25min Rotten Apple Party
Grade 2 Facilitator Notes

Objective: To use the metaphor of *throwing a party* to introduce students to how composting works, how it benefits our soil and the idea that soil is a habitat for billions of organisms.

Recipe Category: Soil & Composting

Cooking Time: 25 mins

✓ **Level of Difficulty:** Grades 2

Recipe Ingredients:

Introductions

- ☐ Soil samples: compost, dirt and coconut husk in containers with lids

Welcome to the Party

- ☐ Dance music
- ☐ Rotten Apple Disco Ball
- ☐ Wrung out sponge
- ☐ Costume items:
  - Psycrohile: Name tag, scarf, winter hat
  - Mesophile: Name tag, sunglasses, plastic tools
  - Thermophile: Name tag, egg flip
  - Fungi: Name tag, shower cap, lei necklace
  - Worm: Name tag, stocking cap

Curriculum Links:

Grade	Subject Area	Ontario Curriculum Links
2	Science and Technology	*Understanding Life Systems:* Demonstrate an understanding that animals grow and change and have distinct characteristics (O) • 3.3 Identify ways in which animals are helpful to, and ways in which they meet the needs of, living things, including humans, to explain why humans should protect animals and the places where they live (S)

Introduction: (5 minutes)

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Firstly, ask who likes going to parties… *What about a compost party!*

- Ask the class for their definitions of *composting*. If they have no idea, ask them about *recycling* first and then relate it back to composting.
- Compare how composting is kind of like a party for teeny tiny microorganisms (animals that are so small, we can't event see them!) in the soil – but really it's a *habitat,* where they all live together happily.
- The end result of composting is beautiful worm castings or, worm poop!. This stuff looks like dirt, but really is a super-duper soil to make healthy plants. *What happens?*
- Worms wait for our food scraps to start breaking down after we've tossed them into the green bin or compost pile, before feeding on them. Just like us, worms poop. But worm poop is special stuff that helps our garden to grow big and strong. Kind of like what fruits and vegetables do for us.

***Show, feel and smell soil samples (compost, dirt and coconut husk) and discuss the differences between them.*

- Textures
- Colour
- Smell
- Benefits/Uses

Welcome to the Party! (15 mins)

When composting it's helpful to remember that a compost bin is a *habitat* – a home to thousands of micro and macro organisms that need food, water and air.

To help us better understand composting, and how to support the habitat we like to think of it as a party – A Rotten Apple Party!

If you've got all the right elements you'll be able get a good turn out of 'guests' and have a healthy, and happening compost bin.

- Ask students what it takes to make a good party – the right space, the right food, the right beverages, and the right people or in this case organisms. If our 'Rotten Apple Party' has the right elements we'll have healthy compost, generating a good amount of heat and helping to quickly breakdown garden waste, food scraps, etc.

Location:

The first thing we need to consider when composting, or when having a party is where to host it. What type of bin will you use? Will it be a garbage bin? A recycling bin? A green bin? Or perhaps a corner of your backyard at home?

Food:

When we have a party, we usually want to offer a nice balance of foods, in the case of a 'Rotten Apple Party' the variety of organisms in our compost bins need a balance of different types of foods – just like we do!

When your food is put in the compost bin it is eaten by millions of microorganisms and decomposers, such as worms, beetles and millipedes, and then the nutrients (good stuff) in our food is pooped by all of these organisms and released back into the soil.

Beverages:

Beyond having the right food, these organisms also require a certain amount of moisture, and the ideal bin will have the consistency of a wrung out sponge, moist to the touch, but without pooling liquids. (*pass out the sponge to feel)*

Guests:

The compost bin is a swarming mass of many different microorganisms. Let's find out who's at the party!

Ask 3-4 volunteers at a time to stand at the front and dress up as the following characters. Ensure everyone gets a turn and that they keep their costumes on!

*Psychrophiles ("sike-ro-file") – present in lower temperatures, like a cool spring day (for teachers, less than 20°C), first bacteria to arrive on the composting scene/at the party

- *Have students wear a scarf/winter hat and a name tag*
- *The Psychophilic* phase is where these bacteria invade the compost pile and begin to burn carbon, releasing heat and nutrients. As the temperature begins to rise, the next gang of bacteria arrives…

*Mesophiles – ("miso-file") mid temperature like a hot summers day (for teachers, 20-30°C), most decomposition is 'mesophilic'

- *Have students put on sunglasses and carry tools and a name tag*
- *The Mesophilic* phase lasts for a couple of days. Mesophiles *love* food scraps, especially inside your compost bin. Mesophiles work really hard to consume just about everything in site, generating enough heat to raise the temperature even higher…

*Thermophiles – present at temperatures of 40-70°C – strong enough to boil an egg, destroy weed seeds and diseases too.

- *Give students an egg flip and name tags*
- *The Thermophilic* phase, can last from a few days to several months. Thermophiles arrive on site when the compost bin is hot!

*Worms and Fungi – work along side Mesophiles when things cool back down a little.

- *Hand out shower caps, flower necklaces and name tags (Fun Guy)*
- *Hand out skull caps, apple core pictures and name tags (worm)*
- The cooling phase may take several months. You won't see worms and Thermophiles side by side – because the worms will cook in such hot temperatures!

The time it takes to reach the hottest temperatures really depends on the type of scraps you use, the amount of moisture (water), the size of the compost heap and the amount it was mixed up to allow air to get inside.

Recap:

Revise key concepts:

-Compost

-Microorganisms

-Break down of food scraps

-Rotten Apple Party…

Dance Party! (5mins)

Turn up the music and have a dance party! Imagine if this was really the middle of a compost bin!

*If the students are particularly outgoing, you could have certain microorganisms dancing at different times – just like in real compost situation with temperature changes.

Serving Suggestions:

Microorganism nametags look something like this: