

# Muinín Catalyst STEAM Education for Sustainable Development and Futures Literacy

## SDG14 The Future Of The Ocean



### Programme Phase 3: Implementation

#### Micro-Module 6: Problem to Pitch Marine Plastic Waste

Subject Areas: Climate Action and Sustainable Development, Engineering, Design and Communication Graphics, Design and Technology, Maths, Science



# SDG 14 Future of the Ocean

## MM6: Problem to Pitch Marine Plastic Waste



### Micro-Module 6: Problem to Pitch Marine Plastic Waste

#### Implementation

**Subjects: Climate Action and Sustainable Development, English, Design and Communication Graphics, Design and Technology, Maths, Science**

#### Module Overview

In the SDG 14, Problem to Pitch unit, introduces learners to the concept and process of Design Thinking: the cognitive, strategic and practical processes for creative problem solving.

Learners are encouraged to engage with their local context to enable them to explore real-world- problems, e.g. marine plastic waste or ocean health, in meaningful, manageable, and tangible ways. 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 students 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 students to undertake projects that address contemporary issues on a local scale, in line with the Sustainable Development goals and the 2030 agenda.

#### In this 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
- develop an awareness of marine plastic waste and the issues within that problem
- 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
- develop a minimum viable product, project, solution, system-change or service for Marine Plastic Waste using circular economic principles

**9** INDUSTRY, INNOVATION AND INFRASTRUCTURE



**11** SUSTAINABLE CITIES AND COMMUNITIES



**12** RESPONSIBLE CONSUMPTION AND PRODUCTION



**13** CLIMATE ACTION



# SDG 14 Future of the Ocean

## MM4: Problem to Pitch Marine Plastic Waste



### Micro-Module 6: Problem to Pitch Marine Plastic Waste

#### Implementation

**Subjects: Climate Action and Sustainable Development, English, Design and Communication Graphics, Design and Technology, Maths, Science**

#### This module includes:

- lesson plans
- accompanying resources
- project-specific worksheets related to specific goals and other project modules
- optional assessments skill support resources



# SDG 14 Future of the Ocean

## MM6: Problem to Pitch Marine Plastic Waste



### Problem to Pitch Marine Plastic Waste

This module can be used as a standalone module or as a follow up to the SDG 14 MM1: Ocean Literacy Module. If used together, the two modules form a full Transition Year Unit SDG14 Ocean Health of 40hrs broken down as follows:

- SDG 14 Ocean Literacy - x10 1hr lesson Plans with extension and reduction options depending on class time - 40 mins / 1 hr.
- SDG 14 P2P Marine Plastic Waste - x15 1hr lesson plans with 15 hrs additional self-directed work in completing the tasks including prototyping, vision boards, and Pecha Kucha presentation.

The resources use blended learning and project-based learning to support learners to acquire knowledge and skills and apply them within the context of the real-world issue of Marine Plastic Waste.

### Lesson Summary

#### Lesson 1: What is Design Thinking?

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

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

#### Lesson 2: Empathy 1

Stanford Design School's five-chairs exercise encourages students to learn how to develop design principles for a user profile. Students consider the 5 users' needs and develop ideas on paper and create 3D prototypes of their designs. This activity encourages students to iterate on their designs and practice using different materials.

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

#### Lesson 3: Empathy 2 Mapping the User

This lesson facilitates learners to develop further insight into specific users and develop an understanding of their needs and interests. Building on Lesson 2, learners develop their understanding of empathic design and the steps required for empathic / user design.

Resources include: Stakeholder Mapping worksheet, User Journey Map, Understanding the User worksheet.

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## MM6: Problem to Pitch Marine Plastic Waste



### **Problem to Pitch Marine Plastic Waste**

#### **Lesson 4: Defining the Problem**

In this lesson, students will begin to understand how to define a problem. Students 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. Students also have an opportunity to develop an awareness of a local problem.

Resources include: Define the Problem support sheet, Problem Tree worksheet, Problem Tree Teachers Guide, Flipped Classroom Task: Problem search.

#### **Lesson 5: Defining the Problem 2.0**

Learners will begin to research aspects of Marine Plastic Waste, in particular the Fishing Industry, and key aspects of Marine Plastic Waste ecosystem.

Learners will research net manufacturers, net transport, net waste, fishers, activism, and community impact and collate their findings.

Resources Include: Define 2 - Fishing System / Ecology.

#### **Lesson 6: Ideate 1.0 Worst Idea Ever - Good Idea / Bad Idea**

This lesson 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: Support sheet - Worst idea ever background, examples and ways to use facilitate the lesson.

#### **Lesson 7: Ideate 2 Generating and Remixing Ideas**

This lesson enables students 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 8: Ideate 3 Exploring Biomimicry for Design**

In this lesson, learners are introduced to the concept of Biomimicry and through a practical activity develop potential ideas and assess them for their potential.

Resources include: Biomimicry worksheet.

#### **Lesson 9: Prototyping 1 - Circular Design and the Life Cycle Analysis**

In this lesson, learners are asked to consider a product case study for its sustainability and learn how to break down the 'system' in which the design / product is part of. Learners will then apply this skill to thinking about their own possible ideas by undertaking a life cycle analysis by considering the input processes and inputs involved.

Resources include: Life Cycle Analysis Case study including Spider map , Life Cycle Analysis tools Zone Mapping and Support Sheet: ROLE Life Cycle Analysis.

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## MM6: Problem to Pitch Marine Plastic Waste



### **Problem to Pitch Marine Plastic Waste**

#### **Lesson 10: Prototyping 2**

In this lesson, students will learn some key skills for prototyping and 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: Concept statement worksheet, Rapid Response prototyping worksheet, and Ready, Set, Design worksheet.

#### **Lesson 11: Prototyping 3**

Learners continue to develop their prototype. Learners can also be introduced to the worksheets in Lesson 15 to enable them to begin to expand their concepts for their vision boards and Pecha Kucha.

#### **Lesson 12: Test Your Idea 1.0**

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

Resources Include: 5 Ws of Business planning, Create your idea / vision board worksheet

#### **Lesson 13: Peer Assessment and Developing Pitch Criteria.**

In this lesson, learners will define their peer assessment criteria. Peer assessment enables those directly involved in the task or project to appraise their own learning. Learners are encouraged to consider what is most important, valuable, and successful from what has been learned and the process of learning it.

#### **Lesson 14: Pecha Kucha**

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

Worksheets include: Pecha Kucha Analysis

#### **Lesson 15: Test your Idea 2.0 - The Pecha Kucha Pitch**

The Pecha Kucha format enables learners to develop confidence and competence in sharing their ideas and presenting their work. In this lesson, learners begin to understand messaging / storytelling, the relationship between image, text, and oral presentations, and transferable skills that they will use in many contexts.

Resources include: Pecha Kucha Planning Guide, Pecha Kucha Outline, Pecha Kucha Checklist Pecha Kucha Lean Canvas and Zone Map, Lean Canvas

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## MM6: Problem to Pitch Marine Plastic Waste



### Problem to Pitch Marine Plastic Waste

#### Lesson 16: Test your Idea 2.0 continued

Learners, complete their presentation cross-referencing with the Lean Canvas and 5 Ws of Business Planning worksheet that they have gathered and present all the information for their pitch.

Resources include: The 5 W's of Business Planning, Lesson 15 worksheets on Pecha Kucha Planning

**External expertise: Marine Plastic Waste Sprint concept and module design: Dr. Anita McKeown, originally developed through CoDesRes and iterated through the Sea Synergy MARplas project**

**Sprint development and expertise: Dr. Tara Baoth-Mooney and Dr. Colin Keogh.**

#### 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](mailto:hello@futurefocus21c.com)

For more information on the resources please visit [www.muinincatalyst.com](http://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.

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.

#### 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: [Setting up a Canva Education account](#):

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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### Learning about Complex Systems

Why are systems complex? [https://www.youtube.com/watch?v=FW6MXqzeg7M&ab\\_channel=SustainabilityScienceEducation](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 list 3 areas you could use Design Thinking to work on an aspect of climate change.



- 1.
- 2.
- 3.

If you are interested in complexity and systems thinking here's a few more videos you might find interesting.

- Jamming on complexity [https://www.youtube.com/watch?v=WT\\_zUxRTEjA](https://www.youtube.com/watch?v=WT_zUxRTEjA)
- Boundaries define complex systems <https://www.youtube.com/watch?v=9o21WKsM4U8>



### 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 -

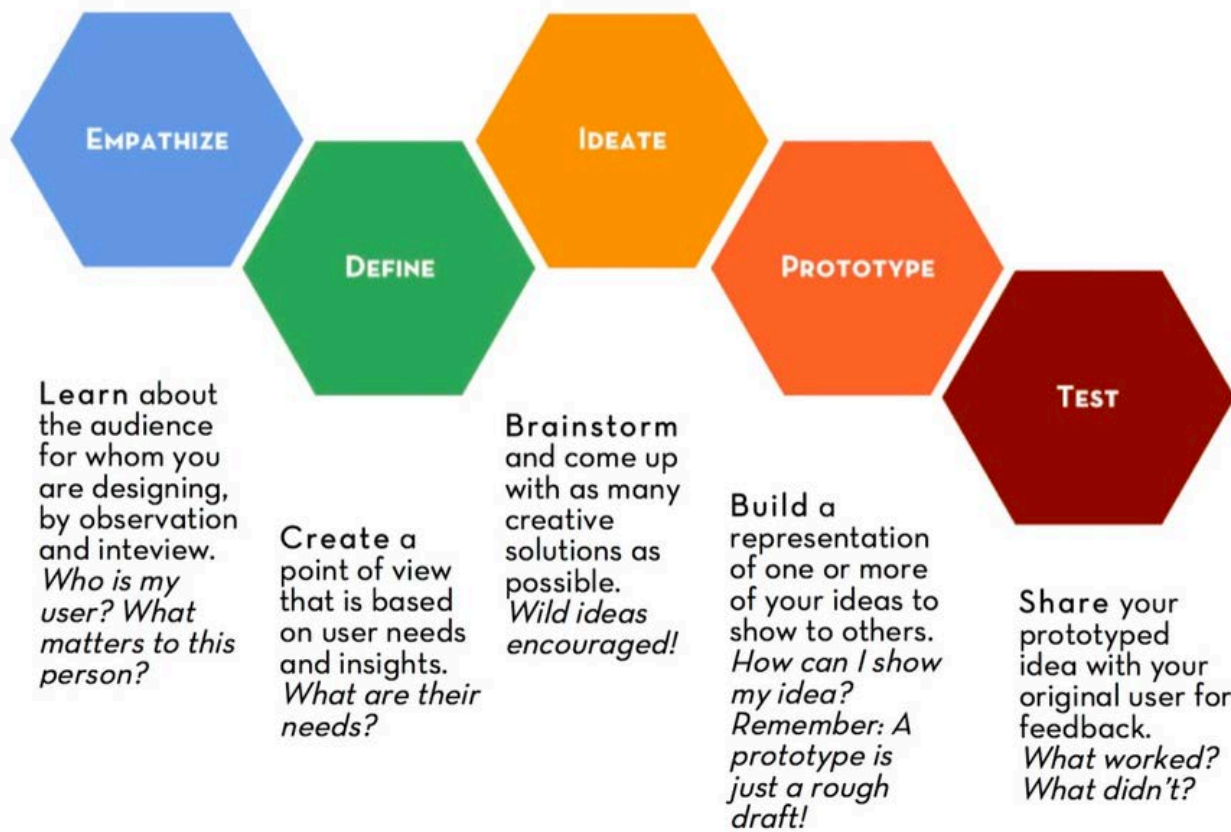
3. Culture -

4. Stakeholders -

Your answers will be shared with the class 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.



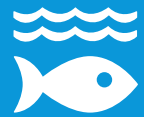
Empathise - Most projects will involve people at some point. What might you need to think about - Discuss with your partner and write down 3 things that might matter to a user / audience member:

- 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:

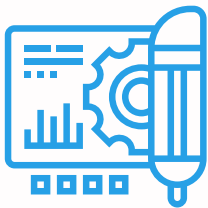
1

2.

Good Ideas:

1.

2.



Prototype- using only 1 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?





Grandad is an old man who is achy and sometimes a bit grouchy. He has trouble getting around, so he walks with a cane. He also has difficulty getting into and out of his chair, though he sits in his chair most of the day.



Maggie is a 1 year old who loves to play and crawl around everywhere. Maggie likes to explore on her own and be independent while she sucks on her dummy. When it's time for her to sit still she gets whiny and squirmy.



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 needs to sit down and drink his Sprite. Neil also has a bulky space suit that often gets in the way.



Lisa is a marathon runner who runs every single day. She hates being stationary, and because she exercises so much she has really sore muscles. When she finally does sit down it's really important that her chair be very comfortable to help her relax and recover for her run the next day.



Ralph is at secondary school and spends 8 hours a day in class. Most of the time, Ralph has to sit in uncomfortable chairs, sitting up and facing the front of the room. When Ralph moves between classes, he carries a large backpack. When he gets to class he needs a place to put his stuff.



## Stakeholder Mapping

A project's stakeholders are the people or groups of people who can impact or are impacted by a project. When 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.

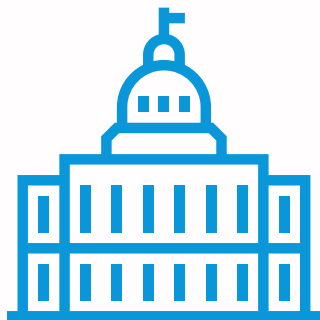
Individually, or as a class, create a list of all the different individuals, groups, or organisations that you can begin to identify and categorise who you might need to discuss or share your project with.



SERVICES / PROVIDERS



USERS / BENEFICIARIES



GOVERNANCE

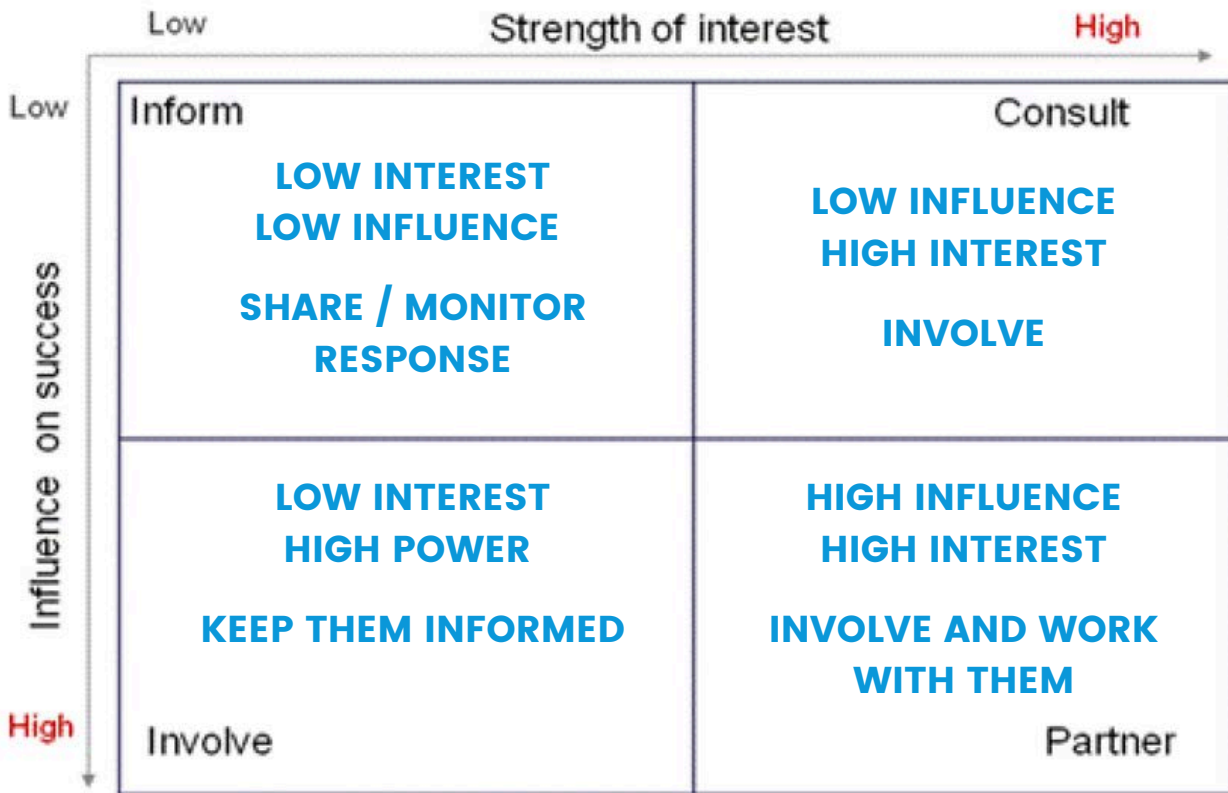


INFLUENCERS



## DIFFERENT WAYS OF MAPPING

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



### 2 Practice Examples:

1. You are developing a climbing frame in a park - using fishing net offcuts. Use your own town / village and pick the most central spot.

Use the grid above to organise your list of stakeholders and how you will need to communicate and engage with them.



2. You are want to create an event to raise awareness about marine plastic in your your town / village.

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 once you have your own project idea.**

## MM6: L2 and L3WS Empathy Map

What does your user think and feel?

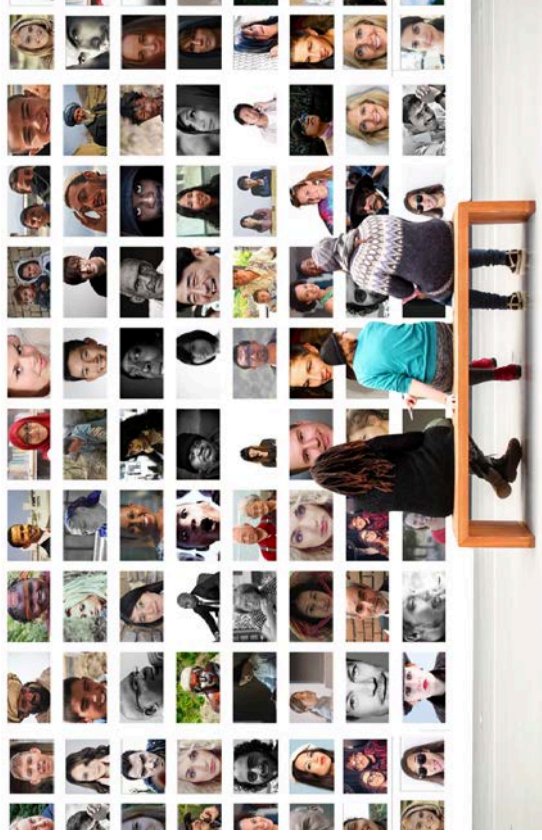
- What really matters to them?
- What do they think about?
- What are their worries, dreams or aspirations?

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



SEE

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?

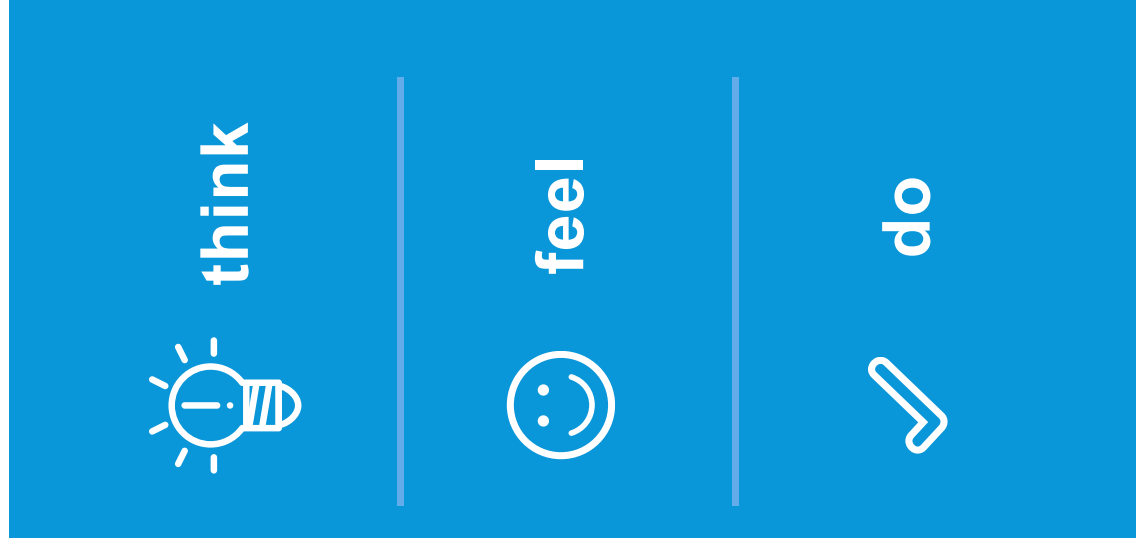
WHAT DO THEY SAY AND DO

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

14  
LIFE BELOW  
WATER



## MM6: L3WS User Journey Map



### EXPERIENCE

### AWARENESS

### ENGAGEMENT

### AFTER PLAYING



think

What is your product's purpose?

What makes your product / idea different?

How will people use your product or access your product ?

Why will people keep using your MVP / Service?



feel

How do you want your product to look or feel?

What do you want people to notice about your product?

How do you want people to feel about your product?

How do you want your user to feel after using your product?



do

What will you need to do to make it look / feel this way?

What research will you need to do to make sure this happens?

How will you know if you have been successful?

How will you follow up with your users / clients?

## MM6: L2WS Understanding the User

This worksheet helps you think about your users and any issues they might have

● What's the Problem - A      ● Empathy A, Step into the problem

● Possible ideas / Solutions:

● What's the Problem - B      ● Empathy B, Step into the problem

● Possible ideas / Solutions:

● What's the Problem - C      ● Empathy C, Step into the problem

● Possible ideas / Solutions:

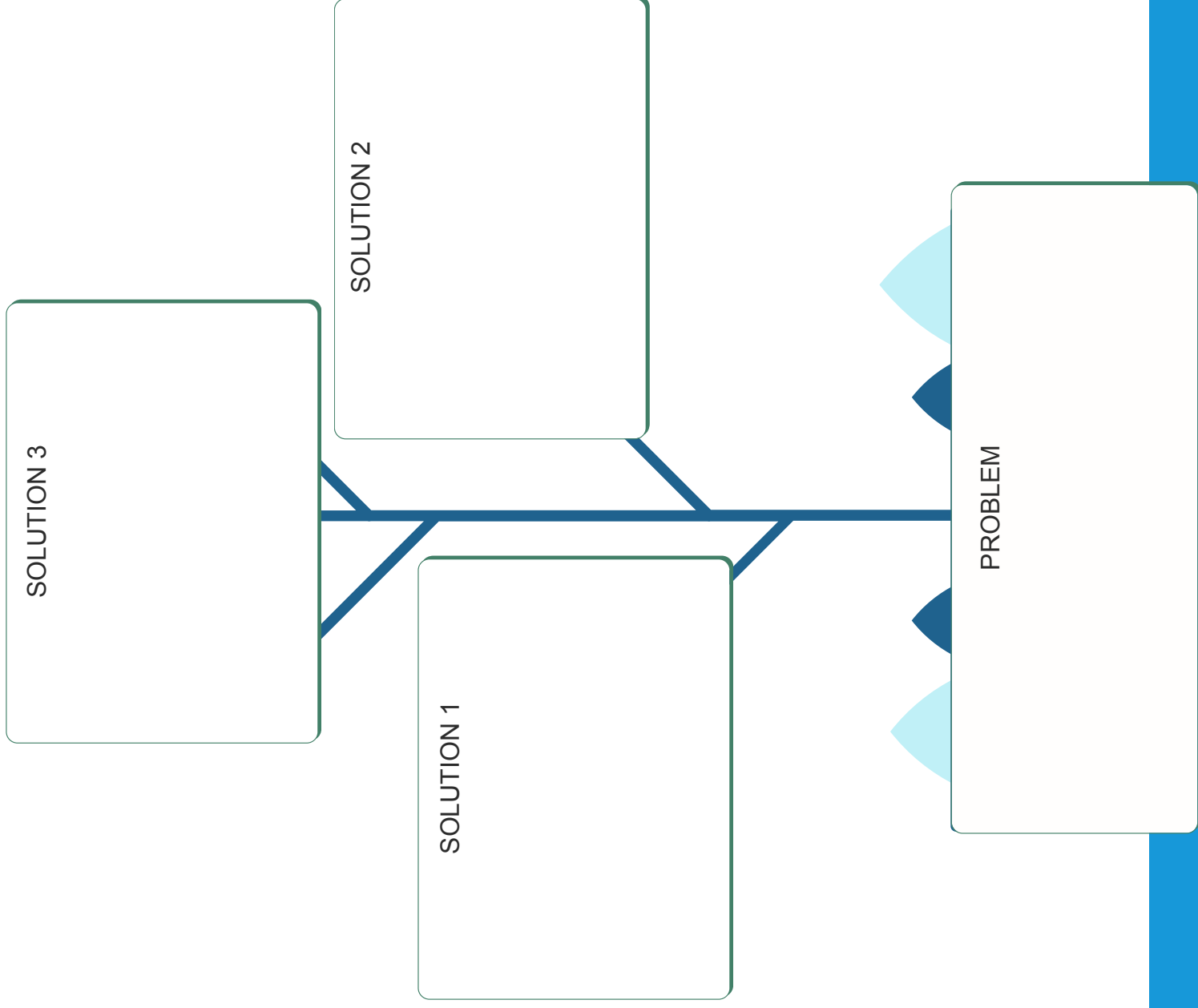
Name: \_\_\_\_\_ Date: \_\_\_\_\_



# MM6: L4WS PROBLEM SOLVING TREE

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

I choose solution number \_\_\_\_\_  
because \_\_\_\_\_





## MM6: L4SR PROBLEM SOLVING

### 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 early!**

- 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?



Watch: 'What is a problem statement "

[https://www.youtube.com/watch?v=ezip\\_yt4kDA](https://www.youtube.com/watch?v=ezip_yt4kDA)

**In your own words write:**

1. Write the meaning of a PROBLEM STATEMENT.
2. Give a definition of PROBLEM STATEMENT.
3. Write an explanation of what a PROBLEM STATEMENT is.

**Your Answers:**

1.

2.

3.

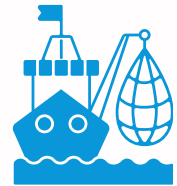
**Try to construct a problem statement for the local problem of Marine Plastic Waste:**

**Local search: Using the internet or local newspapers and newsletters, make a list of local organisations or stakeholders that are undertaking local initiatives dealing with Marine Plastic Waste - you can also do a county wide search:**



## OBSERVATION: What do we know about the problem?

- How are nets made?
- Where are they made?
- How do they get to Ireland?
- What is the issue with synthetic nets?
- What is the impact of synthetic nets?
- What policies are there around this issue?
- Who does it effect?
- How does it effect them?



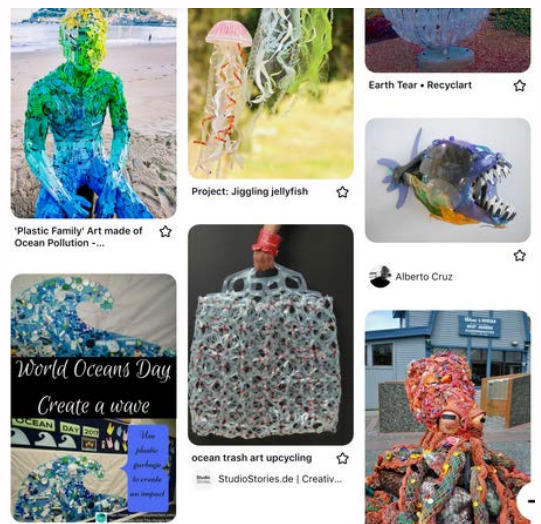
## SELECT AN AREA OF THE FISHING INDUSTRY AND GATHER AS MUCH INFORMATION AS YOU CAN

- Fishers
- Net Manufacturers
- Net materials and Processing
- Marine Charities and Education Groups
- Community groups and Local groups

You can use Google and Pinterest as a research tool.

Once you have completed the task, set up a Pinterest board and save images to the board, with images from your category.

Share the boards with the whole class, so you can see the whole system you have researched quickly. [www.pinterest.com](http://www.pinterest.com)





Work through the questions relevant to the industry aspect you are looking at - these will be shared at the end with the other groups to build up a whole picture of the industry

### Net Manufacturers

1. How many net manufacturers can you find?
  - a. Provide their names.
  - b. Where are they based?
2. How do the nets get to Ireland?
3. Who buys them?
4. Are there Irish net manufacturers?
5. What do they do?



### Net Waste

1. What are the issues with synthetic nets?
2. What are the impact of synthetic nets?
3. What policies are there around this issue?
4. Whom does it effect? List them.
5. How does it effect them?



### Fishers

1. What are fishermen having to deal with regarding net waste? Does it effect them and their work?
2. What are they doing about net waste?
3. Are there other organisations within the fishing industry dealing with net waste?
4. How are they managing the issues of waste?

### Some useful links:

- <http://www.bim.ie/media/bim/content/funding-forms/flags/6085-BIM-FLAG-South-West-1.pdf>
- <http://www.bim.ie/media/bim/content/funding-forms/fl>
- <http://www.fao.org/in-action/globefish/fishery-information/resource-detail/en/c/388082/>
- <https://www.worldoceanfest.org/new-blog/2017/6/9/the-impact-of-abandoned-ocean-fishing-nets-on-marine-life>

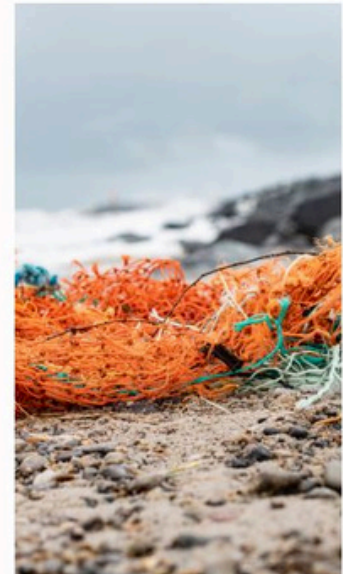
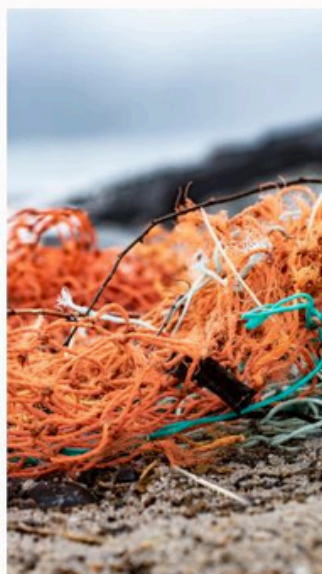
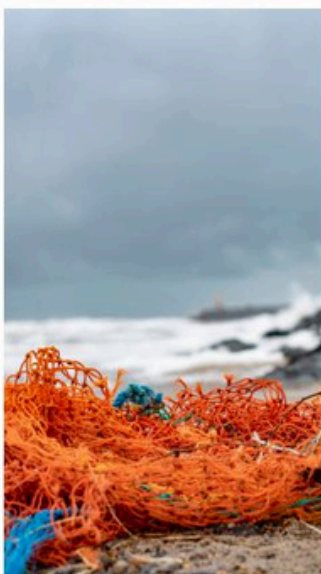


### Marine Activism, Conservation and Education

1. How are marine charities, conservation, and activism groups dealing with the key issues with fishing net industries?
2. Consider the key messages around marine plastic waste campaigns?
3. What types of campaigns are there? Can you categorise them: awareness-raising or practical solutions, are there any other types?
4. What is their message?

### Local Communities

1. What is the impact of net waste on local communities?
2. How are local communities managing the impact?
3. Do you see the impact in your community? If yes, what is it?
4. What organisations are working with net waste in your local community?
5. What are they doing in your local community to deal with the waste?
6. Do you know anyone else in your local community interested in fishing net waste?





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 undrtaking your hobby



What would make it easier to do your hobby

Hobby

Likes

Obstacles

Change

Hobby

Likes

Obstacles

Change



# MM6: L7WS Remix 2 SWOT Analysis

Name \_\_\_\_\_

Date \_\_\_\_\_

This worksheet will help you play with ideas using a SWOT analysis. Fill in the boxes for three different ideas for your teams' project.



**Purpose**



**Strengths**



**Weaknesses**



**Users**

Purpose

Strengths

Weaknesses

Users

Purpose

Strengths

Weaknesses

Users



How does biomimicry help inventors solve human problems through nature-based solutions?

### How Does Nature? Part 1

The following exercise is to get you thinking about how nature does things - looking at this and then thinking about how we can use this in our designs is a very useful start when thinking about design solutions to problems.

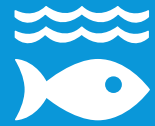
Try to find out 3 examples (any species) of how nature does the following things:

1. How does nature produce energy?
2. How does nature gather and store energy or heat?
3. How does nature heat and cool things?
4. How does nature waterproof things?
5. How does nature propel things?
6. How does nature produce colour and light?
7. How does nature provide shelter?

Learners can watch these other videos in your own time:

- 16x9 – Biomimicry - Sharklet 5:51mins  
<https://www.youtube.com/watch?v=QdFfGvLwAhg>
- Biomimicry is more than just good design 6:58mins  
<https://www.youtube.com/watch?v=r1CpzEGhs3c>

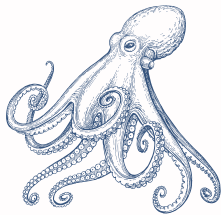




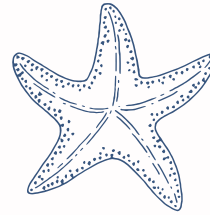
## SPECIES AND THEIR SUPERPOWERS



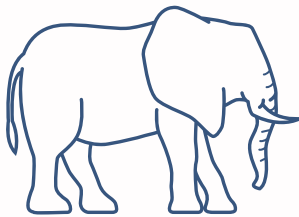
- How much power is in dolphin's thrust and how does it work?



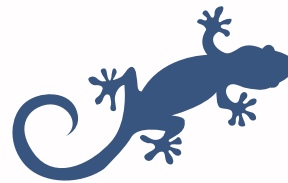
- Find out how an Octopus changes colour?



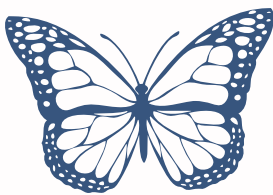
- How does a starfish regrow a limb?



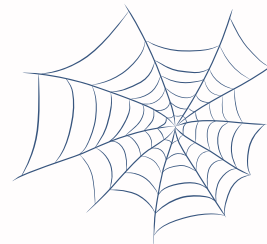
- How does an Elephant's trunk work?



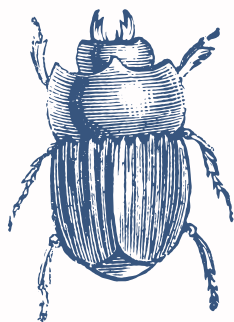
- How can Gecko walk on walls and ceilings?



- How does butterfly wings gleam?



- How strong is a spiders web?



- How does the Namib Desert beetle get water to survive in the desert?

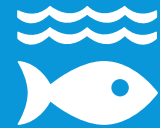


- How does a peregrine go into a dive?



## MM6: L9WS PRODUCT CASE STUDY LCA

14 LIFE BELOW WATER



Consider the complete lifecycle of two nylon jackets and plot their life cycle on the Life cycle analysis chart.

Jacket A Tesco jacket  
Cost €69.99



This jacket is made from a number of different materials including virgin nylon, virgin polyester and PET polyester thinsulate filling.

Nylon/Polyester: Lining is virgin polyester shell is raw virgin nylon. Filling is PET polyester thinsulate.

Fibre made in China. Jacket made in Bangladesh.

Transported by land and sea to a warehouse in Manchester, UK.

Purchased in Manchester at a Tesco store.

Machine Washed at home at 30 degrees.

Discarded after 1 year of wear because seams are unravelling. Jacket is sent to landfill.

Jacket B. Infinity Jacket Napapij  
Cost €250



The material in this jacket is a mono-material: its filling and trims are made from Nylon 6, while its fabric is made from ECONYL® Regenerated Nylon, a high-performance nylon 6 yarn recycled from discarded fishing nets and other waste materials.

Fibre Made in Slovenia. Jacket made in Slovenia.

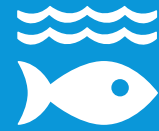
Transported by land and sea to a warehouse in Italy. Purchased online.

Spot Washed at home.

Jacket is worn for 2 years and returned to manufacturer. Through a digital take-back programme the jacket can be returned and recycled into a new garment. ECONYL® Regenerated Nylon can be recycled again and again.

## L9: MM4 PRODUCT CASE STUDY LCA

14 LIFE BELOW WATER



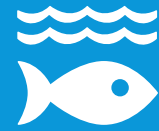
Each phase of the lifecycle should be carefully considered when scoring the jackets on the chart on p3.



- Concept design: Overall need for the product.
  - Materials: How important are the processes and considerations of the materials used?
  - Reducing waste: What will happen at the end of life? And how can this consideration be anticipated at the beginning of the lifecycle?
  - Manufacturing: New technologies for increasing productivity, increasing sustainable impact, and improving factory conditions. Where is this garment made?
  - Transport: How far does this garment travel? Where is the fabric produced? Where is the garment manufactured, etc.?
  - Use phase: Laundry: What levels of Behavioural change might prolong the life of this garment?
- Customisation and personalization: Does this garment have scope for personalization? Adding or taking away elements that might give it added value?
- Durability/ Longevity: How long will this garment last? How can you prolong its life? End of Life/ Start of new life, what about new tech for recycling garments and sorting garments? What is the best case scenario and what is the worst case scenario?
  - End of Use/ Disposal: Reducing waste: Build this into the design. What will happen at the end of life? And how can this consideration be anticipated at the beginning of the lifecycle?

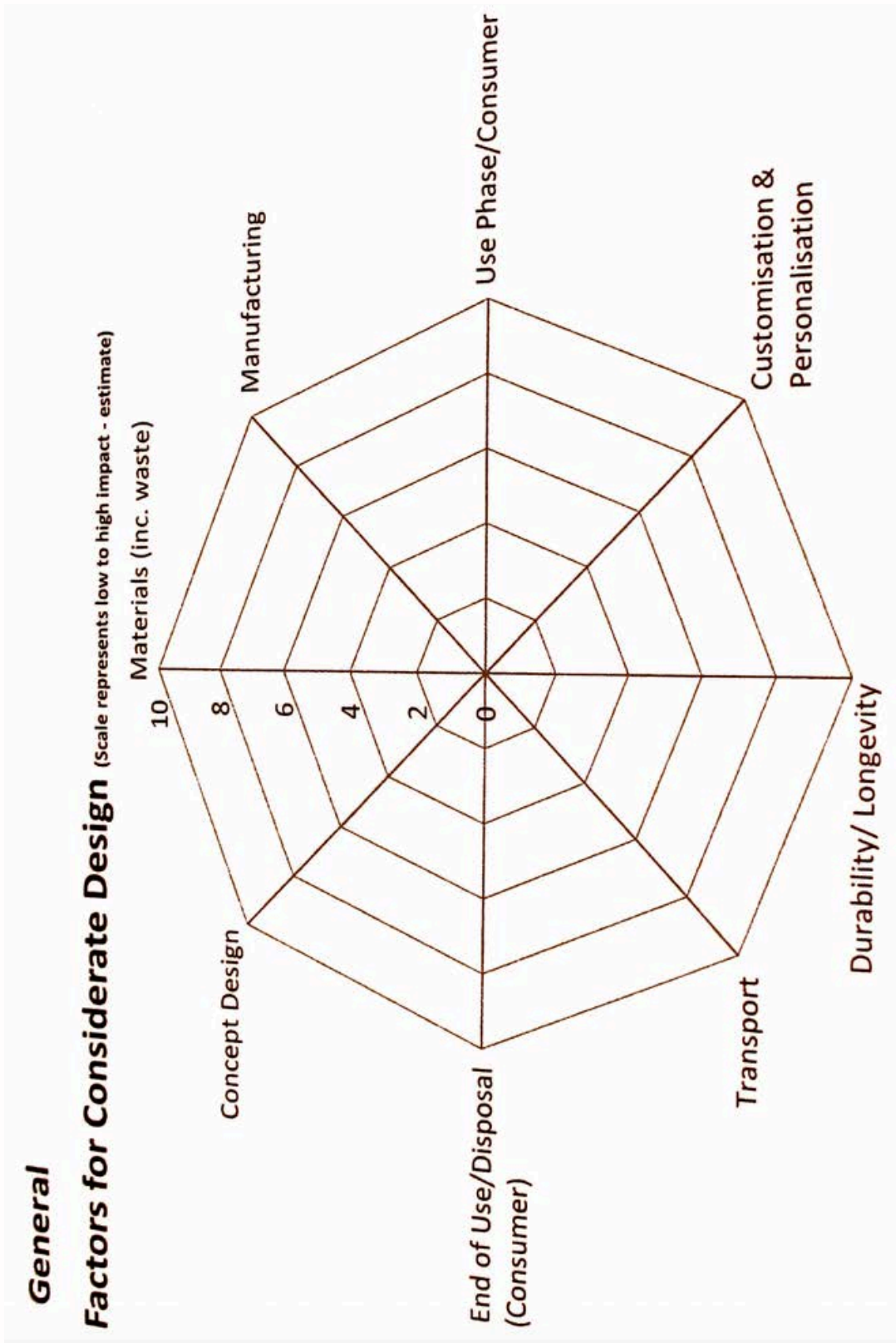
# MM6: L9WS PRODUCT CASE STUDY LCA

14 LIFE BELOW WATER



Each phase of the lifecycle should be carefully considered:

Please score out of 10 for each category with high marks being the worst- case scenario and low marks being the best- case scenario. Add up your scores. Use a different colour pen for each jacket.



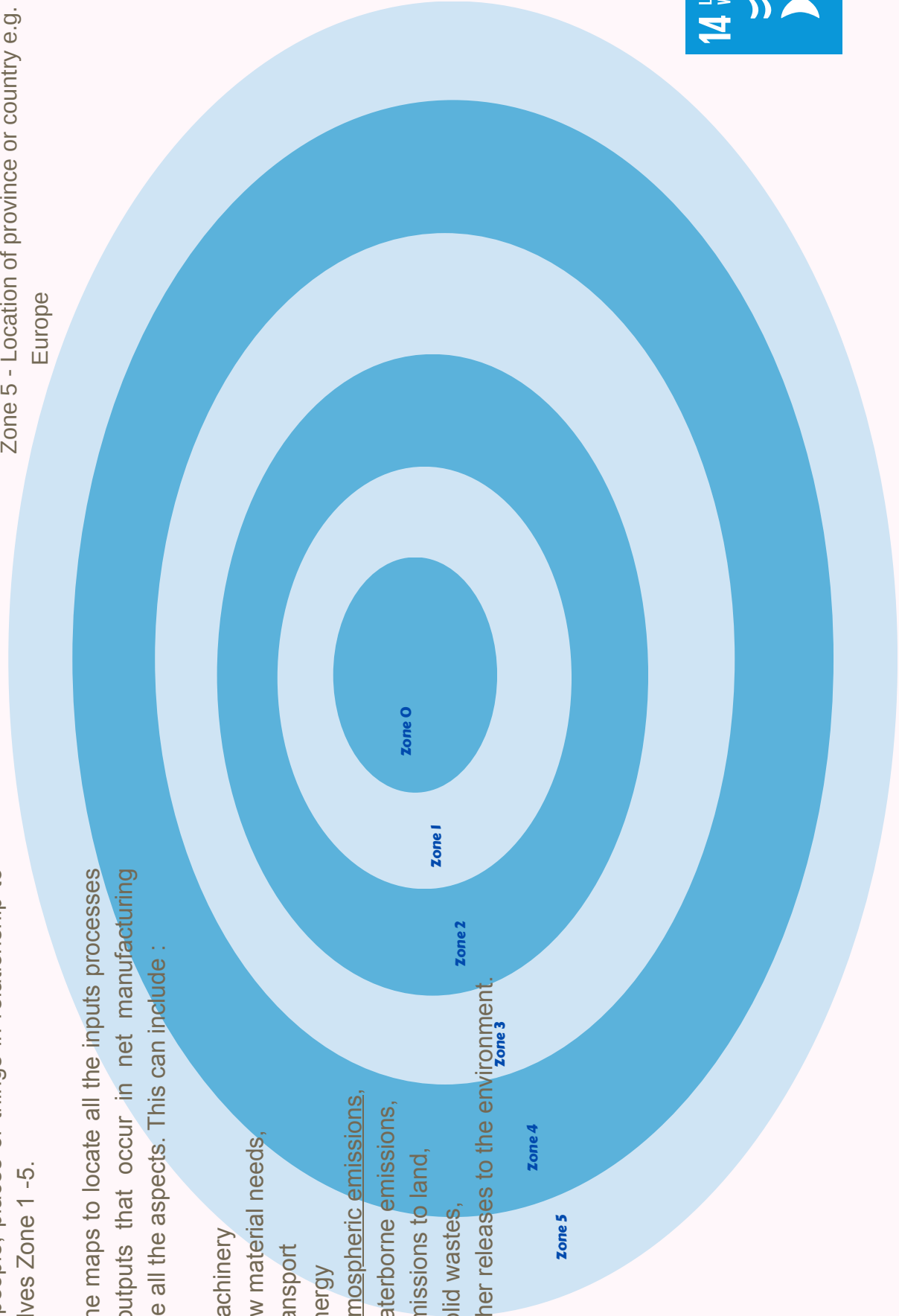
## MM6 I9 INPUTS ZONE MAP EXERCISE

A zone map allows us to start from ourselves, Zone 0, (your project or your town) and include other people, places or things in relationship to ourselves Zone 1 -5.

Use the maps to locate all the inputs processes and outputs that occur in net manufacturing include all the aspects. This can include :

- machinery
- raw material needs,
- transport
- energy
- atmospheric emissions,
- waterborne emissions,
- emissions to land,
- solid wastes,
- other releases to the environment.

- Zone 0 - the self, the project
- Zone 1 - Location of project e.g. school or town
- Zone 2 - Location of school or town
- Zone 3 - Location of town e.g. Iveragh, Kerry
- Zone 4 - Location of county e.g. Munster or Ireland
- Zone 5 - Location of province or country e.g. Ireland or Europe



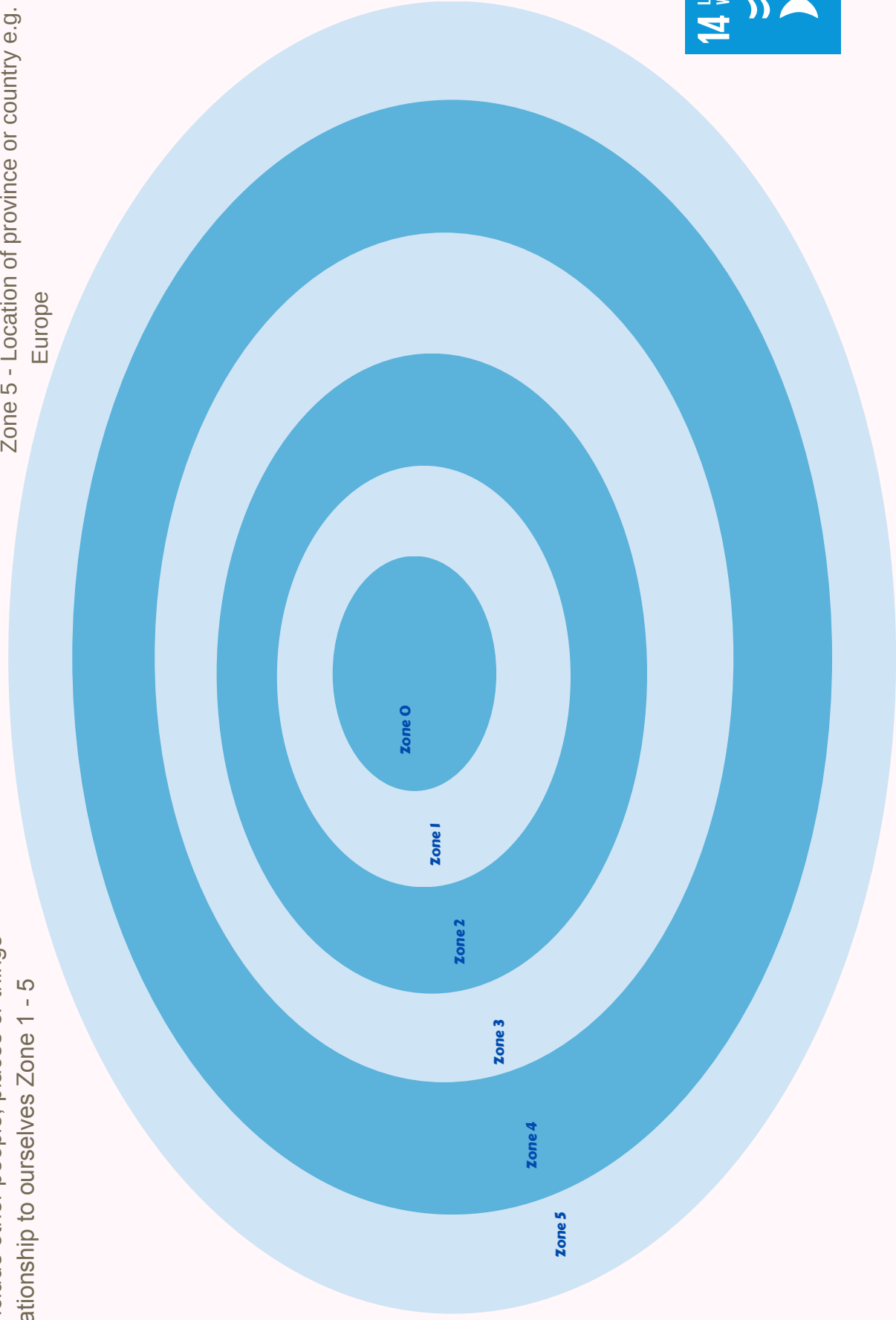
14 LIFE BELOW WATER



## MM6 I9 INPUTS ZONE MAP EXERCISE

A zone map allows us to start from ourselves Zone 0 (our project or our town) and include other people, places or things in relationship to ourselves Zone 1 - 5

- Zone 0 - the self, the project
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- Zone 3 - Location of town e.g. Iveragh, Kerry
- Zone 4 - Location of county e.g. Munster or Ireland
- Zone 5 - Location of province or country e.g. Ireland or Europe



14 LIFE BELOW WATER



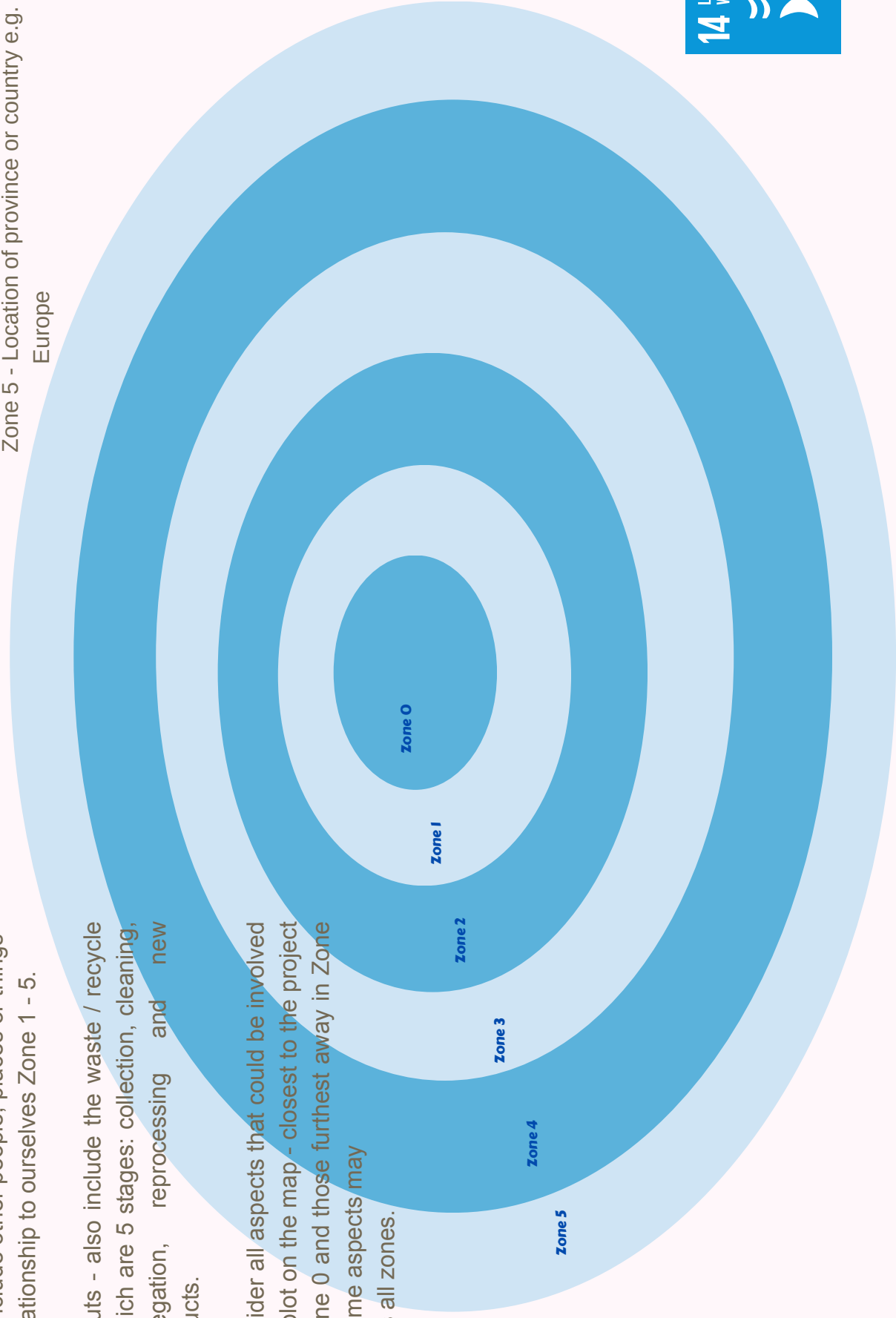
## MM6 I9 INPUTS ZONE MAP EXERCISE

A zone map allows us to start from ourselves Zone 0 (our project or our town) and include other people, places or things in relationship to ourselves Zone 1 - 5.

Outputs - also include the waste / recycle in which are 5 stages: collection, cleaning, segregation, reprocessing and new products.

Consider all aspects that could be involved and plot on the map - closest to the project in Zone 0 and those furthest away in Zone 5. Some aspects may cross all zones.

- Zone 0 - the self, the project
- Zone 1 - Location of project e.g. school or town
- Zone 2 - Location of school or town
- Zone 3 - Location of town e.g. Iveragh, Kerry
- Zone 4 - Location of county e.g. Munster or Ireland
- Zone 5 - Location of province or country e.g. Ireland or Europe



14 LIFE BELOW WATER



## MM6: L10WS CREATING A CONCEPT STATEMENT

14 LIFE BELOW WATER



### 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 your game and its users.

#### 1. Define the need in two sentences



You are developing a product, system, service or solution for... Who? ( tell us about your user / client). To do what? (This is the purpose of the product, system, service or solution include your specific idea / focus).

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



#### 3. Users' / Clients needs - tell us about your user / client and their needs



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





## INTRODUCTION

Watch the following video: 'What is Design Thinking?' This <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.

\_\_\_\_\_

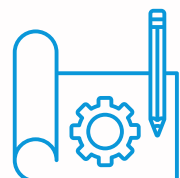
g) What are the five stages of design thinking?

\_\_\_\_\_

\_\_\_\_\_

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

[https://www.youtube.com/watch?v=k\\_9Q-KDSb9o](https://www.youtube.com/watch?v=k_9Q-KDSb9o) Write down as many tips as you can.





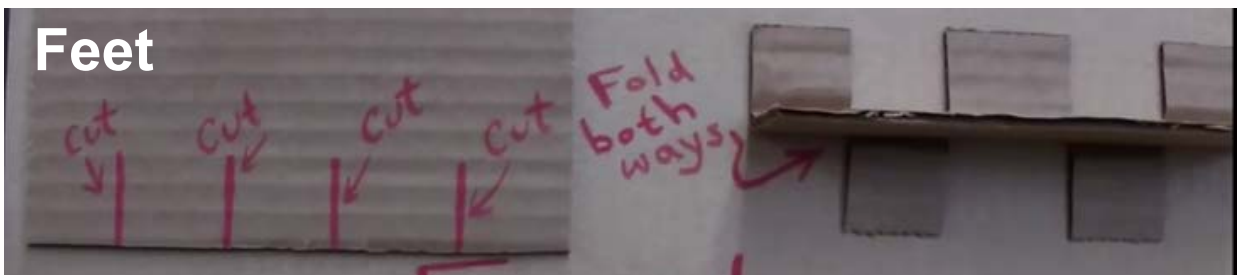
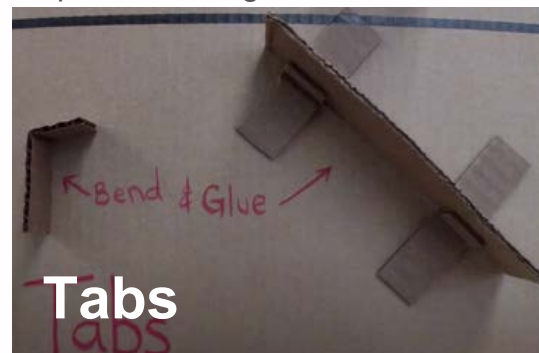


## READY, STEADY, BUILD: KNOWLEDGE GATHERING

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

- Structure
- Fastening / Joining
- Surface

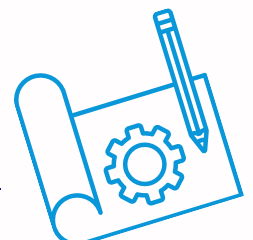
1. Structure - this will provide support and form to your prototype. The structure provides strength by load-bearing if re-enforced or solid, e.g. columns or supports for covering or other materials, e.g. tent poles. Here's some simple tips for creating structure.



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

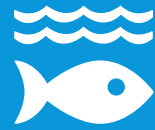
**Write down the key ideas in the video. Use bullet points.**

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

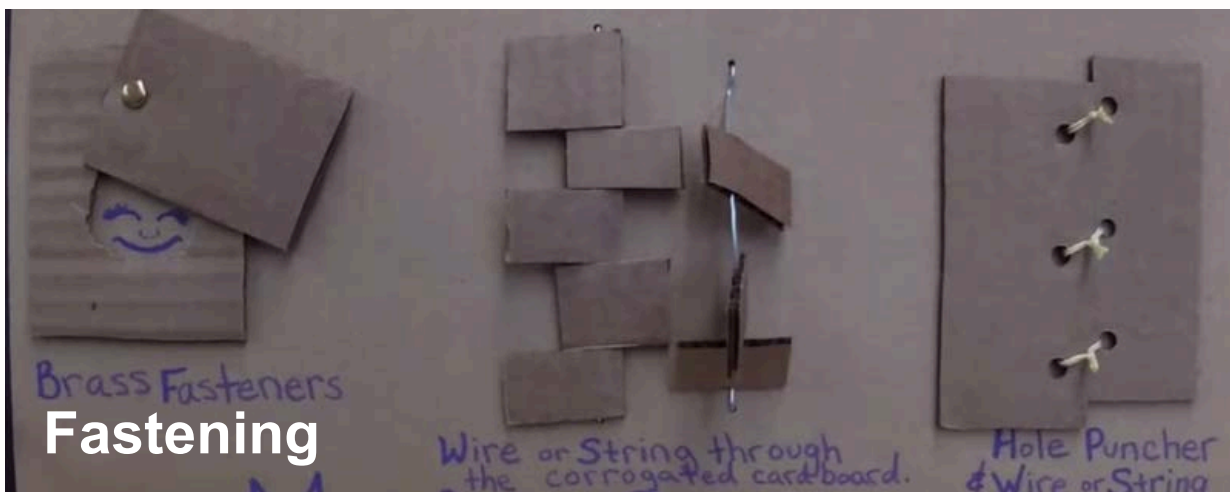


## MM6: L10Ws Rapid Response Prototyping

14 LIFE BELOW WATER



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.



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>

## MM6: L10Ws Rapid Response Prototyping

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



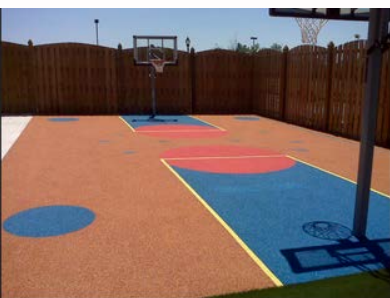
Sometimes they can be structural as well as serving other functions. This surface material could provide support and be used as an attachment or joining function as well as offering a decorative purpose.



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 and easily cleaned and pleasurable to look at.



### 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):

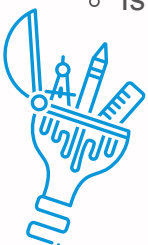
Select one of the following challenges to complete in your team.

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

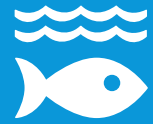
Let's discuss each teams' design. Use these questions to help focus the discussion:

- 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?



## MM6: L12WS VISION BOARD SUPPORT

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Use the boxes below to start making some notes about your idea or project. These will help you with your Vision board and your Pecha Kucha presentation. You can also make notes about image ideas.

Are you working in a team? What is its name? What is your idea for a Marine Plastic Waste Solution?

Tell us more about your idea - what is the story behind your idea, its purpose?

Who are your users / clients? Tell us what you know about them?

How will your idea contribute to reducing Marine Plastic Waste?

What makes your idea / project different? What is your Unique Selling Point - USP?

## MM6: L12WS CREATE YOUR IDEA / PROJECT VISION BOARD

14 LIFE BELOW WATER



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

Keep it colourful and visual  
Our brains love images.



### STEP 1: THE 'WHAT' OF YOUR SOLUTION

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



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

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

### STEP 3: THE 'WHO' OF YOUR SOLUTION

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



### STEP 2: THE 'WHY' OF YOUR SOLUTION

Use pictures, texts and quotes that help you show how your idea address the challenge and raise awareness of climate change and adaptation for your users.

### STEP 4: THE 'HOW' OF YOUR MARKETING FOR YOUR SOLUTION

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

## MM6: L12WS CREATE YOUR IDEA / PROJECT VISION BOARD



### STEP 5 MATERIALS

You can choose to do your vision board online but if you make it you will need to gather card board, card /paper, glue, scissors, images.



### STEP 6 DECIDE ON WHO WILL DO WHAT

Each person in the group should be responsible for one of the five sections in the image board worksheet.



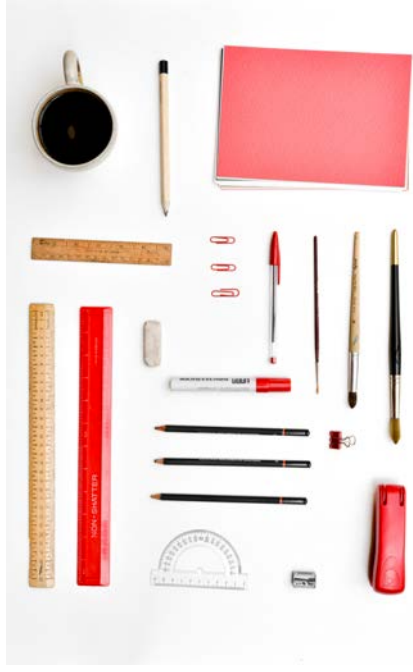
### STEP 7 PLANNING YOUR BOARD

As a group you can start to plan the size, shape and format of your vision board - see examples but don't be limited. It should reflect your project.



### STEP 8 GATHERING IMAGES

Begin to gather images that tell the story of your project - you can use drawings, cut outs, images printed from Google or Pinterest or if digital, you can scan your images online.



### STEP 9 ORGANISE YOUR INFO

You can organise the sections in different ways - think about your audience - who are you trying to reach? Look at examples of posters, communication for that audience.



### REMEMBER MESSAGE AND AUDIENCE

1. Will they read left to right?
2. Will you direct them how to read using arrows or numbers?
3. Will your central idea be the biggest image?

## MM6: L12WS CREATE YOUR IDEA / PROJECT VISION BOARD

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LIFE BELOW  
WATER



### 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 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.

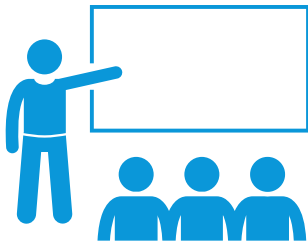
#### Step 4: Import your images into Canva



<https://www.pinterest.ie/sunflowerways/cr-eating-a-vision-board/>



## MM6: L14WS 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.



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

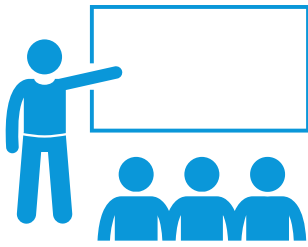
Visit [www.pechakucha.com](http://www.pechakucha.com) and select 2 contrasting presentations. Use the questions in box 2 and 3 to make notes about the presentations.

Pecha 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?

# MM6: L14WS 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.



Team: \_\_\_\_\_

Date: \_\_\_\_\_

Pecha Kucha #2 Title: \_\_\_\_\_

**3**

- 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.

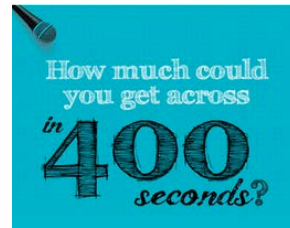
- Who is your audience? - think about their age and interests or what might interest them about your topic.
- What style will you use? - drawings, photos, collage
- What information do you want them to know?



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

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

You can access PowerPoint through Office 365

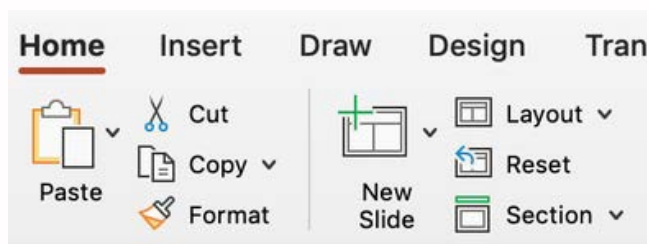


- **How to make a Pecha Kucha**

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

- **Using PowerPoint for a Pecha Kucha**

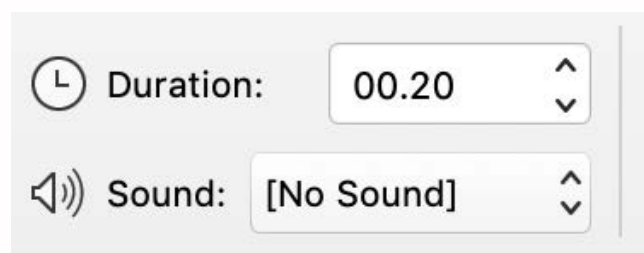
<https://www.youtube.com/watch?v=q0XWIPbXmVY>



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.



- 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

- <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>

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

### 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!

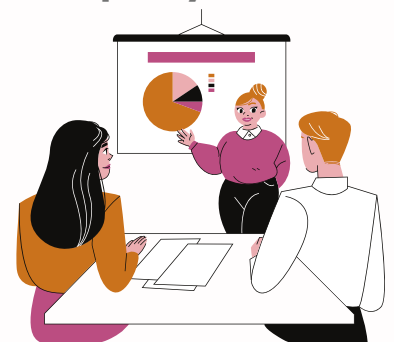
- <https://pixabay.com/>
- <https://www.flickr.com>
- [https://en.wikipedia.org/wiki/Wikipedia:Public\\_domain\\_image\\_resources](https://en.wikipedia.org/wiki/Wikipedia:Public_domain_image_resources)
- <https://blog.hubspot.com/marketing/free-stock-photos>
- <https://blog.snappa.com/free-stock-photos/>
- <https://blog.bufferapp.com/free-image-sources-list>

### 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](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.**

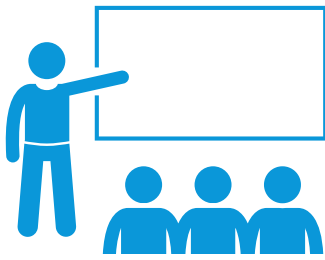
- What tips would you add?
- How would you explain to someone what a Pecha Kucha is?
- How would you explain how to design a Pecha Kucha?



# MM6: L15- L16WSB

## PECHA KUCHA

### OUTLINE



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.



Team: \_\_\_\_\_

Date: \_\_\_\_\_

#### Planning Your Slides

What are the most important things you want people to learn from your presentation? Use the boxes to help you plan your outline.

**1**

Slide 1: Greeting and introduction location

**2**

Slide 2: Introduce the problem or your topic

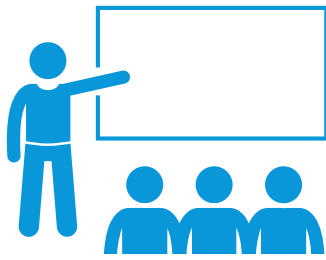
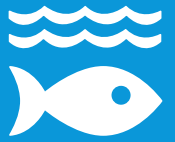
**3**

Slide 3 - 18: The Core of your presentation

# MM6: L15- L16WSB PECHA KUCHA OUTLINE

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.

14 LIFE BELOW WATER



Team: \_\_\_\_\_

Date: \_\_\_\_\_

4

Slide 3 - 18 continued : The Core of your presentation

19

Slide 19: Conclusion - Start to talk about the main message you want to leave with your audience. End with a strong image and thank your audience for listening.

20

Slide 20: References - It is important to reference all the sources you used for the Pecha Kucha. This includes all images, and websites that you used to get your information from.



## 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.

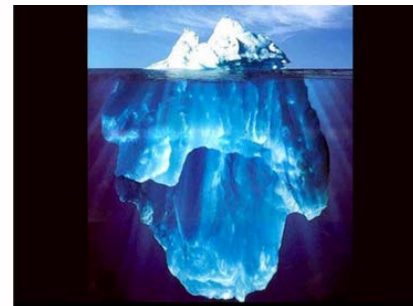


## 2. Tweak Your Outline.

- 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.





# MM6: L16WS LEAN CANVAS

<p><b>Problem</b> List your customer's top 3 problems</p> <ul style="list-style-type: none"> <li>-worry that pet will get lost</li> <li>-worry that pet is up to no good when home alone</li> <li>-miss pet and want a way to connect while at work</li> </ul>	<p><b>Solution</b> 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><b>Unique Value Proposition</b> 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><b>Unfair Advantage</b> 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><b>Customer Segments</b> 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><b>Existing Alternatives</b> 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><b>Key Metrics</b> List the key numbers, that tell you how your business is doing</p> <p>Number of units sold.</p>	<p><b>High Level Concept</b> 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><b>Channels</b> 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><b>Early Adopters</b> 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><b>Cost Structure</b> List your fixed and your variable costs</p> <p>Product design, sourcing of materials, production costs, engineering, marketing, PR.</p>		<p><b>Revenue Streams</b> 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><b>MARKET</b></p> <p><b>PRODUCT</b></p>

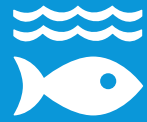


# MM6: L16WS LEAN CANVAS

14 LIFE BELOW WATER



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



WHAT? WHY? WHO? WHEN? WHERE?



1. WHAT Is the problem?

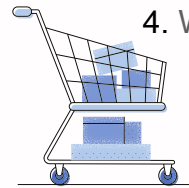
Give 3 reasons for your business, product, or service

2. HOW does your solution 'fix' the problem?



3. WHO will use your solution?

Think of 2 - 3 users



4. WHY should anyone buy / use your solution?



5. WHERE / HOW will you reach your customer?




6. WHAT resources do you need for your business?




## WHAT WHY WHO WHEN WHERE


7. WHAT will it cost?




8. WHAT is the investment?  
How will you make the money you need to fund your solution?



9. WHEN should this be done?



10. WHEN / HOW will you know you are successful?



11. WHAT do you need to do next?

