

Biology—Biotechnology

Biology is the study of the living things big and small.

It helps us understand what makes us tick and how we interact with the living world around us. As we learn more about the other living organisms around us—including the very small ones like germs, bacteria, and viruses—we can develop beneficial relationships with them and our environment.

Scientists, engineers, and entrepreneurs working in the field of biology often work across traditional boundaries—with physicists, material scientists, and mechanical engineers (to name a few)—to find new and innovative applications for the things they are discovering. In the next few pages we've described several of new areas of technology development in the field of microbiology.

Disinfectant lighting

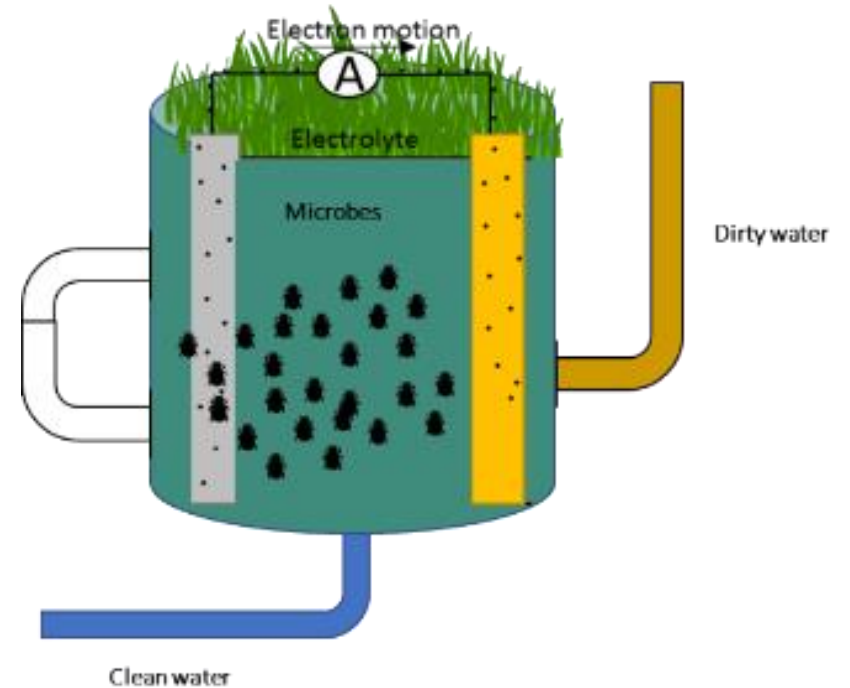
Normally we think of lamps and lightbulbs as just being there, so we can see in the dark. However certain wavelengths of light can kill bacteria, molds, yeasts, spores, and fungi. This means that these wavelengths can both provide light and disinfect.

When we can use one technology to do two things it allows us to “double dip” and get two benefits for the price of one.



Artificial organs, medical devices, and implants

Biology and medicine are continually joining with engineering, chemistry, and physics to bring us all sorts of new things like lab-generated tissues and organs. In the past the idea of combining humans with machines was the storyline for a science fiction movie. However, now things like pacemakers for your heart, hearing implants, and artificial joints are thought of as common. In addition, prosthetic arms, legs, eyes, and voice boxes are always being improved so that someday they may work as well or better than their natural counterparts.



Bacteria-based energy generation and storage

Microbial fuel cells use bacteria to digest food waste and sewage to create electrical energy and clean water. This technology is used today in many applications, including cleaning up the water used in wastewater treatment plants and breweries.

Question

What field would you study and why if you...

a. wanted to clean up water flowing into a lake?

b. were interested in the human body?

c. wanted to work with both biology and robotics?
