Session Leader Notes

Part 2: Recycling and contaminated waste

This lesson plan introduces recycling and contaminated waste to Key Stage 3-4 students in a way that challenges them to think critically about waste and sustainability. By focusing on the environmental impacts, the recycling process, and real-world strategies to improve waste management, students gain a deeper understanding of their role in protecting the planet.

Recommended for:

Key stage 3-4 (Ages 11-16)

Session duration:

60 Minutes

Objectives

By the end of this lesson, students will:

1. Understand the environmental impact of waste and the importance of recycling.
2. Understand what waste contamination is, why it is important to separate waste and how to do it correctly.
3. Be able to explain the recycling process and the benefits of reducing waste.
4. Discuss the challenges and solutions to improving recycling practices in their communities.

Recommended group rules

- Listen to each other.
- Treat each other with respect.
- Engage with and enjoy the learning.

Materials (what you need)

- **Provide at the start of the lesson:** Whiteboard and markers for answering questions.
- **For Slide 14-16:** Sort it Out - Recycling Sheet - **this activity can be done using this sheet or provide the below materials for a more hands on activity:**
  Contaminated waste items (e.g., dirty bottles, paper, cans, cardboard boxes, aluminium foil, etc),
  Coloured bins or bins labelled: “Recyclable,” and “Non-Recyclable”,
  Access to a sink or wash facilities.
- **Slide 18 - Provide this sheet if the activity is to be done as homework :** Recycled City Sheet

Technical requirements

- A good standard of audio and visual for the group size for the short video on slide 7.

Lesson Outlines

Part 2: Recycling and contaminated waste

1. Introduction to recycling (10 minutes)

Start with a question: "What is recycling?"

- Ask students what they think happens to the waste that goes in our blue bin when it is taken away.
- Introduce the idea of recycling: "Recycling means turning old things into new things so we don't have to use as many new resources, and we can help protect our planet."
- Explain how sometimes recyclable items can cause contamination if for example they have food waste in / on them and haven't been cleaned properly.

Video:

Before showing the video, go through the list of questions for students to think about whilst watching:

- What items can be recycled?
- Why should we recycle these items?
- What should we check for when recycling items?
- Where does food waste go?

You can discuss this as a class afterwards.

Introduce the concept of recycling:

Recycling involves processing used materials to make new products, reducing the need for raw materials, saving energy, and lessening pollution.

Discuss the key benefits of recycling:

- Conservation of natural resources.
- Reduction in greenhouse gas emissions.
- Decrease in landfill use.
- Creation of new products and job opportunities.

2. Sorting waste and identifying types (15 minutes)

Introduction to waste categories:

Discuss the different types of waste (refer to each bin set up):

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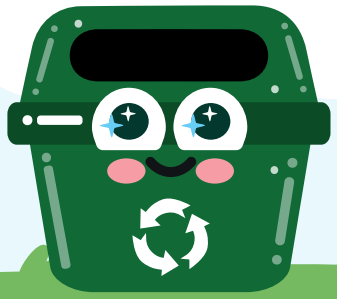

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- **Recyclable materials:** paper, cardboard, glass, plastic bottles, metals, etc. – touch on the recycling label as an identifier.
- **Compostable materials:** food scraps, garden waste, biodegradable items.
- **Non-recyclable/general waste:** Items that can't be recycled or composted (e.g., broken glass, non-recyclable plastics, dirty tissues, etc.).

Contamination:

- Introduce the concept of waste contamination by showing a recycling bin filled with mixed items (e.g. pizza boxes with leftover food, dirty plastic bottles), along with items that show the recycling logo. Note that the small print shows only certain parts of this item are recyclable. This bin is contaminated.
- Explain that although some of these items are perfectly fine to recycle, contamination occurs when these items are not cleaned or separated properly, making it harder to recycle or not possible at all.

Sort it out activity:

- Give the students a collection of different items from the recycling bin (mentioned above) and using the information just discussed, ask them to separate the items into the appropriate bins, taking the correct steps to separate / clean items before recycling.
- **Reminder:** If they are dirty, they need to be cleaned and if they have a recycling label on them read them carefully to see what parts can be recycled and what can't – clean / separate them accordingly.

Group Discussion:

- After sorting, go over each item and discuss why they have placed them where they have. Reinforce the idea of avoiding contamination, like washing out containers before recycling them. Ask them where they have put any food scraps they may have removed and where non recycle parts have been placed.

Have the students discuss the reasons behind their choices.

For example:

- "Why does this plastic bottle go in the recycling bin?"
- "Can food scraps be composted or recycled?"
- "Why can't this broken glass go in the recycling bin?"

Recycled City Activity:

This task can be done in the classroom or as homework or it can be slip to do half and half.

Using the waste materials separated earlier, get the students to create their favourite landmark from the city.

- Once completed, get them to choose one of the materials they used to create their landmark and research the process used to recycle that material. Write up what happens to the material from the moment you no longer need it to the journey it then goes on to be turned into something new!

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3. The Recycling Process (10 minutes)

Explanation of the recycling process:

Walk students through the steps of recycling reinforcing the information shown in the video at the start of the session:

1. **Collection**: Materials are collected from homes, schools, and businesses.
2. **Sorting:** Materials are sorted by type (plastic, paper, metal, etc.).
3. **Processing:** Recyclable materials are cleaned, broken down, and turned into raw materials.
4. **Manufacturing:** These raw materials are used to create new products.
5. **Buying recycled products:** Finally, buying products made from recycled materials helps close the loop.

Ask if they can give examples of items they may own that fall into this category.

Discussion on challenges in recycling:

Discuss some common challenges in the recycling process:

1. Contamination (e.g., food residue or mixed materials).
2. Limited recycling infrastructure.
3. Complexity of sorting and processing certain materials (e.g., multi-layer packaging).

5. Strategies for effective recycling (10 minutes)

Brainstorming session

Have students discuss ways they can improve recycling at school and at home.

Suggestions might include:

- Educating others on recycling.
- Setting up more accessible recycling bins.
- Reducing single-use plastics.
- Supporting products made from recycled materials.

6. Conclusion and recap (5 minutes)

Wrap up discussion:

Summarise the key points of the lesson:

The importance of sorting waste, the recycling process, and how students can contribute to reducing waste. Reinforce the idea that recycling isn't just about throwing things in the right bin; it's part of a larger effort to conserve resources, reduce pollution, and create a more sustainable future.

Exit Ticket:

- As an exit ticket, ask students to write down one fact they learned about recycling and one action they will take to recycle more effectively.

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Reflection for Teachers:

Ensure the lesson is interactive and that students are engaged in discussions about the environmental impact of waste. Use the sorting activity to highlight the real-world challenges of waste management and recycling. Consider addressing any local recycling issues or specific materials (e.g., how to properly recycle electronic waste or batteries) that may be relevant to students' everyday lives.