Session Leader Notes

Part 3: Composting and organic waste

This lesson plan introduces composting and organic waste to Key Stage 3-4 students, emphasising both the scientific process and the real-world environmental impact. It aims to foster a sense of responsibility and action towards sustainability, waste reduction, and environmental stewardship.

Recommended for:

Key stage 3-4 (Ages 11-16)

Session duration:

40 - 60 Minutes

Objectives

By the end of this lesson, students will:

1. Understand the process of composting and its importance in waste management and sustainability.
2. Learn what organic waste is and how it can be diverted from landfills through composting.
3. Discover how composting benefits the environment, including soil health, waste reduction, and the fight against climate change.
4. Identify common organic waste materials and differentiate between compostable and non-compostable items.
5. Learn how to set up and maintain a compost system at home, school, or in their community.

Recommended group rules

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

Materials (what you need)

- **For Slide 10:** Sort it Out - Composting Sheet - **this activity can be done using this sheet or provide the below materials for a more hands on activity:**
  A variety of organic waste items (e.g., fruit and vegetables scraps, leaves, eggshells, paper, cardboard),
  A few non-compostable items (e.g., plastic, glass, metals),
  Coloured bins or bins labelled: "Compost Brown," "Green Caddy" and "Other".
- **Slide 14 - In class Activity or Homework:** Compost Bin Sheet and a large container for making a compost bin.
- **Slide 16 - In class Activity or Homework:** Pens and paper for poster designing.

Technical requirements

- A good standard of audio and visual for the group size for the short video on slide 8.

Lesson Outlines

Part 3: Composting and organic waste

1. Introduction to composting and organic waste (20 minutes)

Start with a question:

"What happens to food scraps or garden waste when it's thrown away?

"Have you ever thought about where that waste ends up?"

Lead into a brief discussion on landfill, waste incineration, and the problems of organic waste ending up in landfills (e.g. methane production, resource loss).

Break it down further into discussing what methane gas is, wasted resources and space issues.

Click for discussion...

- Ask students what they could do to stop waste going into landfill (i.e. using the correct bins, educating those living in the household on composting and the importance of separating waste items).
- Answers will be shown on the following slide.

Video introducing composting: Using the brown and green caddy bin characters:

- How they work together and what goes in each of them.
- How composting is the natural process of recycling organic materials (such as food scraps, plant matter, and garden waste) into nutrient-rich soil.

Let's recap - what can be composted

- Discuss the key points mentioned in the video you have just watched. Go over the items mentioned by Brad the Brown Bin and Charlie the Green Caddy Bin.

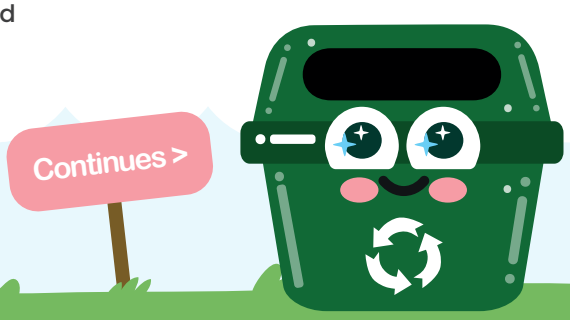
Interactive activity - sorting waste:

- Provide students with three bins: compost, general waste and recycling (and some gloves if using real food).
- Present students with a list or physical examples of items (e.g., banana peel, paper towel, broken items, plastic bag, meat scraps - include lunch leftovers.)
- Ask students to categorise each item into one of the three bins.
- Have a class discussion on each item to explain why it goes in its respective category and clarify any confusion.

2. How composting works (15 minutes) continued activity

The composting "recipe":

Compost requires a balance of "greens" (nitrogen-rich materials) and "browns" (carbon-rich materials).



Continued...

- **Greens:** food scraps, coffee grounds, grass clippings.
- **Browns:** dry leaves, straw, cardboard, sawdust.
- The proper mix of greens and browns helps maintain the right moisture level, airflow, and temperature for decomposition.

The composting process:

- Explain the science of composting. Discuss the role of microorganisms, fungi, bacteria, and worms in breaking down organic materials.
- Aerobic vs. anaerobic decomposition: Aerobic decomposition occurs with the presence of oxygen, and it's the method that works best in composting. Anaerobic decomposition, which occurs without oxygen, leads to methane production and is what happens in landfills.

Demonstration:

- Show students an example of a compost bin. Walk through how to set up a compost system using layers of greens and browns.
- Alternatively, if a compost thermometer is available, use it to demonstrate the temperature of an active compost pile (ideal range: 55-70°C).

3. Compost care

- Have students design posters to display around school about composting and how to properly compost organic waste. Include key information like what can and can't be composted.

4. Wrap-up and reflection (5 minutes)

Class discussion:

Ask students to share how they could apply composting in their own lives. Could they start composting at home? How could they encourage others to compost as well?

Exit Ticket:

- For the exit ticket, ask students to write down one new thing they learned about composting and one action they can take to reduce organic waste (e.g. starting a compost bin, educating others about composting, etc.).

Reflection for Teachers:

Observe students' understanding during the lesson and adapt the pace of the discussion as needed.

Provide additional resources or readings about composting if students show an interest in the science behind the process or the environmental benefits.