

# 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

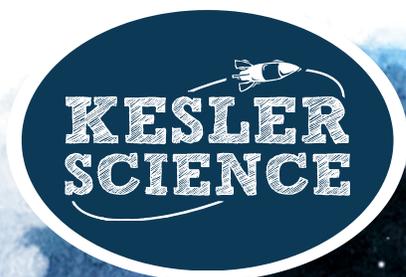


## EXPLORIES

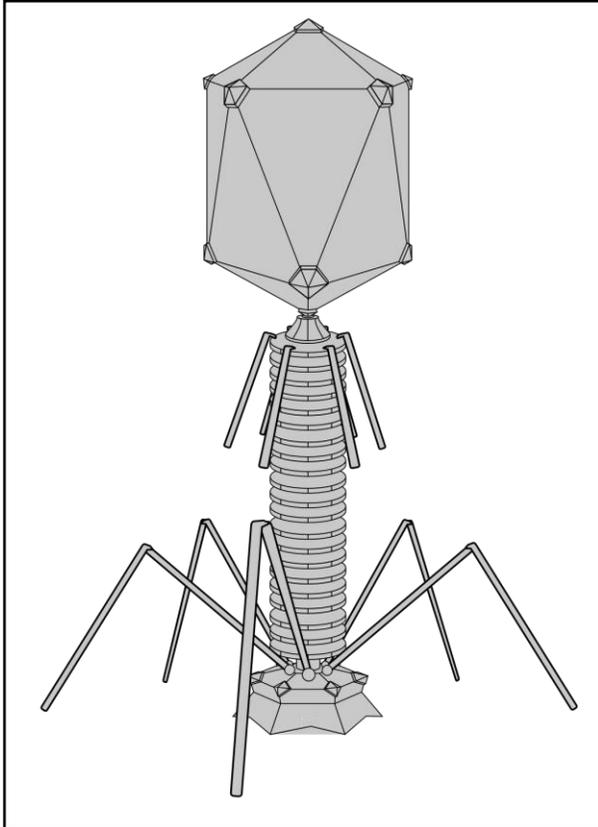
Story-driven units with integrated activities



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



## Bathroom Bacteria Benefits



Artistic rendering of a T-4 bacteriophage.

If you were a bacteria colony, what would be your favorite place to live? You'd want it to be mostly dark, wet, a comfortable temperature, and a place where other bacteria visitors can come and pay you a visit time from time. It's hard to think of a more ideal bacteria location than the bathrooms in our home!

Before you spray every inch of your bathroom with Lysol, it's important to know that this is kind of unavoidable. Depending on where our water comes from, different types of bacteria hitch a ride in our showers and cling to the showerhead once we're done using it. Our mouths also have a unique microbiome that will colonize our toothbrush bristles. While

some of these bacteria might make us sick, most don't really do anything.

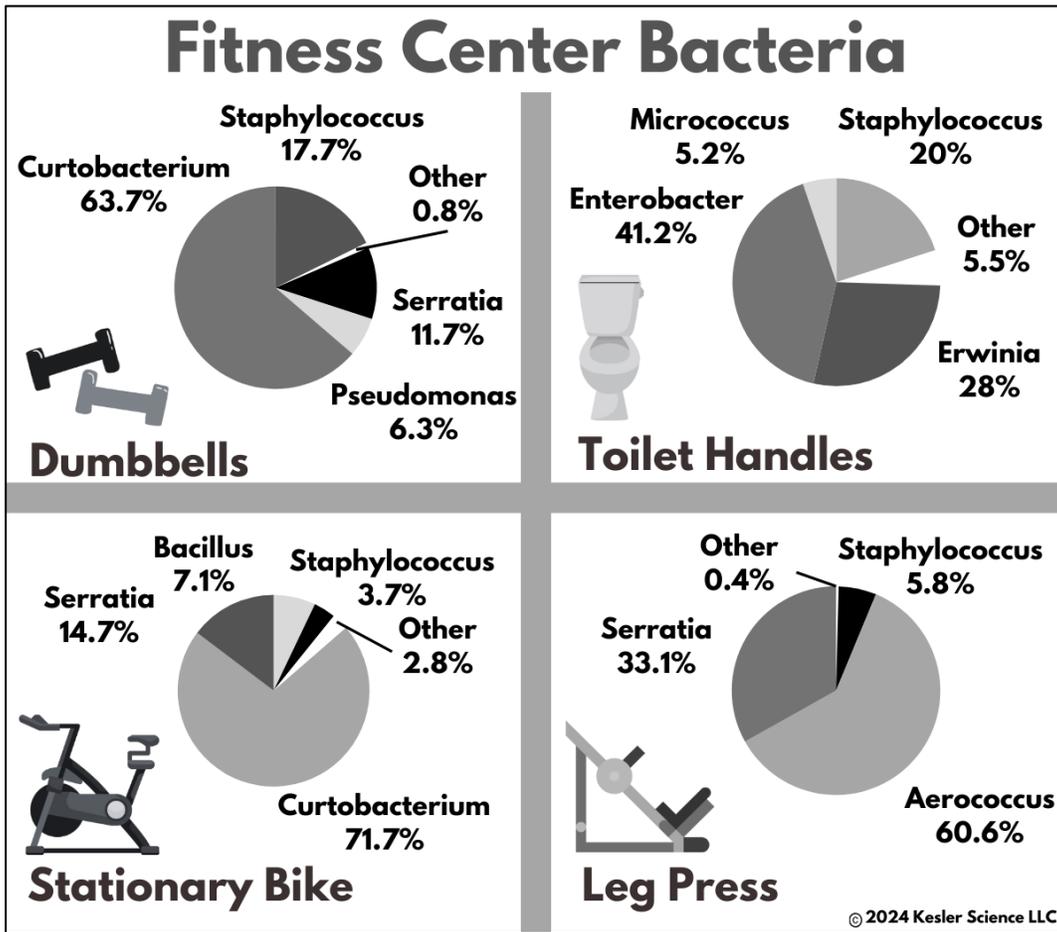
Scientists are starting to take a closer look at the microscopic growth that happens in our bathroom for a special reason. Mixed within these bacteria populations are viruses called "*bacteriophages*" - and there are **lots** of them. Researchers estimate that there might be up to 600 varieties of bacteriophages among the microbes on our bathroom surfaces.

What makes these microorganisms interesting? They are natural predators to bacteria. Bacteriophages wreck the party by gobbling up many of the bacteria species that invade our home.

In an age where antibiotic-resistant bacteria is a growing concern, bacteriophages might just be our secret weapon. When there's an antibiotic on the market to kill bad bacteria, it's only a matter of time before the bacteria mutate to make the medicine no longer effective. Once bacteria get resistant to medicine, it's very difficult to cure infections.

Since bacteriophages live in the bacteria community, they are more likely to adapt **with** them - the bacteria won't ever become "resistant" to their natural predators. Scientists are looking closely at the bacteriophages because there's a whole lot we still don't know about where they come from and how they kill bacteria. It's a very interesting topic to study!

Scientists are also looking at the bacteria varieties in other types of indoor spaces. The visual below shows different species of bacteria found growing on surfaces in a fitness center. The graphs are eye-opening, for sure!



- About what percent of the bacteria on a leg press is Staphylococcus?

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- Which of the surfaces measured in the gym have at least five different bacteria species?

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- A person says, "A toilet handle is the dirtiest surface found in any gym." Does evidence from these graphs justify that claim?

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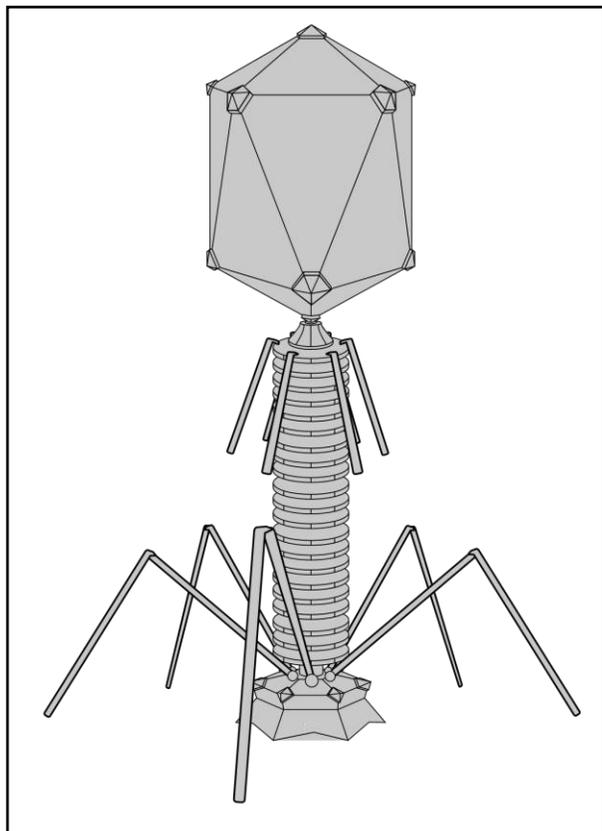


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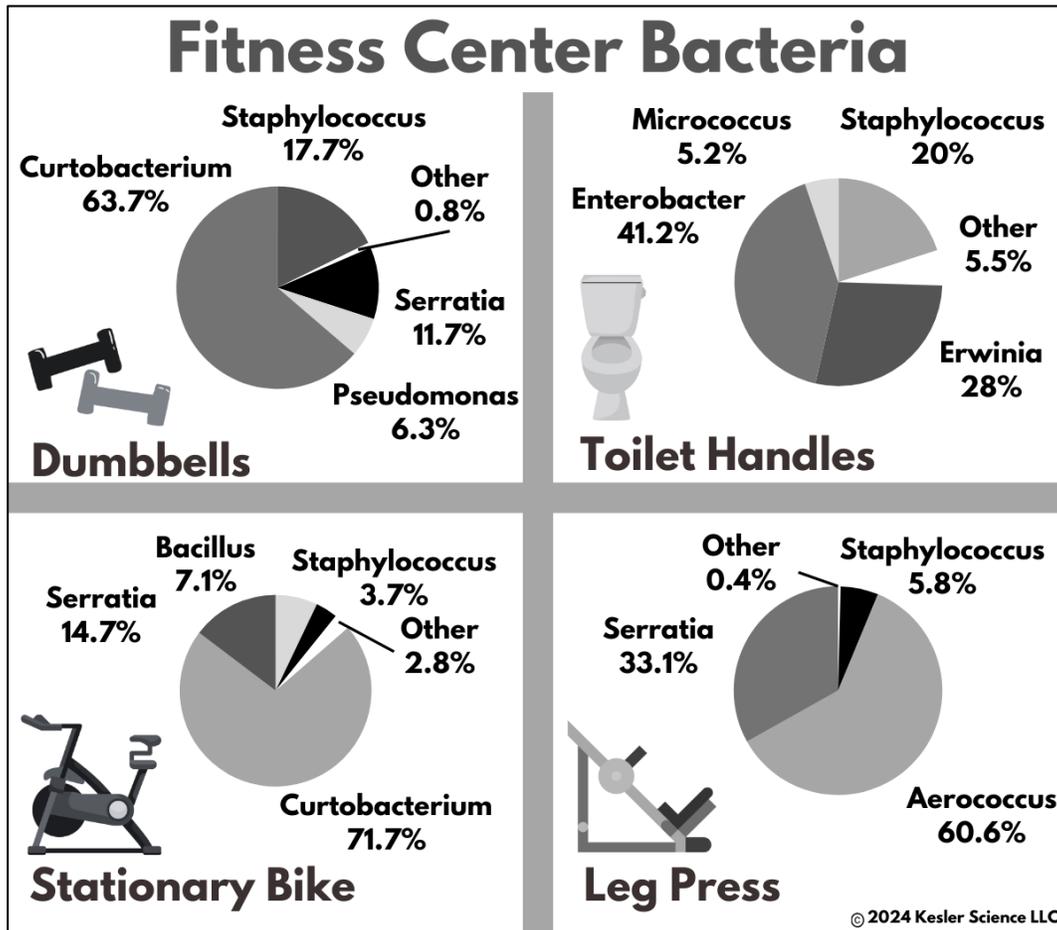
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1. About what percent of the bacteria on a leg press is Staphylococcus?

*About 6% of the bacteria on a leg press is Staphylococcus.*

2. Which of the surfaces measured in the gym have at least five different bacteria species?

*The stationary bike, the dumb bells, and the toilet handles all have five or more different types of bacteria.*

3. A person says, "A toilet handle is the dirtiest surface found in any gym." Does evidence from these graphs justify that claim?

*This isn't a question we can truly answer from the graphs. We can see that many other surfaces found in the gym have just as much bacteria as a toilet handle, but we don't have any information in the graphs about which bacteria are harmless and which will make us sick. This graphs also show only the results from one fitness center, so we can't make statements about all gyms from it.*

I hope this gets you and your students thinking about these amazing lifeforms!