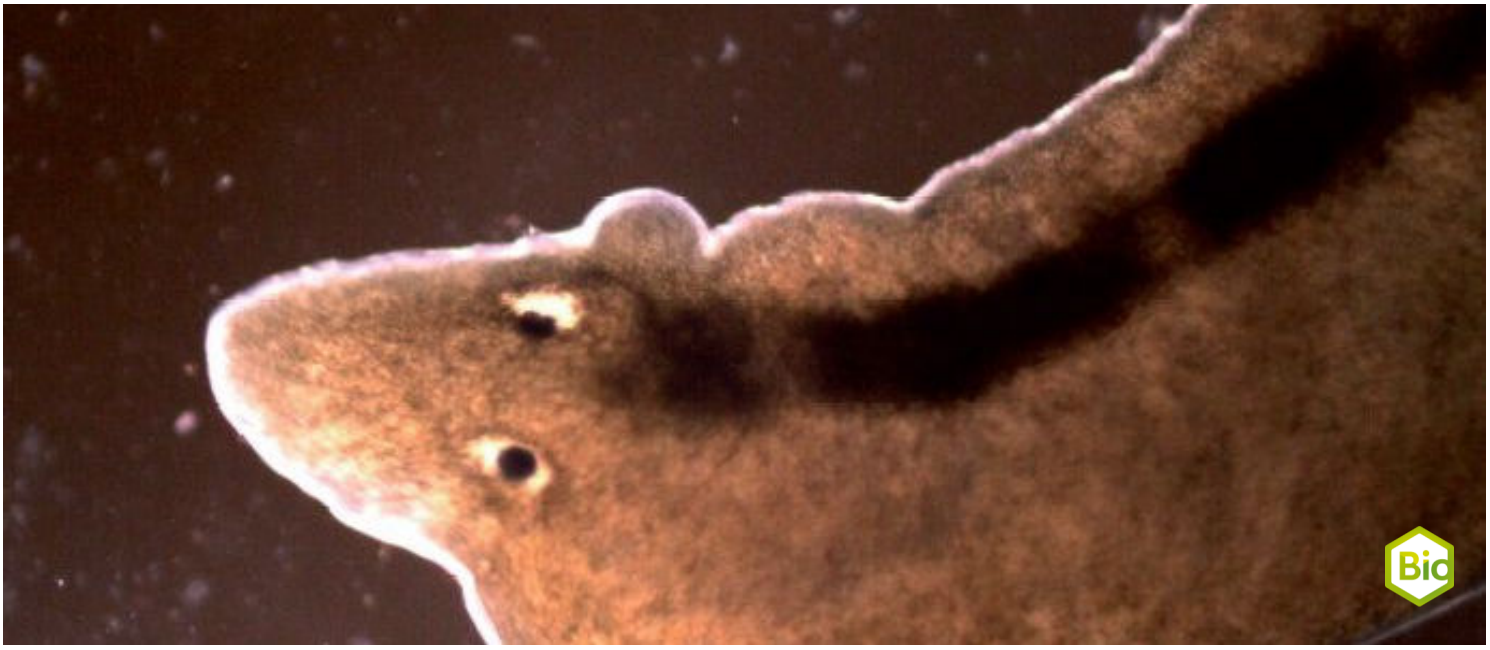
Planaria



Biology	Microscopy / Cell Biology	Humans & Animals	
Biology	Animal Physiology / Zoology	Invertebrates	

Difficulty level	Group size	Preparation time	Execution time
easy	1	10 minutes	30 minutes

This content can also be found online at:

http://localhost:1337/c/6127513a870bca000351f6fe

PHYWE

Teacher information

Application

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Planar headboard (40x)

The planarian belongs to the class of strudel worms (Turbellaria) and these to the phylum of flatworms. They are found in freshwater as well as marine environments and feed predatorily, e.g. also on fish and shrimp eggs in aquaria. Therefore, they pose a problem for ornamental fish breeders. In research, the planarian Dugesia tigrina is of great importance because of the large number of stem cells.

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Other teacher information (1/4)

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Prior knowledge

Students should have a good background knowledge of planaria and be familiar with their way of life and structure. They should also be familiar with the use of a microscope.

Scientific Principle

Students look at planaria under a microscope and get an idea of how they look and how they move.

Other teacher information (2/4)

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Learning objective

Students should be able to recognize planaria and name the body parts.

Tasks

Have students observe the locomotion and structure of a planarian under the microscope.

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Other teacher information (3/4)

Notes on material procurement

The stream planarian (Dugesia gonocephala) is found in clean running waters. Take a water sample with some pebble substrate from the bottom. If you place the sample quietly in a glass, the planarians will soon move along the inner wall of the glass. The milk-white planarian (Dendrocoelum lacteum) is a common pest in aquariums and can therefore be found in pet shops or by aquarists.

Planarian larva (100x) staining with neutral red

Other teacher information (4/4)

Notes on implementation

1. with planaria, the eyes and the typical head with the little ears can already be seen with a magnifying glass. They move amazingly fast on the glass wall on a slime film. If you want to calculate the speed, you should determine the time frame (approx. 20 to 30 seconds) and measure the distance that the planarian covers in this time.

2. Under the microscope you can see very well the strongly branched digestive tract. Planaria are ciliated on the surface. The swirling effect on the water is what the students will observe first. By constant movement of the fine shoot they will recognize the cilia. In the larvae, the ciliate is especially easy to see.
Recommendation: The pupils can try out live colouring with neutral red on planaria (see 2.3). It is possible to pass the diluted colour solution under the cover glass.

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Safety instructions

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- Working with microscopes for too long can lead to physical discomfort (fatigue, headache, nausea), especially when students are untrained.
- Microscopes are sensitive. During transport and handling, care should be taken to ensure that everything is done carefully and without rushing.
- The general instructions for safe experimentation in science lessons to be applied to this experiment.

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Student Information

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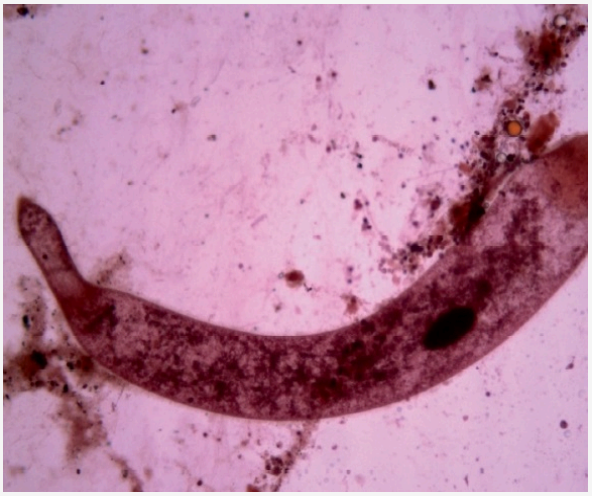
Motivation

Planar headboard (40x)

The planarian belongs to the class of strudel worms (Turbellaria) and these to the phylum of flatworms. They are found in freshwater as well as marine environments and feed predatorily, e.g. also on fish and shrimp eggs in aquaria. Therefore, they pose a problem for ornamental fish breeders. In research, the planarian Dugesia tigrina is of great importance because of the large number of stem cells.

Tasks



Planarian larva (100x) staining with neutral red

On the walls of aquariums you can sometimes see white worms (planaria) on the glass, which are much feared by aquarium owners. Find out why and explore the structure of these whirl worms.

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Equipment

Position	Material	Item No.	Quantity
1	PHYWE Binocular student microscope, 1000x, mechanical stage	MIC-129A	1
2	Microscopic slides, 50 pcs	64691-00	1
3	Cover glasses 18x18 mm, 50 pcs	64685-00	1
4	Magnifier, plastic, 5x, d=35mm	88002-01	1
5	Dropping pipette with bulb, 10pcs	47131-01	1

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Procedure

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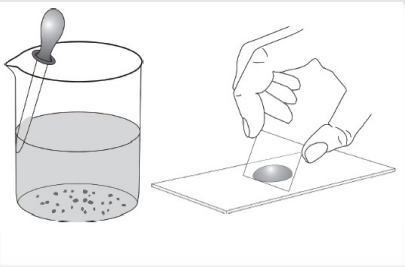
Observation of the locomotion of a planarian

- With the help of the magnifying glass, observe the movement of a planarian on the wall of the glass.

Microscopy of the planarian

- Suck a planarian with the dropper from the side wall and microscope at lowest magnification! Draw the body outline and the eyes in the protocol.



Report

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Task 1

Why do planaria pose a problem in the aquarium?

- ○ Because they grow so large that they do not have enough space in the aquarium.
- ○ Because they negatively affect water quality.
- ○ Because they eat fish and shrimp of all sizes.
- ○ Because they feed on the eggs of fish and shrimp. This is especially a problem for ornamental fish breeders.

Check

Task 2

Planarians are found in both freshwater and saltwater.

○ True ○ Incorrect

Check

Planarians belong to the class of Turbellaria, and these belong to the phylum of flatworms. Planarians are ciliated on the surface.

○ True ○ Incorrect

Check

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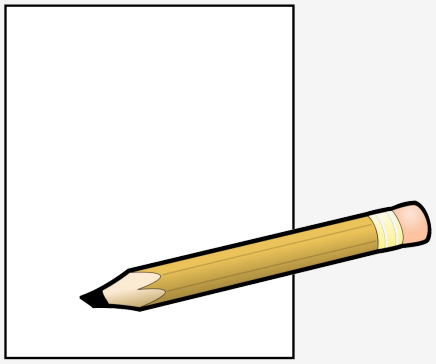
Task 3

Draw the body outline and eyes of a planarian in the protocol.

Additional task: Use your knowledge from physics class and calculate the speed at which the planarian is moving forward.



Slide	Score / Total
Slide 14: Planaria in the aquarium	**0/1**
Slide 15: Multiple tasks	**0/2**

Total **0 / 3**

Solutions Repeat

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