

Steam Rising From Field



Why is steam rising from this farmland outside of Notus, Idaho on a winter morning? Microorganisms in the soil are constantly active breaking down organic matter in the soil. As they work, they release heat (just like humans do), and the result is the steam you see here. This phenomenon is often observed in compost piles, and is affected by the amount of organic material, the moisture content, the aeration of the soil, and the carbon/nitrogen ratio. Students can use this phenomenon to explore how matter and energy cycle through an ecosystem and the process of decomposition.

Additional Resources:

- Video [Steam Rising From Field](#)
- Life Science [The science behind composting](#)
- Crash Course Kids video [The Dirt on Decomposers](#)
- Michigan State University [Decomposition Hike](#)

Performance Standards

1 st Grade	4 th Grade	5 th Grade	Middle School	High School
1-LS-1.3. Develop models to describe that organisms have unique and diverse life cycles but all have in common birth, growth, reproduction, and death.	4-LS-2.1. Develop a model to describe the movement of matter among plants, animals, decomposers, and the environment.	5-PS-3.1. Use models to describe that energy in animals' food (used for body repair, growth, motion, and to maintain body warmth) was once energy from the sun.	MS-LS-1.6. Develop a model to describe how food is rearranged through chemical reactions forming new molecules that support growth and/or release energy as this matter moves through an organism.	HS-LS-2.3. Construct an explanation using mathematical representations to support claims for the flow of energy through trophic levels and the cycling of matter in an ecosystem.



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