TUMBLEWEED®

Build a Compost Pile

Skills

Students will:

- Plan and build a compost heap
- Work collaboratively

Values and Attitudes

Students will:

- Be enthusiastic about creating a product
- Appreciate the benefits of composting.

Materials Needed

- Pitchfork or spading fork
- *"Green"* and *"Brown"* plant trimmings (see Background Information below)
- Yard clippers
- Water
- Compost bin
- Flat-edged shovel.

Background Information

Composting is an excellent way to demonstrate the cycle of life: life, death, decomposition, and re-birth.

Micro-organisms and insects help us turn biodegradable materials into rich, dark compost that returns valuable nutrients to nature instead of creating landfill.

The four essential ingredients of compost are:

1. **Browns:** dry, woody plant trimmings, such as wood chips, dried leaves, and straw. Browns are rich in carbon.
2. **Greens:** moist vegetable and fruit scraps, green leaves, and fresh manure. Greens are rich in nitrogen.
3. **Air.**
4. **Water.**

In a compost pile, you want approximately half brown materials and half green materials by volume. Decomposer organisms need air and water to break down organic matter. Turning and watering your pile provides it with the air and moisture needed for micro-organisms. The pile should be as moist as a wrung-out sponge. These four ingredients create the perfect environment for the main decomposers: fungi, bacteria, and insects.

Management Skills

Make sure your compost bin is close to a source of water and resistant to rats and vermin. This means it needs a top and a bottom, and all openings must be less than a 0.6mm (1/4-inch). The pile should be located outdoors and on top of the soil rather than concrete or asphalt.

Activity

When undertaking this activity, students will:

- As a class, discuss the cycle of life and the concept of decomposition.
- Research and discuss, notate and present examples of biodegradable materials that might be thrown away at home or at school (banana peel, dried leaves).
- Research and discuss the materials that can be composted, such as yard trimmings and food waste.
- Research and discuss what compost looks like and its benefit to the garden; pass around a small bag of finished compost.
- Research and discuss possible reasons to compost; eg. to reduce landfill, return biodegradable materials to nature, care for the environment; reduce the need for chemical fertilisers and pesticides; have fun.
- Research and discuss the basics of composting and plan how to build a compost pile:
  - Chop materials into pieces that are 15cm (6 inches) in size or less.
  - Mix browns and greens (half of each by volume).
  - Maintain moisture by keeping the pile as wet as a wrung-out sponge.

- Create the pile and add any materials students have collected, such as orange peels, apple cores, other vegetable and fruit trimmings, and paper as well as grass clippings and leaves from the school. Avoid diseased plants, as well as dairy or meat products which may attract animals. Bury the food waste in the centre of the pile.
- Have the participants collect the brown and green materials in separate piles (an equal amount of each works well).
- Assign students to help with each of the tasks of chopping, layering greens, layering browns, mixing, and watering.
- Build the compost pile by alternating layers of brown and green material, wetting down each layer as you go. The pile should be about as wet as a wrung-out sponge.
- Stir the layers together with a pitchfork as you build the pile, keeping it "fluffed up" to maximise aeration.
- Plan for ongoing maintenance and eventual harvesting of the compost pile.
- Always finish the pile with a layer of browns, finished compost, or soil. Don't put greens on top; this will help prevent fly nesting.
- Once the pile is built, review the basics of composting and why it is important.