

## Back to the Wild

Murka will live at Tsavo until she is ready to leave. An orphan chooses when to leave the orphanage. It may take as long as 10 years before an orphan feels ready.

When male elephants are old enough to take care of themselves, they wander off to live alone. Females find a wild herd to join.

Yet the bond formed between the orphans and their keepers is a strong one. Even after an orphan leaves, it often returns for visits. Sometimes, orphans come back because they are hurt. Sometimes, they come to show off their new babies. Sometimes, they come by just to say hello and to see old friends.

One day, Murka will be ready to join a wild herd. Perhaps she will come back to visit her old friends. Until then, the orphanage will care for her and other rescued orphans. The people there will try to save the orphans one elephant at a time.



## Wordwise

**deforestation:** when trees in an area have been cut down and cleared

**habitat loss:** the process by which natural habitat is damaged or lost

**matriarch:** the female leader of a group

**poacher:** a person who illegally hunts animals

**veterinarian:** a person who treats animals for illness or injury



This orphan and keeper have formed a strong bond.



Many tiny creatures live in, on, and around you. You can't see them, but they're there. Welcome to the

# MICRO





**Life Science**



**COMPREHENSION STRATEGY:**

As you read, determine what information is the most important.

# WORLD

by Lynn Brunelle





You're never alone. Even when you think you are alone, you're not. You're surrounded by lots of small **organisms** at all times. They're called **microbes**.

Most are too small to see without a microscope. Some live in searing heat. Others thrive in freezing cold. Some need oxygen to live, but others do not.

Some of these tiny organisms live on you. Some live in you. Others live around you. Let's take a tour of this mysterious world.

## A Closer Look

Let's start with **bacteria**. Bacteria are among the simplest forms of life. You are a **host** to bacteria. Your skin crawls with bacteria. They're in your mouth and nose. Your insides are teeming with them.

Your body has so many bacteria, in fact, that they outnumber your own **cells**. For every one cell in your body, there are 10 times as many bacterial cells. That makes you more microbe than human!

Before you decide to dive headfirst into a bottle of hand sanitizer, relax. You need many kinds of bacteria to live. Some bacteria help you digest food. Others fight off sicknesses and keep your skin clean.

Less than one percent of bacteria are harmful to humans. Harmful bacteria can make you sick. One kind of *E. coli* is a good example. This type of bacteria can get into foods. Luckily, washing vegetables before cooking them helps. So does cooking meats to the right temperature.

Harmful bacteria can also find open doors into your body. They come through open cuts and sores, for example. Once inside, they can make you sick. They can cause a sore throat or an earache. Sometimes, you have to take medicines to kill these bacteria.

## Skin Deep

Some bacteria live in and on you at all times. Other microscopic creatures just drop by for short visits. Take dust mites, for example. They are related to spiders. You may not be able to see them, but they can see you.

A crowd of dust mites looks for you every night when you go to bed. As you snuggle under the covers, the hungry mites lie in wait. It's not you they want. It's your skin.

On average, you shed 1.5 million dead skin cells every hour. Dust mites gobble up this dead skin. These mites clean up dead skin, and they get a meal.

Dust mites can also cause a big problem. They leave behind waste. This waste builds up. It can cause breathing problems in some people. It can even trigger an asthma attack.

Dust mites may not be the only bugs in your bed. You might find bed bugs, too. These little critters are **parasites**. They feed on your blood.

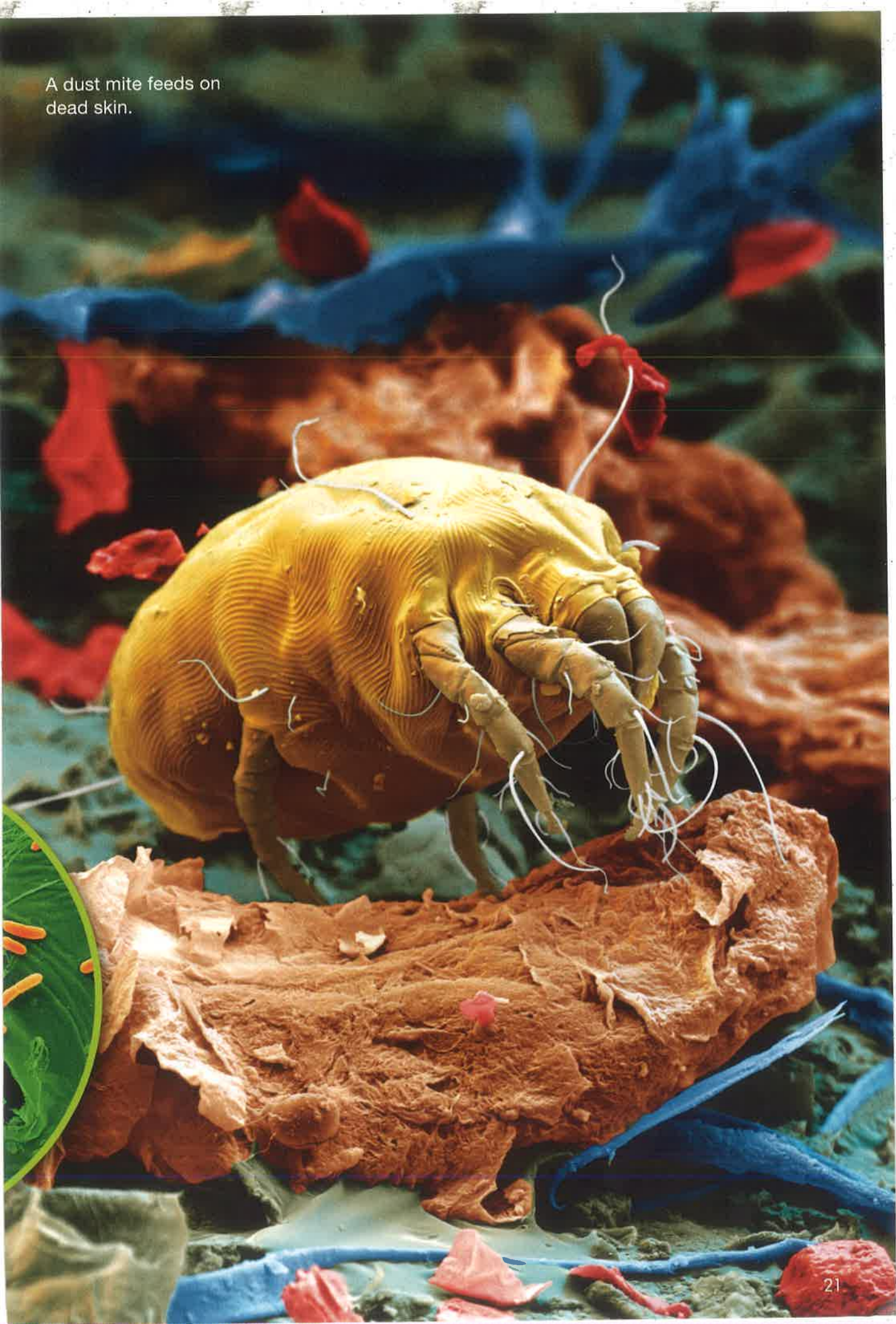
You won't be able to see them as they sneak up to attack. These bugs are small. Still, a bed bug can drink three times its weight in a single feeding. As it drinks, its body swells. The bug also shoots a fluid into your body. It makes you itch.



*E. coli* bacteria cover a piece of lettuce.



A dust mite feeds on  
dead skin.





## Out of Sight

Don't worry. Not everything in the micro world is trying to bite you. Some micro beasts want nothing to do with you. They are more interested in plants.

Take the gall mite, for example. It's a plant parasite. It latches on to a plant to feed and lay its eggs. This forms a small bump, or gall. Lots of mites on a plant can cause lots of galls.

Other wee critters live below you. They're in the soil. Armies of microscopic creatures live there. They're called nematodes. There are many kinds of nematodes. Most look like tiny worms. Several million of them can live in a square meter of soil.

Some nematodes churn up the soil and make it richer. Some nibble on plant roots. They pierce the root cells and suck out the contents. Others eat rotting plants or dead animals that they find in the dirt.

Some kinds of nematodes eat meat. They attack bugs. They enter a bug while it is still alive. They multiply inside their bug host. They get energy from the host until it dies. Then they leave the dead bug to look for a new host.



## Micro Mysteries

Micro animals may be small, but scientists know a lot about them. They even know about some of the critters' mysterious ways.

The water bear is a good example. Water bears are short and plump. They live in the water and eat plants. They are also some of the toughest creatures on Earth.

You can freeze them to  $-273^{\circ}$  Celsius ( $-459^{\circ}$  Fahrenheit), and they live. Heat them to  $151^{\circ}\text{C}$  ( $304^{\circ}\text{F}$ ), and they're fine. Blast them with radiation, and they just keep going. And that's not all. They can live in the vacuum of space and for 10 years out of the water.

Scientists know all these things about the water bear. What they don't know is how or why the water bear is so tough.

Water bears aren't the only microscopic mystery for scientists. There's another creature that you're not likely to meet in person. It's a type of worm.

This worm can be found near volcanoes on the ocean floor. It lives in near total darkness. The water around it is almost boiling. Toxic chemicals are all around it. Scientists don't know how it survives there. Yet millions do.


## Micro Universe

You'll find micro critters deep in the ocean. You'll find them on the tips of your eyelashes. You'll find them almost everywhere in between, too. Just because you can't see them doesn't mean they're not there.

Some of these microbes can cause big problems for hosts. Many help their hosts. Some need no host at all. Two things are certain. Our planet wouldn't be the same without them, and we need many of them to live.

This micro creature digs into the soil.





This water bear clings  
to tiny moss.

## Wordwise

**bacteria:** single-celled, microscopic living things that can either be useful or harmful to the body

**cell:** the smallest and most basic part of a plant or animal

**host:** an organism that harbors or nourishes another organism

**microbe:** a tiny living organism

**organism:** a living plant or animal

**parasite:** a plant or animal that lives in or on a different kind of plant or animal and gets its food from that plant or animal



# Coming in September

**Into the Jungle:** Follow Lucy Cooke into the jungle and learn what it takes to be an explorer.

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**Sea Lab:** Dive into the depths and be a part of underwater research in an ocean lab.



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