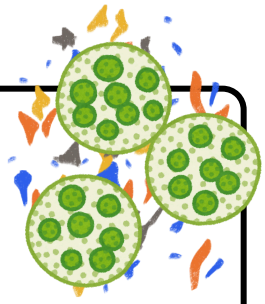
Name: _____ Date: _____

# Science Friday Think Big

**From "Can algae help pull microplastics out of our water supply?"**
Can microplastic-loving algae clean up water pollution?



Has there ever been a time when things turned out differently than you expected? That happens in science too! In fact, sometimes an unexpected scientific discovery can lead to a massive breakthrough. Dr. Susie Dai from the University of Missouri has made a scientific breakthrough that may help people combat water pollution with a genetically engineered algae.

1. Microplastics and nanoplastics may cause health problems for people. Why may this discovery be important to solving water pollution problems?

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2. Have you ever had an experiment or experience that had unexpected results? What did you learn from it?

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3. Water treatment facilities use a multistep process that chemically treats and filters water to clean it. How could this new process using algae improve water treatment?

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**The original audio for this story and the transcript can be found at:**
https://www.sciencefriday.com/segments/fire-amoebas-lava-exoplanet-atmosphere/
It is about 13 minutes long.

**This story aligns with the following NGSS standards:**

- LS1.A: Structure and Function - All living things are made up of cells, which are the smallest unit that can be said to be alive. An organism may consist of one single cell (unicellular) or many different numbers and types of cells (multicellular). Within cells, special structures are responsible for particular functions, and the cell membrane forms the boundary that controls what enters and leaves the cell.
- LS2.C: Ecosystem Dynamics, Functioning, and Resilience - Ecosystems are dynamic in nature; their characteristics can vary over time. Disruptions to any physical or biological component of an ecosystem can lead to shifts in all its populations.
- LS4.D: Biodiversity and Humans - Changes in biodiversity can influence humans’ resources, such as food, energy, and medicines, as well as ecosystem services that humans rely on—for example, water purification and recycling.
- ESS3.C: Human Impacts on Earth Systems - Human activities have significantly altered the biosphere, sometimes damaging or destroying natural habitats and causing the extinction of other species. But changes to Earth’s environments can have different impacts (negative and positive) for different living things.
- ETS1.B: Developing Possible Solutions - There are systematic processes for evaluating solutions with respect to how well they meet the criteria and constraints of a problem.

**Expected answers:**

1. A possible answer may be that microplastic is everywhere, including in our drinking water so we need to remove them to protect our health. This discovery may help us remove the pollution.
2. A possible answer may be that they tried a new food and didn’t expect to like it, but it turned out they did. They learned that you should be open to trying new things.
3. A possible answers may include that some microplastics are so small that they pass through the filtering process in traditional water treatment so the plastic is still in drinking water. The algae process could make sure that more microplastics are removed and the water is cleaner and safer to drink.