

Unseen Worlds Seek & Find

Unseen Worlds is a vinyl window mural on the theme of microorganisms created by [Jim Cogswell](#), Arthur F. Thurnau Professor of Art & Design in the [U-M Penny W. Stamps School of Art & Design](#). The brightly colored vinyl pieces make visible the world of the unseen, creating a link between art and natural science. *Unseen Worlds* features more than 100 microorganisms, all of which play a unique role in the natural world and impact our understanding of life on Earth.

Can you find these microbial creatures in the mural?



Tardigrade

More commonly known as “water bears,” tardigrades can survive extreme conditions of every type imaginable (temperature, pressure, radiation, air/ water/ food deprivation) which helps to explain why they have been around since the Cretaceous period, or 145.5 million years ago!



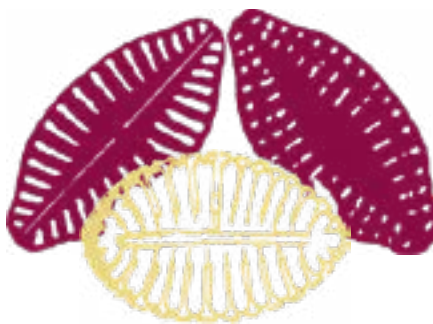
Tomopteridae

Don't let their creepy-crawly shape fool you! *Tomopteridae* is a shining example of microscopic life—literally! These water-dwelling segmented worms have an illuminating secret: some species glow with a yellow bioluminescence!



Red mite (*Tenuipalpus pacificus*)

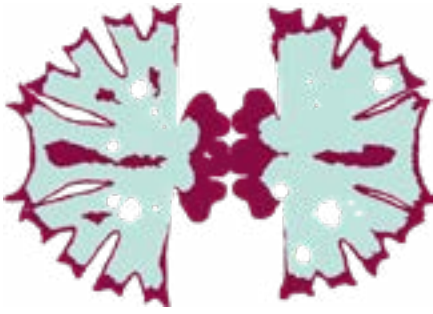
Red mites are an invasive species that were introduced to the U.S. through orchid plants. Can you imagine growing an extra pair of legs as you get older? That's exactly what red mites do! They begin life with 3 pairs of legs. By the time they reach adulthood they have 4 pairs! Red mites are related to spiders which also have 8 legs.



Diatom

Do microorganisms pee? Diatoms do! Even though they are single-celled algae with a silica skeleton, diatoms use a urea cycle to excrete waste, just like animals. Don't let their size fool you! These tiny photosynthetic organisms generate 20-50% of the oxygen produced on Earth!

SEEK & FIND



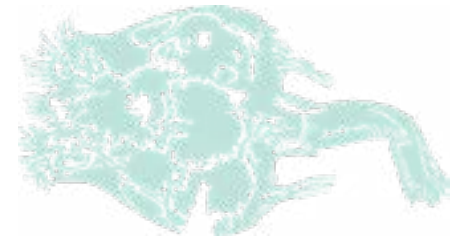
Micrasterias

There is something centering about the bilateral (mirror) symmetry of *Micrasterias*. These single-celled algae get their kaleidoscope-like form from two half-cells connected to a central bridge containing a single nucleus. Like other phytoplankton, *Micrasterias* are the foundation of aquatic food webs and are found all over the world.



Acantharian

Acantharian are microplankton that make their skeletons out of strontium sulfate; a beautiful blue mineral also called celestine. Celestine is the densest mineral in the ocean. It's very hard to find historical evidence of these organisms because their skeletons break down into celestite crystals that sink to the bottom of the sea.



Brachionus

Brachionus are freshwater plankton that are very sensitive to toxins and pollution. They are often used in biological monitoring to determine the toxicity of a body of water. They are also fed to larval fish in commercial fish hatcheries.



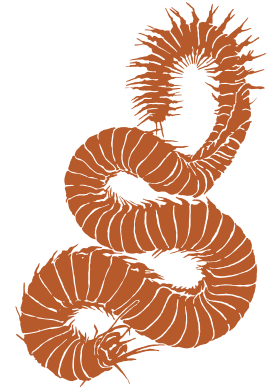
Bacteriophage

A Bacteriophage is a virus that hijacks a bacterium and injects its own DNA into it to reproduce. Scientists are studying how to make bacteriophages into an alternative to antibiotics. In theory, if the bacteriophage attacks the bacteria and kills it, the infection will get better. This could help fight antibiotic-resistant infections.



Lacrymaria hunting an Alternaria

A *Lacrymaria* is a vicious single-celled predator that can elongate its neck up to seven times its body size! *Alternaria* are fungi that infect many plants and also humans, causing infections that lead to asthma. Thank you, *Lacrymaria*, for eating those nasty things!



Annelid (worm, *Alitta virens*)

Did we just teleport to the fictional desert-planet of Arrakis? Nope! We are still on planet Earth! However, *Alitta virens* (more commonly known as sandworms) do get large enough that you can see them burrowing in the sand. These organisms are often used as live bait for fishermen all over the world. However, their populations are decreasing as they are often overharvested.