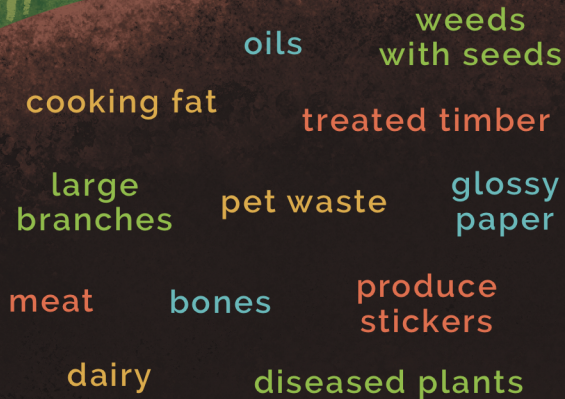


WHAT SHOULD I PUT IN MY COMPOST BIN?

✓ Good for compost:

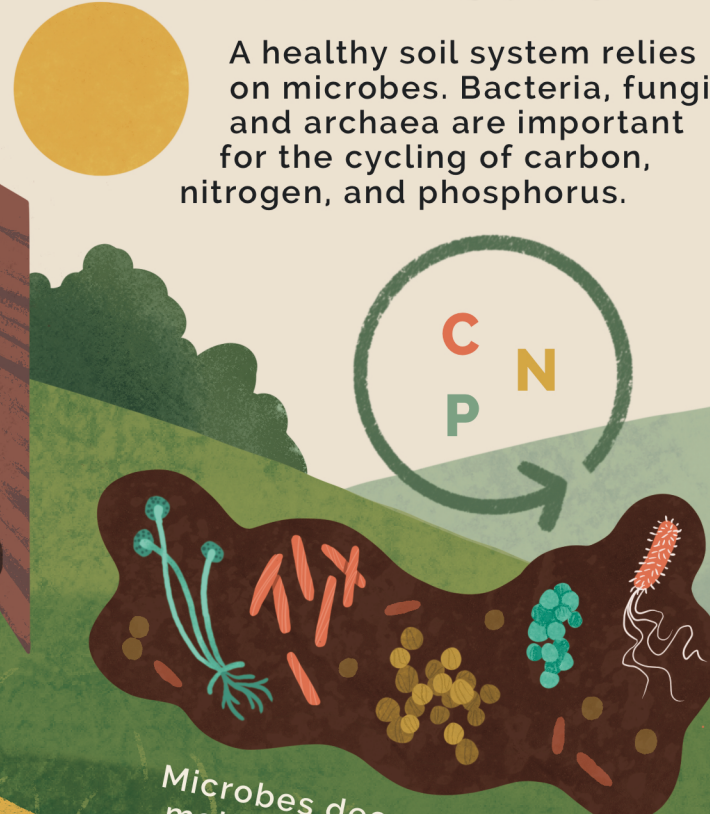


✗ Bad for compost:



HOW MICROBES MAKE HEALTHY SOILS

A healthy soil system relies on microbes. Bacteria, fungi, and archaea are important for the cycling of carbon, nitrogen, and phosphorus.



In a teaspoon of soil, there are more microorganisms than there are people on earth.

Applying compost to soil can positively affect the physical, chemical, and biological properties of soil, which leads to increased crop yield.



HEALTHY SOIL MAKES HEALTHY PLANTS

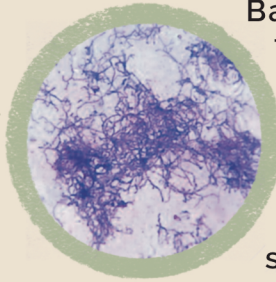
Compost use benefits the soil microbiome and increases soil pH, water retention, organic content, density, and porosity. Improved soil quality helps plants grow.

WHY SHOULD I COMPOST?

- Keep food waste out of landfills
- Return nutrients to the soil
- Build and maintain healthy soils
- Support a healthy soil microbiome
- Suppress soil-borne diseases
- Increase soil fertility
- Help plants thrive

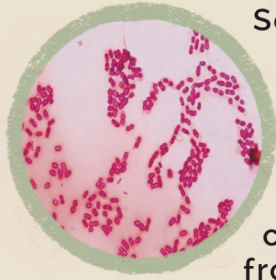
TYPES OF SOIL MICROBES

Streptomyces



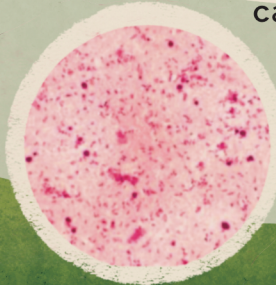
Bacterial species in the genera *Actinomyces* and *Streptomyces* produce a compound called **geosmin** that gives soil its earthy smell.

Azotobacter



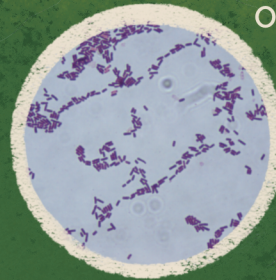
Some bacteria, such as *Azotobacter* and *Rhizobium*, play important roles in the nitrogen cycle. These microbes convert nitrogen gas from the air to forms of nitrogen that plants can use. *Rhizobium* has a symbiotic relationship with legumes and can be found in root nodules.

Rhizobium



Other bacteria, like *Bacillus subtilis*, break down proteins to release nutrients back into the soil.

Bacillus subtilis



COMPOST under the MICROSCOPE



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SOURCES

- 1 US EPA. 2018 Oct 16. Composting at home. US EPA. <https://www.epa.gov/recycle/composting-home>.
- 2 Hoorman JJ. 2010. Understanding Soil Microbes and Nutrient Recycling. Osuedu. <https://ohioline.osu.edu/factsheet/SAG-16>.
- 3 Wagner S. 2011. Biological Nitrogen Fixation. <https://www.nature.com/scitable/knowledge/library/biological-nitrogen-fixation-23570419/>.
- 4 Ho TTK, Tra VT, Le TH, Nguyen N-K-Q, Tran C-S, Nguyen P-T, Vo T-D-H, Thai V-N, Bui X-T. 2022. Compost to improve sustainable soil cultivation and crop productivity. *Case Studies in Chemical and Environmental Engineering*. 6:100211. doi: <https://doi.org/10.1016/j.csee.2022.100211>.