

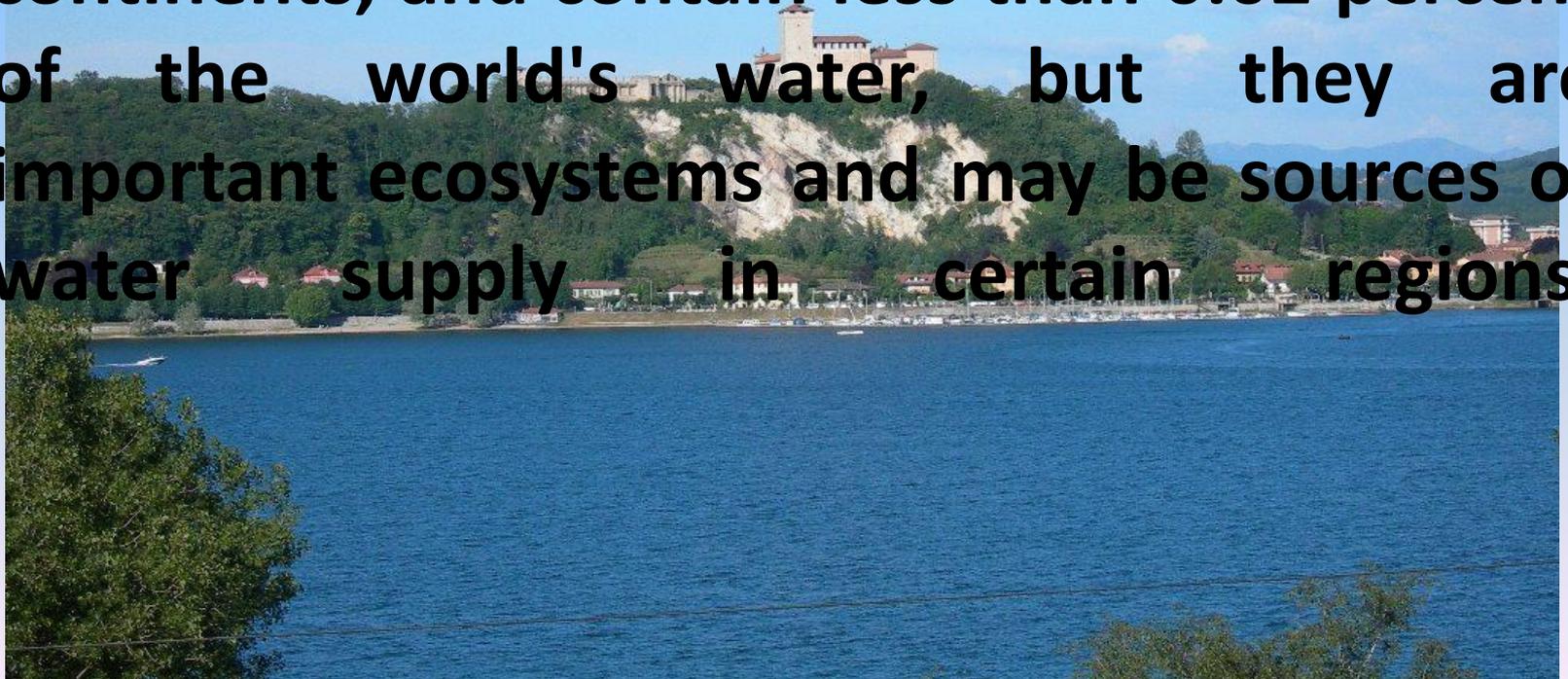
# The Lake and its Ecosystem in Prealpi Area CLIL Unit

# THE LAKE

[www.lagomaggioreonline.it](http://www.lagomaggioreonline.it)

**Natural lake is a fairly large body of water .**

**Lakes cover only about 1 percent of the continents, and contain less than 0.02 percent of the world's water, but they are important ecosystems and may be sources of water supply in certain regions.**



## 11. Glacial

# Origins of Lakes



# Origin of Lakes



UNRENDERED



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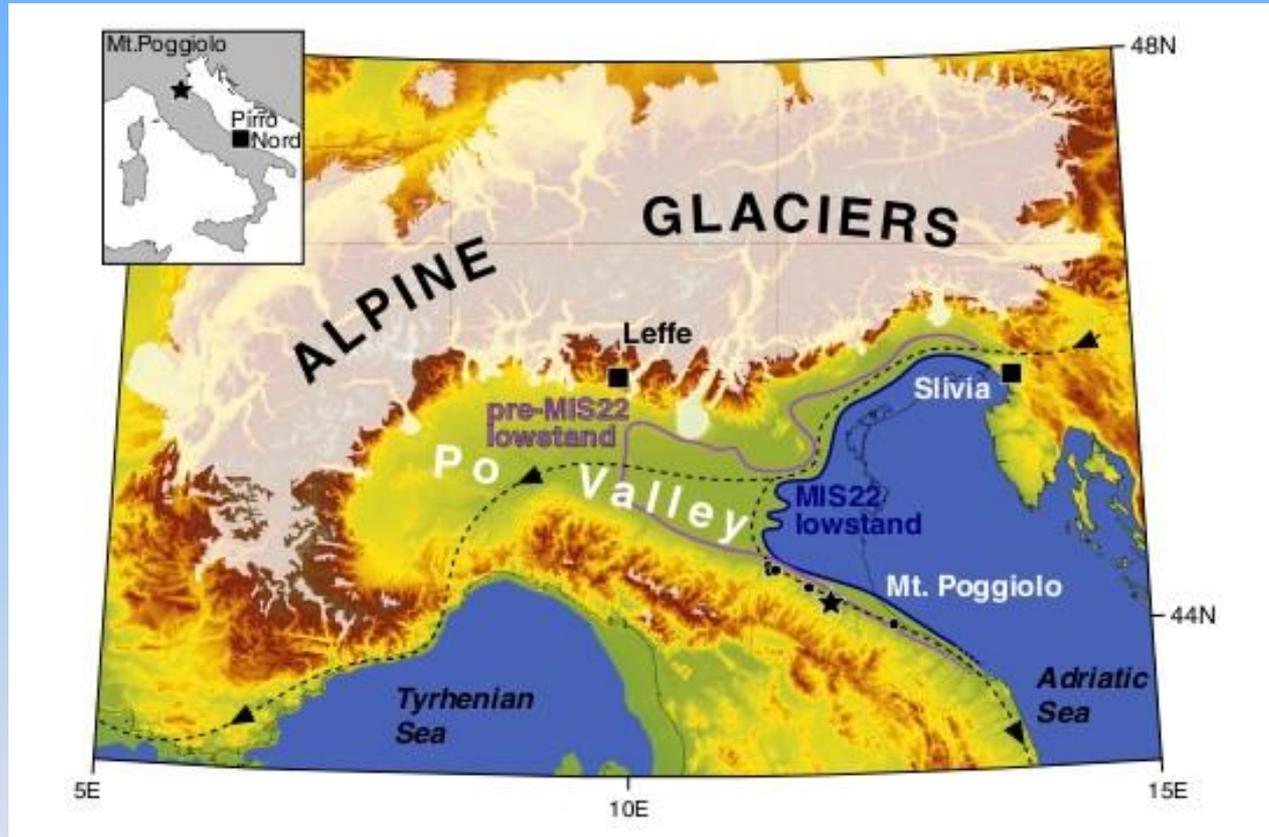
# The origin of Lakes

## Lakes of glacial origin

By far the most productive maker of present-day lakes were the glaciers.

Between one million and ten thousand years ago, during the Pleistocene, our planet experienced a series of four ice ages (expansions and recessions of glacial ice over the land surface).

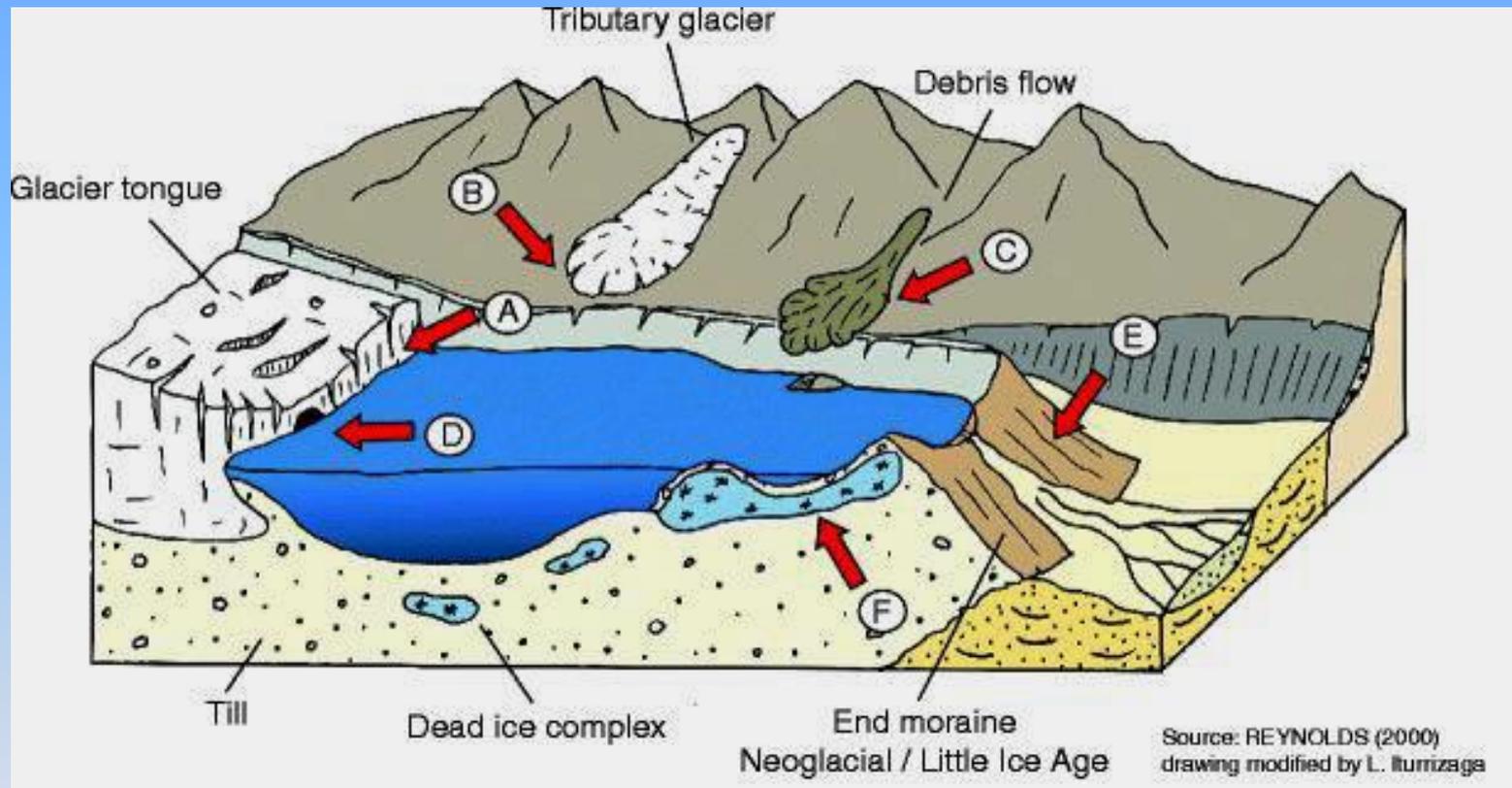
# The origin



# The origin

At times of maximal ice cover, 31.5% of the earth's surface was covered by glaciers. The last glaciation (10,000 to 125,000 years ago) was responsible for shaping the landscape of northern temperate regions. It created the vast majority of lakes.

# Glacial lake origin



## **Glossary:**

Glacier tongue: lingua/fronte del ghiacciaio

Tributary glacier: ghiacciaio affluente

Debris flow: deposito di detriti

Till: deposito

End Moraine: fronte della morena

## **Activity 1:**

[activity 1](#)

# The Lake Maggiore

- The origin of the Lake Maggiore (also called Verbano) is surely glacial, evidence of that is the disposition of the hills, formed by morainic deposits. The excavation, made by the glacier, took place on a preexisting fluvial valley, the profile of the lake has, in fact, the typical V shape, as every fluvial valley.

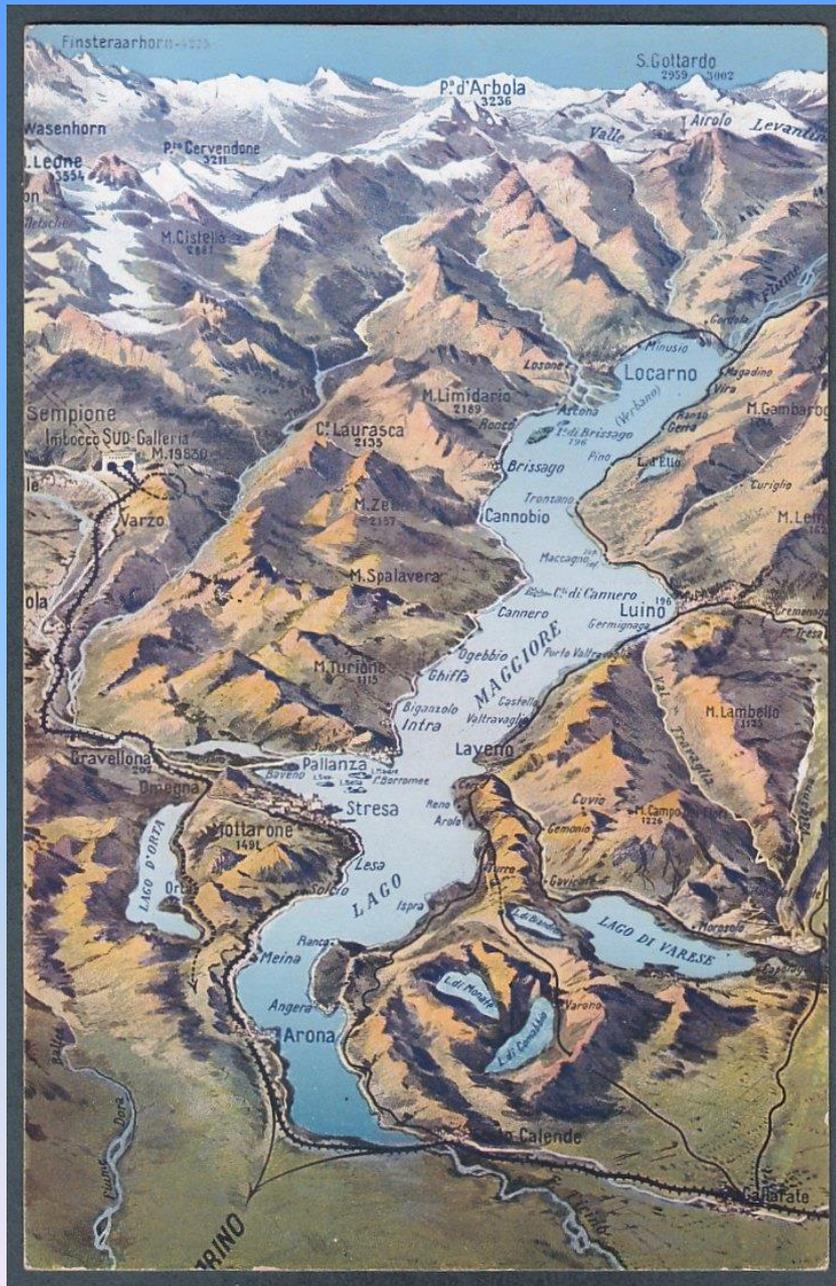


The Lake Maggiore

Lake Maggiore is the most western of the three large prealpine lakes of Europe and the second largest after Lake Garda. The lake's jagged banks are surrounded by the Prealps of Piedmont and Lombardy. The western bank is in Piedmont (provinces of Novara and of Verbano-Cusio-Ossola) and the eastern in Lombardy (province of Varese), whereas the most northerly section extends thirteen kilometres into Switzerland.

# The Lake Maggiore

- Its average depth is about 177,4 m and maximum depth is 372 m. Its surface covers 212,5 km<sup>2</sup>
- Lake's region weather is generally mild. It is known for its Mediterranean-like climate where sub-tropical plants can grow. During winter, the lake helps to maintain a higher temperature in the surrounding region (since water releases heat energy more slowly than air). The area has an average annual temperature of 15.5 °C (60 °F). Rainfall is heaviest in May and lowest during the winter months.





# Lake of Varese

The lake is situated in Prealpi area. Its average depth is about 11 m and its surface covers 14,95 km<sup>2</sup>.

It is the 10th Italian lake for extension and it is well known for its typical «boot» shape.

Around its coasts there are nine towns: Varese, Azzate, Bardello, Biandronno, Bodio Lomnago, Buguggiate, Galliate Lombardo, Cazzago Brabbia e Gavirate.

# Lake of Varese

- The origin of the lake is dated back to 15,000 years ago, together with Lake Maggiore origin. The Verban glacier retreated and a huge basin was originated.
- In the past the lake had a larger surface and it included part of the other lakes of the area.



## Lake of Monate

The lake is situated in Prealpi area, between Lake Maggiore and Lake of Varese, its average depth is about 41 m and the surface covers 2,5 km<sup>2</sup>. Around its coasts there are four towns: Cadrezzate, Comabbio, Osmate, Travedona-Monate



## Lake of Comabbio

The lake of Comabbio is a glacial lake situated between Lake Maggiore and Lake of Varese. Its maximum depth is about 7,7 m and the surface covers 3,4 km<sup>2</sup>. Around its coasts there are five towns: Ternate, Varano Borghi, Vergiate, Mercallo e Comabbio.

# Typical animals: birds

- A lot of birds live along the Verbano coasts. The habitat and the climate are favorable to the life of different species of birds
- Among them:
  - Gulls , Coots , Germans , Grebe, Pochard , Tufted Duck , Swan , Cormorant , Little Grebe , Grey Heron . (Gabbiani, Folaghe, Germani, Svasso, Moriglione, Moretta, Cigno, Cormorano, Tuffetto, Airone Cenerino).



German



Tufted duck



Grebe



Grey Heron

© Andrea Pagani Cesa



Coots

© Andrea Pagani Cesa

## .....and fishes

...and here are the fish that live in the waters of the Verbano :

- Trout, Whitefish, Perch, Agoni, Chars, Pike, Tench, Chub, Alborelle, Eels, Carp and catfish fish . (Trote, Coregoni, Persici, Agoni, Salmerini, Lucci, Tinche, Cavedani, Alborelle, Anguille, Carpe e pesci Siluro).



Alborella



Carp



Perch

Trout



Char



# Aquatic plants

- Waterlilies, Common reed, Typha, lake algae, Lemna maior; (ninfee, canne di lago, tife, alghe, lenticchie lacustri):
- Elm-trees, Fern, Heathers, Lichens, Mosses, Sedges; (olmi, felce, eriche, licheni, muschi, carici).

## Aquatic plants



## Aquatic plants



## Aquatic plants



## Aquatic plants



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## Aquatic plants



## Aquatic plants



## Aquatic plants



## Aquatic plants

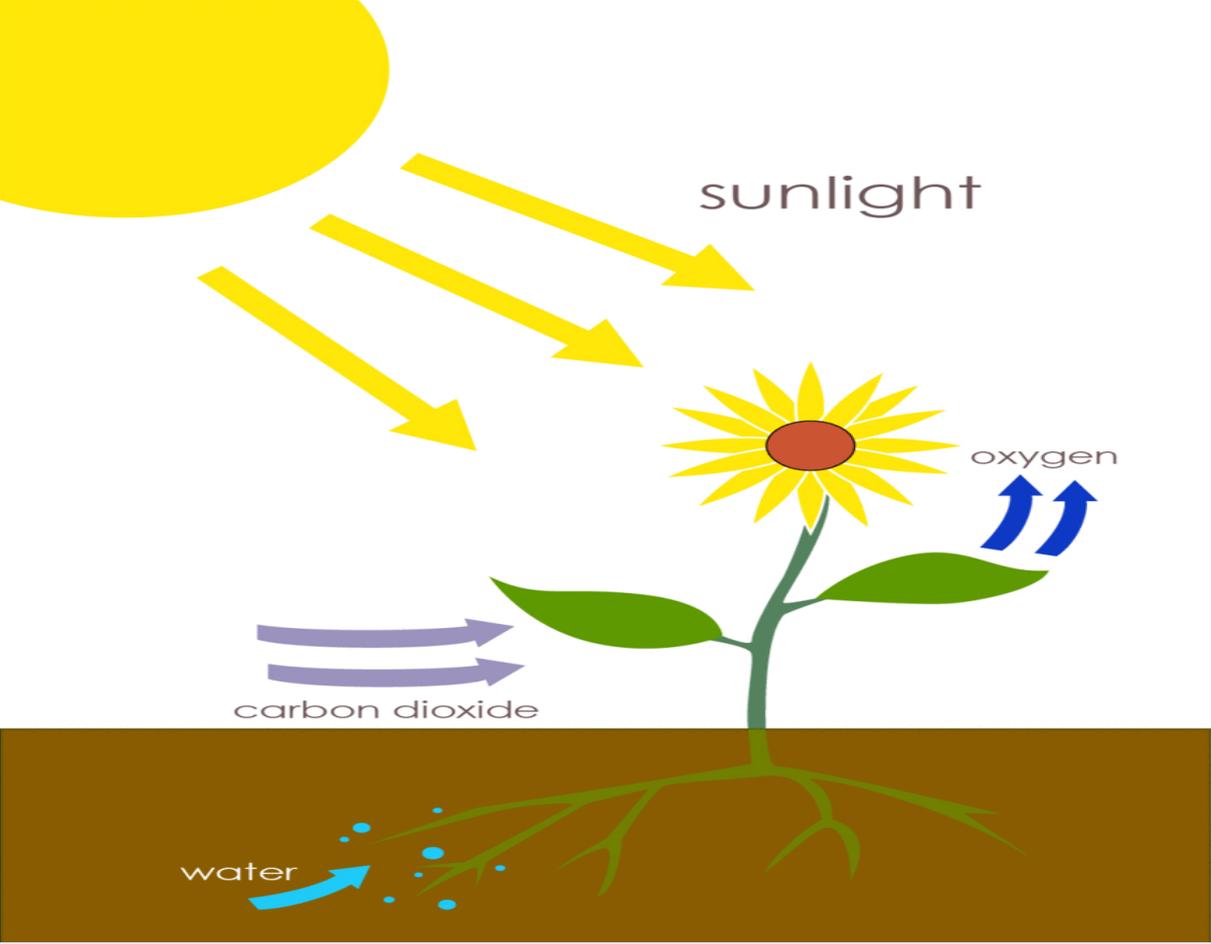


# Aquatic plants



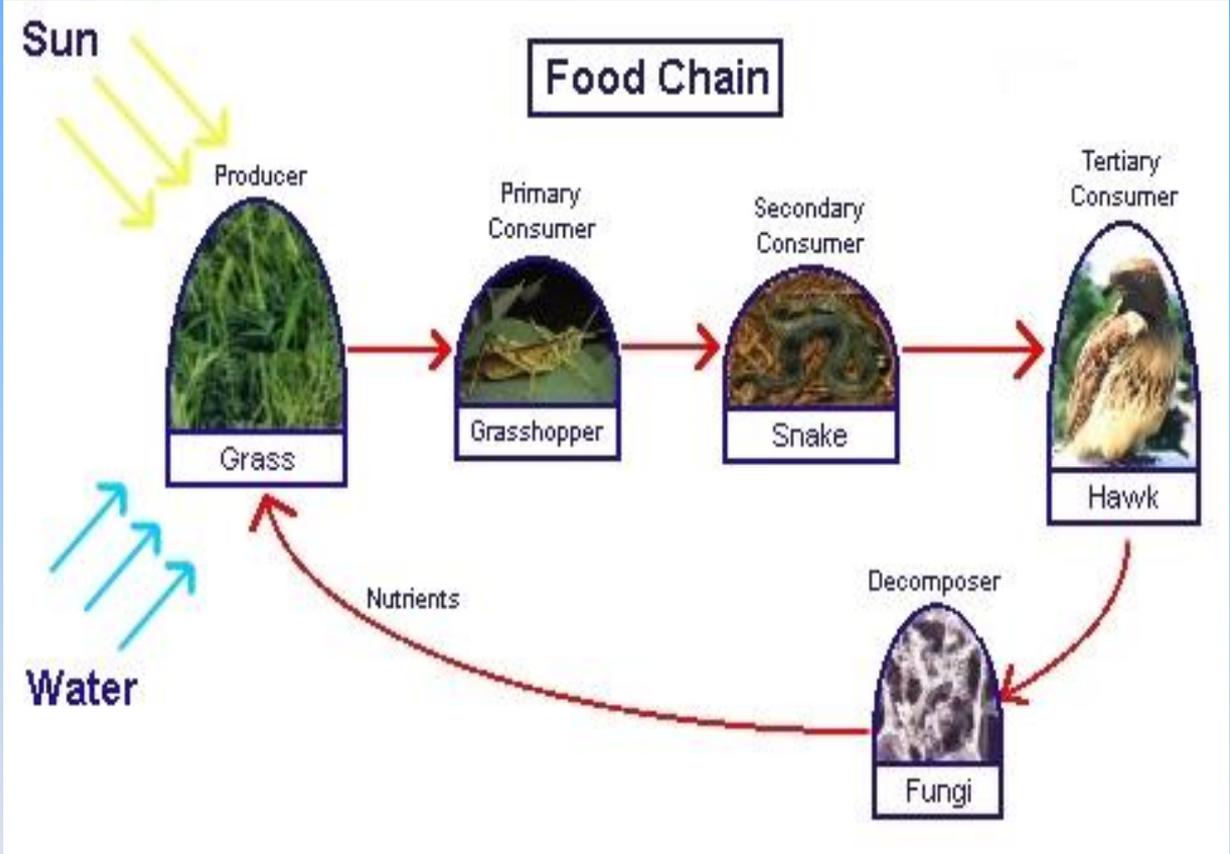
# Food chain

- In an ecosystem there are many food chains and all of them start from plants.
- Green plants with the photosynthesis turn carbon dioxide and water into food (glucose) using energy obtained from the light of the sun.



# Food chain

- Herbivorous animals eat green plants and after carnivores eat them.
- When plants and animals die, insects, bacteria and mushrooms decompose them into simple chemicals such as oxygen, water, carbon dioxide, ammonia etc...



## Food chain in a lake

- Plants form the base of lakes food chain; the most producers are phytoplankton or microscopic floating Plants.
- The Next level of the food chain is zooplankton, mayfly and small crustaceans.

## Food chain in a lake

- Secondary consumers include small fish, crayfish and frogs.
- Top predators are at the top of the food chain; they include fish such as lake trout, pike, birds as herons, gulls, hawks and humans.

# Food chain in a lake



# Food chain in a lake



Grey Heron

## Activity 2

Draw a food web following the instructions:

Write the name of the organism only once. Connect them using arrows (pointing to the organism who receives the food)

**The grasshopper and the rabbit eat grass**

**The mouse eats grasshoppers and grass**

**The spider eats grasshoppers**

**The bird eats grasshoppers**

**The toad eats grasshoppers**

**The snake eats toads and grasshoppers**

**The falcon eats snakes and rabbits**

### Activity 3

- <http://www.sheppardsoftware.com/content/animals/kidscorner/foodchain/foodchain.htm>

### Activity 4

- <http://study.com/academy/lesson/the-environment-levels-of-ecology-and-ecosystems.html>

