

## Body Buddies: The Microbes that Live In and On Us

*This StepRead is based on an article provided by the American Museum of Natural History.*



**Scientists use microscopes to look closely at things that are too small to be seen by the human eye.**

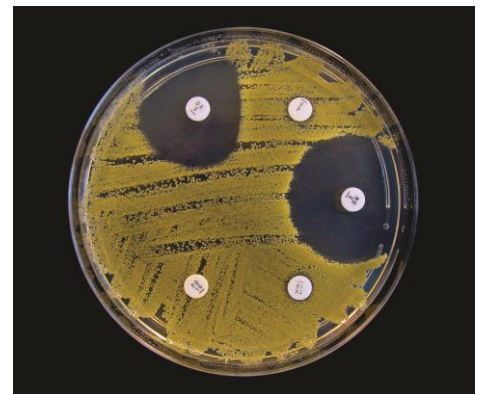
Photo Credit: NOAA

Try to count all the living things you can see. You might see people, trees, grass, birds, or insects. But did you know that you can't see most of the living things around you with just your eyes? That's because most living things are microbes. Microbes are tiny organisms. Humans can't see microbes without using a tool called a microscope.

Microbes live everywhere. They live in the water you drink, the food you eat, and the air you breathe. They even live inside your body and on your skin! They eat and reproduce there too. In fact, right now there are trillions of microbes in you and on you. But don't worry! Most of these microbes don't make you sick. Some of them actually help keep you healthy.

### **You are an Ecosystem!**

An ecosystem is a kind of community. It is made of living things, like plants and animals, which interact with other living things and with the non-living things in their environment. Those non-living things could include water and air. You might have heard of large ecosystems like forests and prairies. But ecosystems don't have to be large. In fact, your body and the microbes living inside and on you form one amazing ecosystem. Your



**X is a kind of bacteria. This is what it looks like through a microscope.**

Photo Credit: Nathan Reading

body provides an environment where many microbes can live. And in return, those microbes keep your body working like it should.

## Many Homes for Many Microbes

Many kinds of microbes live in your body. Some of them are types of organisms called fungi and viruses, but most of them are bacteria. Different kinds of microbes live on different parts of your body.

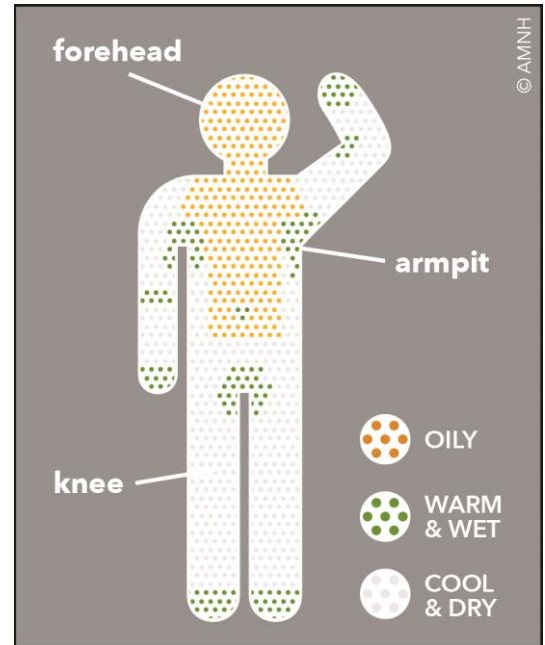
To understand this, think of your skin as having lots of different environments. Some parts of your skin are cool and dry. Others are warm and a little wet. Other parts might be smooth or rough. In every part, different types of microbes find the shelter, moisture, and nutrients they need to grow. This happens all over your body, not just on your skin. For example, a different group of microbes lives in each part of your gut, your mouth, and even your brain.

## Body Buddies

While some microbes help you stay healthy, others are bad for you. These harmful microbes are called pathogens. When you shake someone's hand or touch a doorknob, pathogens might grab onto you. Luckily, the helpful bacteria that live on your hands can usually fight off the pathogens. Some people use hand sanitizer to try and keep the pathogens away. But that can kill the helpful bacteria, too. Then, the harmful microbes have a better chance of making you sick. So it's better to wash your hands with soap and water than to use hand sanitizer. Soap and water will wash away most pathogens. Some of your helpful bacteria will be washed away too, but they will soon grow back in your hand where they belong.

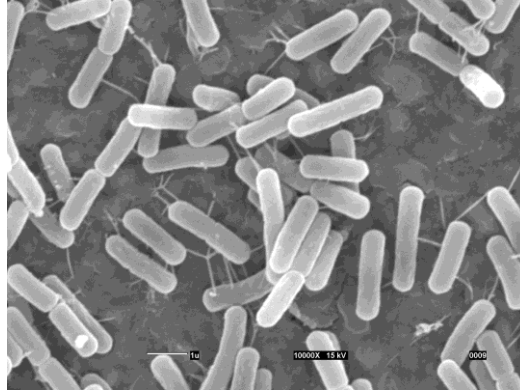
Microbes are helping you in other parts of your body too. They help protect you from pathogens. They also help you digest food and make vitamins. They even help your brain work!

Sometimes people take medicines called antibiotics to kill harmful microbes. But these medicines can also kill the helpful microbes in our bodies. Because microbes can be so helpful to our bodies, we need to be careful when we use antibiotics.



**Your skin has lots of environments. Some are warm and moist. Others are cool and dry.**

Photo Credit: AMNH



***Bacillus subtilis* is a type of bacteria that usually lives on skin. They don't harm us. They may even protect us from harmful pathogens.**

Photo Credit: iGEM

Now that you know about your body buddies, you have a new way to think of yourself. You're not just one living thing. You're a "superorganism," a community of many microbes plus one human! You might feel funny about all those microbes living on you and inside of you. But remember, they're an important part of your body and your health.