

ARTIS MICROPIA

Ditch water

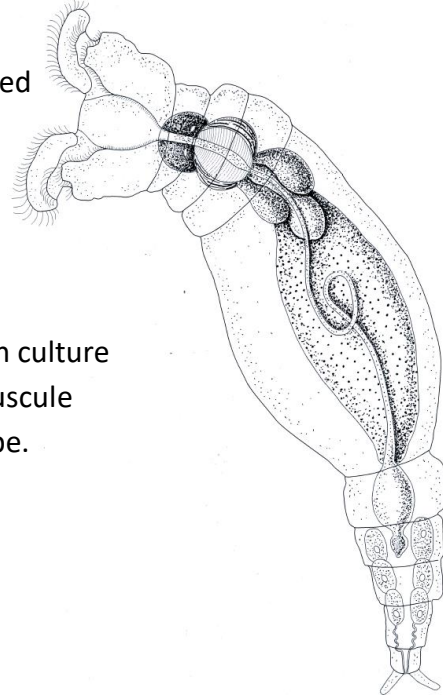
Full of life

Ditches are home to more than just fish. The brown water is full of life. Much of that life cannot be seen with the naked eye. Algae, paramecia, rotifers, and water fleas are all microbes which have made themselves at home in the ditch.

With a microscope, you can view these invisible ditch inhabitants. You are going to make your own culture with ditch water. Soon, this will contain a great many minuscule aquatic creatures which you can view under the microscope.

What do you need?

- a bottle with a cap
- ditch water
- hay
- a pipette
- a microscope
- coverslips
- microscope slides (preferably with a hollow in them)
- a punch or pair of scissors



Getting started!

Step 1: make your own culture

1. Fill the bottle with water from a ditch, pond or canal.
2. Place a bit of hay in the bottle.
3. Carefully make a few small holes in the cap with the scissors or punch.
4. Place the bottle in a bright place which is not too warm (room temperature is fine).
5. Use the pipette to make some air bubbles in the water every day. That way the microbes in the water will have enough oxygen available and be able to grow.
6. After two weeks, there will be lots of microbes in the water. Now you can continue to step 2.

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Step 2: prepare a microscopic slide

1. Use the pipette to remove a bit of water from the bottle.
2. Place two drops on the microscope slide.
3. Cover this with a coverslip. Place the coverslip diagonally across the microscope slide and allow it to slowly sink down. This will prevent air bubbles from forming between the slide and the coverslip.

TIP: Repeat step 2 over the course of five weeks and make a slide twice per week using the water from the bottle.

TIP: You can also make multiple cultures and keep these in different places. For example, you can keep one on a sunny windowsill. Certain aquatic microbes will grow better there than others, as a result of which you will get a different culture.

Step 3: check the ditch water

1. Check the prepared slide under the microscope immediately after making it.
2. Adjust the microscope to the right magnification. Start with the lowest magnification and keep increasing it so you can see the smaller aquatic organisms.

TIP: In some cases, there may not be much to see in your specimen. If that happens, try to make a new one. Maybe then you will have more luck.

3. Use the appendix to identify the aquatic creatures.
4. Make a note of what you see in each slide.

Questions

Question 1: Did you see a lot of life through the microscope in the tiny drop?

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Question 2: What did you see?

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Question 3: How did the microbial life in your culture change over the course of the five weeks? Did the numbers of living organisms increase or decrease the longer you let the culture sit?

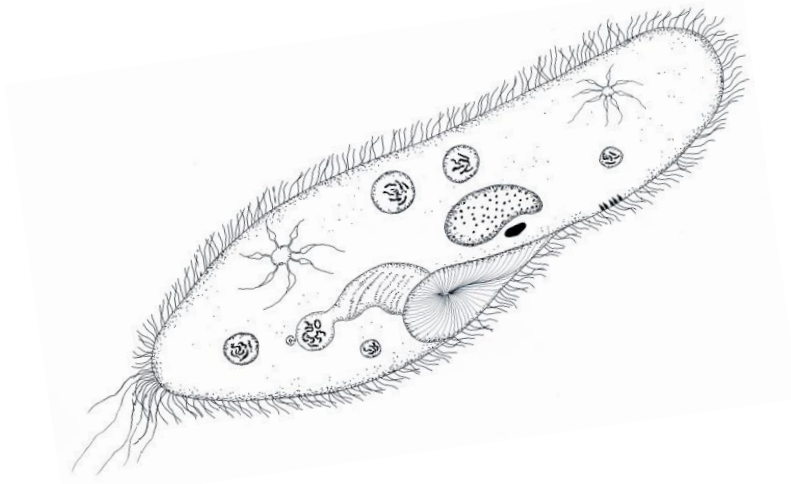
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Question 4: What is your favourite aquatic creature? And why?

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Would you like to know more about the microbes in the ditch? Or would you like to do additional experiments? Then go to micropia.nl.

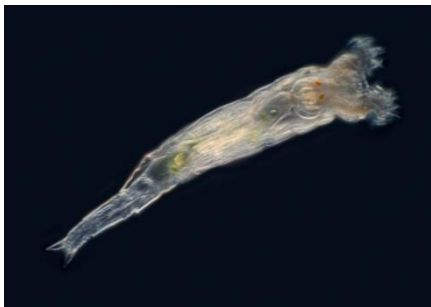
Appendix: aquatic creatures

What do you see through the microscope?

Below are a few photos of aquatic organisms that live in ditch water. Do you know yet which ones are in your culture?

Paracemium

In Dutch, the paracemium is called a pantoffeldiertje, a 'slipper animal'. Why do you think that is? Exactly, because of its distinctive shape. The paracemium's body is covered with tiny hair-like organelles. That is why it is considered a ciliate.



Rotifer

Rotifers can grow to approximately 2 mm long. They usually have a double ring of cilia on their head – a sort of cog with which they capture their prey. That is where their name comes from, as 'rota' means wheel in Latin.

Water flea

Water fleas are tiny crustaceans. You can recognise them by their jerky movements. They use the two large antennae on their heads to make this motion.



Amphipods

Amphipods also belong to the taxon of crustaceans. They have a long, thin body. They look a bit like fleas. That is where the Dutch word for the amphipod, which translates to 'flea lobster', comes from.