DIY bacteria detector

DO-IT-TOGETHER SCIENCE BUS

collecting folk remedies
do it together & find out how things work

Introduction

Are bacteria good, bad, or both? How clean are your hands? Discover it with the instructions on the flipside: test whether soap on your hands really works or catch bacteria in the wild and let them grow in a petri dish.

What are bacteria? Bacteria are tiny tiny creatures. Just like other animals, they need food, they multiply and fight with other bacteria (but also with humans) to survive.

Wash your hands! With your hands, you touch a lot of things that may also contain bad bacteria. By washing your hands with soap, you will kill those bacteria. This way you make sure that they cannot enter your body and make you ill. However, on your skin live also many good bacteria that protect you from the bad ones. By washing too much, your skins dries out and you will also remove too many good bacteria, (thus) making it easier for the bad guys to survive.

Bacteria and agar in a petri dish

Agar is a soil to grow bacteria. The petri dish contains agar with the right nutriments for bacteria to multiply. This dish has been prepared in a sterile environment, without bacteria or fungi. As long as it stays closed, nothing will grow in it. Open it or push your finger in the agar and the bacteria from the air or respectively your finger will start growing in it. One bacteria is invisible to the naked eye, but a million (¡) are not. A sterile environment can be made with (for example) a gas burner. The flame will kill anything in the air and the hot, clean air will start to circulate, creating a sterile environment.

Tip:
Instead of examining your own hands, you can test almost anything around you. Just take a sample with a cotton swab, gently stroke it onto the agar, close the petri dish and see what will happen in the days after!

This is what you need to make your own DIY bacteria detector:

- Petri dish filled with nutrient agar (want to know how to make it? Look at: togethersciencebus.eu)
- (Homemade) soap (instructions for this can also be found at the website)
- Gas burner
- Lighter
- Waterproof marker
- Kitchen towel or tissue (to dry your hands with)

check out togethersciencebus.eu

doing it together science

waag society

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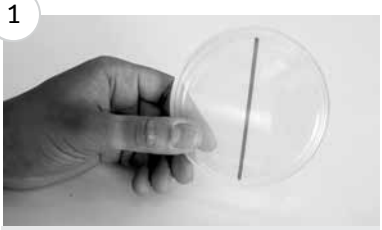
other side for ingredients

DIY bacteria detector

Discover how well your (homemade) soap works by testing how many bacteria are still on your hands after washing. Follow these instructions:

1



Divide the petri dish in two halves, by drawing a line on the outside bottom with a waterproof marker. **Tip**: doing this at home? Make you own petri dish with agar by using the instructions on the website.

2

Also write on the outside bottom:
- your name,
- the date,
- ‘before’ (one half) and ‘after’ (other half)

3

Carefully light the gasburner with a lighter. Wait for 20 seconds. The air will be sterilised by the flame, keeping other microbes out of your dish.

4

Open the dish and keep at about 10 cm distance from the flame. Be careful!
Now push, in the proximity of the flame, a finger in the agar at ‘before’. Put the lid on the dish and turn off the gas burner.

5

Wash your hands with (homemade) soap. The longer you wash your hands, the cleaner your hands will be. Really clean hands take approximately 40-60 seconds.

6

Dry your hands well with a paper towel or tissue.

7

Light the gas burner again (see step 3).
Keep the dish about 10 cm distance from the flame. Be careful! Now put a finger in the agar at ‘after’.

8

Leave the dish, closed at room temperature for 1-3 days.

9

Now watch the difference between both sides. Did your soap work well? Upload your results with #sciencebus on instagram or twitter.