Nematoda (Item No.: P1443801)

Curricular Relevance

Area of Expertise: Biology
Education Level: University
Topic: Microscopy / Cell Biology
Subtopic: Other Animals under the Microscope
Experiment: Nematoda

Difficulty	Preparation Time	Execution Time	Recommended Group Size
Easy	10 Minutes	30 Minutes	1 Student

Additional Requirements:

- Soil sample with nematodes

Experiment Variations:

Keywords:

Task and equipment

Information for teachers

Information on obtaining materials

Nematodes are found in almost any sample of soil. Reliable occurrences are moist locations. These threadworms will be found on the boundaries of a garden pond, a small body of water, in a moss cushion, or attached to an aquarium filter.

Information on nematodes

The threadworms (*Nematoda*) belong to the most diverse phyla of the animal kingdom. Ground-dwelling species have an important part to play in material cycles, since they utilize organic matter and are involved in humus formation. The elvers are of significance as agricultural pests which infest the roots of cultivated plants, thus weakening or destroying them. The pinworm (*Oxyuris*), the human intestinal roundworm (*Ascaris lumbricoides*), *Trichinella spiralis* (Trichinosis pathogen), the Guinea worm (*Dracunculus medinensis*) and the elephantiasis pathogen (*Wuchereria bancrofti*) are known as human parasites. Infection mostly proceeds via worm eggs which are ingested with food contaminated with feces.

Information on how to proceed

1. Since nematodes are able to survive in water, soil samples can be gathered and brought into the preparation room many days or even weeks before microscopy starts. The sample container should not be exposed to direct sunlight and not allowed to dry up.

2. Nematodes display a round cross-section and, opposed to earthworms (*Lumbricus terrestris*), they possess a threadlike unsegmented body. The front end including the mouth is blunt and might be surrounded by appendages. The body’s rear end is tapered.
With the exception of their body openings, nematodes only possess longitudinal muscles and can therefore only move forward in a bending and whiplashing fashion.

Nematode (400x)

Nematode (400x), in Neutral Red

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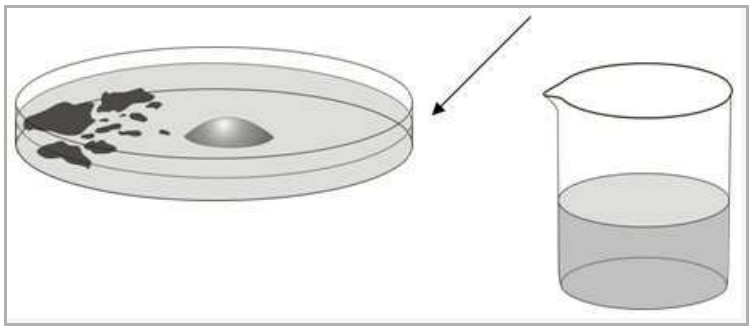
Task and equipment

Task

Threadworms (nematodes) are whitish or colorless roundworms of very simple organization, which occur almost everywhere in moist soils, in water, and also as parasites in plants, animals and humans. Explore the physical shape and the mode of movement of these threadworms.



Equipment

Position No.	Material	Order No.	Quantity
1	Euromex BioBlue BB.4250 microscope	EUR-BB-4250	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	Beaker, 250 ml, low form, plastic	36013-01	1
6	Glass rod,boro 3.3,l=200mm, d=5mm	40485-03	1
7	Petri dishes, plastic, d=94mm, 20/pkg	64709-03	1
8	Dropping pipette with bulb, 10pcs	47131-01	1

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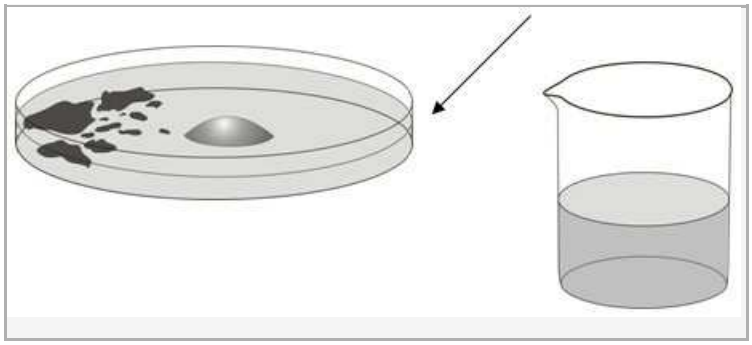
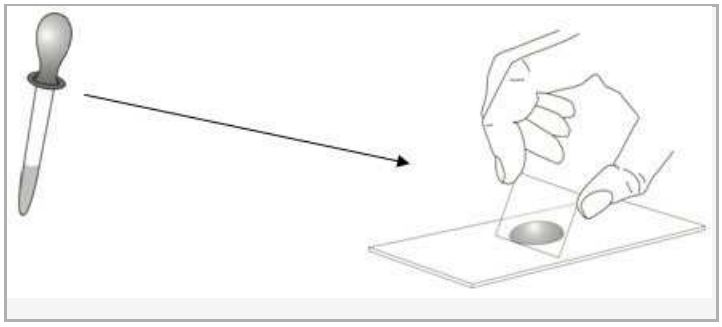
Set-up and procedure

1. Searching for nematodes
Innumerable tiny worms which you will identify only under a microscope are to be found in a soil sample taken from a mostly moist location. Place the soil sample into a Petri dish, add some water and stir.



2. Microscopy of nematodes
Take a water sample and examine it under the microscope with the smallest power.



Nematodes usually hide under solid matter. Soon you will see them churning up the mud flakes with vigorous movements. Describe these movements and the appearance of a nematode in the report. If possible, compare it with the physical shape of an earthworm.

Report: Nematoda

Result - Observations (10 points)

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