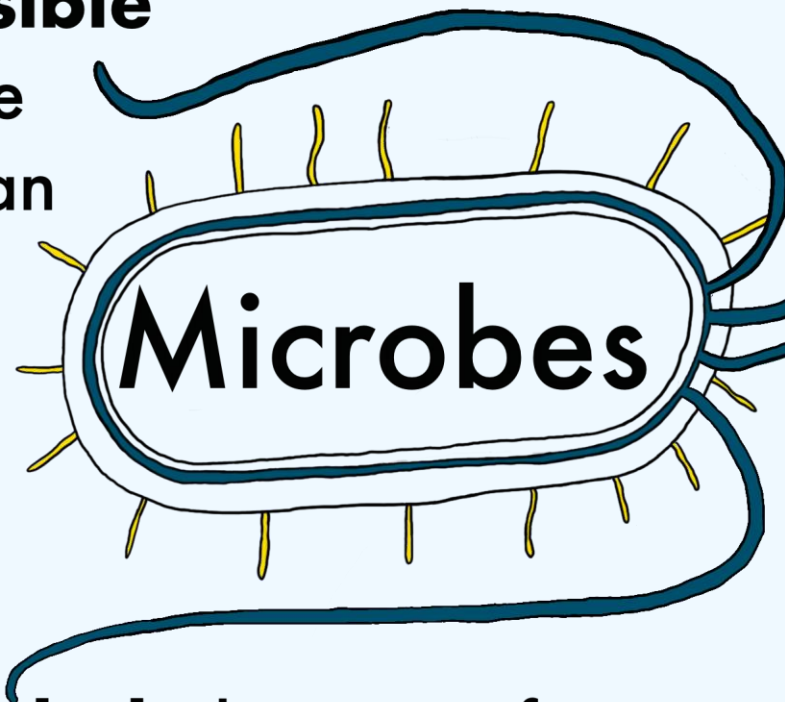


Microbes are everywhere!

Illustrated by
Alexandra Ortiz and Monica O. Mendez

Created by
Alexandra Ortiz, Priscilla Carlo and Monica O. Mendez

Invisible
to the
human
eye

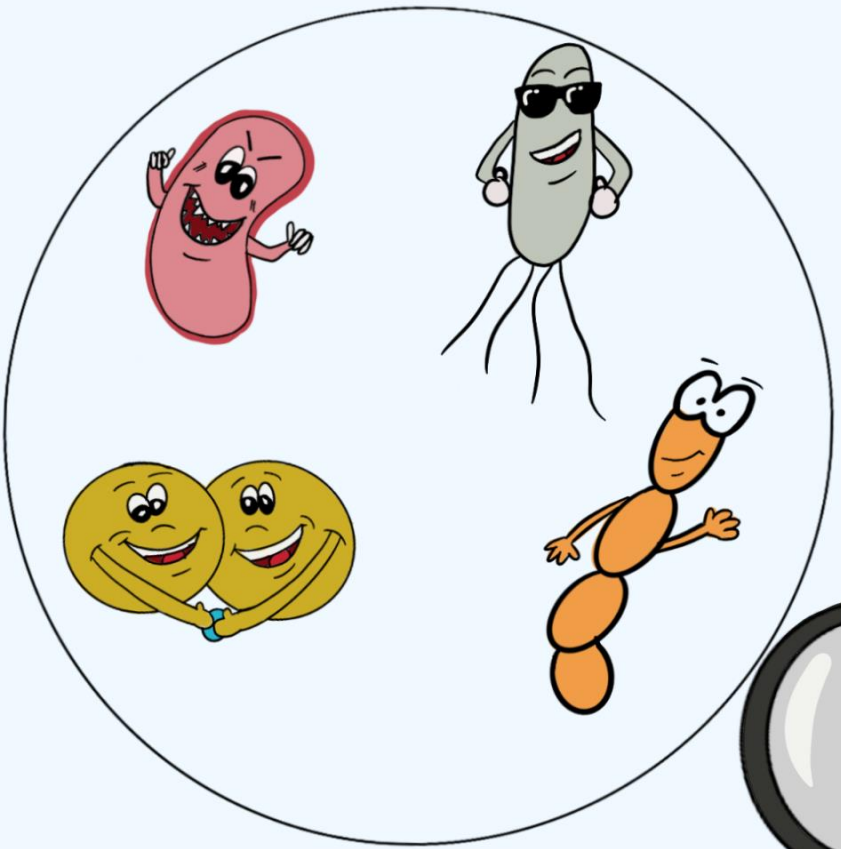


Mostly helpful
to humans and the
environment

Include bacteria, fungi,
protists and viruses

Can be found

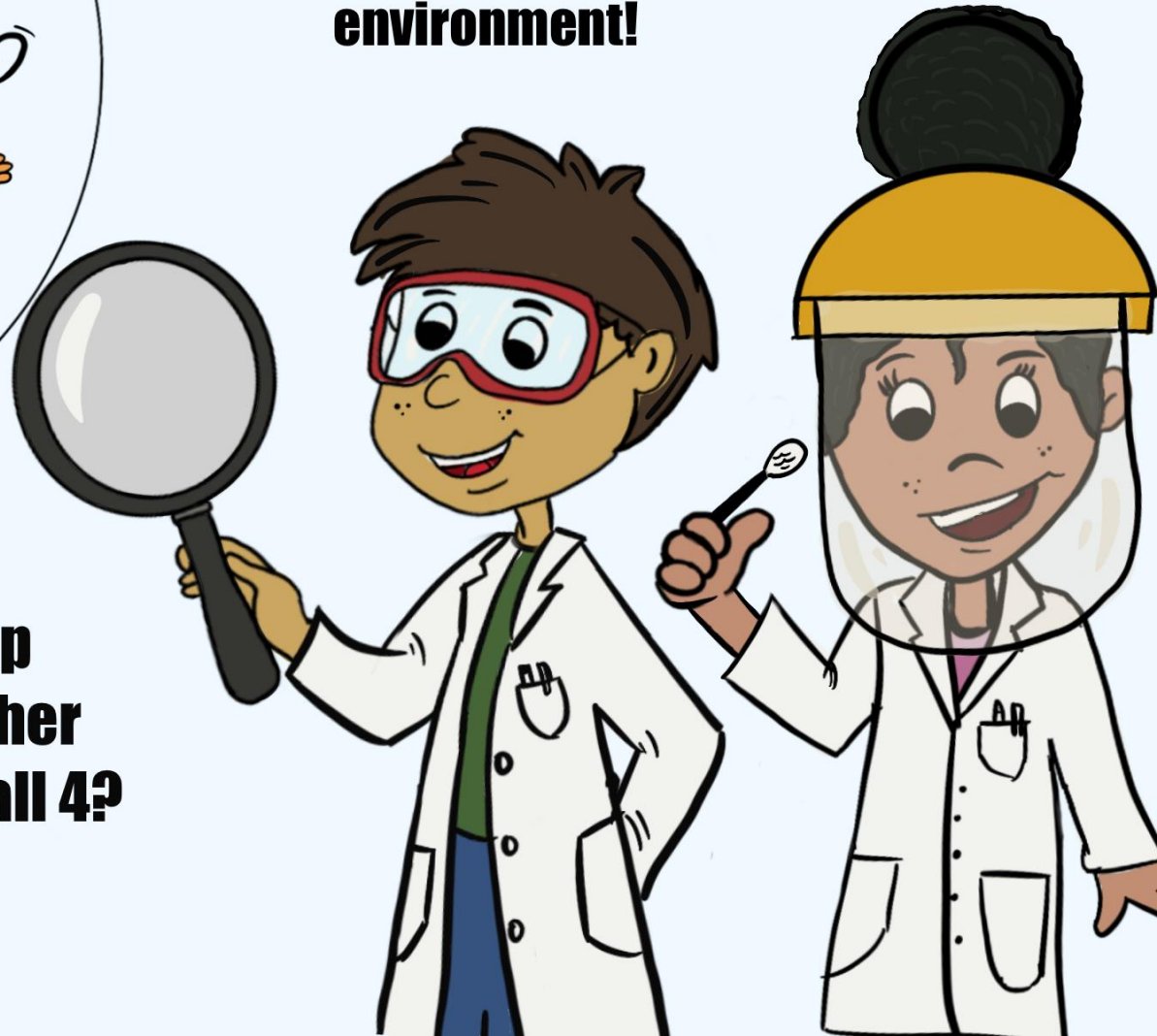
- on our skin
- in the air
- in water
- in soil
- inside plants and animals

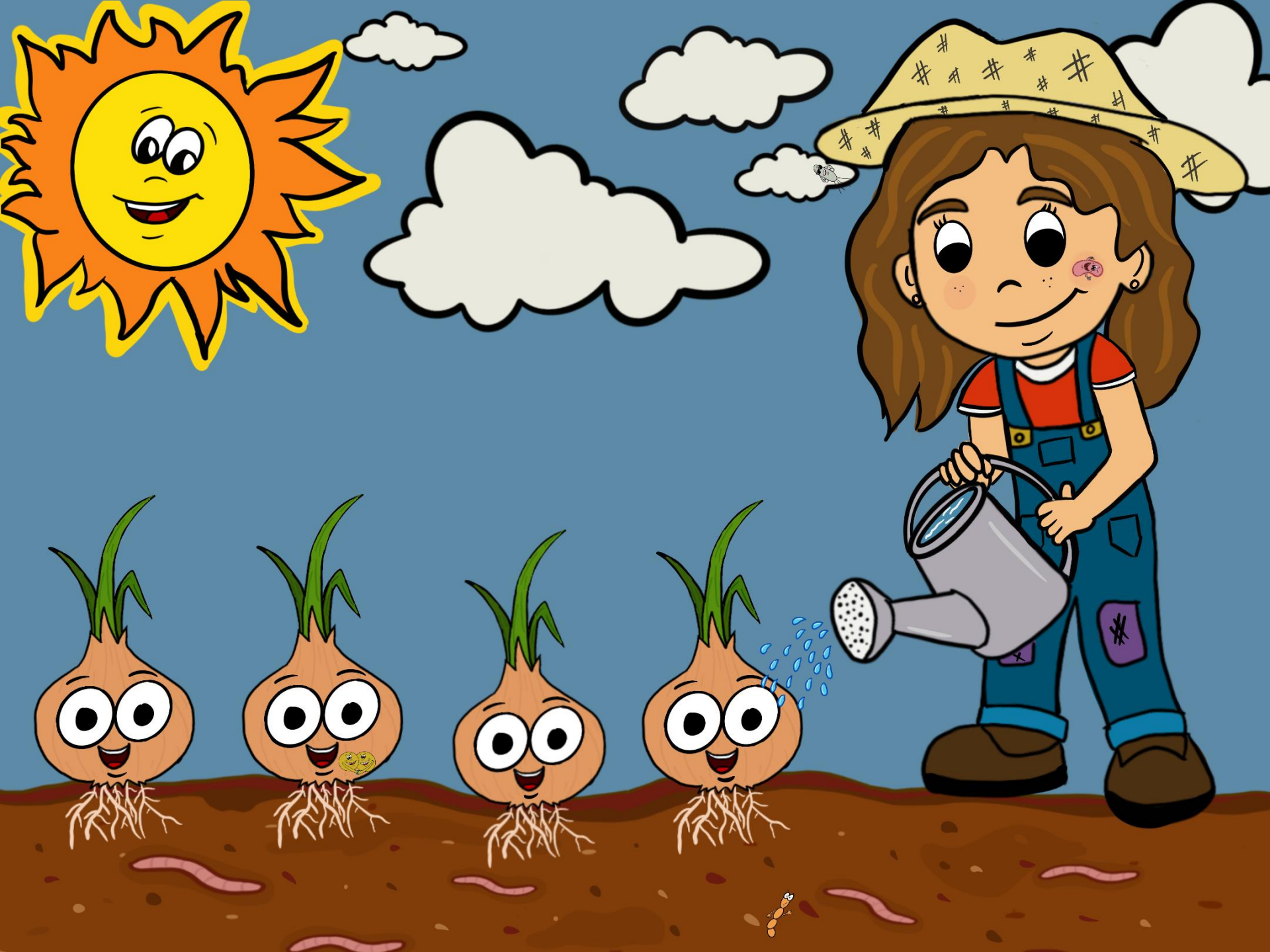


**As scientists, we find
bacteria in the
environment!**

**Can you help us
find them?**

**Farmer Erin needs help
identifying bacteria on her
onion farm. Can you find all 4?**

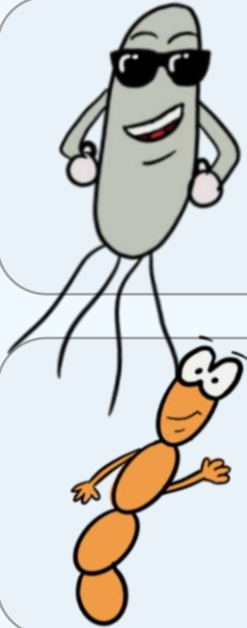






Propionibacterium acnes: I am a member of the genus *Propionibacterium* (prow·pee·aa·nuh·bak·tee·ree·uhm). We are one of the most common bacteria on human skin. I get my nutrients from human sweat and oily skin, so sometimes I cause pimples.

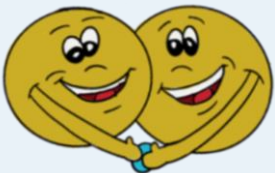
Fun fact: My siblings that are also *Propionibacterium* give Swiss cheese a nutty flavor.



Pseudomonas syringae: I am a member of the genus *Pseudomonas* (soo·duh·mow·nuhs). We are found in soil, water, on plants, and in the air. I help make clouds. Water sticks onto my cell, and then I produce a chemical that causes water to freeze around me. If you opened a large box in a cloud, you could collect up to 10,000 copies of me. I can swim with my tails called flagella. When it rains, I land on plants and then wind will blow me back into the air. Scientists think that I could be an important influencer of climate.

Streptomyces coelicolor: I am a member of the genus *Streptomyces* (strep·tuh·mai·seez) and I belong to the group of Actinomyces (Actino). When it rains outside, me and my Actino friends produce a chemical called geosmin (gee·ohs·min) which makes that familiar 'rainy' smell after it starts raining.

Fun fact: I also give beetroots that earthy taste!



Azotobacter chroococum: I am a member of the genus *Azotobacter* (uh·zow·tow·bak·tr). I live around the roots of plants and help it grow. Plants really like nitrogen, phosphorus, and potassium as food and sometimes need a little help from me to get one of these. Right now, there is oxygen and nitrogen floating in the air. Me and my other *chroococum* buddies get together and we take that nitrogen from the air and gift it to onion plants.

Glossary

Acidic: containing acid; below a pH of 7; stomachs have acid to help digest foods

Climate: the general weather conditions in an area or the weather conditions in an area over a long period of time

Genus: part of the scientific name and classification of living organisms; it comes before the species in a scientific name; members of the same genus can be grouped by common characteristics

Pathogenic: a bacterium, virus or other microbe that causes disease

Protein: an essential type of molecule of living things; contains amino acids that are made of nitrogen; muscle and hair have a lot of protein