reflections

MM1: Problem to Pitch - The Ice Cream Olympics

L8: Design Thinking - Test 2.0 Pecha Kucha 1



EXTENSION / REDUCTION ACTIVITIES

'Reduction: For a shorter lesson, complete Activity 1 only and follow up with Activity 2 in the next lesson, or set it as an at-home task.

Extension: For a longer lesson, encourage learners to explore the Pecha Kucha presentations and find an example they'd like to present to small groups. Extend discussion time in Activity 1 & 2.

Learners could look at other videos for tips on presentations- see Media Box.

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

A Pecha Kucha about Pecha Kucha' (6:48min) - <https://www.youtube.com/watch?v=jJ2yeplaAtE>

'Pecha Kucha' <https://www.pechakucha.com>

'Bad Presentation 1' (2:01min) <https://youtu.be/KgObza4ek1U>

'Bad Presentation vs Good Presentation' (2:28min) <https://www.youtube.com/watch?v=S5c1susCPAE>

'Pecha Kucha Presentation' tips (6:58min) https://www.youtube.com/watch?v=zAZ_8UJUUpno

'Using PowerPoint for your presentation' (4:26min) <https://www.youtube.com/watch?v=q0XWIPbXmVY>

'How to give a great presentation' (7:04min) <https://www.youtube.com/watch?v=MnIPpUiTcRc>

'7 Presentation structures used by the best Ted' Talks (11:22min)
<https://www.youtube.com/watch?v=hMk5s1y486l>

Local Trip / Expertise / Additional Work and Assessments

Stakeholder mapping worksheet supports learners to focus on their local audience - see Lesson 2.

Develop the project across subject areas through multiple outcomes such as video, poster, Interviews or Podcasts.

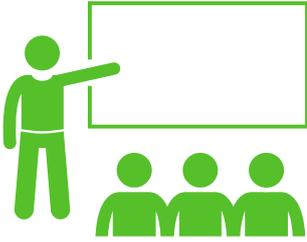
SDG 8 Media Communication - supports the development of the 4Cs skills - Creativity, Communication, Critical Thinking and Collaboration, sign in using your school email
https://www.codesres.ie/_files/ugd/92a067_a8f108ce0a6448e9851a5b03dd2e8d40.pdf

SDG 4 Supporting Skills <https://www.muinincatalyst.com/s-projects-basic> sign in using your school email.

MM1 L8WS PECHA KUCHA ANALYSIS

Pecha Kucha (pe cha ku cha) means 'chit chat' in Japanese and was devised as a presentation format to get presenters straight to the point.

15 LIFE ON LAND



Team: _____

Date: _____

1

Watch the following presentation and answer the questions below
<https://www.youtube.com/watch?v=jJ2yeplaAtE>

- What did you like about the format?
- Was there anything you didn't like or thought was boring?
- What stood out most for you about the presentation?
- Does this feel easier or harder as a format for a presentation?

2

Visit www.pechakucha.com and select 2 contrasting presentations. Use the questions in box 2 and 3 to make notes about the presentations.

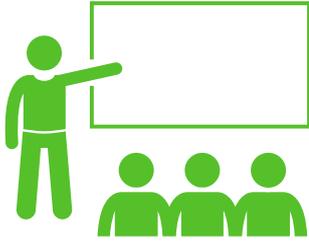
Peach Kucha #1 Title: _____

- What was the presentation about?
- What stood out to you about their images?
- Did the image and words work well together?
- What did you learn from the presentation?

MM1 L8WS PECHA KUCHA ANALYSIS

Pecha Kucha (pe cha ku cha) means 'chit chat' in Japanese and was devised as a presentation format to get presenters straight to the point.

15 LIFE ON LAND



Team: _____

Date: _____

3

Pecha Kucha #2 Title: _____

- What was the presentation about?
- What stood out to you about their images?
- Did the image and words work well together?
- What did you learn from the presentation?

4

Think about your answers above - use them to start thinking about your presentation.

- Who is your audience - think about their age and interests or what might interest them about your topic.
- What style will you use - drawings, photos, collage?
- What information do you want them to know?

SDG 15 Seeding Sustainability

MM1: Problem to Pitch The Ice Cream Olympics



MM1: Problem to Pitch - The Ice Cream Olympics

Programme Phase 1: Research and Development

Lesson 9 Design Thinking Test 2.0 Pecha Kucha 2

**Subjects: Climate Action
and Sustainable
Development, Design,
Technology, Science**

Lesson Title and Summary: Creating a Pecha Kucha

In this lesson, learners will continue to plan, create and present a Pecha Kucha on their marine plastic waste project.

The lesson and its resources support learners to create their outline and begin to develop their presentation step-by-step. Using the lean canvas and the 5 Ws of business planning, they will gather the information to present their project

Vocabulary: Outline; Pecha Kucha; Pitch

In this lesson, the learner will:

- summarise work done (to date)
- create an outline for their presentation
- begin to gather their images and set up their presentation template
- develop team skills
- develop presentation skills
- create a Pecha Kucha presentation
- deliver a Pecha Kucha

Materials

- Worksheet: Pecha Kucha Planning Guide
- Worksheet: Pecha Kucha Outline
- Worksheet: Pecha Kucha Checklist
- Worksheet: 8 Ws Business Planning
- Worksheet: Lean Canvas
- Internet
- Computer or tablet access
- Paper
- Pens, pencils or markers



MM1: Problem to Pitch - The Ice Cream Olympics

L9 - 10 Design Thinking Test 2.0 Pecha Kucha 2



Activity Instructions

Activity 1 Planning an outline (20 minutes)

Before the lesson, give each team a copy of the Pecha Kucha Planning Guide and ask them to read through it before the lesson. They can underline words or phrases they aren't sure of. Learners will work through the creation of their Pecha Kucha as a team and will divide the work between them.

1. Give learners 5-10 minutes in their teams to review the Pecha Kucha Planning Guide. As they should have read through it before the lesson, they can use this time to summarise the key points and check understanding of unknown vocabulary. Monitor and support.
2. Ask learners to complete worksheet: Pecha Kucha Outline using their vision boards and worksheet.

Activity 2 Develop the Pecha Kucha template (30 mins)

1. Using worksheet: Pecha Kucha Template, allow learners to work through developing their ideas and plans for their Pecha Kucha. They can also use this time to begin gathering images and sourcing information.
2. Monitor and check each team's template and encourage learners to refer to the Planning Guide and their Outline for support.
3. Encourage learners to keep asking themselves about the image / script relationship and to ensure minimal text on their slides.

There are two structured sessions to support the learners' development of their Pecha Kucha, with an additional session proposed for finalising the activity, allowing approx 3x 1hr classes. However, teachers may elect to offer more time depending on class length and learners' needs. To help learners ensure they have all the information required for their pitch, they can also use the lean canvas and 8 Ws of Business Planning to help them gather the information.

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 opinion they have about the tasks

Use Post-its or a mentimeter survey - www.mentimeter.com - to gather reflections

MM1: Problem to Pitch - The Ice Cream Olympics

L9 - 10 Design Thinking Test 2.0 Pecha Kucha 2



EXTENSION / REDUCTION ACTIVITIES

Reduction: For a shorter class, complete Activity 1 only and extend discussion time. Complete Activity 2 in a follow-up lesson.

Extension: For a longer lesson, allow learners to continue to work on developing their ideas and planning. Also, spend more time discussing the additional worksheets - Lean Canvas and 5Ws.

Flipped Classroom: Learners are encouraged to look at other presentations for their styles and delivery. Ask learners to visit <https://www.pechakucha.com> for inspiration.

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

How To Improve Communication Skills? (10 min 28s)

<https://www.youtube.com/watch?v=v3DiMAPolls>

Tips on giving oral presentations (2:06min) <https://www.youtube.com/watch?v=QKOO99UjsSE>

Dos and Don'ts of making presentations effective (2:55min)

<https://www.youtube.com/watch?v=X50StnWVh9I>

Be a confident public speaker:

- Video (4:49min) https://www.youtube.com/watch?v=tShavGuo0_E
- Public speaking worksheet <https://static.tumblr.com/nw2r6wp/2LAmj0c61/publicspeaking.pdf>

Nine habits that are destroying your confidence (6:50min)

https://www.youtube.com/watch?v=_RtUt0RsGMc

Local Trip / Expertise / Additional Work and Assessments

Stakeholder Mapping worksheet supports learners to focus on their local audience - see Lesson 3.

Develop the project across subject areas through multiple outcomes such as video, poster, Pecha Kucha, interviews or podcasts.

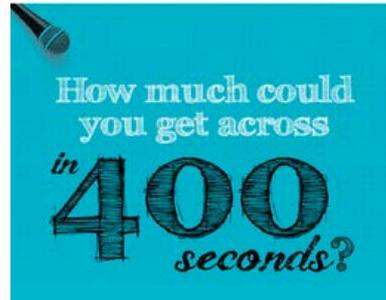
- SDG 8 Media Communication - supports support the development of the 4Cs skills – Creativity, Communication, Critical Thinking and Collaboration - sign up using your school email
- SDG 4 Supporting Skills - <https://www.muinincatalyst.com/s-projects-basic> sign up using your school email.



Your task: Create a basic Pecha Kucha on your game and its development

**20 SLIDES X 20 SECONDS =
6 MINUTES & 40 SECONDS!**

You can access Powerpoint through Office 365

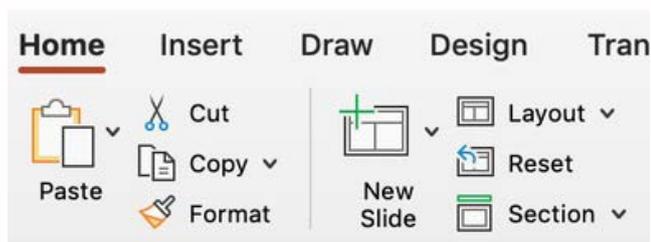


- **How to make a Pecha Kucha**

<https://www.youtube.com/watch?v=32WEzM3LFhw>

- **Using powerpoint for a pecha kucha**

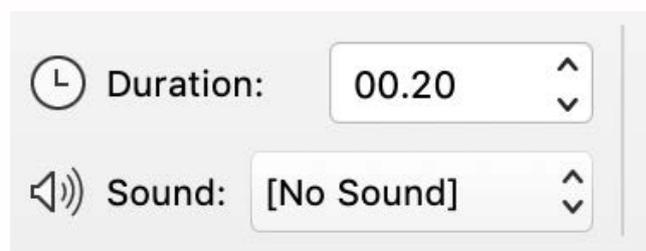
<https://www.youtube.com/watch?v=q0XWIPbXmVY>



1. Open PowerPoint. In slide view, right-click on the first slide on the left and select 'Layout' then 'Blank' on the dropdown menu. This creates a blank canvas.
2. Right-click again on the slide and select 'Duplicate'. This creates another slide just like it.

3. Since the duplicate command is already in PowerPoint's memory, use the shortcut Ctrl-Y to repeat the duplicate (or just right-click duplicate again) 18 more times, for a total of 20 blank slides.

4. Use Ctrl-A to Select all slides in the left, and then go to 'Transition', advance slide and set it to 20 seconds. If you didn't select all slides then apply timing to all slides.



5. You can also select transition styles and speed here. The simplest is the best. Maybe nothing more than a simple fade, particularly as you only have 20 seconds per slide.

Tips on creating a Pecha Kucha

- Most important, keep it simple as you have less than 7 minutes. Focus on the most important points.
- Remember your slides should be images only with your text spoken / read out
- Your images - You can resize your images to your liking. Best is to fill the whole slide with your image unless you have a reason for using space, e.g. emphasising something.

MM1: L9-10 WS PECHA KUCHA PLANNING

15 LIFE ON LAND



- Also limit the text on your images and superimpose your text over the image use colour to make your text stand out.

Free presentation software

**20 SLIDES X 20 SECONDS =
6 MINUTES & 40 SECONDS!**

- <https://prezi.com/>
- <https://www.canva.com/>
- <https://www.libreoffice.org/>
- <https://pc.wps.com/>
- Google Slides - <https://www.youtube.com/watch?v=dYOLZuw-b00>

Getting Free images

In public domains such as Wikimages or Pixabay often you just have to credit the photographer or they are free for non-commercial or educational use. Remember to check and credit!

- <https://pixabay.com/>
- <https://www.flickr.com>
- https://en.wikipedia.org/wiki/Wikipedia:Public_domain_image_resources
- <https://blog.hubspot.com/marketing/free-stock-photos>
- <https://blog.snappa.com/free-stock-photos/>

Examples of Pecha Kuchas

- <https://www.pechakucha.com/presentations/daily-acts-of-creativity>
- <https://www.pechakucha.com/presentations/random-acts-of-courage>
- <https://www.pechakucha.org/cities/dublin/presentations/fenced-in>
- <https://www.pechakucha.com/presentations/changing-the-rules-of-our-reality-with-technology>
- https://www.youtube.com/watch?v=FHuB4my_UT4
- <http://www.pechakucha.org/presentations/time-based-art>

Remember to share with your peers anything that helped you and your group.

- What tips would you add?
- How would you explain to someone what a Pecha Kucha is?
- How would you explain how to design a Pecha Kucha?





1. Start With an Outline - All presentations should start with an outline

What is an outline – this is the structure of the story you are going to tell. Stick to one idea per slide then have 1 or 2 sentences about that idea / slide – Remember you have only 20 seconds per slide.

- Use the points below to help you order your outline
- Think about how many people are in your group
- Think about how many slides that is each per person
- Divide your content between your group
- You should always have an introduction slide
- You should always have an summary slide at the end
- You can use paper, post-its, the outline function in Powerpoint, or a digital notebook or Microsoft Word to plan your presentation.

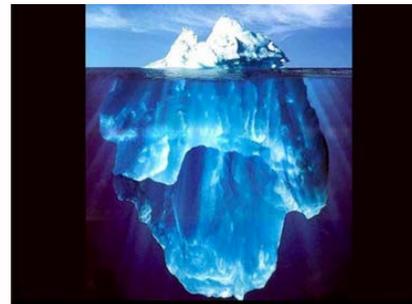


2. Tweak Your Outline

- Play around with the order of your information and slides to tell your story. Remove details or slides if they don't help you say what you want to say.
- You might separate some of your sentences / ideas or combine them depending on what you want to say - you only have 20 slides x 20 secs each slide.
- Think about your audience try to make it interesting for them. Keep playing with the order of your ideas and your story / message.

3. Make your template and add your pictures - Once you have your 'story' then find strong visual images for your 20 slides that help tell your story. Work together – think about your image choices and how they fit with your text.

Let your images be the tip of the iceberg – as presenters you will explain what's 'behind' your image.



- You will have to import images into your Pecha Kucha template - instructions are in the Pecha Kucha planning guide.
- You should limit the text on your slides – try to keep them as only images / graphics or images / graphics with titles.
- The most successful Pecha Kuchas don't use much if any text. No more than 5 words per slide is a good reference.



4. Practice - Practice as much as you can. And practice again.

- Speak your text out loud with your slide show running more than once and time it – you will see that even with your 1 or 2 sentences per slide you might have too much.
- Keep practicing your slides with the text you want to speak – do they tell your story well? Keep re-doing them until you are happy.

'The 7Cs of Effective Communication': <https://www.youtube.com/watch?v=xXz1oZONUIM>

- You can also have a number of slides for each idea or sentence to help slow things down or improvise. Be careful when improvising – it is easy to run over time.
- Tips on giving oral presentations <https://www.youtube.com/watch?v=QKOO99UjsSE>

5. To Animate or not?

- Animations and transitions can be distracting and also mess up your timings. General advice is not to animate as the slides are only 20 secs long.

6. Practice your masterpiece again

- Yes, time to practice again. With less than 7 minutes to present, you can afford to practice more often. The slideshow runs automatically so you will run out of slides or have images that do not connect to your ideas / spoken text if your timing isn't right.
- Remember add your own personal flair, humour and interest.
- Oh, did I mention practice?

7. Finally, don't forget your audience! Make eye contact, be warm, be human.





1. Start With an Outline - All presentations should start with an outline

What is an outline – this is the structure of the story you are going to tell. Stick to one idea per slide then have 1 or 2 sentences about that idea / slide – Remember you have only 20 seconds per slide.

- Use the points below to help you order your outline
- Think about how many people are in your group
- Think about how many slides that is each per person
- Divide your content between your group
- You should always have an introduction slide
- You should always have an summary slide at the end
- You can use paper, post-its, the outline function in Powerpoint, or a digital notebook or Microsoft Word to plan your presentation.

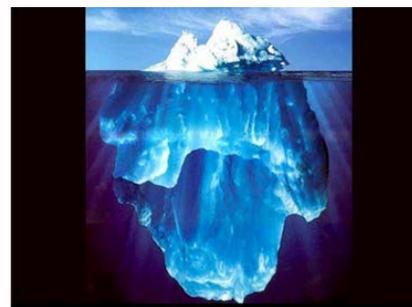


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MM1: L9 - 19WS LEAN CANVAS

<p>Problem List your customer's top 3 problems</p> <ul style="list-style-type: none"> -worry that pet will get lost -worry that pet is up to no good when home alone -miss pet and want a way to connect while at work 	<p>Solution Outline a possible Solution for each problem</p> <p>worry that pet will get lost-you will be able to track your pet at all times.</p> <p>worry that pet is up to no good when home alone-you will be able to see what your pet is doing at all times.</p> <p>miss pet and want a way to connect while at work-you will be able to connect using your voice while you're away</p>	<p>Unique Value Proposition Single, clear compelling message, that turns an unaware visitor into an interested prospect</p> <p>Love Paws makes it possible to be with your pet even when you're away.</p>	<p>Unfair Advantage Something, that can't be easily copied or bought</p> <p>I am Cesar Milan, world famous dog trainer and I have my own TV show and numerous celebrity clients.</p>	<p>Customer Segments List your customer segments and users</p> <p>Ideal customers are middle to high income, tech-savvy pet owners who spend a significant time away from their pets.</p>
<p>Existing Alternatives List how these problems are solved today</p> <p>There are various collars on the market that track your pet's location. Some track steps and various other stats. There is a separate camera device that can be worn by your pet, but nothing exists that works as a GPS, camera and communication device in one.</p>	<p>Key Metrics List the key numbers, that tell you how your business is doing</p> <p>Number of units sold.</p>	<p>High Level Concept List your x for y analogy (e.g. youtube = flicker for videos)</p> <p>Love Paws is the Nest of pet tracking devices.</p>	<p>Channels List your path to customers</p> <p>Give away for free to celebrity pet owners and celebrity TV personalities on Animal Planet, then do a billboard, print and web and social media campaign.</p>	<p>Early Adopters List the characteristic of your ideal customer</p> <p>Early adapters are pet owners who love to keep up and own the latest tech innovations as soon as they come out.</p>
<p>Cost Structure List your fixed and your variable costs</p> <p>Product design, sourcing of materials, production costs, engineering, marketing, PR.</p>		<p>Revenue Streams List your sources of revenue</p> <p>We will initially sell online with the goal to being on the shelves of major pet stores by end of year.</p>		<p>MARKET</p>
<p>PRODUCT</p>		<p>MARKET</p>		<p>15 LIFE ON LAND</p> 

MM1: L9 - 19WS LEAN CANVAS

<p>PROBLEM <i>List your top 1-3 problems.</i></p>	<p>SOLUTION <i>Outline a possible solution for each problem.</i></p>	<p>UNIQUE VALUE PROPOSITION <i>Single, clear, compelling message that states why you are different and worth paying attention.</i></p>	<p>UNFAIR ADVANTAGE <i>Something that cannot easily be bought or copied.</i></p>	<p>CUSTOMER SEGMENTS <i>List your target customers and users.</i></p>
<p>EXISTING ALTERNATIVES <i>List how these problems are solved today.</i></p>	<p>KEY METRICS <i>List the key numbers that tell you how your business is doing.</i></p>	<p>HIGH-LEVEL CONCEPT <i>List your X for Y analogy e.g. YouTube = Flickr for videos.</i></p>	<p>CHANNELS <i>List your path to customers (inbound or outbound).</i></p>	<p>EARLY ADOPTERS <i>List the characteristics of your ideal customers.</i></p>
<p>COST STRUCTURE <i>List your fixed and variable costs.</i></p>		<p>REVENUE STREAMS <i>List your sources of revenue.</i></p>		





1. WHAT are you planning to do?



2. WHY do you want to do this project?
WHO will benefit?



3. WHEN and **WHERE**
will the activity
take place?

Date: _____

Time: _____

Location: _____

4. WHAT funds are
needed to do this
activity?





5. WHO needs to approve this project?

8 WHAT kind of publicity is needed? WHEN?

Type of publicity. When needed?

- 1.
- 2.
- 3.
- 4.

7. WHO will do the WORK?

1 Task

3 Task

Person Responsible

Person Responsible

Date Due

Date Due

2 Task

4 Task

Person Responsible

Person Responsible

Date Due

Date Due



8. We're Done!! Was it Worthwhile?



WHAT went well?

WHAT didn't go well?

WHAT would you do differently next time?

WHO needs to receive a thank you note?

Name WHO will write it?