SDG14 Future of the Ocean
MM1: Introduction to Ocean Literacy

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Research and Development

Lesson 7: Local Coastal Pollution 2

Subject Areas: CSPE, Climate Action and Sustainability, Geography, Science, SPHE

Lesson Title and Summary: Local Coastal Pollution 2

This is a linked lesson with Lesson 6 Local Coastal Pollution 2. If you didn't complete a beach clean in Lesson 6, please move on to Lesson 8.

In this lesson, learners will further develop their awareness of the impact of pollution on the ocean and take action to help restore ocean health locally. The learners' first hand experience will be used to develop observational skills including data gathering and analysis.

Vocabulary: Data, Non-Recyclable, Observation, Ocean Literacy, Recyclable

In this lesson, the learner will:

- increase their ocean literacy skills
- increase understanding of humans influence on nature and the ocean
- work collaboratively
- participate in citizen science
- practice independent & group work
- develop skills of data analysis
- develop mindful reflection skills

Materials

- Worksheet: Beach clean review & analysis
- Supporting resource: Observation cards (completed in Lesson 6)
- Collated rubbish (from Lesson 6 beach clean)
- Gloves
- Large containers x 4 (equal size and weight)
- Measuring scales
- Large sheet or newspapers

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Activity Instructions

Activity 1: Beach Clean Review (10 mins)

1. Using the observation cards from Lesson 6 and Worksheet: Beach clean review analysis, ask students to work with another pair to compare what was found during the beach clean. Using the following prompts to aid analysis.

- Did you find similar items during the clean? What was the most common item?
- How many recyclable items were found? Non-recyclable?
- What was the strangest item you found? How do you think it ended up on the beach?
- Do you think these items would be found on most beaches in the local area? Why/why not?

Activity 2: Analysing local coastal pollution (40 mins)

This activity is best done in an open space, outdoors.

1. Ask learners to form groups of 2-3 and give each groups gloves and Worksheet: Beach clean review & analysis.
2. Set up the containers as 'Recyclable', 'Non-Recyclable', 'Organic', 'Other/Unknown'
3. Distribute the rubbish bags equally among the groups and ask them to sort the trash into the relevant containers. Use the large sheet/newspapers for groups to dump their rubbish onto. Discuss reasons for putting items in the 'Other/Unknown' container.
4. Once the trash is sorted, weigh each container separately to assess how much of each material was collected from the beach. Which category weighed heaviest?
5. Add values together to get a total weight for all the items collected. Is this more or less than expected?
6. Calculate what percent is non-recyclable, recyclable, organic and other/unknown by dividing the weight of each by the total weight then multiplying by 100.
   Example: 5kg of recyclable items / 20kg total = 0.25, 0.25 x 100 = 25% of the trash collected is recyclable.
7. Discuss the results and implications

- What is the highest percentage? What could be the reasons for this?
- Are the recyclable items truly recyclable? Why/why not?
- What surprises you about the analysis of trash?
- What impact might this trash have had on the animals and the environment?
- What ways can we prevent this trash from reaching the beach?

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

- Three things they feel they have learnt from the tasks
- Two things they found most interesting and would like to explore more
- One opinion they have about the activities, what did they like or how they would improve them

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

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EXTENSION / REDUCTION ACTIVITIES

Reduction: For a shorter class, complete Activity 2 only.

Extension: For a longer class, investigate which online citizen science projects the data could be uploaded to. Create visual representations of the analysis. Complete a second beach clean at a different local shoreline and redo the analysis, comparing the data.

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

Article: Recyled Plastic Projects https://www.afar.com/magazine/save-oceans-as-you-shop-10-sustainable-products-made-from-recycled-waste

Website: Clean Coasts https://cleancoasts.org/

Website: The Ocean Cleanup - https://theoceancleanup.com/

App: Litterati (building the most powerful crowd-sourced set of data on litter ever assembled) https://www.litterati.org

Design Requirements for Ireland's National Single Use Plastic Policy https://www.gov.ie/en/publication/ef24a-single-use-plastics/#design-requirements

World Economic Forum, Plastic Packaging Problem: 5 Innovative Ideas for https://www.weforum.org/agenda/2019/10/plastic-packaging-environment-design-loop/

Local Trip / Expertise / Additional Work and Assessments

Create a running data collation project on the trash collected during local beach cleans. Use the Media Communications programme to work with learners on presenting their findings.

Set up a presentation night or exhibition for the local community to hear about local ocean and coastal pollution. Work with a local marine awareness centre / tidy towns group to organise regular beach cleans.

Contact / Invite local authority Environment or Climate Change officer to discuss Single Use Plastic Policy within the local context. This could become the source of a media output using MM7 Media Communication Module:

MM1: L7WS BEACH CLEAN REVIEW & ANALYSIS

Activity 1 Beach Clean Review

1. Find a partner.
2. Using your observation cards from the beach clean, compare what was found.
3. Discuss the following questions:

- Did you find similar items during the clean? What was the most common item?
- How many recyclable items were found? Non-recyclable?
- What was the strangest item you found? How do you think it ended up on the beach?
- Do you think these items would be found on most beaches in the local area? Why/why not?

Activity 2: Analysing local coastal pollution

1. Form groups of 2-3.
2. Sort rubbish into the containers- ‘Recyclable’, ‘Non-Recyclable’, ‘Organic’, ‘Other/Unknown’.
3. For the items that were put in the ‘Other/Unknown’ container, discuss why you selected that category.

How much does each container weigh?

Recyclable: _____ Non-Recyclable: _____

Organic: _____ Other/Unknown: _____

Circle the heaviest category.

What is the total weight of the four categories? _____
Is this more or less than you expected? Why?

Calculate what percent is non-recyclable, recyclable, organic and other/unknown by dividing the weight of each by the total weight then multiplying by 100.
Example: 5kg of recyclable items / 20kg total = 0.25, 0.25 x 100 = 25% of the trash collected is
recyclable.

Discuss the results and implications

- What is the highest percentage? What could be the reasons for this?
- Are the recyclable items truly recyclable? Why/why not?
- What surprises you about the analysis of trash?
- What impact might this trash have had on the animals and the environment?
- What ways can we prevent this trash from reaching the beach?