

Part 2: Advent Calendar 2023

Muinín Catalyst Sustainable STEAM Education for Sustainable Development



Lessons

Day 4 SDG 4 Quality Education: Problem to Pitch, Lesson 1: What is Design Thinking?

Day 5 SDG 5 Gender Equality: Ethical Leadership for the 21st Century, Lesson 3: The First Earth Charter Pillar: Respect and Care for the Community of Life and Leadership

Day 6 SDG 6 Clean Water and Sanitation: Future of the Ocean, Introduction to Ocean Literacy, Lesson 5: Introduction to Ocean Pollution

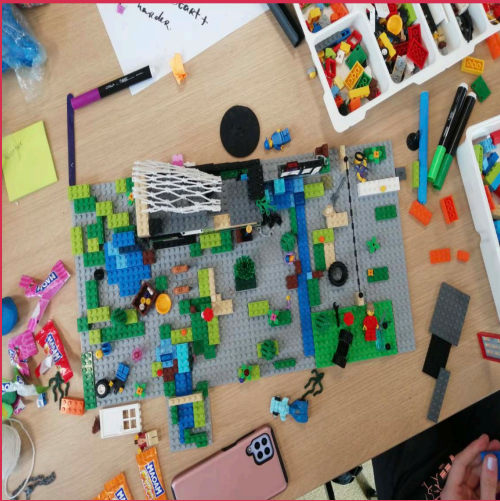
Day 7 SDG 7 Affordable and Clean Energy: Future of Ocean, Offshore Renewable Energy, Lesson 5: Classroom Debate on Onshore vs. Offshore Wind

Day 8 SDG 8 Decent Work and Economic Growth: Future of Fashion, Fashion Design Skills, Lesson 4: Field Trip to a Local Charity Shop

Day 9 SDG 9 Zero Waste: Future of Food, From Food Waste to Food Gain, Lesson 4: Combating Food Waste Together

Day 10 SDG 10 Reduce Inequalities: Ethical Leadership for the 21st Century, Lesson 5: The Third Earth Charter Pillar: Social and Economic Justice and Leadership

Problem to Pitch – Lesson 1



Problem to Pitch - Project Management

Introduction to Design Thinking

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 students to the 5 stages 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:

- Introduction to Design Thinking worksheet
- A4 paper
- Internet access
- Lesson 1 Flipped Classroom worksheet
- Stakeholder mapping activity

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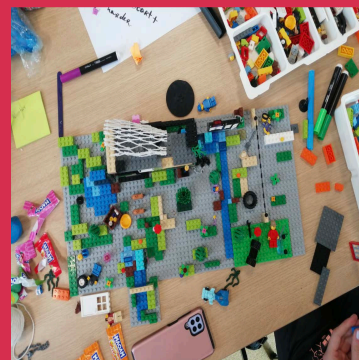
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Problem to Pitch – Lesson 1



Activity Instructions

Activity 1 Introduction to Design Thinking (25mins) Use

- 1) If working digitally share the worksheet or this can also be projected. You can also circulate handouts and ask them to keep all their work in a folder to be assessed at the end of the module. The first activity completes the worksheet up to the section on Define.
- 2) Watch the short video on Design Thinking Introduction worksheet then have students working in pairs to find the meanings of the words and re-write them in their own words.
- 3) Have each pair share their meanings with the class, photograph each groups answers and use this to create a 'group' design thinking vocabulary list / glossary.
- 4) As a class discuss the 5 stages of Design Thinking image – reviewing any terms that are new

Activity 2 – Ideate - Worst Idea Good Idea – (30 mins)

- 1) Allow students 30 minutes to complete the Ideate and Prototype task of the worksheet in pairs. Remind them that they will have to manage their time to allow for the prototyping and testing stage. The aim is not to create masterpieces but to work quickly and experimentally – it should be made clear that given the limitations, it's just to quickly show the idea in 3D.

Have students complete the Flipped Classroom worksheet before the next lesson.

Reflective exercise – see below (5 mins)

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 remove activity 2 and spend more time in building the collective vocabulary list – have each student type up their words and definition and add to a shared document.

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

If students have project themes in mind they could also begin to research their stake holders and local organisations through the stakeholder mapping worksheets – see media box

Problem to Pitch – Lesson 1

4 QUALITY
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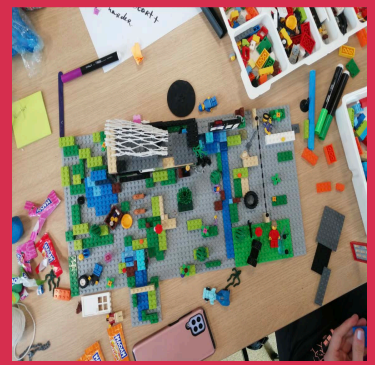
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ACTION



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

- **Design thinking Mindsets**
<https://drive.google.com/file/d/0B9jWVyCVFZu6RWFSem1TYIljeEU/view>
- **Design Thinking introduction worksheet**
- **Flipped classroom worksheet** - introduction to complexity
- **Stakeholder Mapping worksheet** supports students 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 and SDG 4 supporting Skills - reports.

SDG Focus: See Introduction to Sustainable Development Goals lessons

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

To focus on SDG 14: combine SDG 4 Problem to Pitch with SDG 14 Problem to Pitch Marine Plastic Waste micro-module lesson plans and worksheets

Local Trip / Expertise / Additional Work and Assessments

If students have some ideas or issues they wish to work with have them undertake a local stakeholder mapping to begin to find out what's in their area.

Have students complete Lesson 1 Flipped classroom on wicked problems for next lesson

Have students complete a stakeholder mapping of their local place – village, town or city.
See also stakeholder mapping sheet additional tasks

Encourage students to keep a folder of all their work and worksheets of the Design Thinking module

LESSON 1 DESIGN THINKING INTRODUCTION

4 QUALITY
EDUCATION



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

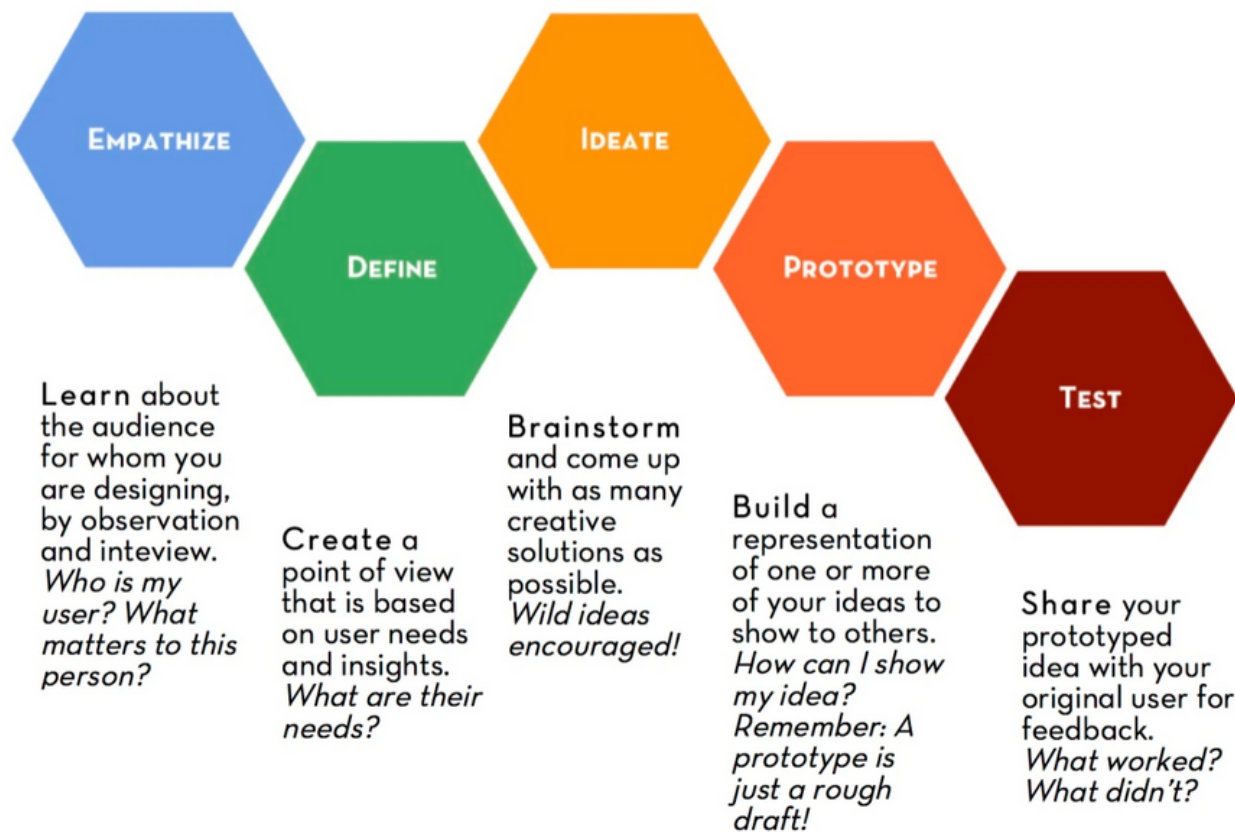


LESSON 1 RECORDING INFORMATION

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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.

LESSON 1 RECORDING INFORMATION

4 QUALITY
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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.

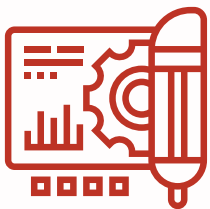
Good Ideas

1

1.

2.

2.



Prototype– using only 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?

DESIGN THINKING STAKEHOLDER MAPPING 1

4 QUALITY
EDUCATION



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**



GOVERNANCE



INFLUENCERS

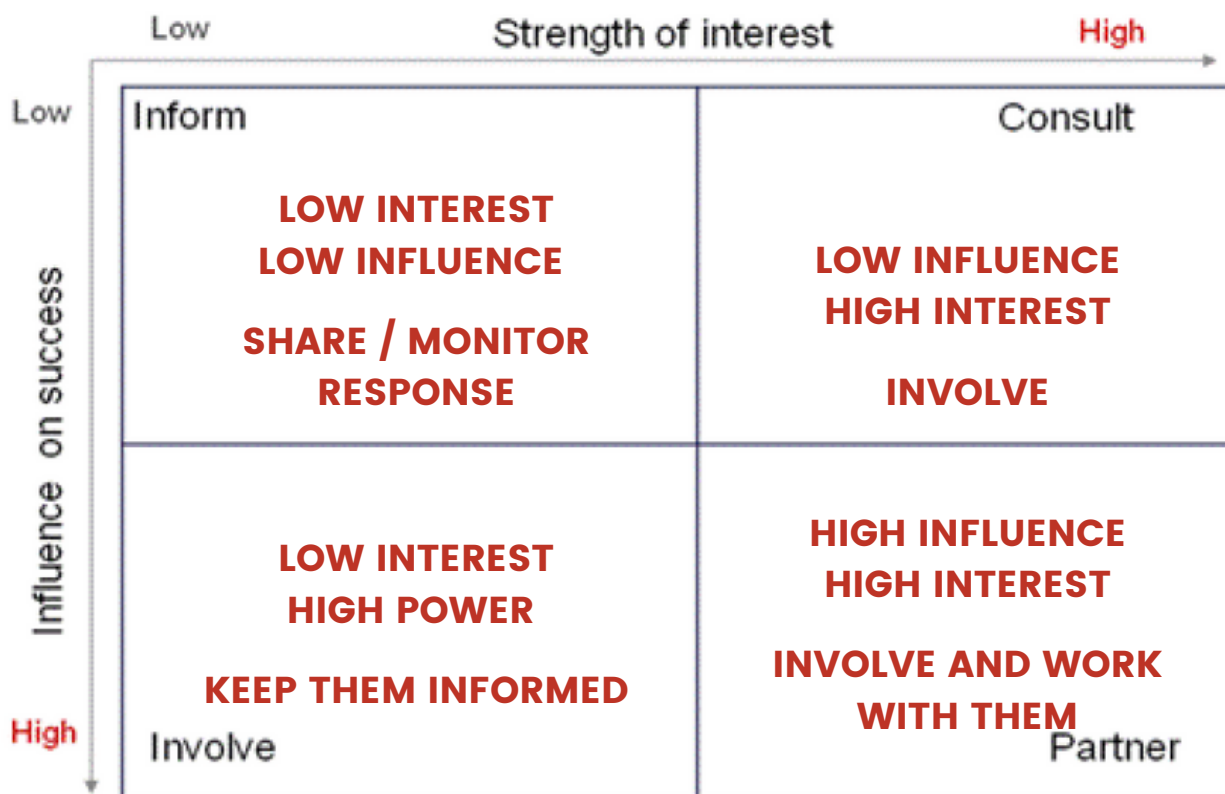
DESIGN THINKING STAKEHOLDER MAPPING 1

4 QUALITY EDUCATION



DIFFERENT WAYS OF MAPPING

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



1. You are developing a skate park in a square in the centre of town – 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 a youth music festival for 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..



LESSON 1 FLIPPED CLASSROOM ACTIVITY

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=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



SDG14 Future of the Ocean Leadership for the 21st Century



Micro-Module 2: MM2: Ocean Leadership for the 21st Century

Research and Development

Lesson 3 Lesson Title and Summary: The First Earth Charter Pillar: Respect and Care for the Community of Life and Leadership

Subject Areas: CSPE,
Climate Action and
Sustainability English,
SPHE

Lesson Title and Summary: The First Earth Charter Pillar: Respect and Care for the Community of Life and Leadership

Respect and empathy are core traits of effective leadership. Transferable skills applicable to all areas of human and Earth living involve having respect for and caring for others, including nature.

We are better placed for responsible decision making, perspective taking and inclusive approaches to work and life.

This lesson will analyse the connection between respect and care, gratitude and compassion within leadership in relation to the community of life - human and all life on Earth.

Vocabulary:

Care, Compassion, Empathy, Gratitude, Positive Mindset, Problem Solving, Respect, Well-being, Venn Diagram

In this lesson, the learner will:

- brainstorm what it means to be respectful and to care for self, others and all life
- explore the actions and values required to ensure respect and care of all
- discuss the connection between respect and care, and wellbeing

Materials

- Worksheet: Respect and Care for Self, Others and All Life
- Worksheet: Earth Charter in Action
- Worksheet: Venn Diagram
- Worksheet: Case Study Template
- Support Sheet: Teacher's Notes
- A3 paper
- Pens, coloured pens, pencils



SDG2 Future of Food Leadership

Lesson 3 The First Earth Charter Pillar



Activity Instructions

Activity 1 - Respect and Care for Self, Others and All Life (10 mins)

1. Write the words "respect" and "care" up on the board or project on the screen and invite learners (individually) to take one minute to list what these two words mean to them.
2. Group learners in pairs to think back and share their ideas on their understanding of what they learned about The Earth Charter and particularly the first pillar.
3. Next, direct learners to Worksheet: Respect and Care for Self, Others and All Life. Go through instructions checking understanding as you go.

Activity 2 - Actions and Values (20 mins)

1. Put learners into groups of 3. Using Worksheet: Earth Charter in Action, ask learners to select one case study per team member to research.
2. Use Worksheet: Venn diagram to make notes on their chosen case study and compare case studies and and work together to complete centre of the Venn Diagram.

Activity 3 - Respect, Care, Leadership Connections (20 mins)

1. Divide learners into groups of three and give each group an A3 piece of paper, a pack of coloured felt pens and instruct them to write the words "respect", "care" and "wellbeing" in separate bubbles on their paper. then to write "self", "others" and "all life" in further separate bubbles.
2. Invite students to share ideas, explore, discuss and explain connections between respect and care in relation to leadership specifically how and why they connect using evidence from prior learning.
3. Set a time limit of 15 minutes and allow 5 minutes for groups to explore eachother's ideas.

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

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

SDG2 Future of Food Leadership

Lesson 3 The First Earth Charter Pillar



EXTENSION / REDUCTION ACTIVITIES

Reduction: For a shorter class, reduce timings of Activities 1 & 2 and set Activity 3 as an out-of-class activity..

Extension: For a longer class, extend timing of Activity 2 and add presentation time after completion of Venn Diagrams. Encourage all members of each group to have speaking time and listeners to ask questions. Instruct groups to add interesting points from other's Venn diagrams to their own.

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

VIDEO What is a Venn Diagram? Nicole Harcos [3:03 min] <https://youtu.be/lnall7eVQsQ>

WEBSITE Hannah Herbst

<http://www.hannahherbst.com/mystory.html>

WEBSITE Ellen MacArthur

<https://ellenmacarthurfoundation.org/about-us/ellens-story>

The Ellen MacArthur Foundation

<https://ellenmacarthurfoundation.org/topics/plastics/overview>

WEBSITE Sylvia Earle

<https://www.womenshistory.org/education-resources/biographies/sylvia-earle>

Mission Blue <https://missionblue.org/about/>

Local Trip / Expertise / Additional Work and Assessments

As a case studies exercise, have them produce a case study on selected person using the worksheet Case Study Template and create a Venn diagram relating to how respect and care in leadership impacts collective wellbeing.

As this lesson focuses on respect and care as well as leadership, learning here may be linked to Passion 2 Purpose lessons: Empathy 1 and What Are Your Passions and Gifts?

LESSON 3:

EARTH CHARTER PILLAR 1

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AND PRODUCTION



RESPECT AND COMPASSION FOR SELF, OTHERS & ALL LIFE



- In pairs, share your responses to the prompt written on the board by your teacher and remember compassion is a learnt practice to be cultivated over life
- Remember to actively listen to each other and to take turns in sharing.



- Below are questions to explore the concepts of "respect" and "care" further.
- Work in you pairs to discuss ideas to these questions. You may take notes below.

**WHAT DOES IT
MEAN
"TO RESPECT" ...**

**WHAT DOES IT
MEAN
"TO CARE FOR" ...**

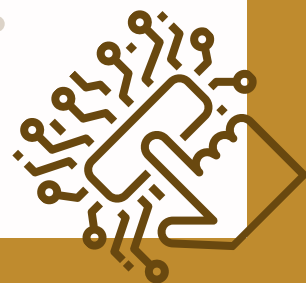
What happens
when someone
feels respected
and valued?

**SELF
OTHERS
ALL LIFE**

What happens
when someone
feels cared for?

Why is being
respectful
important?

Why is caring
important?



LESSON 3: EARTH CHARTER IN ACTION

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AND PRODUCTION



**HOW DO CHANGE MAKERS TAKE ACTION AND
WHAT VALUES DO THEY HAVE TO ENSURE
RESPECT AND CARE OF ALL?"**



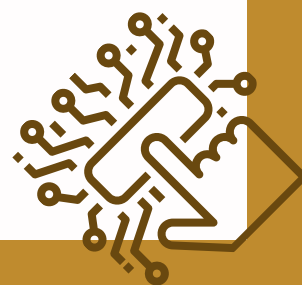
**Truth, justice,
forgiveness, and
equality**

Each group member choose one of the following
people to read about:

1. Malala Yousafzai
2. Greta Thunberg
3. Jane Goodall

Go to the following websites for information and skim
and scan the text to identify actions each has taken
and values each holds:

- WEBSITE A Year of Greta Thunburg <https://theyearofgreta.com/>
- WEBSITE Malala's Story <https://malala.org/malalas-story/>
- WEBSITE <https://janegoodall.org/our-work/our-approach/>



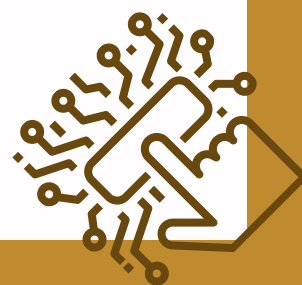
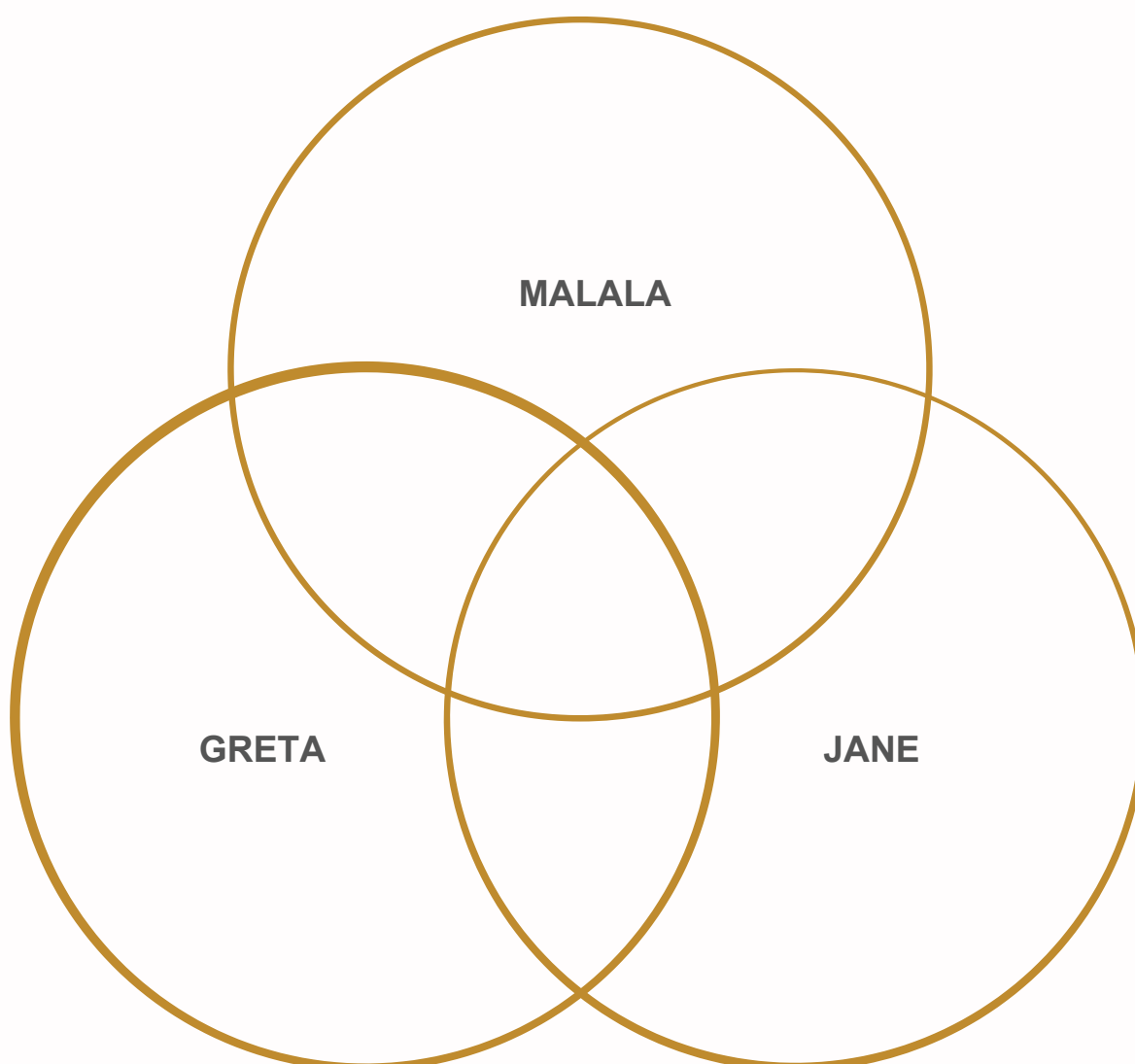
LESSON 3: EARTH CHARTER IN ACTION

12 RESPONSIBLE
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HOW DO CHANGE MAKERS TAKE ACTION AND WHAT VALUES DO THEY HAVE TO TO ENSURE RESPECT AND CARE OF ALL?"

In your groups, discuss and take notes using the double Venn diagram, which asks you to collaboratively find connections between the actions and values of Malala, Greta and Jane, to help you answer the question at the top of this worksheet.



LESSON 3 : EARTH CHARTER IN ACTION

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Step 1:

Select a case study to investigate: (insert here) _____.

In the space provided draw a tree: trunk , branches/leaves and roots

Example:

- In the trunk:
 - identify the core issue or problem
- In the branches and leaves
 - Identify the effects of the core issue/problem
- In the roots
 - Identify the causes of the core issue/ problem



Problem Tree:



WORKSHEET 1: CASE STUDY TEMPLATE

12 RESPONSIBLE
CONSUMPTION
AND PRODUCTION



Step 2: Using the following questions, research and gather findings on your chosen person and create a case study to present to your peers.

Your main questions you will be answering are:



- What was the core issue of the problem identified by the young person in your case study?
- What was the vision for solving the problem?
- What actions did they take to begin tackling the problem?
- What actions could you take to continue their work?

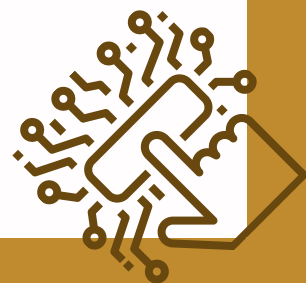
Check with your teacher for your options for :

- Note-taking and information gathering
- Organising information
- Presenting information

Step 3:

Gather and present your findings to a peer for feedback. This process is known as peer review

- Discuss your findings
- Discuss any problems you came across and how you might present them
- Discuss how to make your topic interesting and ask your peer about things they find interesting
- Offer support to each other in making your case study and its presentation the best it can be



WORKSHEET 1: CASE STUDY TEMPLATE

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Research Question Prompts

To help you get to those answers here are additional questions to guide you:



- What do I need to find out / ask about this topic?
- What do I already know about this topic?
- What is the focus question asking me about / to do?
- When is my deadline so I can plan my action points

MORE INFO



- What types of information will I need to complete my research task? (Facts, statistics, instructions, opinions, diagrams, reports, maps)
- What is the best source of information for my topic? (online journals, interviews, blogs, references, cites, newspapers, social media, reports)
- How will I search and what search engines might I use for online searches
- What key words will I use?



- How will I record the information I have found?
- What note making tool will be best for this task / will I use? Onedrive doc, Evernote, Cornell format or pen note book
- What note making format will I use to record my information e.g. spider diagram, matrix, mindmaps
- How will I organise my information (outlines, headings, bold text, diagrams)
- How will I assess and validate my sources of information



- How should I organise my information so that it is presented in a logical accessible way
- Would a graphic organiser help me to organise my information? If so, what one, what is out there
- Should I use key word heading and paragraphs to present my information
- How will I present my information and is there a presentation format required that might suggest a particular way to organise my information?
- Have I answered all the focus questions? If not, do I need to go back and find more information?
- Have I collected all the relevant details for my reference list?



- Can I choose the presentation format to present my information?
- What might be an interesting way to present the findings for my task?
- Does the presentation format suit the audience - what do I need to consider?
- Have I included the relevant information - is there anything to add or lose?
- Have I shown my learning or understanding about the topic?

MM3: LESSON 3 TEACHER'S NOTES

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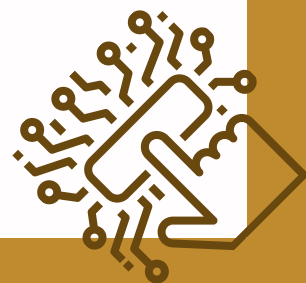
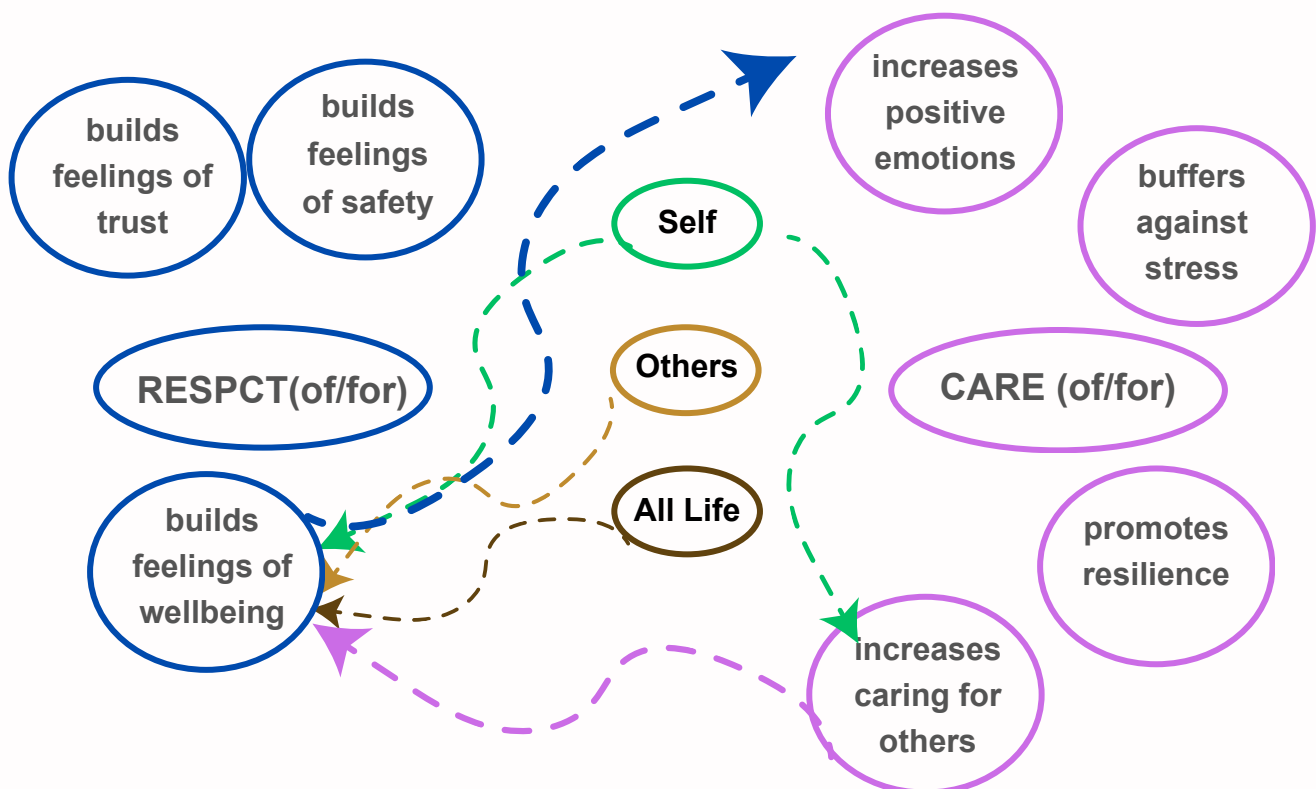
Respect and Care for Self, Others and All Life

Activity 3 Respect and Care Connections

Additional guidance on the themes are below:

- self - consider thoughts, experiences, sphere of influence (friends and family)
- others - consider peers, connections in community, national and international community reminds me of because
- all life - consider communities, nature with compassion and gratitude

Diagram: concept mapping/ finding connections - learners identify what impact respect and care has on the self, others and all life. Learners will discover all elements are interconnected. Eg. Respect for self , others, all life builds feelings of wellbeing, care for self increases caring for others, caring for others builds feelings of wellbeing.



MM3: LESSON 3 TEACHER'S NOTES

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CONSUMPTION
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Venn Diagram

What is a Venn Diagram? Information

Two set diagrams are the most common and used to compare two data sets. Formed from two circles that overlap. Commonly used to compare and contrast similar entities.

Create a Venn diagram using this simple step by step process:

1. Decide what you are comparing - Malala actions vs Greta Actions, Malala values vs Greta values
2. Draw a circle for each data set. All circles should overlap, and you should make both your circles and the overlapping areas large enough to write notes in.
3. List unique characteristics in each circle.
4. List shared characteristics in the overlapping spaces.
5. Adjust as needed. For example, if your overlapping spaces are too small, you may need to redraw your Venn diagram to accommodate all of your notes.
6. Review your Venn diagram. Make sure all shared characteristics are in overlapping spaces, and everything is legible and neat.

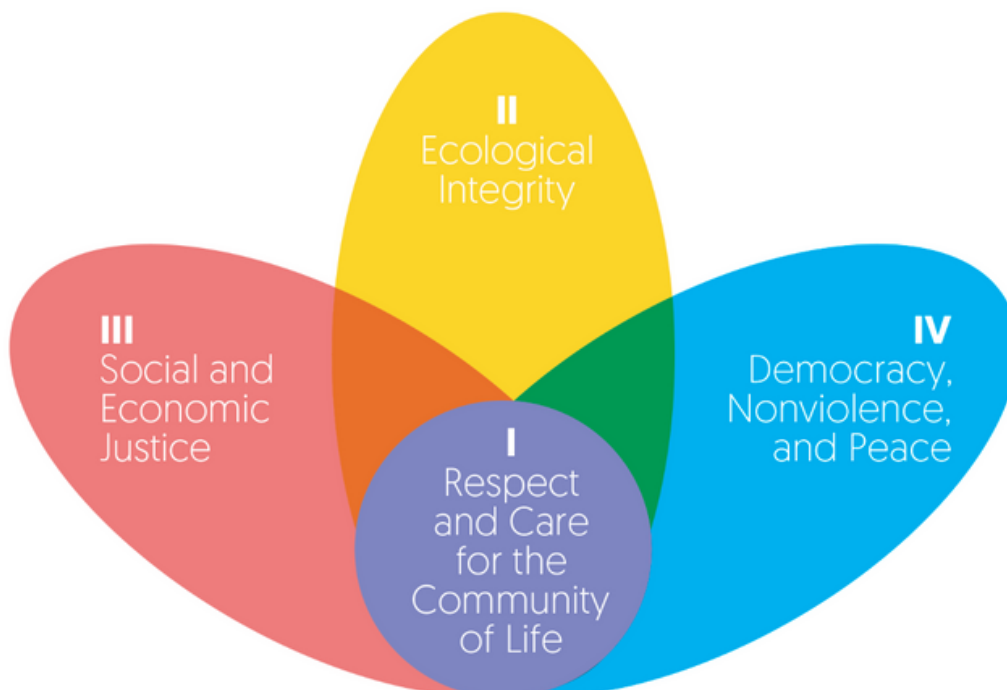
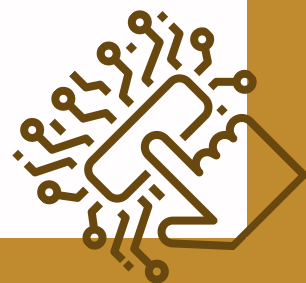


Image Credit: Earth Charter International



MM3: LESSON 3 TEACHER'S NOTES

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CONSUMPTION
AND PRODUCTION



Jane Goodall



Information about Jane Goodall

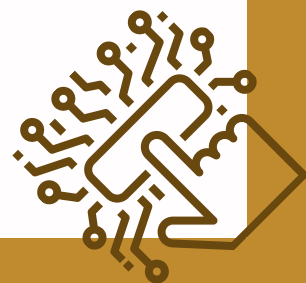
Jane has used the Earth Charter to develop her "Roots and Shoots" global environmental-social education program since 2001, reaching thousands of learners. She and her institute looked to and used the Earth Charter shortly after its launch in 2000, although they have modified their values learning for younger children since.

Additionally, Jane recently contributed to the Irish citizens assembly on biodiversity, and in her communications she share the Earth Charter's main philosophy of interconnectedness and interdependence. Her views stressed the importance of empowering young people with understanding to take collective actions.

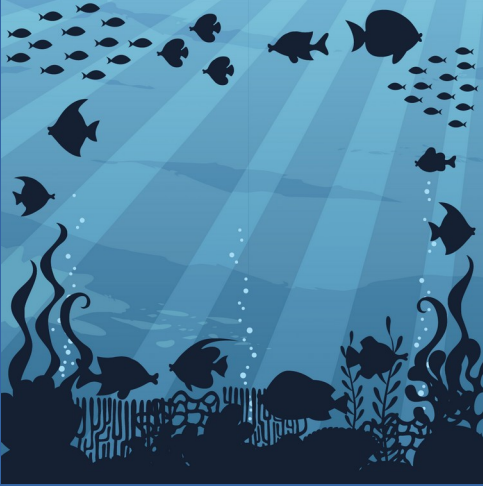
<https://www.rte.ie/news/2022/1126/1338478-citizens-assembly/>

Jane also epitomises that sustainability education/the Earth Charter are about cultivating an enduring culture of peace, and this connects with her role as UN messenger for Peace since 2001. See Jane talk about the importance of the EC here in 2020

<https://youtu.be/Qvmsz8G-NjU>



SDG 14 Ocean Literacy Lesson



**Science,
Geography
Global Citizenship**

Lesson 5 Ocean Pollution

Focus: SDG 14.1
Life Below Water

Lesson Title & Summary: Ocean Pollution

In this lesson, learners begin to understand how our actions can influence ocean health and cause pollution. Learners will consider the extent of the pollution problem with a particular focus on plastic. Using solution-based thinking, learners can imagine what we can do to reduce ocean pollution.

In this lesson the learner, will:

- increase their ocean literacy skills
- increase understanding of nature's influence on humans and interconnectedness
- learn how mindfulness can help us in everyday choices to prevent pollution
- develop solution-based thinking skills
- develop independent thinking
- practise independent and group work

Materials:

- Ocean Health & Ocean Plastic Pollution presentation
- Walking debate statements
- Empty containers/boxes
- Clean and dry litter (recyclable and non-recyclable)
- Coloured pens, pencils
- A4 paper
- Post-its
- Internet access

4 QUALITY
EDUCATION



11 SUSTAINABLE CITIES
AND COMMUNITIES



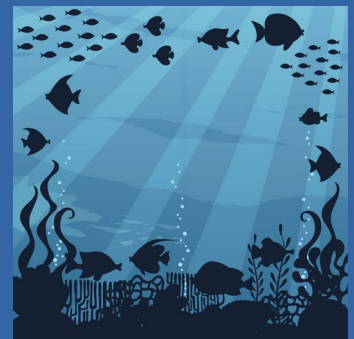
13 CLIMATE
ACTION



14 LIFE
BELOW WATER



SDG 14 Ocean Literacy Lesson



Activity 1 - Walking Debate (30mins)

Introduction to sources of pollution, different types, causes and effects

- 1) Introduce the theme of ocean health and ocean plastic pollution by showing learners the 'Ocean Health & Ocean Plastic Pollution' presentation.
- 2) Walking Debate:
 - a) Designate the sides of the classroom:
Left side: Agree
Right side: Disagree
Centre: On the fence/Do not know
 - b) Read a statement from the walking debate statement list and ask learners to go to the side of the room that matches their opinion. Give them 1-2 minutes to discuss with each other their reasons for their opinion. Ask each side to paraphrase. Repeat with other statements on the list.

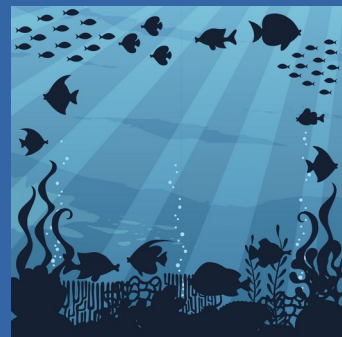
Activity 2 - Trash Dash game (20mins)

- 1) Divide learners into groups/teams of 4 or 5.
- 2) Hand out at least 5 litter items (with team number on them) to each group.
- 3) At the opposite side of the room, have the containers/boxes where the litter must be deposited.
- 4) Teams have 2 minutes to discuss where they think each item must go. Then each team member works in relays bringing one item to the container when they are told to start. It is a race so learners can cheer on their teammates.
- 5) The teams are timed and all litter items are checked to see if they are in the right container (recyclable or non-recyclable). If an item is in the wrong container, 1 point is deducted.
- 6) Have a whole class discussion on what can and cannot be recycled in local household recycling bins.

REFLECTIVE EXERCISE: 3-2-1 End Of Lesson (10 Mins)

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

SDG 14 Ocean Literacy Lesson



Extension / Reduction Activities:

Reduction: For a shorter class, show the Ocean Health and Ocean Plastic Pollution presentation and then move straight to the Trash Dash Game.

Extension: For a longer class, use the prompts below for learners to have an extended discussion or write in their journals.

- *What are the problems with the current recycling scheme in Ireland?*
- *How could it be improved?*
- *What are the consequences for the ocean if we don't recycle or improve recycling facilities?*
- *What are three actions I can take to improve my disposal of waste?*

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

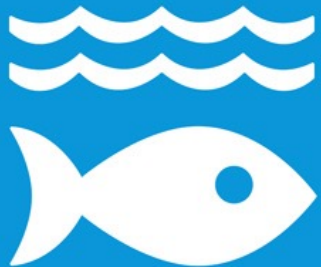
- **Cahersiveen Waste**
<http://docstore.kerrycoco.ie/KCCWebsite/environment/caharciveenwaste.pdf>
- **KWD recycling bins**
https://www.kwd.ie/m/#!/mobile_content.php?t=31
- **Symbols**
<http://www.kwdkids.com/symbols/>
- **I don't want you to recycle I want you to REDUCE**
<https://www.youtube.com/watch?v=-Yp1KKWpPpU>

LOCAL EXPERTISE/ TRIP SUGGESTIONS

- Invite an employee of KWD to come and speak to the class about recycling in Ireland.
- Prepare a list of interview questions.
- Plan a virtual visit with SDG 14 module developer, marine biologist, Lucy Hunt, Sea Synergy, Waterville, Kerry

Ocean Pollution

14 LIFE BELOW
WATER

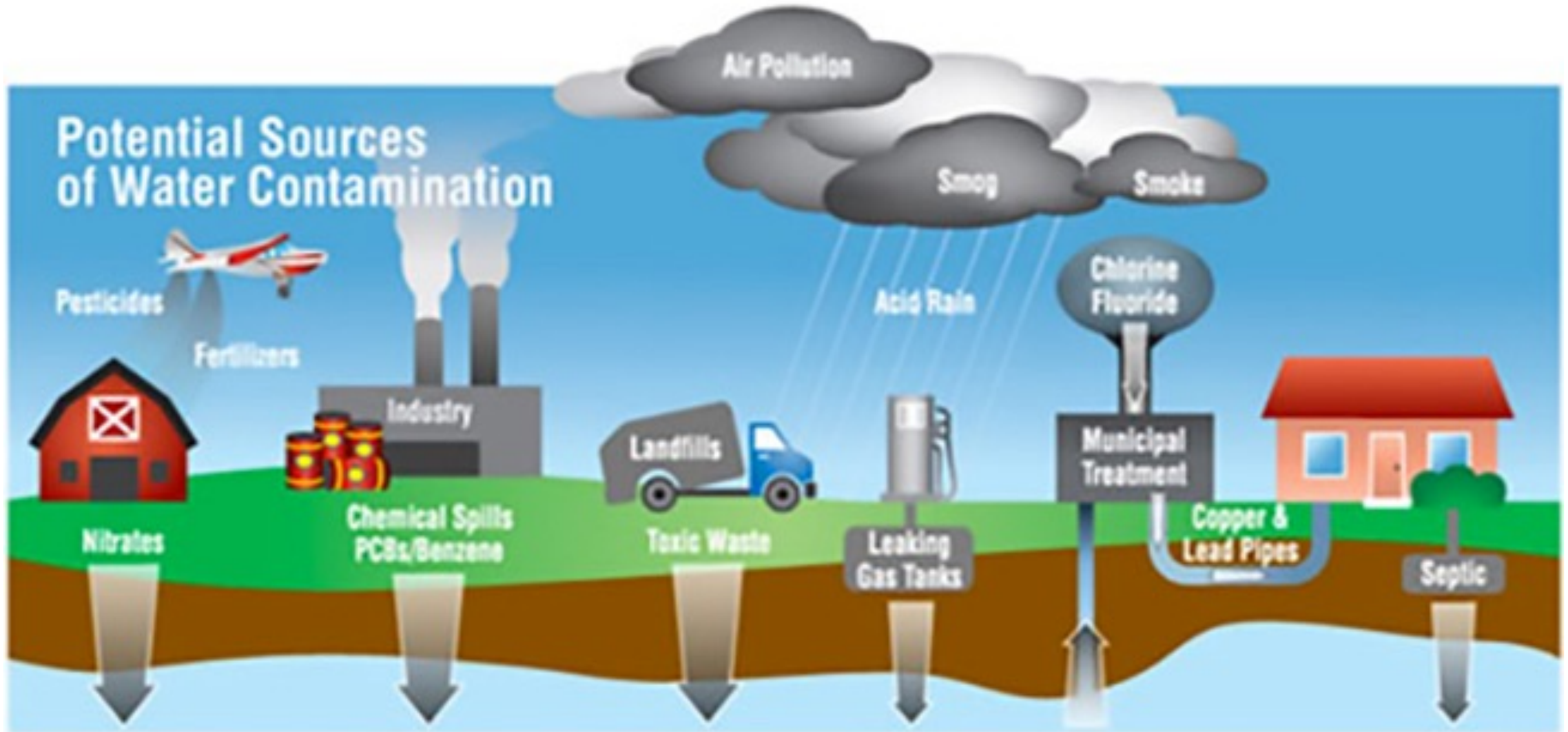


Understanding the
ocean's influence on you
and your influence on
the ocean





Sources of pollution in the Ocean



Think before you flush

Flushing sanitary products down the toilet can cause blockages and can end up polluting our marine environment

Thousands of used sanitary products are flushed down the toilet every day

The wastewater system is not designed to deal with large amounts of sanitary waste

2/3 of all drain blockages contains sanitary waste

Wastewater treatment plant

Smaller items that are flushed, such as cotton buds, can escape through filters at the treatment plant and reach our rivers and beaches

Sewage related litter causes harm to the environment and can pollute our water supply and coastlines



@CleanCoasts

#thinkbeforeyouflush

www.thinkbeforeyouflush.org

Think Before You Flush is operated by An Taisce's Clean Coasts programme and is supported by Irish Water



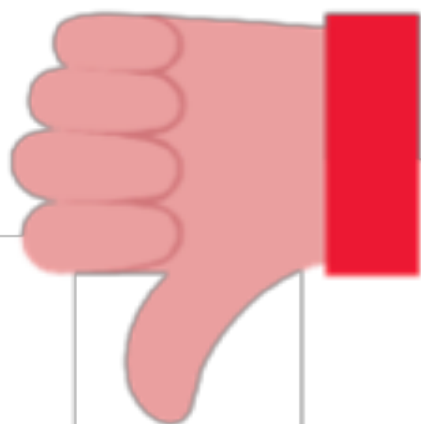
Just because you can't see it, it
doesn't mean it isn't there





Plastic







HOW LONG UNTIL IT'S GONE?

Estimated decomposition rates of common marine debris items



Estimated individual item timelines depend on product composition and environmental conditions.

Source: NOAA National Oceanic and Atmospheric Administration, US / Woods Hole Sea Grant, US.
Graphics: Oliver Löffel / Museum für Gestaltung Zürich, Zürich



1. Cigarette butts
(contain plastic)



2. Plastic bottles



3. Plastic
bottle caps



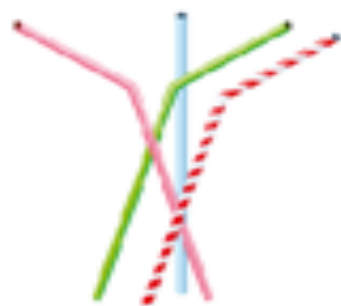
4. Food wrappers



5. Plastic bags



6. Plastic lids



7. Plastic straws



8. Glass
beverage bottles

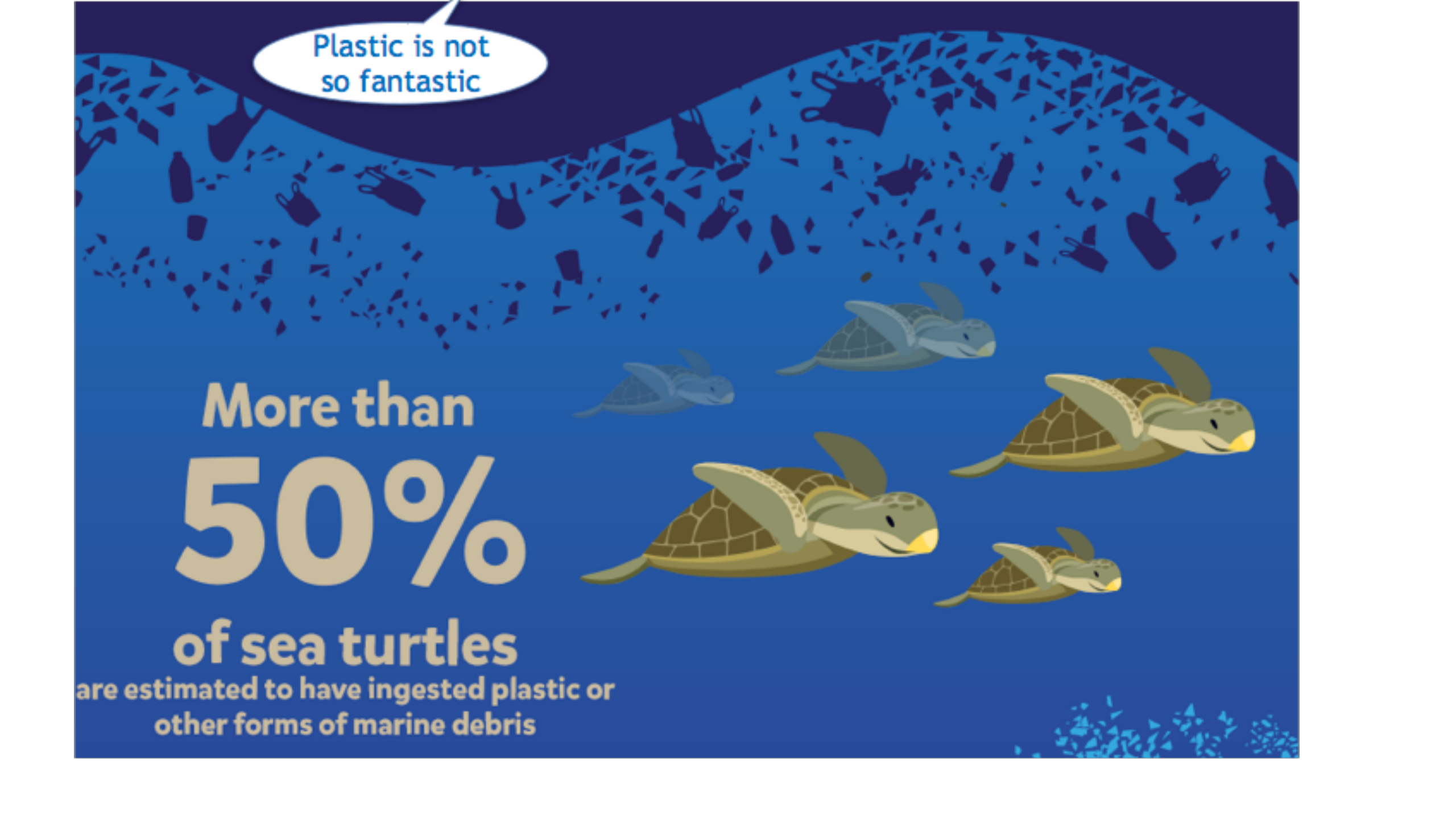


9. Other types
of plastic bags



10. Take-away
containers made
from foam (a type
of plastic)



An infographic with a dark blue background. At the top, a large, light blue wave is composed of many small, dark blue plastic bottle and bag icons. Below the wave, five sea turtles of various sizes and colors (brown, grey, and yellow) are swimming. A speech bubble from the top left points to the plastic wave.

Plastic is not
so fantastic

More than
50%
of sea turtles

are estimated to have ingested plastic or
other forms of marine debris

YOU SEE THE DIFFERENCE.
A TURTLE DOES NOT.

Plastic Ingestion

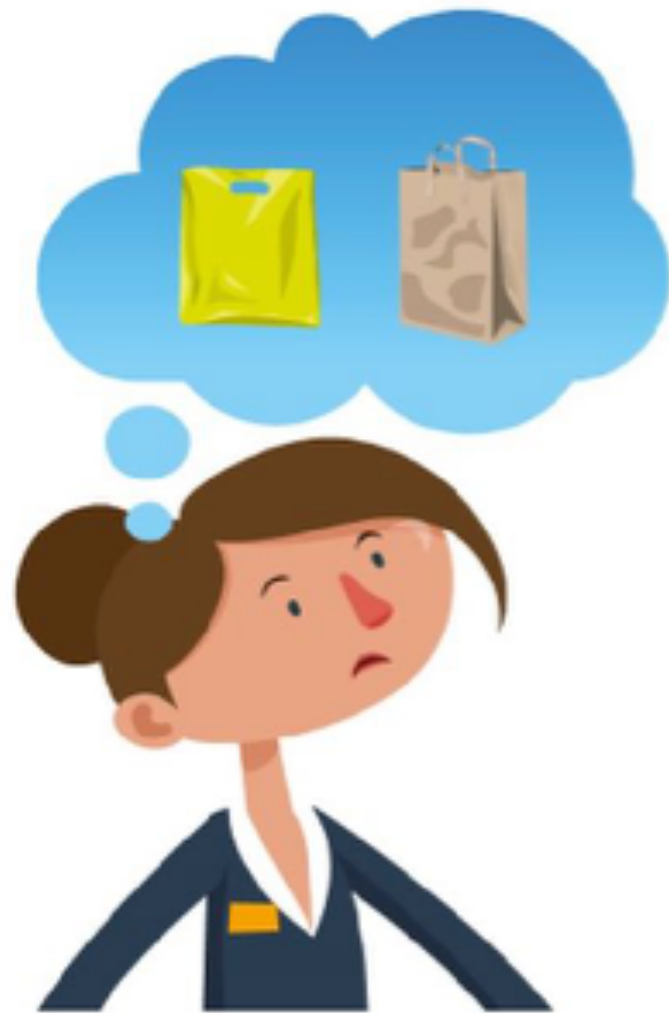


How much plastic do YOU use?



MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY	SUNDAY
						
						
						
						

RETHINK!



✗			✓
✗			✓
✗			✓
✗			✓
✗			✓
✗			✓
✗			✓
✗			✓
✗			✓



<https://www.youtube.com/watch?v=-Yp1KKWpPpU>

REDUCE!



REFUSE!



Plastic cups and mugs for take-out juices and hot drinks



Plastic bags



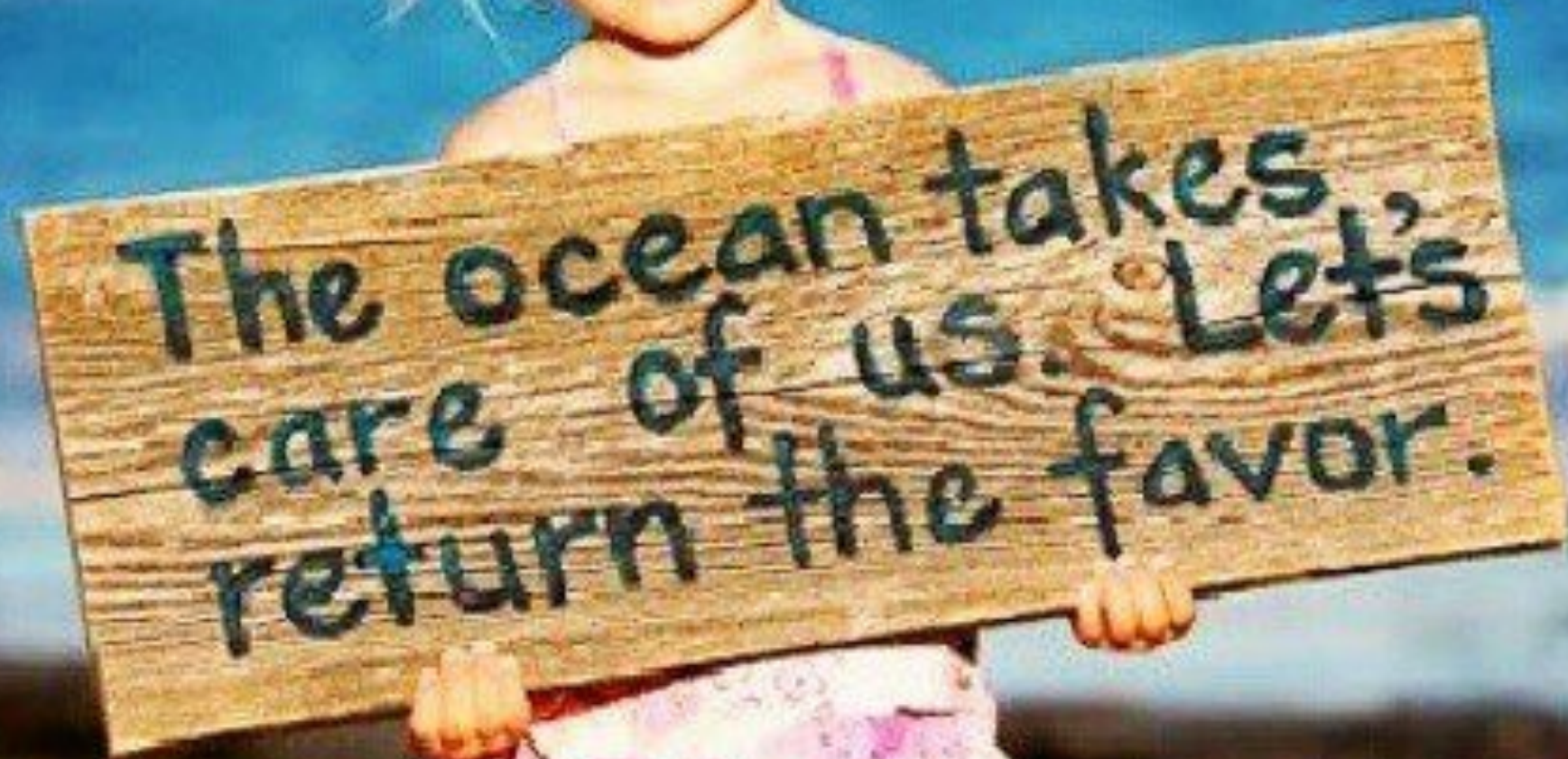
Individually wrapped condiments



Foam containers from fast food producers and take away



Drinking straws

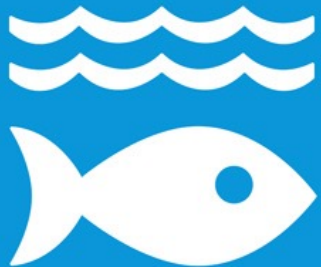


The ocean takes
care of us. Let's
return the favor.



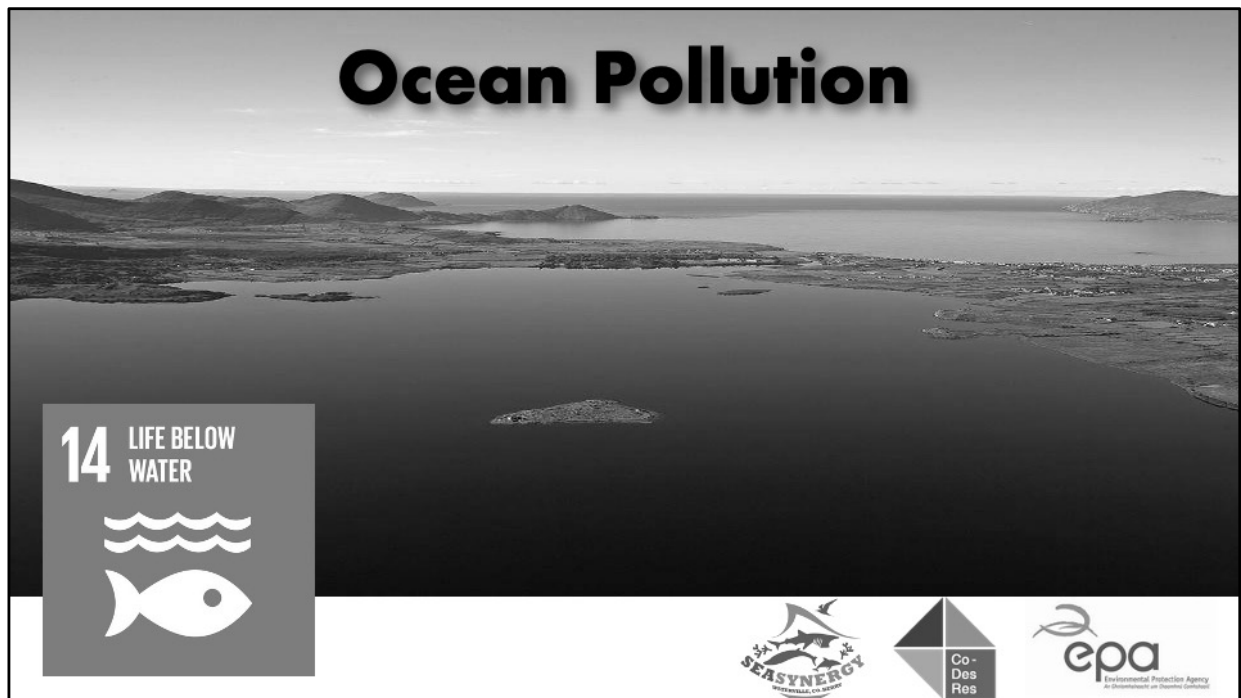
Thank you!

14 LIFE BELOW
WATER



Any Questions?





Today we're learning about ocean literacy – the last video got us started with some main points so now we are going to delve a little deeper.

What is ocean literacy – what do we mean when we say ocean literacy? We are talking about how much we know about the ocean and how it helps the planet to function.

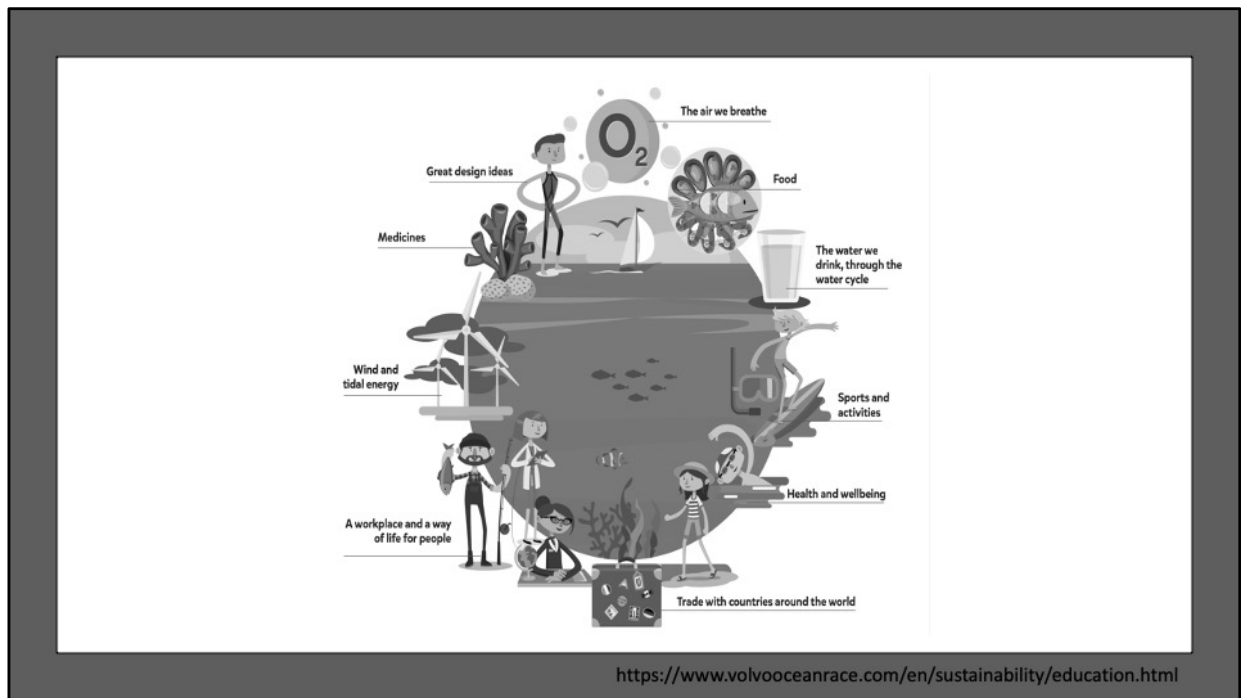
Understanding the
oceans influence on you
and your influence on
the ocean



A basic definition for ocean literacy is to understand the ocean's influence on you and your influence on the ocean.

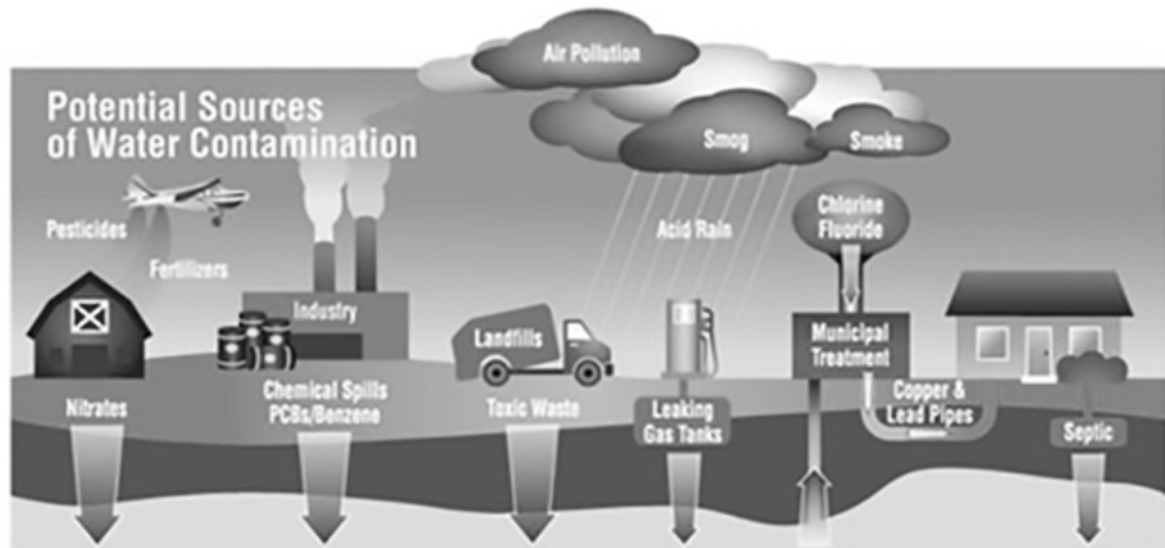
An Ocean-Literate person:

- **Understands** the importance of the ocean to humankind
- Can **communicate** about the ocean in a meaningful way
- Is able to make informed and responsible **decisions** regarding the ocean and its resources



What do we get from the Ocean? Why is it important to us – well here's just a few things from vital nutrients to the blue economy and recreation – in fact, it has been shown that living on or near water can make you happier and healthier.

Sources of pollution in the Ocean



Think before you flush

Flushing sanitary products down the toilet can cause blockages and can end up polluting our marine environment

Thousands of used sanitary products are flushed down the toilet every day

The wastewater system is not designed to deal with large amounts of sanitary waste

2/3 of all drain blockages contains sanitary waste

Wastewater treatment plant

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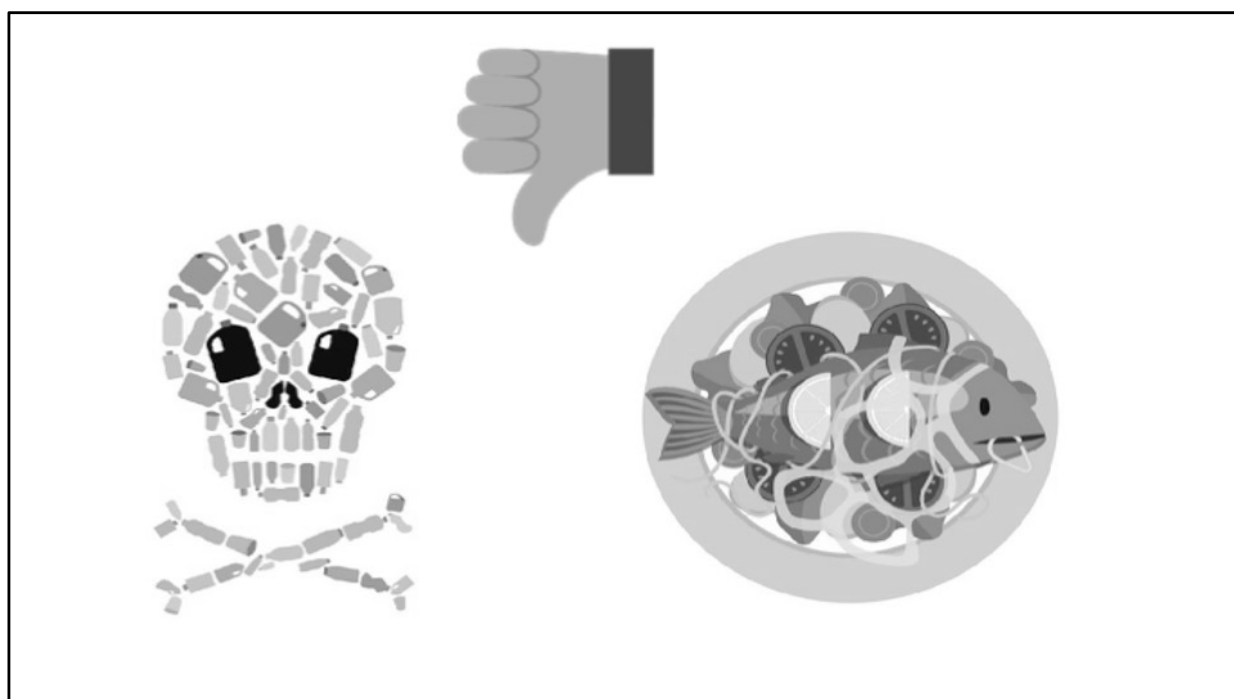
Just because you can't see it, it
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Plastic

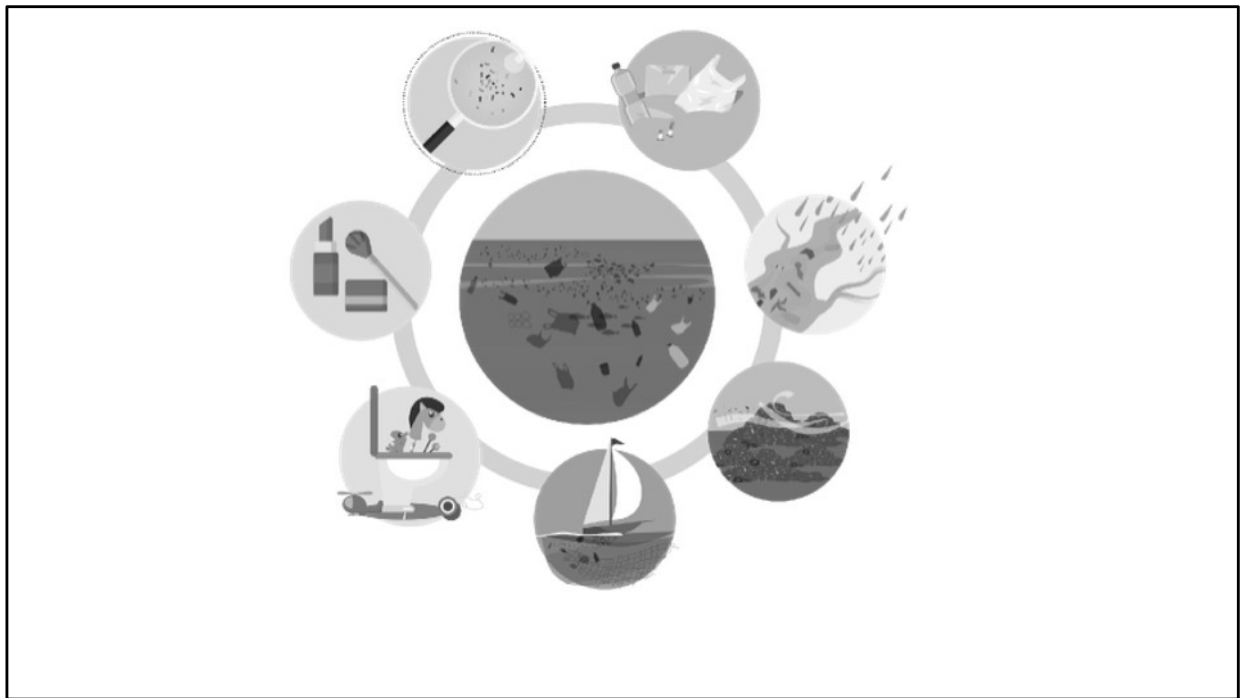


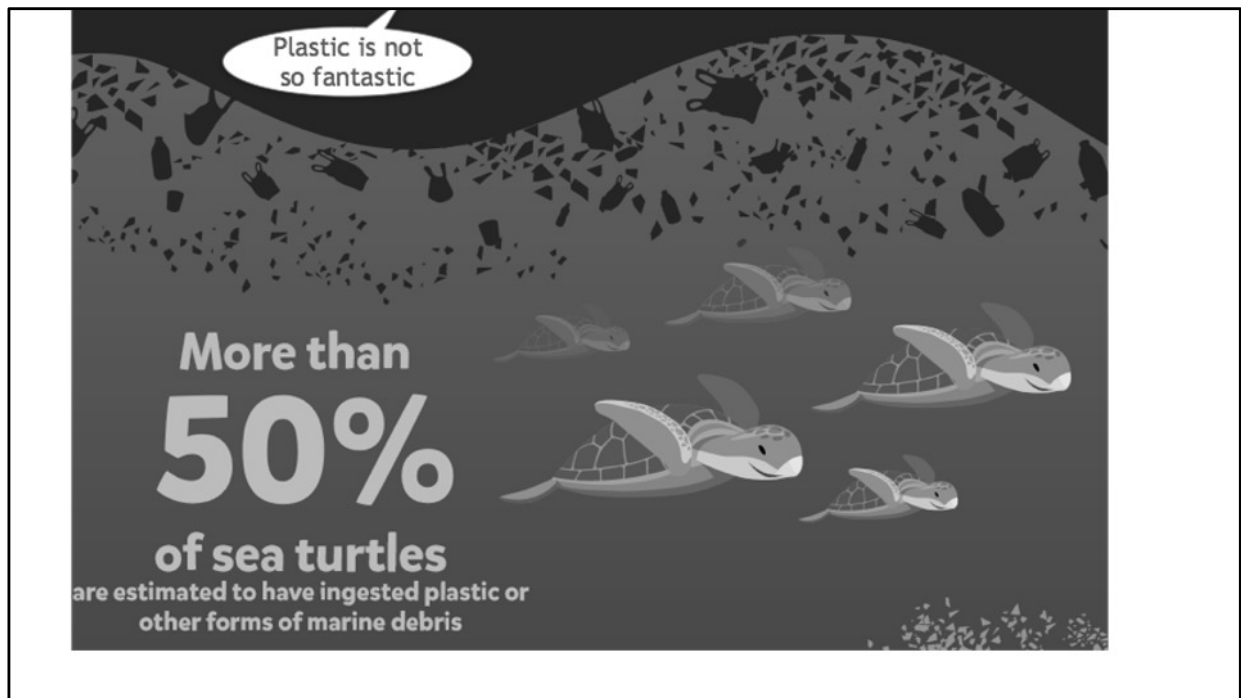






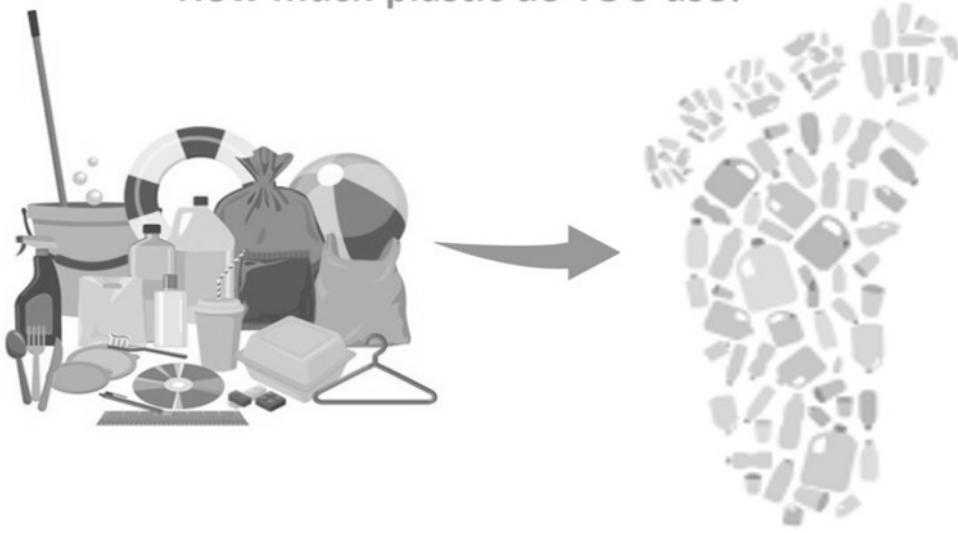




























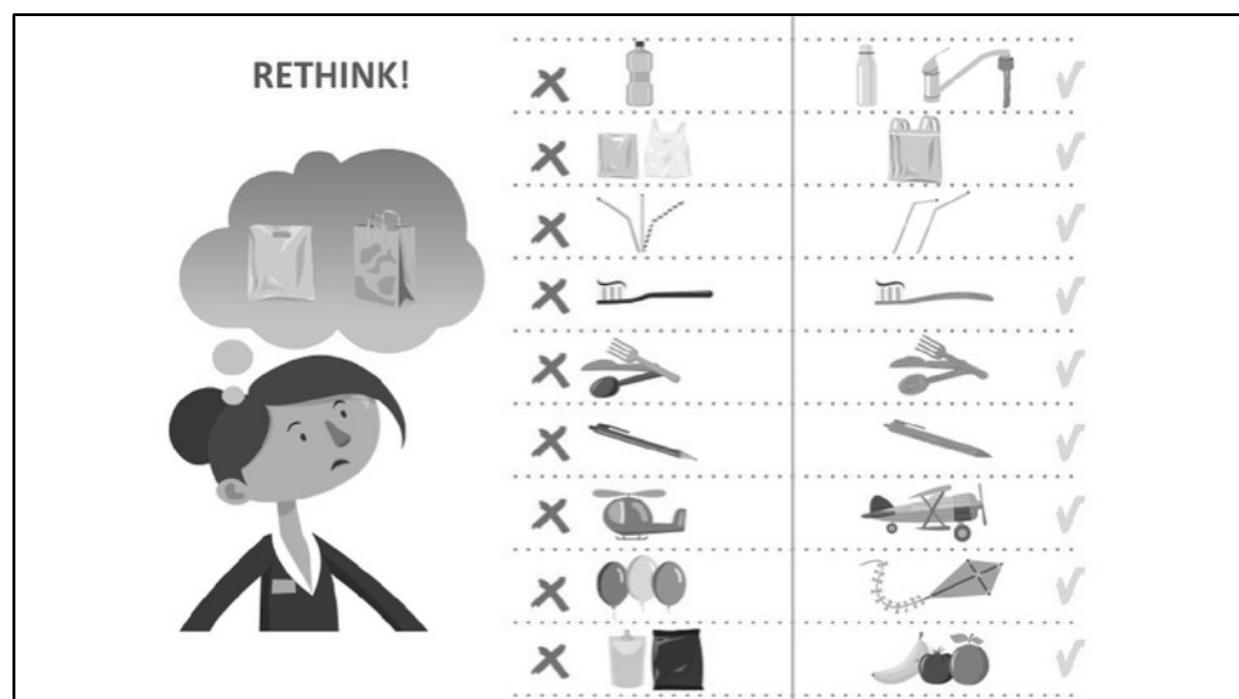


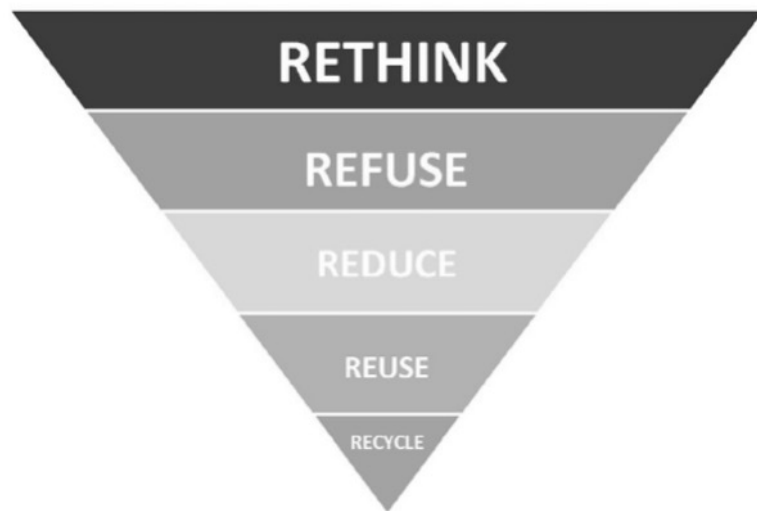


How much plastic do YOU use?



MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY	SUNDAY
						
						
						
						





<https://www.youtube.com/watch?v=-Yp1KKWpPpU>

REDUCE!



REFUSE!



Plastic cups and mugs for take-out juices and hot drinks



Plastic bags



Individually wrapped condiments



Foam containers from fast food producers and take away



Drinking straws



So, you can see what an amazing place the ocean is and all it does for us, but the question remains, what are we doing for it? In 2018, with the release of blue planet 2, we have seen a huge jump in the public's awareness of the ocean's problems – warming temperatures, acidification, biodiversity loss and particularly plastic pollution, micro-plastics. These issues are ever increasing, and governments are struggling to meet global targets for reversing the situation.



So, what can we do? As individuals and communities, it is falling on our shoulders to make changes from the ground up that are inspiring massive shifts in societies behaviour such as organising beach cleans, refusing single use plastics, eating local, etc. By using consumer power to demand products that are better for the environment and for us, each one of us has the opportunity to help save the ocean.



And learning just a little more about them, becoming ocean literate as we say, is the first place to start. Our ocean really is the blue heart of our planet Earth, studies have shown that just being beside the ocean makes us happier and healthier, reduces stress and anxiety and increases creativity and confidence. For all we get from our ocean, it deserves a little care from us!

LESSON 5 OCEAN POLLUTION



Name: _____

Date: _____

Write down 2-5 words you think of when you hear the phrase 'ocean pollution'.

- | | |
|----|----|
| 1. | 2. |
| 3. | 4. |
| 5. | |

What is ocean literacy?

List 3 benefits we get from the ocean:

- | | |
|----|-------|
| 1. | _____ |
| 2. | _____ |
| 3. | _____ |

What are some sources of ocean pollution? How many can you list?

What type of rubbish is typically flushed down the toilet (that should NOT be!)?

Plastic pollution in our ocean is a huge problem. What are some of the consequences of plastic ending up there? List as many consequences as you can.

- | | |
|----|----|
| 1. | 5. |
| 2. | 6. |
| 3. | 7. |
| 4. | 8. |



LESSON 5 OCEAN POLLUTION

14 LIFE
BELOW WATER



Name one common piece of marine rubbish and how long it takes to decompose.

1. _____

2. _____

List 1 -3 facts/statistics you remember from the presentation on Ocean Pollution.

1. _____

2. _____

2. _____



LESSON 5 WALKING DEBATE



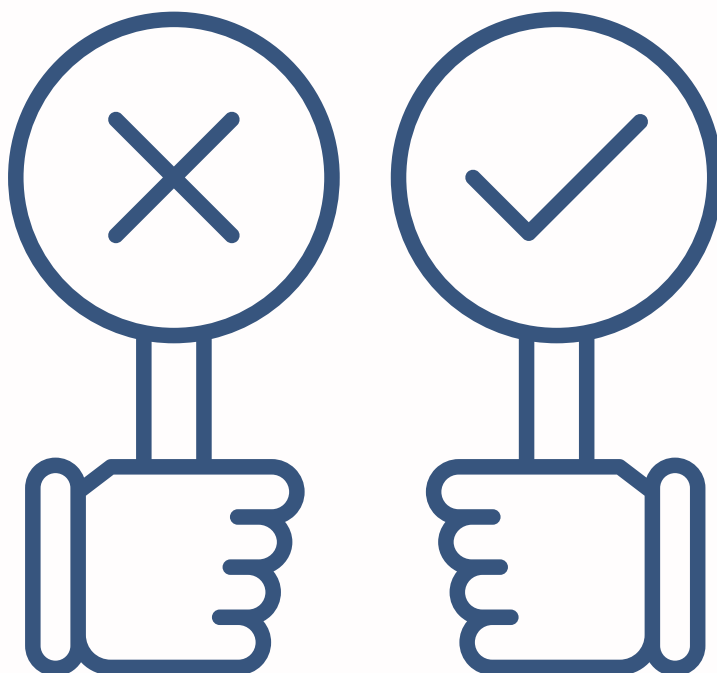
Walking Debate Questions

Designate areas of the room or outside area as Yes, Maybe and No.

Ask the questions and ask learners to go to the place that reflects their answer.
Encourage short discussions on learners' answers.

Why did they choose that place / position? Give examples of etc.

1. Do you believe there is that much (8 million tonnes per year) plastic pollution entering the Ocean every year?
2. Do you believe that there could be more plastic than fish in the Ocean by 2050?
3. Are you afraid of what the environment and our life might look like in the future?
4. Do you believe you can make a difference?
5. Are you already starting to make a difference?
6. Do you use a reusable bottle?
7. Do you speak about environmental issues like climate change and marine pollution with friends or family?
8. Have you ever helped a Tidy Towns group or Clean Coasts group?
9. Do you use a reusable shopping bag?
10. Do you pick up litter when you see it on the ground?
11. Do you try to Reduce Reuse Recycle?



SDG14 Future of the Ocean

MM3: Offshore Renewable Energy



Micro-Module 3: Offshore Renewable Energy

Research and Development

Lesson 5: Classroom Debate on Onshore vs Offshore Wind

Subjects: Climate Action and Sustainable Development, Design, English, Engineering Science

7 AFFORDABLE AND CLEAN ENERGY



9 INDUSTRY, INNOVATION AND INFRASTRUCTURE



11 SUSTAINABLE CITIES AND COMMUNITIES



13 CLIMATE ACTION



Lesson Title and Summary: Classroom Debate on Onshore vs Offshore Wind

In this lesson, learners engage in a debate comparing offshore and onshore wind energy. The lesson begins with a brief introduction to the debate topic. Learners then conduct individual research online to identify the pros and cons of each type of wind energy. Debating teams are formed, with learners either supporting offshore or onshore wind energy. During preparation, learners gather supporting arguments and compile flashcards. The lesson culminates in a facilitated debate where teams present their viewpoints using the synthesized information. This activity encourages critical thinking, research skills, and collaborative discussion on renewable energy sources.

Vocabulary: Offshore Wind, Onshore Wind, Argument, Counterargument, Rebuttal, Closing Statement, Debate

In this lesson, the learner will:

- Begin to understand the advantages and disadvantages of both onshore and offshore wind energy
- Engage in a debate:
- Conduct individual research
- Develop presentation and critical thinking skills

Materials

- Worksheet: Debate Questions
- Notepad, flashcards and pen
- Whiteboard and markers

SDG14 Offshore Renewable Energy

L5 Classroom Debate on Onshore vs Offshore Wind



ACTIVITY INSTRUCTIONS

Activity 1: Introduction (5 minutes)

1. Explain that the class is going to have a debate on the advantages and disadvantages of offshore wind energy compared with onshore wind energy.
2. Have learners discuss in groups what a debate is and how a debate is structured.
3. Define the following terms as a class: argument, counterargument, rebuttal and final statement.

Activity 2: Research (10 minutes)

1. Divide learners into groups of 2.
2. Invite the learners to conduct online research to find the relative merits and drawbacks of offshore wind energy compared to onshore wind energy. Suggest that they can use the following websites as a starting point: [National Grid](#) and [GreenCoast](#). Use the questions in the Worksheet: Debate Questions to help structure their research.

Activity 3: Choose debating teams (5 mins)

1. Divide the class in half. Choose which half will be for the motion (in favour of offshore wind energy), and which half will be against (in favour of onshore wind energy).
2. Have each side choose 3-4 speakers for the debate.
3. Decide a running order for the debate, and the sequence in which each speaker will contribute.

Activity 4: Synthesizing the information (10 mins)

1. Invite the debating team members to prepare flash cards of the points they want to make, based on their own research, and the contributions of their classmates.

Activity 5: Facilitate the debate (20 mins)

1. Have the first speaker from the 'in favor of offshore wind energy' present their first argument.
2. Have the first speaker from the 'in favor of onshore wind energy' present their first argument.
3. Allow 2 minutes for each team to discuss as a group and develop a rebuttal or next speaking point.
4. Continue this process for the duration of the debate.
5. Allow each team to present a final closing statement at the end of the debate.
6. Vote as a class which team 'won' the debate.

REFLECTIVE EXERCISE: 3-2-1

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

SDG14 Offshore Renewable Energy

L5 Classroom Debate on Onshore vs Offshore Wind



EXTENSION / REDUCTION ACTIVITIES:

Reduction: For a shorter class, instead of researching both offshore and onshore wind energy, focus on just one type, allowing learners to delve deeper into the advantages and disadvantages of that specific option.

Condense the debate by having each team present only one main argument in favor of their assigned wind energy type and one counterargument against the opposing type.

Extension: For a longer class, after the debate, facilitate a class-discussion where learners can further explore nuanced aspects of wind energy by answering questions from their peers and engaging in a more open-ended dialogue.

Invite learners to create posters that summarize their findings, arguments, and counterarguments, encouraging a more comprehensive exploration of the topic. See Media Communications Micro-Module on Posters.

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

Onshore vs offshore wind energy: what's the difference?

<https://www.nationalgrid.com/stories/energy-explained/onshore-vs-offshore-wind-energy>

Onshore vs Offshore Wind: What Are the Differences and Facts? <https://greencoast.org/onshore-vs-offshore-wind/>

Local Trip / Expertise / Additional Work and Assessments

Which type of wind turbine do we have more of in Ireland – offshore wind turbines or onshore wind turbines?

See if you can organize a trip to visit a local wind turbine in your area? Which do you think might be easier – a visit to an onshore turbine or an offshore turbine?

Interview a number of people in your town to see if they are in favour of onshore or offshore wind, or neither. Why do they feel this way?



DEBATE QUESTIONS

Use this worksheet to structure your research. Use the following websites as a starting point, but you will need to do more research on your own. You may need to use additional paper to take notes.

Onshore vs offshore wind energy: what's the difference?

<https://www.nationalgrid.com/stories/energy-explained/onshore-vs-offshore-wind-energy>

Onshore vs Offshore Wind: What Are the Differences and Facts?

<https://greencoast.org/onshore-vs-offshore-wind/>

Which is cheaper: onshore wind turbines or offshore wind turbines? Why?

What are the economic implications of investing in onshore wind energy compared to offshore wind energy?

How do onshore and offshore wind energy projects affect job creation and local economies?

Which is more environmentally sustainable: onshore wind turbines or offshore wind turbines? Why?

When thinking about the visual impact of wind turbines, are people more likely to be badly affected by offshore wind turbines or onshore wind turbines?



DEBATE QUESTIONS

Which type of turbine is easier to build, onshore or offshore?

Which type of turbine can be connected to the electricity grid more easily: onshore or offshore?

Which type of turbine is likely to generate the most amount of electricity?

Could there be a negative impact on wildlife and sea-life because of the construction of wind turbines?

Which type of wind energy is more reliable and less susceptible to weather-related disruptions: onshore or offshore?

What are the geopolitical implications of relying on onshore or offshore wind energy for a nation's energy needs?

How do the permitting and regulatory processes differ for onshore and offshore wind projects, and which is more efficient?



DEBATE QUESTIONS

Are there safety concerns related to onshore wind turbines (e.g., blade failures) or offshore wind turbines (e.g., maintenance in harsh marine environments) that should influence the choice between the two?

SDG8 Future of Fashion

MM4 My Fashion: The Big Picture



MM4 My Fashion: The Big Picture

Exploration and Experimentation

Lesson 4. Field Trip to Local Charity Shop

Subjects: Climate Action and Sustainable Development, Design, Enterprise, Home Economics, Science

9 INDUSTRY, INNOVATION AND INFRASTRUCTURE



10 REDUCED INEQUALITIES



12 RESPONSIBLE CONSUMPTION AND PRODUCTION



17 PARTNERSHIPS FOR THE GOALS



Lesson Title and Summary: Field Trip to a Local Charity Shop

In this lesson, learners will develop the skills to purchase with potential. The act of buying a preloved garment is a small act of huge agency. Understanding that a pre-loved garment hanging on a rail is much more than a consumer experience is also liberating. Learners will gain insights and develop the skills which enable imaginative responses to purchasing and customising a garment places the garment in a position of potential.

Vocabulary: Fabric Identification, Pre-loved, Purchasing with Potential, Shopping Skills

In this lesson, the learner will:

- learn how to identify the main fabrics used in garment production.
- understand the difference between badly made and well-made garments
- how to purchase with potential.

Materials

- Worksheet: Fabric Identification
- Selection of garments with the following fabric types:
 - 100% Cotton
 - 100% wool
 - 100% silk
 - 100% polyester
 - 100% viscose
 - 100% acrylic
- Mixed fibre fabrics: cotton/polyester and acrylic/wool
- Guide sheet: Charity Shop Field Trip
- Paper/notebook for taking notes and glossary research

SDG8 My Fashion: The Big Picture

Lesson 4. Field Trip to Local Charity Shop



ACTIVITY INSTRUCTIONS

Activity 1: Fabric identification (15 mins)

1. Have the learners work in groups of 4 using the worksheet: Fabric Identification as a guide.
2. Different garments with the following fabric types:
 - 100% Cotton
 - 100% wool
 - 100% silk
 - 100% polyester
 - 100% viscose
 - 100% acrylic
- Mixed fibre fabrics:
 - cotton/polyester
 - acrylic/wool
3. Give each group 2 garments to analyse.
4. Learners will explore how to identify the fibres in each garment.
5. Have the learners present their findings to the group

Activity 2: Charity shopping skills (7 minutes)

1. Watch the video Your Guide To Charity Shopping! 10 Years Of Tips & Tricks from 11:30min to 18:10min

Activity 3: CHARITY SHOPPING FIELD TRIP (30 minutes)

NOTE: Ideally this field trip should happen over a full afternoon.

1. Before you leave:
 - a. Make a list of the local charity shops in your area.
2. If there are a number of charity shops, have the learners work in small groups with the guidelines and use their phones to document their findings.
3. Learners can compare their findings in another class to see if there are any conclusions they can make about the fabrics they can find

REFLECTIVE EXERCISE: 3-2-1

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

SDG8 My Fashion: The Big Picture

Lesson 4. Field Trip to Local Charity Shop



EXTENSION / REDUCTION ACTIVITIES:

Reduction: For a shorter lesson, have the learners do the field trip in their own time.

Extension: For a longer lesson, Before the field trip:

- Visit the guide sheets and run through them with the learners.
- Ask for any other tips from the learners themselves.
- Revisit the mood boards from Module 1 and have the learners write a list of their desired fabrics, colours, shapes.

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

Your Guide To Charity Shopping! 10 Years Of Tips & Tricks [27:24min]

https://www.youtube.com/watch?v=Gu69tElsftg&ab_channel=NinkComPoop

How to Buy Fabric Terminology & Shopping Tips [11:54 mins]

<https://www.youtube.com/watch?v=ruRhkpys83o>

What is Sustainable Fabric + 5 Fabrics you should know about [9:06]

<https://www.youtube.com/watch?v=tE5fGj9fWWo>

Learning About Fabrics 1: The Who, What, and How [4:15 min] <https://www.youtube.com/watch?v=-B4tfduOQ7w>

Local Trip / Expertise / Additional Work and Assessments

Have learners assess their clothing at home using the Fabric Identification guidelines or bring in some garments from home and circulate to identify the fabrics. If accessible, learners could also visit a fabric shop and explore the different fabrics using the guidelines.

Continue the glossary, giving each learner one or two words/ phrases to research and define in one sentence:

- Fabric identification.
- Pre-loved and Pre-loved shopping skills
- Purchasing with potential.

MM4 L4 FABRIC IDENTIFICATION



Natural fibres are made from either plant material- cellulose such as cotton, linen, hemp, or animal fur -protein such as wool, alpaca, silk, mohair.

Synthetic fibres are made from plastic - such as polyester, acrylic. Semi synthetic fibres are made from processed cellulose with chemicals- such as viscose or rayon. It is with experience and trial and error that we get better at identifying fabrics. Keep trying! Use the following guidelines to assist you in identifying each garments' fabric composition.

1. Look at the label.
2. Is the garment made from a mix of synthetic and natural fibers?
3. If there is no label present:
4. Feel the fabric.
5. Look at the type of garment that you holding.
6. Is the fabric thin or thick?
7. Does it feel damp or cool?

NATURAL FIBRE IDENTIFICATION:

- Cotton and most natural fibres e.g. silk or linen will crease when you crumple them in your hand.
- Scrunch up the fabric in your hand, roll it into a tight ball and hold it for 15 seconds.
- When you let it go it will stay crumpled if it is a natural fibre.

BREATHABILITY:

- If you are still unsure about what fabric you are holding, once again, hold the fabric tightly for about 1 and a half mins.
- Natural fibres will not feel damp. They will feel warm in your hand, like an extension of the heat your body produces. The fabric permeates the fibres and disperses any heat or moisture.
- This shows that the breathability is high and usually indicates a natural fibre.
- If you are still unsure about what fabric you are holding, once again, ball the fabric up and hold the fabric tightly for about 1 and a half mins.
- Synthetic fibres will feel damp. They will feel cold in your hand.
- The fabric does not absorb any heat from your body and therefore the moisture produced by the heat bounce back into the hand.
- Your hand will feel clammy and even slightly sticky. This shows that the breathability is low and usually indicates a synthetic fibre.

SYNTHETIC FIBRE IDENTIFICATION:

- Synthetic fibres like polyester and acrylic also crease when you crumple them in your hand but will not hold the creases.
- Scrunch up the fabric in your hand, roll it into a tight ball and hold it for 15 seconds. When you let it go the creases will fall out if it is a synthetic fibre.
- Semi-synthetic fibres e.g. rayon or viscose often feel silky like real silk and more difficult to identify.
- Again, scrunch up the fabric in your hand, roll it into a tight ball and hold it for 15 seconds.
- When you let it go the creases will usually fall out but not as much as a synthetic fiber and they will be less creased than a natural fibre.



GENERAL GUIDELINES:

- Try to go to charity shops during the week when there are less people shopping.
- Go as early in the day as you can to maximize the possibility of finding something extra special
- Revisit charity shops regularly
- Try to find well-made garments constructed from natural fibers. If you see and like synthetic garment consider how much you want it and whether you are prepared to keep it for a long time.
- Look for garments that sit well and have a good shape- avoid garments that bunch up or are seem to be worn around elbows, knees, crotch, armpits, collar areas.
- Find out from the staff what days they restock the rails.
- Always try things on if you can. It is often not permitted to return items from charity shops. This also gives you the opportunity to do a fabric identifying test when there is no care label.
- Remember you will be working on customizing whatever garment you buy so purchase with this creative lens of possibility!

SENSORY ACTIVATION:

When you enter a charity shop try to engage all of your senses as tools to help you find something.

- FEELING for different materials:
- LOOKING for colours that grab your eye:
- LISTEN to what the staff are saying about new stock.
- SMELLING for freshly washed garments

OTHER TIPS:

- If a garment smells freshly washed, you can usually tell if a stain is permanent or will wash out.
- If there are stains or holes, look at the positioning of them and try to visualize how you might be able to cover the stain or fill the hole.
- Check armpits for yellowing.
- Check neck line for staining/yellowing.
- Check the lining for rips and stains
- Check to make sure that there is no balling on jumpers.
- Look for loose buttons.
- Check to make sure that all the buttons are present. If not, think about how a new/ contrasting button could look on the garment with the existing buttons.
- Check for strained seams- this happens when a garment is not well made or when it has been over-worn.
- If the garment is large and has seam weakness – you can always take it in with simple running stitch along the seams.
- Always look at all of the rails so you don't miss anything.
- Check to see if the clothing is organized by colour or size or gender.

MM4 L4 GUIDESHEET: CHARITY SHOP FIELD TRIP

8 DECENT WORK AND
ECONOMIC GROWTH



- Sometimes women's and men's clothes are put in the wrong area.
- Look in the bargain section for items that might be reduced.
- Look at the potential in the garments for customization.
- Look for things that might look different with a small amount of added sewing- for example, taking up the hem, filling a hole, taking the side seams in, cutting off the collar, patching etc.
- Look for t-shirts that can be modified through cutting- For example an oversized t-shirt can become a versatile top when cut and tied.
- Over-washed garments can lose their stretch. Steer clear of garments which are over-washed (unless that is what you are looking for specifically).

SDG 2 MM1 Future of Food From Food Waste to Food Gain



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

Lesson 4: Combating Food Waste Together

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

Lesson Title and Summary: Combating Food Waste Together

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

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

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

In this lesson, the learner will:

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

Materials:

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



SDG 2 MM3 Future of Food

From Food Waste to Food Gain



ACTIVITY INSTRUCTIONS

Activity 1: A Call to Action (20 mins)

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

1. Discuss as a class.

Activity 2: Global Problem Solvers (30 mins)

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

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

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

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

SDG 2 MM3 Future of Food

From Food Waste to Food Gain



EXTENSION / REDUCTION ACTIVITIES:

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

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

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

Use FLIPPED CLASSROOM WORKSHEET: HOMEGROWN HEROES.

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

FLIPPED CLASSROOM Playback (Part 2)

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

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

Videos:

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

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

LOCAL TRIP / EXPERTISE / ADDITIONAL WORK AND ASSESSMENTS

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

MM3 LESSON 4 WORKSHEET

2 ZERO HUNGER



GLOBAL PROBLEM SOLVERS

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

Search prompt 1:

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

Search prompt 2:

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

Search prompt 3:

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

LESSON 4 WORKSHEET

2 ZERO HUNGER



GLOBAL PROBLEM SOLVERS

Profile 1

DRAW AVATAR HERE

Problem Solver's Name:

Where are they located?

Job Title / Role / Company:

What do they do to help solve food waste?

LESSON 4 WORKSHEET

2 ZERO HUNGER



GLOBAL PROBLEM SOLVERS

Profile 2

DRAW AVATAR HERE

Problem Solver's Name:

Where are they located?

Job Title / Role / Company:

What do they do to help solve food waste?

LESSON 4 WORKSHEET

2 ZERO HUNGER



GLOBAL PROBLEM SOLVERS

Profile 3

DRAW AVATAR HERE

Problem Solver's Name:

Where are they located?

Job Title / Role / Company:

What do they do to help solve food waste?

MM3 LESSON 4 FLIPPED CLASSROOM

2 ZERO HUNGER



HOMEGROWN HEROES

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

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

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

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

Steps:

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

MM3 LESSON 4 FLIPPED CLASSROOM

2 ZERO HUNGER



HOMEGROWN HEROES

My Homegrown Hero Case Study

Company or Person's name:

Type of company:

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

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

Person's role:

Tick the appropriate box or skip if you completed previous question

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

Where is the company/person located:

What is the mission of this company/person:

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

MM3 LESSON 4 FLIPPED CLASSROOM

2 ZERO HUNGER



HOMEGROWN HEROES

How do they achieve their mission?

What do they do? Who are their users?

Do they sell a product or provide a service?

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

Why did you choose them as your Homegrown Hero?

What inspired you the most?

Where can people learn more about this company/individual and their solution?

Insert a website name or URL, business address or social media handle.

MM3 LESSON 4 EXTRA RESOURCES

2 ZERO HUNGER



HOMEGROWN HEROES RESEARCH SOURCES

Irish Farmers Journal:

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

RTE:

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

Radio Kerry:

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

Cork Independent:

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

Department of Enterprise, Trade and Employment:

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

Food Cloud:

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

SDG12 Future of the Ocean

Enterprise Leadership for the 21st Century



Micro-Module 2: Enterprise Leadership for the 21st Century

Research and Development

Lesson 5 The Third Earth Charter Pillar: Social and Economic Justice and Leadership

Subject Areas: CSPE Climate Action and Sustainability English SPHE

Lesson Title and Summary: The Third Earth Charter Pillar: Social and Economic Justice and Leadership

The achievement of wellbeing for self as well as others has been claimed to be the driving force behind the pursuit of justice⁽¹⁾. This lesson introduces the concept of social and economic justice and provides an opportunity to analyse existing efforts in leadership to balance equality and equity in these contexts.

Vocabulary:

Dignity, Economic Justice, Equality, Equity, Social Justice, Wellbeing

In this lesson, the learner will:

- begin to understand the concepts of social justice and economic justice
- identify in what ways people are unequal socially and economically
- brainstorm how they as future leaders may work towards equality and equity in both contexts

Materials

- Worksheets: Integrated Approach to Justice
- Worksheet: Inequality Video
- Support Sheet: Teacher's Notes
- 100 x 1 cent coins/counters/marbles
- 3 scoops
- 3 pairs of mittens/ masking tape
- Post It notes
- Coloured pens
- A3 paper
- Variety of Art Materials (pens, papers, scissors, glue, glitter)

(1) (Suarez-Balcazar et al., 2022)



SDG12 Future of Enterprise Leadership

Lesson 5 The Third Earth Charter Pillar



Activity Instructions

Activity 1 - Justice (20 mins)

1. This is a whole class activity. Divide your class in half. To one half, give scissors, colored pencils, crayons, glitter, glue, and whatever other supplies you have on hand. To the other group, give only plain white paper and some dull crayons/ pencils.
2. Ask each person to make the best looking flower that they can, using the materials they have been supplied. After 5 minutes, share work as a whole class.
3. Divide the halves into smaller groups and direct learners to Worksheet: Justice and go through questions checking understanding.
4. Instruct learners to discuss questions in their groups. (5 minutes)

Activity 2 - The Scramble Game (30 mins)

This activity requires some preparation before the lesson. This is a whole class activity. Please see Teacher's Notes.

1. Follow the step-by-step instructions in the Teacher's Notes. This activity will introduce the concept of economic justice. Invite learners to stand and form a circle in the centre of the classroom for a whole class activity.
2. After the game has finished, direct learners to Worksheet: Integrated Approach to Justice to discuss the Scramble Game questions in pairs.
3. Following discussion, highlight that this pillar and corresponding principles of the Earth Charter are not isolated from all aspects of justice (social, economic, environment). Explain that it is an integrated approach as equity and economic justice without social and environmental justice is not possible.

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

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

SDG12 Future of Enterprise Leadership

Lesson 5 The Third Earth Charter Pillar



EXTENSION / REDUCTION ACTIVITIES

Reduction: For a shorter class, set the final activity as an out of class group activity to be revisited in another class.

Extension: For a longer class: Option A 1. Explain that the Earth Charter identifies Social and Economic Justice as one of the movement's pillars and that leadership plays an important role.

Explain that leadership comes in many forms. 2. Write "community", "country" and "globally" on the board. and give each group a pack of 3 differently coloured Post It notes and instruct groups to brainstorm how they can work to promote social and economic justice under in their community, their country, globally? Learners note ideas on the different notes.

Option B: Have learners watch the TED-Ed video Is inequality inevitable? Answer the questions on Worksheet: Equality and Leadership or have learners watch the video: What is inequality and social justice? and ask them to summarise their understanding in writing. (See Media Box).

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

VIDEO Is inequality inevitable? TED-Ed [6:49min]

https://youtu.be/rEnf_CFoyv0

VIDEO How can we recognise the rights of nature?

<https://youtu.be/l5O-Awcx3lc>

ARTICLE Promoting justice through community-based research: International case studies March 2022, *American Journal of Community Psychology* 69(2)

DOI:10.1002/ajcp.12584

The Earth Charter

<https://earthcharter.org/education-sustainable-development/>

The Earth Charter Resources

<https://earthcharter.org/resources/>

Local Trip / Expertise / Additional Work and Assessments

1. Encourage learners to research Irish initiatives regarding Ocean Leadership (health and literacy) addressing social and economic justice and create an infographic or presentation of their findings.

Linked Learning: Passion 2 Purpose Lessons: Empathy 1, Values 1 and 2, Shifting Perspectives for Solutions

MM2: LESSON 5 TEACHER'S NOTES

12 RESPONSIBLE
CONSUMPTION
AND PRODUCTION



INTEGRATED APPROACH TO JUSTICE

The Scramble Activity Instruction

This activity requires some preparation before the lesson. This is a whole class activity.

- You will need 100 cent coins/counters or marbles.
- A large space to allow for game play
- 3 x pairs of mittens or masking tape to restrict mobility of hands
- 3 scoops

Note: Keep in mind the socioeconomic composition of your students. Guard against having this activity confirm the existing inequalities in wealth and power.

1. Explain that the wealth and power of the world will be distributed by the students amongst themselves. Wealth is represented using small wrapped sweets, and tell learners that they will be allowed to eat the treats when the activity has been completed. The rewards attached should be designed to be meaningful to the participants playing the game. For example, each penny(sweet) could signify a certain amount of extra free time in class or a special treat from the teacher. Design the rewards to be valuable enough to make authentic distinctions between the wealthy and powerful and the poor and weak.

2. There is one rule: At no time may one student touch another. Penalty for breaching this results in learners having to return their wealth.

3. Invite the groups to stand in a circle in the centre of the classroom and hand out the mittens to a three learners and do not explain why at this stage. (the mittens will be used to reduce mobility during the game as a means of emphasising inequality).

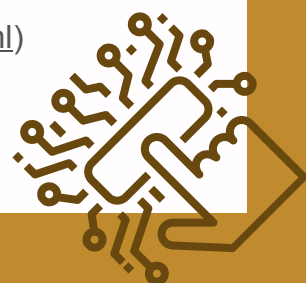
4. Scatter the "coins" or "sweets" evenly in the middle of the circle.

5. Give three learners five extra pennies as well as a scoop each. This is to emphasize that some start off with more than others.

6. Instruct all to wait for the order of GO, and that they must gather as many pennies as possible without touching one another.

(adapted from

<http://hrlibrary.umn.edu/edumat/hreduseries/tb1b/Section2/activity2.html>)



MM2: LESSON 5 TEACHER'S NOTES

12 RESPONSIBLE
CONSUMPTION
AND PRODUCTION



INTEGRATED APPROACH TO JUSTICE

The Scramble Activity Instruction Continued

This activity requires some preparation before the lesson. This is a whole class activity.

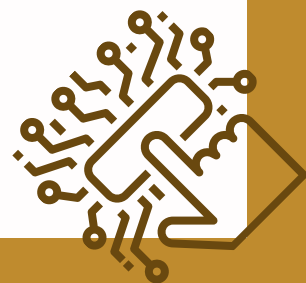
7. After all the pennies have been collected, have participants report their wealth to the class. Record participants names and number of pennies on a board or chart paper under three categories:

- GREAT WEALTH AND POWER (those with six or more pennies - the smallest group);
- SOME WEALTH AND POWER (those with three to five pennies - the middle group); and
- LITTLE WEALTH AND POWER (those with two or fewer pennies - the largest group).

8. After the game has finished, direct learners to Worksheet: Integrated Approach to Justice to discuss the Scramble Game questions in pairs

9. Following discussion, highlight that this pillar and corresponding principles are not isolated from all aspects of justice (social, economic, environment). Explain that it is an integrated approach as equity and economic justice without social and environmental justice is not possible.

(adapted from <http://hrlibrary.umn.edu/edumat/hreduseries/tb1b/Section2/activity2.html>)



MM2: LESSON 5 TEACHER'S NOTES

12 RESPONSIBLE
CONSUMPTION
AND PRODUCTION



VIDEO - IS INEQUALITY INEVITABLE?

VIDEO Q & A

Q: What example is given to demonstrate economic inequality at the start?

A: South Africa - one of the most unequal countries in the world.

Q: What is the "Genie Index"?

A: A number comparing wealth distribution.

Q: How is it calculated?

A: The wealth distribution of a perfectly equal society to the actual wealth distribution. The variation multiplied by 2 = genie index.

Q: What does 1 and 0 represent?

A: 1 = one person has all, everyone else has nothing. 0 = everyone has exactly the same wealth (perfect equality)

Q: What DOESN'T The Genie Index tell us?

A: How income and wealth are distributed across gender, race, education etc. how easy or difficult it is to escape poverty, how a particular society arrived at present level of inequality.

Q: What three examples are given of other inequalities entangled with economic inequality?

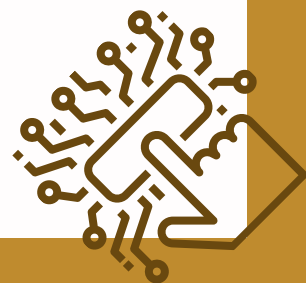
A: Discrimination, Imperialism, Colonialisation.

Q: What did these inequalities result in?

A: Power and class inequalities.

Q: What is one thing suggested is the reason for inequality?

A: Government choices.



MM2: LESSON 5: INTEGRATED APPROACH TO JUSTICE

12 RESPONSIBLE CONSUMPTION AND PRODUCTION



1. JUSTICE

- Work in Groups of 3.
- Discuss the questions in the speech bubbles below.



WHAT IS JUSTICE?

Is it easier to define what is "fair" or to label an outcome as "unfair"?

NOTES

2. THE SCRAMBLE GAME

- Play the game
- Discuss the outcomes

Was the outcome/result fair?

Was the process fair?

How did the difference in wealth impact:



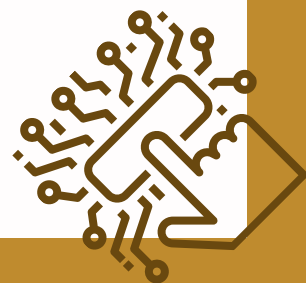
your feelings?



your views of each other?



your views of what you could do in real life if you were in these wealth situations?



MM2: LESSON 5 INEQUALITY VIDEO

12 RESPONSIBLE
CONSUMPTION
AND PRODUCTION



VIDEO: Is inequality inevitable?

VIDEO LINK Is inequality inevitable? TED-Ed [6:49min]

https://youtu.be/rEnf_CFoyv0

Watch the video and take notes to the following questions:

“What is the
“GINI Index”
and how is it
calculated??”

WATCH NOW

“What does 1
and 0
represent?”

“What DOESN'T The
GINI Index tell us?”

“What is one thing
suggested is the
reason for
inequality?”

SOCIAL
JUSTICE

ECONOMIC
JUSTICE

