SDG 15 Seeding Sustainability
MM4 Growing and Foraging

MM4: Growing and Foraging

Experimentation and Exploration

Lesson 11: Composting

Subjects: CSPE, English, Geography, Horticulture, Science

Lesson Title and Summary: Composting

Composting is a process by which organic matter, like leaves and food scraps, decomposes into soil.
It's a great way to recycle scraps from the garden and kitchen to enrichen the soil, improving water retention, and protect against erosion.

Vocabulary: Anaerobic digestion, Compost, Vermiculture

In this lesson, the learner will:

- gain an overview of various composting methods
- consolidate their understanding of the processes involved in turning organic waste into usable compost
- explore the design issues relating to the construction and siting of a compost area
- introduce/reinforce terminology for composting: hot/cold, vermiculture, anaerobic digestion

Materials

- White / Blackboard
- Internet Access

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ACTIVITY INSTRUCTIONS

Activity 1: Activate knowledge on composting (15 mins)

Write the prompts below on the board in advance of the lesson.

- *What is composting?*
- *What can and can't be composted?*
- *What are some of the things you need to think about when starting to compost?*
- *How does the composting process happen?*
- *What does aerobic/anaerobic mean?*
- *What is Vermiculture?*

1. Working in pairs have learners discuss / find out the meaning of the discussion prompts and make notes on their findings.
2. Go through the ideas as a class and make notes on the board.

Activity 2: Green & Brown Material Identification (15 mins)

1. Watch the VideoL The Compost Story (6:46 min).
2. Ask learners to find out the difference between Green and Brown compost material *(Green materials are high in nitrogen and moisture, and Brown materials are high in carbon and low in moisture).*

2. Working as a class, develop a list of green / brown composting materials, learners can use their phones / access the internet that can be used within composting.
3. Review each item and acknowledging that a compost bin needs a good mix of green and brown materials.

Activity 3: Thinking about a composting area (20 mins)

1. Form small groups of 2-3 people.
2. Put a question on the board, 'What is the best plan for a composting area in our school?' and the following questions:

    - What is the best location?
    - What size should it be?
    - What materials could you use? New or recycled?
    - What are the issues your design must mitigate against?
    - What are important issues with the siting of your compost area?
    - Can your design speed up the composting process?

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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

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

EXTENSION / REDUCTION ACTIVITIES:

Reduction (40 min lesson): For a shorter lesson, complete Activities 1 and 2, and introduce Activity 3 as an at-home writing task.

Extension (80 min lesson): For a longer lesson, use the questions in Activity 3 as a mini-research task, with learners working in small groups, including siting and making compost.

Additional Lesson: Focus on outcomes for Activity 3 and implement installing school composting.

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

Video: The Compost Story (6:46 min) https://www.youtube.com/watch?v=bqDQD8cvO5Y

Video: Making Compost the simple way (9:20min) https://www.youtube.com/watch?v=swLkA1cHJ4Y

Video: What Happens When You Bury Kitchen Scraps? (11:58 min)
https://www.youtube.com/watch?v=yQFB9M2UdK0

Website: https://www.gardeningknowhow.com/composting/basics/compost-vs-humus-in-garden.htm

Website: Stop Food Waste https://stopfoodwaste.ie/resources/composting

Website: Composting 101 https://www.nrdc.org/stories/composting-101

LOCAL TRIP / EXPERTISE / ADDITIONAL WORK AND ASSESSMENTS

Organise a visit to your local Tidy Towns representative or community garden to see composting in action. Alternatively, you could ask the person in your school responsible for composting to give students a talk and lead through of the process in the school.

Contact Stop Food Waste to see what support they can offer your school
https://stopfoodwaste.ie/contact-us

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ACTIVITY 1: ACTIVATE KNOWLEDGE ON COMPOSTING

1 - Suggested responses to questions:

- Composting is the breakdown of organic material. Any organic material can be composted. Cooked food, dairy, fish or meat shouldn't be composted as they may attract mice and rats (vermin). Any plant material that looks like it has a fungal or bacterial infection shouldn't be composted as it could spread the infection.
- Where to place your composter. What to compost- you need a mix of green (plants, veg scraps) and brown (cardboard). What issues there might be- smell, vermin.
- Composting happens with bacteria, fungus, and animals: worms, slugs, other insects. Bacteria and fungus colonise the heap first, animals second.
- With/Without oxygen.
- Introduce hot and cold compost, vermiculture, anaerobic digestion:
    - Hot: In piles larger than 1m sq. Bacteria/fungus- heats pile to 50 –70c.
    - Cools down after about a week. Animals colonise the heap.
    - Cold: smaller amounts, bacteria/fungus/animals all at once
    - Vermiculture: very small amounts, worms mainly, no acid material, very rich.
    - Anaerobic digestion: without oxygen, cooked food, meat, fish, dairy. Produces methane.