

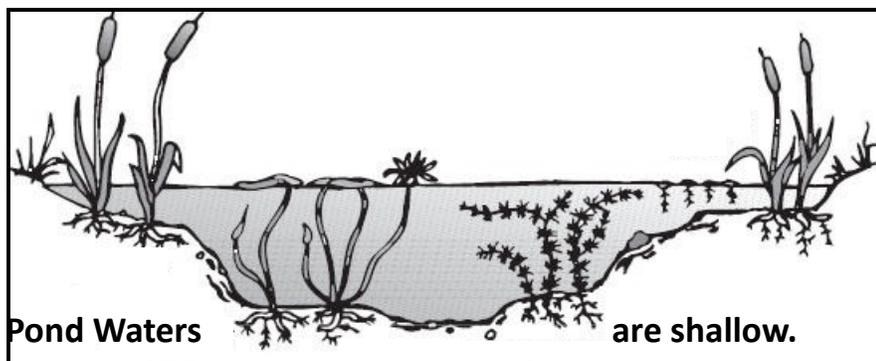
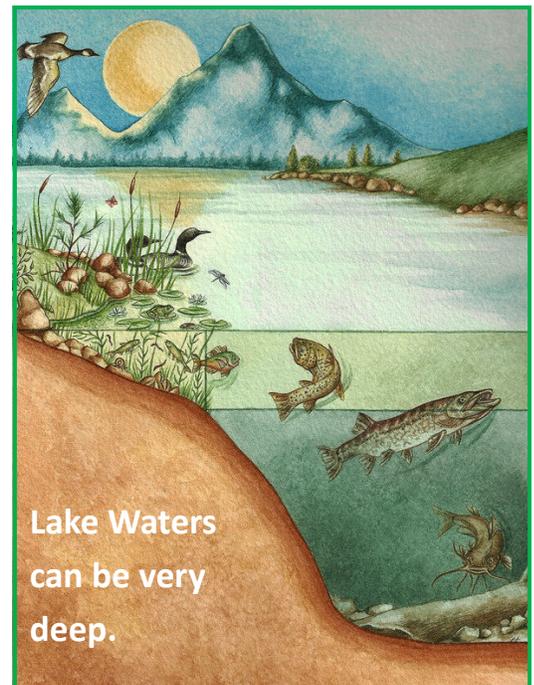
Ponds & Lakes

Ponds and Lakes are often called *Lentic Ecosystems*. This means that they have still or standing water, not moving water like rivers or streams. **All ponds and lakes are open bodies of fresh water surrounded by land.**



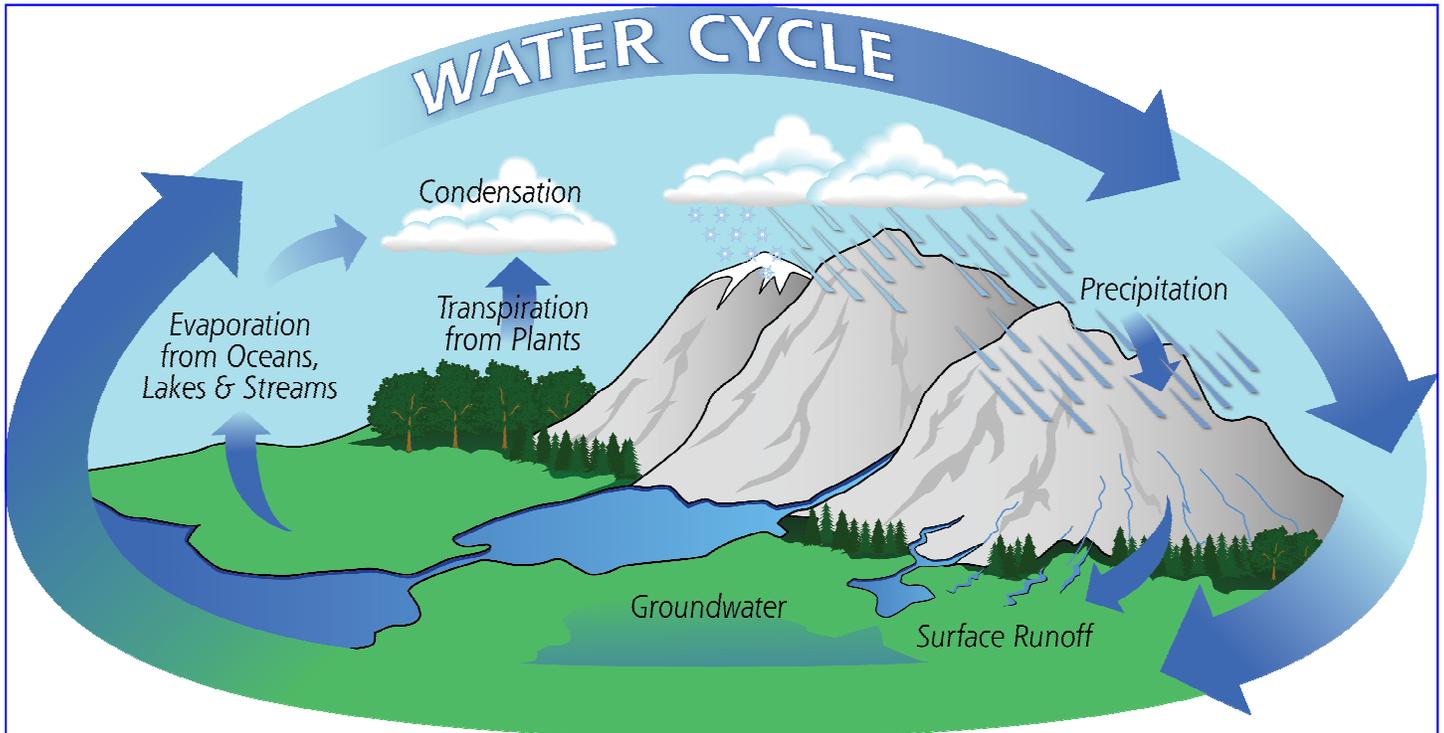
A POND has water shallow enough for rooted plants to grow across it. Because a pond is shallow the water stays warm throughout the day from top to bottom. It is easier for the sun to warm shallow water. But the water temperature can drop at night when the sun goes down.

A LAKE has much deeper water. So even though the sun may warm the surface and shoreline, the deep water stays colder throughout the day. Lakes are too wide and too deep for rooted plants to grow across the surface. But they do grow on the edge of the shore.



The Water Cycle

Water enters ponds and lakes through precipitation, runoff from nearby streams, flooding, or groundwater pushing up through springs.



When the sun shines down and heats the surface of water, the water starts to **evaporate** up into the sky where it **condenses** into clouds. When those clouds get heavy enough the moisture in the clouds start to **precipitate** back down to the earth. Precipitation can be in the form of rain, sleet, snow, or hail.

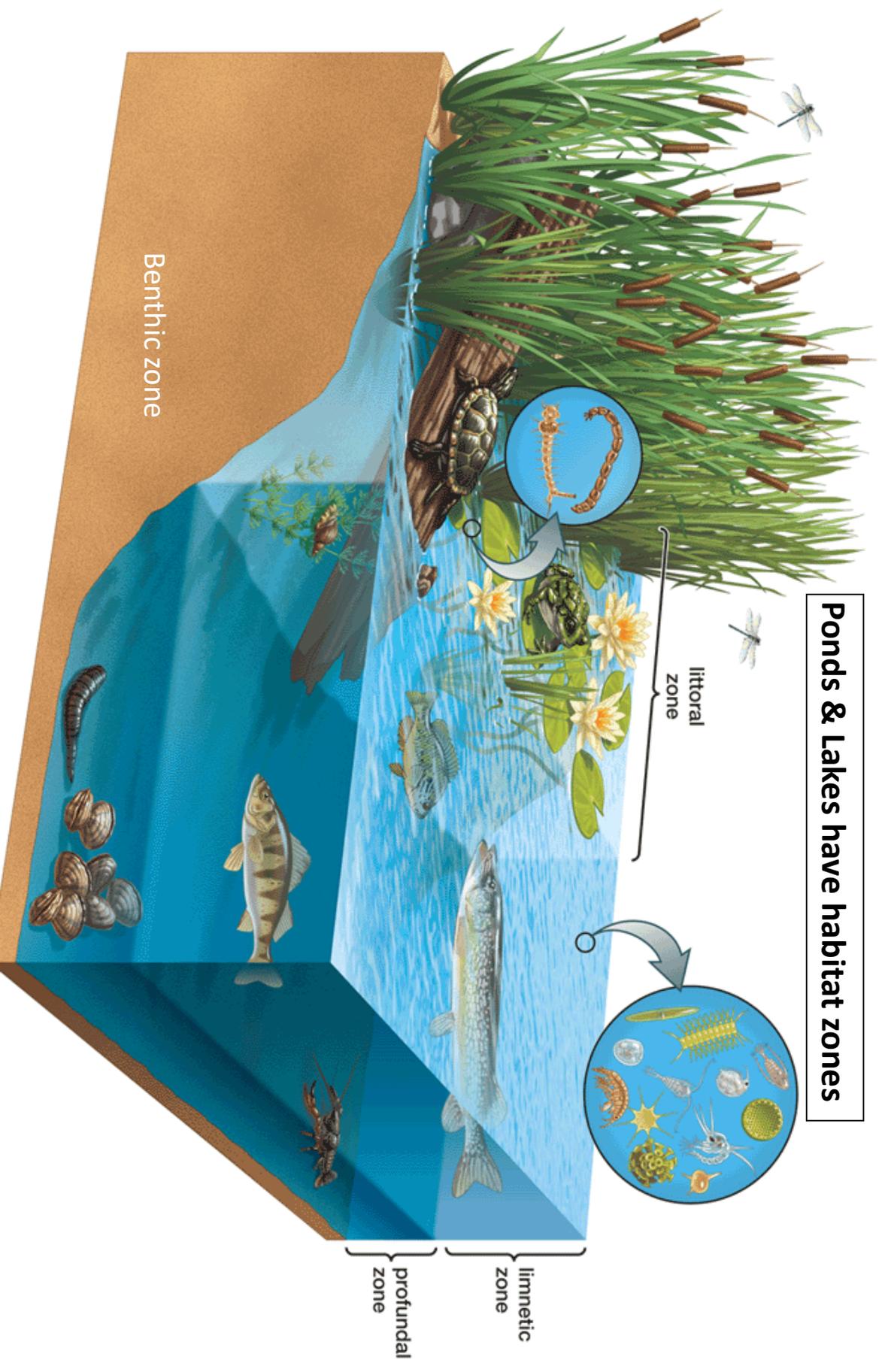
Precipitation flowing down over mountains, forests, fields, and even your houses, schools, and cities, is called **surface runoff**.

Some surface water slowly seeps down into the ground and becomes part of our **groundwater**.



THE FOOD OR ENERGY CYCLE IN A POND. Green plants convert sun energy (its heat) into food through a process called **photosynthesis**. Mussels and other filter-feeders strain microscopic algae from the water for their food. Other creatures like snails, insects larvae and tadpoles graze on larger plants. Those animals become food for crayfish, larger insects, birds, turtles & frogs. When plants & animals die they sink to the bottom and decay. That decay process releases important nutrients into the water that the plants use to help them grow. It's a never-ending cycle.

Ponds & Lakes have habitat zones

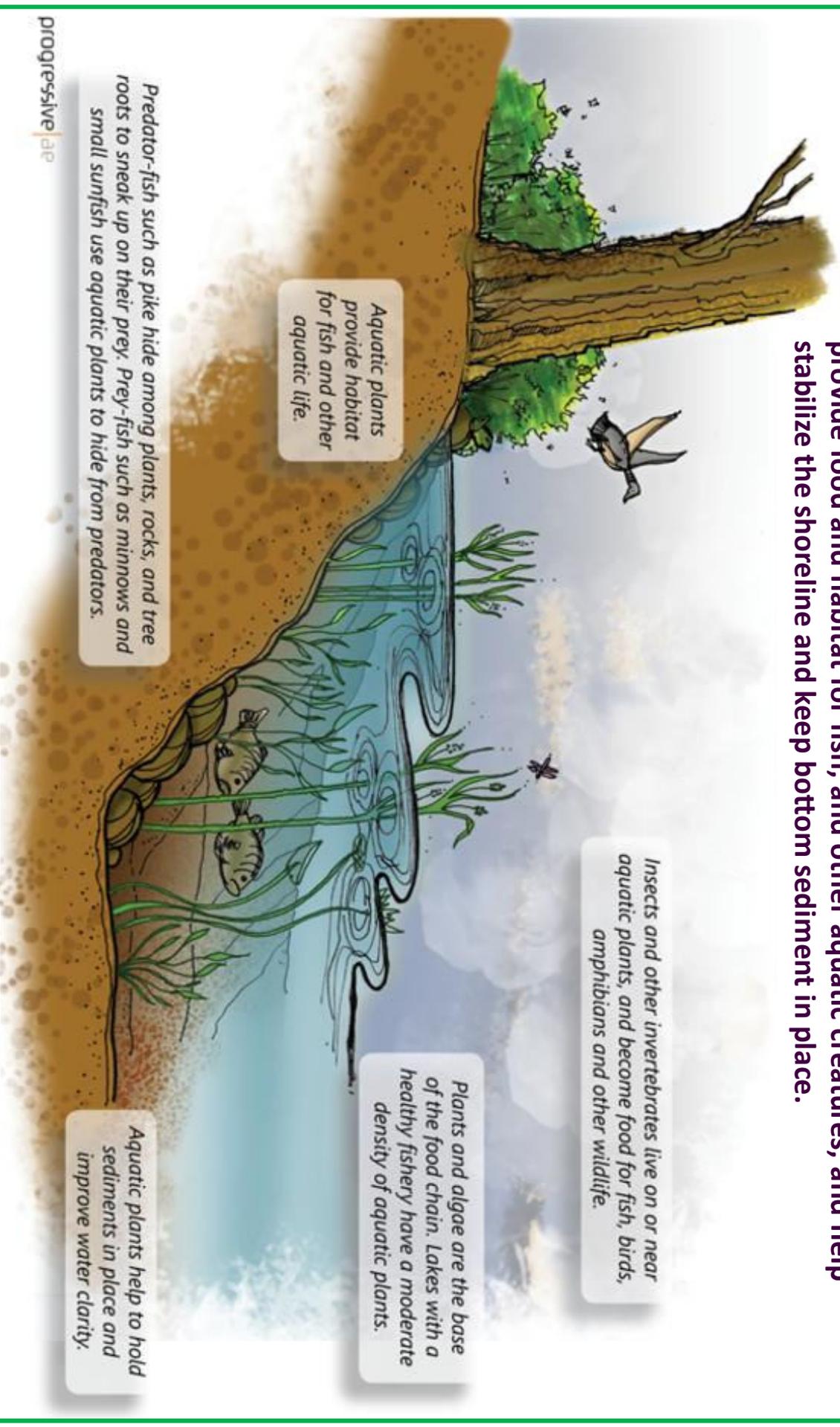


Littoral zone - area closest to the shore where aquatic plants grow.

Limnetic zone - open surface waters of the lake, away from the shore.

Profundal zone— deeper water the sunlight can not reach well so the water is always colder here. **Benthic zone** - bottom—where a lot of decomposition takes place.

Aquatic plants are part of a healthy pond or lake. They produce oxygen, provide food and habitat for fish, and other aquatic creatures, and help stabilize the shoreline and keep bottom sediment in place.



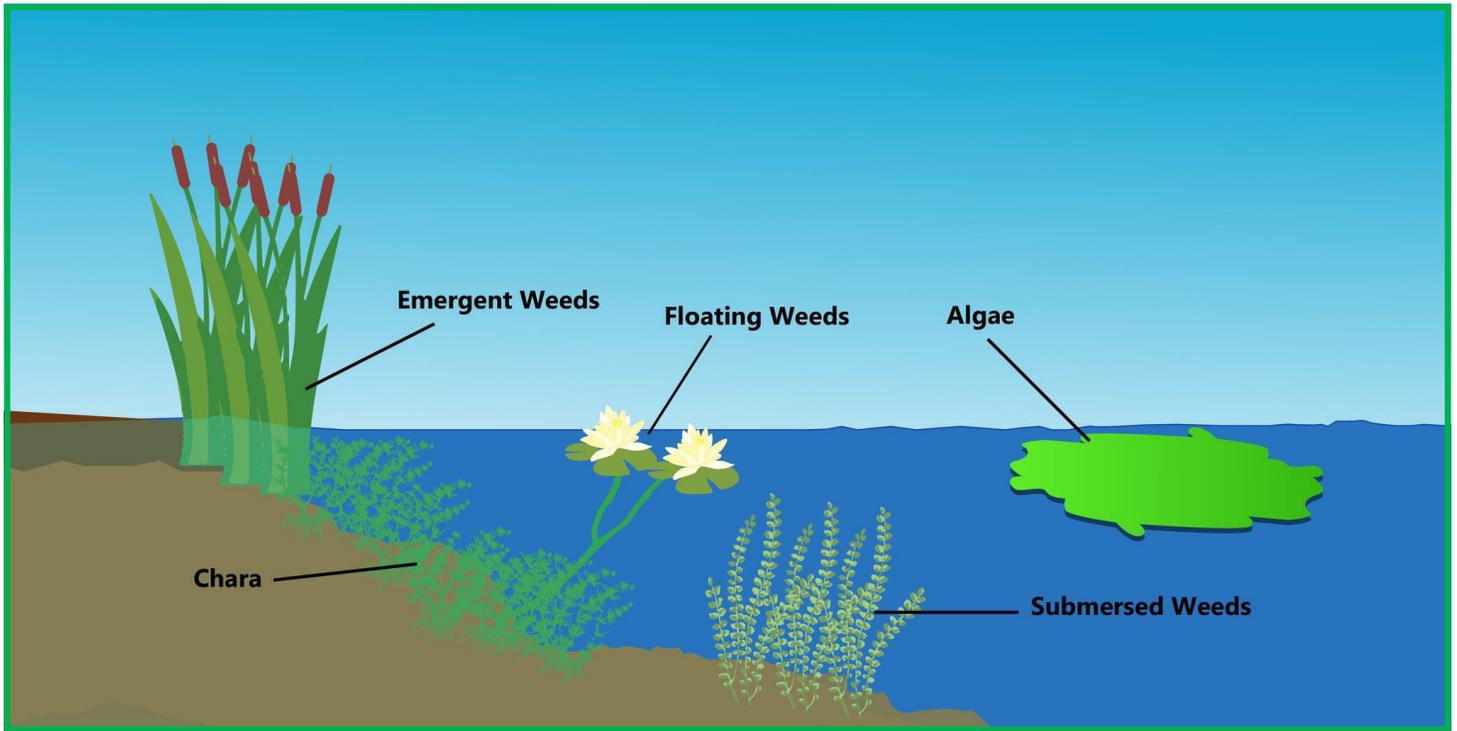
Aquatic plants provide habitat for fish and other aquatic life.

Predator-fish such as pike hide among plants, rocks, and tree roots to sneak up on their prey. Prey-fish such as minnows and small sunfish use aquatic plants to hide from predators.

Insects and other invertebrates live on or near aquatic plants, and become food for fish, birds, amphibians and other wildlife.

Plants and algae are the base of the food chain. Lakes with a healthy fishery have a moderate density of aquatic plants.

Aquatic plants help to hold sediments in place and improve water clarity.



Plants growing in a pond or lake are separated into 3 categories:

Emergent Plants are rooted in the bottom of the pond but have leaves & stems that float on the surface or grow above the surface. Typical emergent plants are cattails and *pickerel weed*. Birds, mammals, reptiles & amphibians find food and shelter among these taller plants.

Floating Plants are the broad, flat-leaved plants like *water lilies* and duckweed. The flat leaves sometimes cover the surface of a pond. Aquatic insects like to lay their eggs on the underside of these floating leaves. Many kinds of algae are floating under the leaves or attached to the leaves. Small fish may nest under the leaves as well.

Submersed Plants grow completely underwater until it is time to have their flowers pollinated. The flowers are pollinated above the surface but the seeds fall back into the water to grow. *Pondweed* and water milfoil are submersed plants.





Try to learn some of the organisms that live in ponds & lakes.



Osprey

Belted Kingfisher

Green Darner Dragonfly

Zebra Swallowtail

Great Blue Heron

Arrowroot

Cattails

Yellow Flag

Canada Geese

Muskrat

Mink

Wood Ducks

Yellow Water Crowfoot

Largemouth Bass

Water Boatman

Yellow Perch

Leopard Frog

Ribbon Snake

Water Milfoil

Orangespotted Sunfish

Painted Turtle

Pondweed

Crayfish