

Where Do Bacteria Live?

LIFE SCIENCES

Get curious

Observing

Sprinkle glitter on your right hand in such a way that it isn't visible to students, and then shake hands with them.

Approach each student and greet them with the "glitter handshake." Explain that bacteria are called microorganisms due to their microscopic size. Bacteria are transferred very quickly, almost imperceptibly. By shaking hands, we transfer bacteria located on our hands – including bacteria that were previously present on other objects – as easily as glitter.

Video/ Slide show

Watch a film in which Manu Prakash, a researcher, inventor and Assistant Professor of Bioengineering at Stanford University, talks about the fascinating world of bacteria.

After the film, you can ask:

How many types of bacteria live in the world?

Why do people need bacteria? Which bacteria are good?

What happens when a "bad bacterium" – a pathogen, enters the human body?

Are there any places where there are no bacteria?

What device did Leeuwenhoek, the discoverer of bacteria, use to observe microorganisms?

How do bacteria differ?

What weapon do people have against bacteria that cause diseases?

Get going

Video/ Slide show

Watch a short film about the growth of bacteria.

<https://www.youtube.com/watch?v=qEwzDydcIWc>

Manual exercise

Students build model bacteria from plasticine and, through the exercise, observe and understand the principle of multiplication of bacteria.

Give each student a sheet of paper, a piece of plasticine and a ruler.

Puzzle/quiz

Students find out that bacteria live in very varied places – their task is to guess where the bacteria cultured on various Petri dishes come from.

Students do this exercise in several groups.

Conclusions

Draw conclusions from the exercise. Can we say that bacteria are ubiquitous?

During the exercise, students found out that bacteria live in various places, although there are certain exceptions – e.g., in hydrochloric acid. Add that environments in which bacteria do not occur include: hydrogen peroxide, concentrated alcohol, strong acids, and all sterile objects, such as gauze dressings. Most of them cannot be found in conditions where the temperature is above 120°C/ 248°F.

Manual exercise

Students learn a hand-washing technique to remove bacteria.

Take students to one of the school bathrooms. Earlier, students learned that bacteria exist almost everywhere: not all bacteria are bad, but you can never be sure that there isn't a pathogen – a bacterium that causes disease that is dangerous for human health – on, for example, an apple. The part of the human body that is most exposed to contact with bacteria is the hands – that is why washing (disinfecting) them is so important.

Read the 2 sets of instructions for washing hands. The first was prepared by the Centers for Disease Control and Prevention (CDC), and the second – by the World Health Organization (WHO). You can print out the instructions and distribute them to each student. Then, together, read the WHO instructions carefully and, on their basis, show students the correct way to wash hands.

Get practicing

Puzzle/quiz

Students fill in worksheets, marking places where bacteria do and don't live. Discuss the answers.
