

What Can Kesler Science Do for You?

4th - 8th grade science teachers love our Life, Earth, and Physical Science materials! With these easy and engaging materials, teachers can save planning time and put their focus back on the teaching that really matters.



5E LESSONS

Two-week lessons with over 100 topics



ESCAPE ROOMS

Engaging activities for review



INQUIRY LABS

Three different levels to fit every student



AMAZING ANCHORS

Anchoring phenomenon to book-end your lessons



SUB PLANS

Never worry about planning for a sub again.



WARM-UPS

Bellringers for the entire year



STATION LABS

Student-led exploration



INTERACTIVE NOTEBOOKS

Bring science journals to life.



WIKI TICKETS

Quick formative assessments



STEM CHALLENGES

Real-world STEM problem-solving



GRAPHING

Table and charts and graphs ... OH MY!



SCIENCE READING COMPREHENSION

Leveled reading passages with mini-activities



SPANGLER COLLABORATION

Exclusive Steve Spangler lessons and videos



WRITING PROMPTS

Writing activities covering 100+ topics

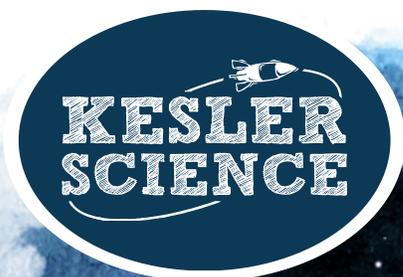


EXPLORIES

Story-driven units with integrated activities



The Kesler Science Professional Learning Network (PLN) group on Facebook has a huge community of engaged and supportive science teachers - come join us!



Repurposing Food Waste?

If you're like me, the best part of a big holiday meal might be the leftovers. Some foods just taste better that second day! But then there are those leftovers that get pushed to the back and forgotten - the ones that turn into a science experiment about fungi growth. Those join my banana peels, stale bread, and cooking scraps in the trek to the trash can.

I'm not the only one tossing food away; it's estimated that about 40 **million** tons of food in the US makes its way to the landfill each year from homes, restaurants, and grocery stores. Is there anything to be done about this staggering amount of food waste?

We can't turn back the clock to save perishable food once it has gone bad, but scientists are starting to perfect ways to turn scraps and other by-products of food prep into something tasty. The solution? Fungi! Filamentous fungi, to be exact.

Fungi come in two varieties: single-celled, like yeast, or filamentous, like molds and mushrooms. *Neurospora intermedia* is a filamentous fungi that has been used for

centuries in Indonesia. There, after soy is made into tofu, *N. intermedia* is grown on the leftover soy to make a tasty meat substitute called oncom.

Scientists are learning that when other food scraps and food waste products, like the liquid left over from creating oat milk, are fed to *N. intermedia*, amazing things happen. After about 36 hours, the fungus turns the scraps into a nutrient-rich, high-protein meal. Unlike many other fungi, *N. intermedia* doesn't create any toxins, either.

What about flavor? Odds are pretty good that you already enjoy other foods that are made with other fungi. Soy sauce, blue cheese, brie, miso, and tempeh are just a few popular foods made from other species. With *N. intermedia*, taste testers have said the fungus has a pleasant, nutty taste. Scientists are even inviting world-class chefs into their labs to create recipes with the fungus!

Reading about food waste got me thinking: are there some US states that are better at others at managing excess food than others? The graph on the next page shows a breakdown of what I found.



1. "Per capita annum" means "per person, per year." The graph shows how much money, on average, one person wastes per year in each state. What is the difference in wasted money per year between the first- and second-worst states on this graph?

2. Hawaii is an island where nearly 90% of its food is imported rather than grown locally. This makes food much more expensive because buyers are also paying for shipping costs. How could this affect how Hawaii ranks on the chart?

3. Thinking about the graph, what are two more questions about the topic of wasted food that you could investigate?

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If I shared this graph with my students, here are some questions I'd ask them:

1. "Per capita annum" means "per person, per year." The graph shows how much money, on average, one person wastes per year in each state. What is the difference in wasted money per year between the first- and second-worst states on this graph?

Vermont wastes nearly \$1375 per person per year, while Maine wastes about \$1275. $\$1375 - \$1275 = \$100$ per person per year.

2. Hawaii is an island where nearly 90% of its food is imported rather than grown locally. This makes food much more expensive because buyers are also paying for shipping costs. How could this affect how Hawaii ranks on the chart?

Hawaii is ranked third highest in the cost of wasted food, but this does not necessarily mean they waste more food than the other states. It might just mean their food is more expensive.

3. Thinking about the graph, what are two more questions about the topic of wasted food that you could investigate?

There are so many possibilities, but here are a few starters:

"Why are people throwing away so much food?"

"Do groceries cost more in some states than others?"

"Which are the most expensive types of foods that people throw out?"

"What volume of food is being thrown away in each state?"

I hope you and your students can "dig in" to find out more about this tasty topic!