SDG 15 Seeding Sustainability
MM1: Problem to PitchThe Ice Cream Olympics

MM1: Problem to Pitch - The Ice Cream Olympics

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

MM1: Problem to Pitch - The Ice Cream Olympics
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 purpose 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/

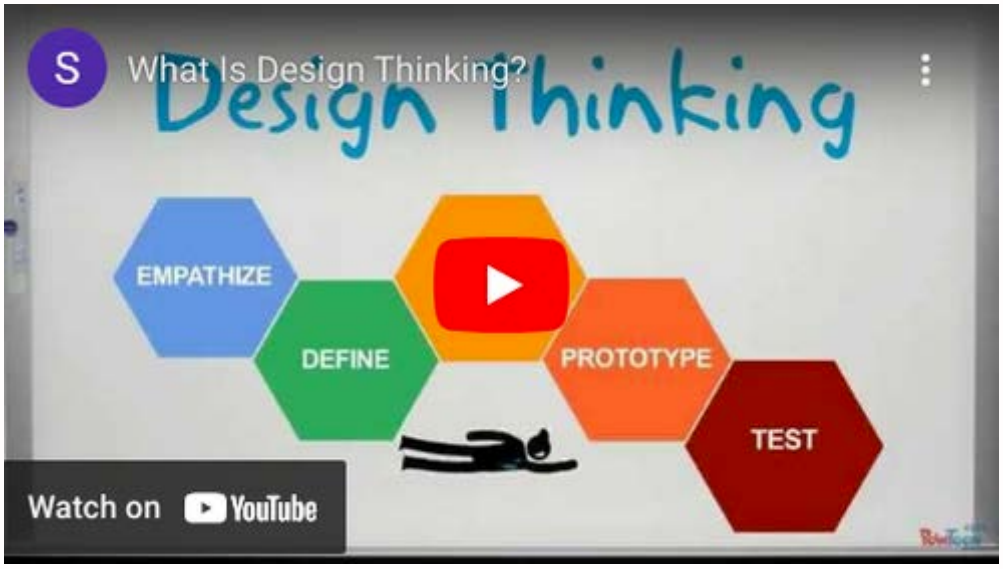
Local Trip / Expertise / Additional Work and Assessments

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

MM1: L1 WS INTRODUCTION TO DESIGN THINKING

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 -

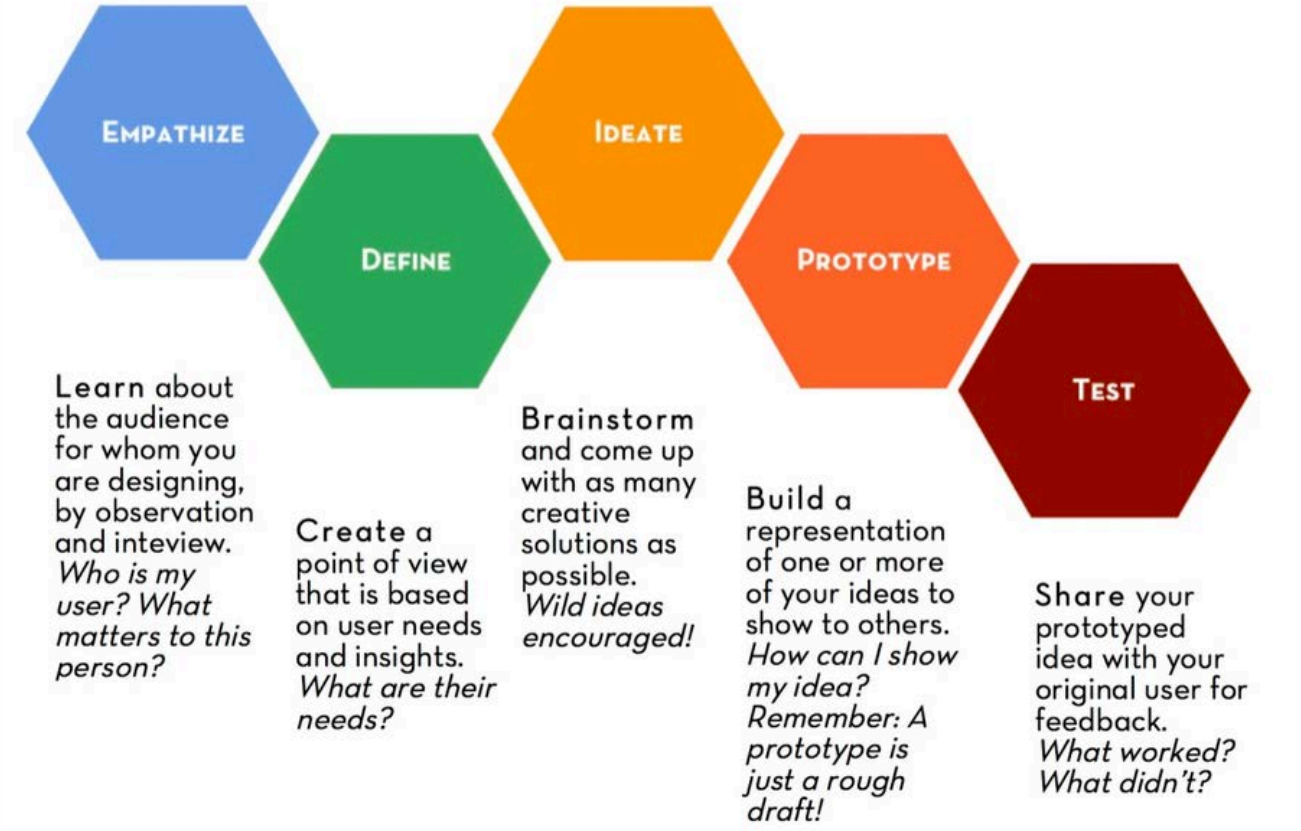
4. Stakeholders -

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

MM1: L1 WS INTRODUCTION TO DESIGN THINKING

15 LIFE ON LAND

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.

MM1: L1 WS INTRODUCTION TO DESIGN THINKING

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?

MM1: L1WS STAKEHOLDER MAPPING

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

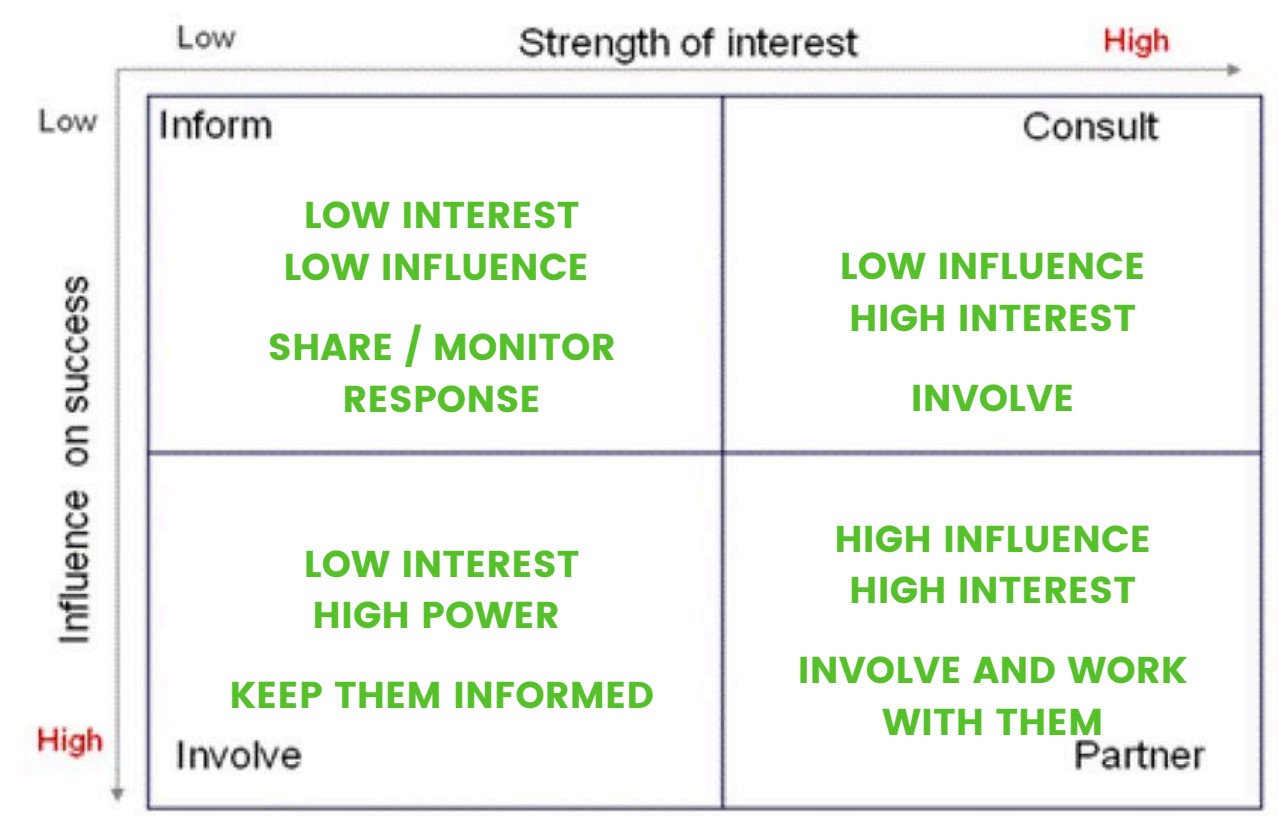
GOVERNANCE

INFLUENCERS

MM1: L1WS STAKEHOLDER MAPPING

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: L1WS 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=lOKpB4KtUZ8

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=XRoCxS6n53U

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