# BIODIVERSITY WORKSHEET

## ANNOTATION

This worksheet is intended for observation of aquatic plants and animals and their relationship in a small school lake of Elementary School Trávník Přerov. All plants you can see in the pictures are the plants that were planted in our lake some time ago and thus they are rooted well. If there are different plants in your school lake, change the pictures according to them. If you do not have a lake, you can use another water source, such as a river or pond.

**Time**: 2 – 4 lessons (depends on pupils´ knowledge – whether they have proper information or have to search for it)

**PART 1**
**PHENOLOGICAL OBSERVATION**

**Aids/material needed for observation of meteorological phenomena:**

- Weather station or its subcomponents – thermometer, barometer, cloud chart and wind power chart according to the Beaufort scale.
- Stationery.

**Procedure**:
Pupils observe and write down data into the chart in the worksheet.

**PART 2**
**PLANTS OBSERVATION**

**Aids needed for plants observation:**

- Encyclopedic sheets of aquatic plants that we have made to each plant which can be found in our garden. They can be replaced with the identification keys for plants or pictorial atlas of aquatic plants.
- Stationery to draw and describe plants.

**Procedure:**
Students observe plants in the school lake and classify them with the help of encyclopedic sheets, or an identification key can be used. They can also use Help.
They write species names below the images in the worksheet.
If pupils can´t find a species in the lake (because of its disappearance, it is not its main growing season or they do not recognize it without blooms), they determine it and write "not found" to the picture. By observing where in the lake the plant is found and where it has its roots, pupils differentiate which lake zone the plants belong into (floating, submerged, shallow water and deep water) perhaps even with encyclopedic

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sheets. Pupils deduce the plant´s function in the lake (oxygenating or cleaning plants, shelter for animals or food) eventually with help of the teacher.

**PART 3**
**ANIMALS OBSERVATION**

**Aids needed for animals observation:**

- A net and a large colander for catching aquatic animals
- A shallow dish to keep the animals/material fished out
- Tweezers for removing invertebrates
- Dissecting dish – whole or divided or with a magnifying glass to keep the sorted organisms
- Identification key to identify animals in aquatic ecosystem
- Magnifying glass or microscope for better distinction and classification of organisms species observed
- Stationery to draw and describe animals

**Procedure:**

Pupils fish out organic material from the lake. They put a little water into a white shallow bowl and empty out the contents of the net into the bowl with care (by turning it upside down). After that pupils observe the contents of the bowl and use tweezers to choose some of the organisms they have caught and put them carefully into the prepared Petri dishes with water. They repeat it several times until they have enough animals.

Pupils classify the selected animals through the use of identification keys and enter data into the worksheet. After the observation, all animals are given back into the lake.

Pupils make up the food chain from organisms that occur in the lake. To do this is necessary to know which organisms are producers, primary or higher-level consumers. If students do not know this information, the teacher advises them or offers them an encyclopedia, online encyclopedia or other Internet sources where such information can be found.

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**Worksheet Biodiversity / School lake biodiversity**

# PART 1

**PHENOLOGICAL OBSERVATION**

| **Experiment Data** | | | **Phenology Data** | | | |
|---|---|---|---|---|---|---|
| **DATE** | **GRADE** | **PUPIL´S NAME** | **TEMPERATURE** | **WIND** | **PRESSURE** | |
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| **Average Value** | | | | | | |

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| Experiment Data | | | Phenology Data | | | |
|---|---|---|---|---|---|---|
| **DATE** | **GRADE** | **PUPIL´S NAME** | **TEMPERATURE** | **WIND** | **PRESSURE** | |
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| **Average Value** | | | | | | |

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# PART 2

**PLANTS IN THE LAKE**

In our school lake these species of plants can be found:

**reed , mint, elodea, myriophyllum , hornwort, bulrush, clubrush, iris, marsh marigold , duckweed , horsetail , schoenoplectus , cattail , sedge , cottongrass , knotweed**

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**Task 1: Match the pictures of plants to their names**

**Task 2: Each plant in the lake is typical for a specific zone where it performes its function. Match the plants with their typical lake zones according to where they grow.**

a) Floating plants
b) Submerged (oxidizing) plants
c) Deep water plants
d) Shallow water plants

**Task 3: Observe water plants leaves according to their venation. Determine monocotydelons and underline them.**

**Task 4: Draw a plant from the lake and determine its category.**

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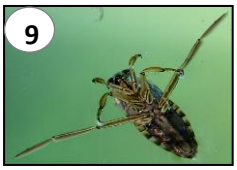
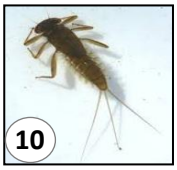
# PART 3

**ANIMALS IN THE LAKE**

**In the lake these animals can be observed:**

AMPHIBIANS: Green Toad (  ), Common Frog (  )
CRUSTACEANS: Copepod (  ), Water Flea (  ), Gammarus (  ), Water Ladybug (  )
MOLLUSCS: Lymnaea Stagnalis (  ), Planorbarius Corneus (  )
DIPTEROUS: Midge (  ), Mosquito (  ), Black Flies (  )
BEETLES: Diving beetle (  ), Hydrophilus (  ), Gyrinus (  )
HETEROPTERA: Ilyocoris cimicoides (  ), Notonecta glauca (  ), Nepa cinerea (  ), Skater (  )
MAYFLIES (  ), STONEFLIES (  ), DRAGONFLIES (  ), LEECHES (  ), CADDISFLIES (  )





**Task 1: Classify the animals.**

Some animals in the lake can be found in a stage of larvae and also of the adult, other only in a stage of larvae.
With help of an identification key determine animals you have found in the lake, place them into system and write whether they are larvae or the adults.

| Species | Larvae/ The adult | Category |
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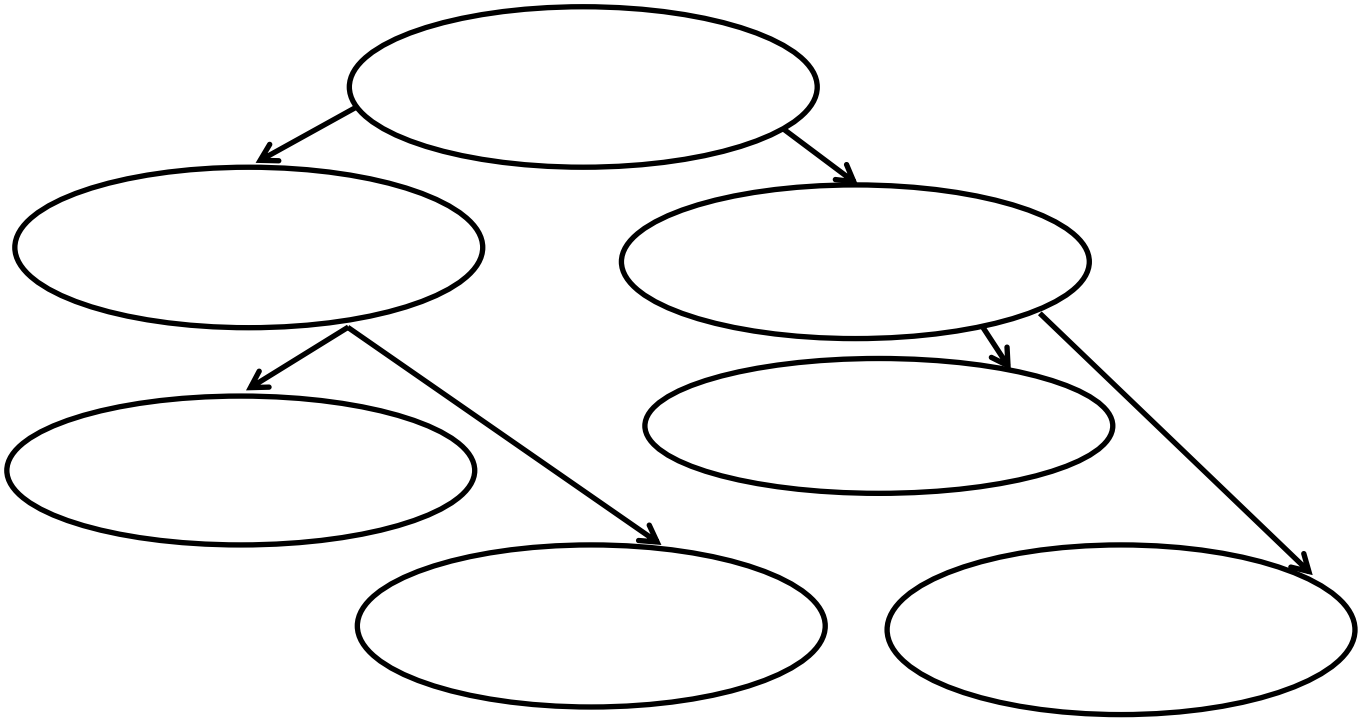
**Task 2: Complete the food chain of school lake plants and animal species.**



**Task 3: Draw an animal and determine its species.**

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