



## *Pond Life: Introduction, Plants*

A pond is a small body of fresh water. Some are called vernal pools – meaning that they are only found for a few months of the years when there is an abundance of water, usually in the springtime.

The size of the water doesn't make it a pond. It is the depth. It must be shallow enough for the sunlight to reach and sustain plant life on the bottom. If it is too dark and cold for plants to grow in the deepest part, then it is called a lake.

A pond is home to a special group of plants and animals. Not only do they depend on it for their water, but each species depends on the others for food. Microorganisms and insects eat algae. Fish and frogs eat the insects, and larger animals prey on them.

The stagnant waters of a pond and its many plants provide a safe place for a variety of animals to lay their eggs. Ducks and geese camouflage their nests in the cattails. Frogs and fish eggs develop among the stems of the water lilies. Muskrats burrow in the muddy banks. A pond is a busy place.

<http://www.vernalpool.org/BSW/pools/index.htm>

### *Vocabulary*

★ Re-read the paragraph above and underline the following words:

vernal, abundance, sustain, species  
algae, stagnant, microorganism, prey  
camouflage, variety

★ Use a dictionary and write the meaning of each word in the space provided below.

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# Day Two: The Seasons of a Pond

**(For these lessons, I will be describing a pond in New England.)**

As seasons change throughout the year, the life around a pond changes. Springtime is the busiest time. The snow is melting, the clouds are raining, and the pond is overflowing with water. Ducks nest in the grasses. Tadpoles spawn among the underwater plants. Blue flags bloom in the shallows. Mosquitoes buzz everywhere.

Summer heat turns the pond community into a lush tropical world. Algae thicken the water. Bumblebees gather nectar. Cicadas hum in the trees. Turtles bask in the sun. A heron wades in the shallow water, looking for a frog.

Soon the cooler winds of autumn signal a change. Migrating geese fly south. Cattails heads grow fuzzy. Bullfrogs and turtles bury themselves in the mud. Field mice gather seeds from the dying flowers. Yellow birch leaves float on the cold water.

Frigid temperatures turn the pond to ice. Soon everything is covered beneath a blanket of snow. Tracks of a deer cross the pond. The air is silent, except for the chirp of a chickadee or the whistling wind. Everything is waiting for life to renew in the spring.

[http://www.vernalpool.org/vpinfo\\_1.htm](http://www.vernalpool.org/vpinfo_1.htm)

## Vocabulary



Use these categories:

**Plants    Birds    Insects    Mammals    Amphibians    Reptiles**



and sort these words into the correct category:

Mosquitoes    Tadpoles    Cattails    Ducks    Turtles    Mice    Chickadee  
Algae    Cicadas    Heron    Bullfrog    Birch    Deer    Blue Flags

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## Math

The pond at Grandfather's farm is almost a perfect circle – not too big and not too deep – just right for a boy to explore.

### Beginner

Tom wanted to know how deep the pond was. (How would you find out?)

Tom found a pole that was 10 feet long. His grandfather let him use a rowboat to float to the middle of the pond. He put the pole in the water and touched the bottom. 2 1/2 feet of the pole didn't get wet. How deep was the pond?

By the end of the summer, the water level had dropped 18 inches. How deep was it then?

### Advanced

Tom wanted to know how big around the pond was.

(How would you find out?)

Tom found a ball of string. His grandfather held one end and stood at the edge of the pond. Tom walked around the pond, unwinding the string as he walked. When he stood directly across from his grandfather, he made a knot. From the end of the string to the knot was 58 feet (diameter). What is the perimeter (circumference) of the pond? (<http://www.coolmath.com/reference/circles-geometry.html>)

By the end of the summer, the pond was much smaller. The diameter was only 24 feet. What was its circumference then?

## Writing

Every sentence needs an action word (verb). Using descriptive verbs brings your writing to life. Instead of writing **The dog walked**, you could say **The dog limped**.

Immediately, it put a specific picture in your reader's mind.

Use the lines below to rewrite and complete the following sentences. Use words that show how each animal moved.

The tadpole \_\_\_\_\_

The duck \_\_\_\_\_

The dragonfly \_\_\_\_\_

The grasshopper \_\_\_\_\_

The deer \_\_\_\_\_

The bullfrog \_\_\_\_\_

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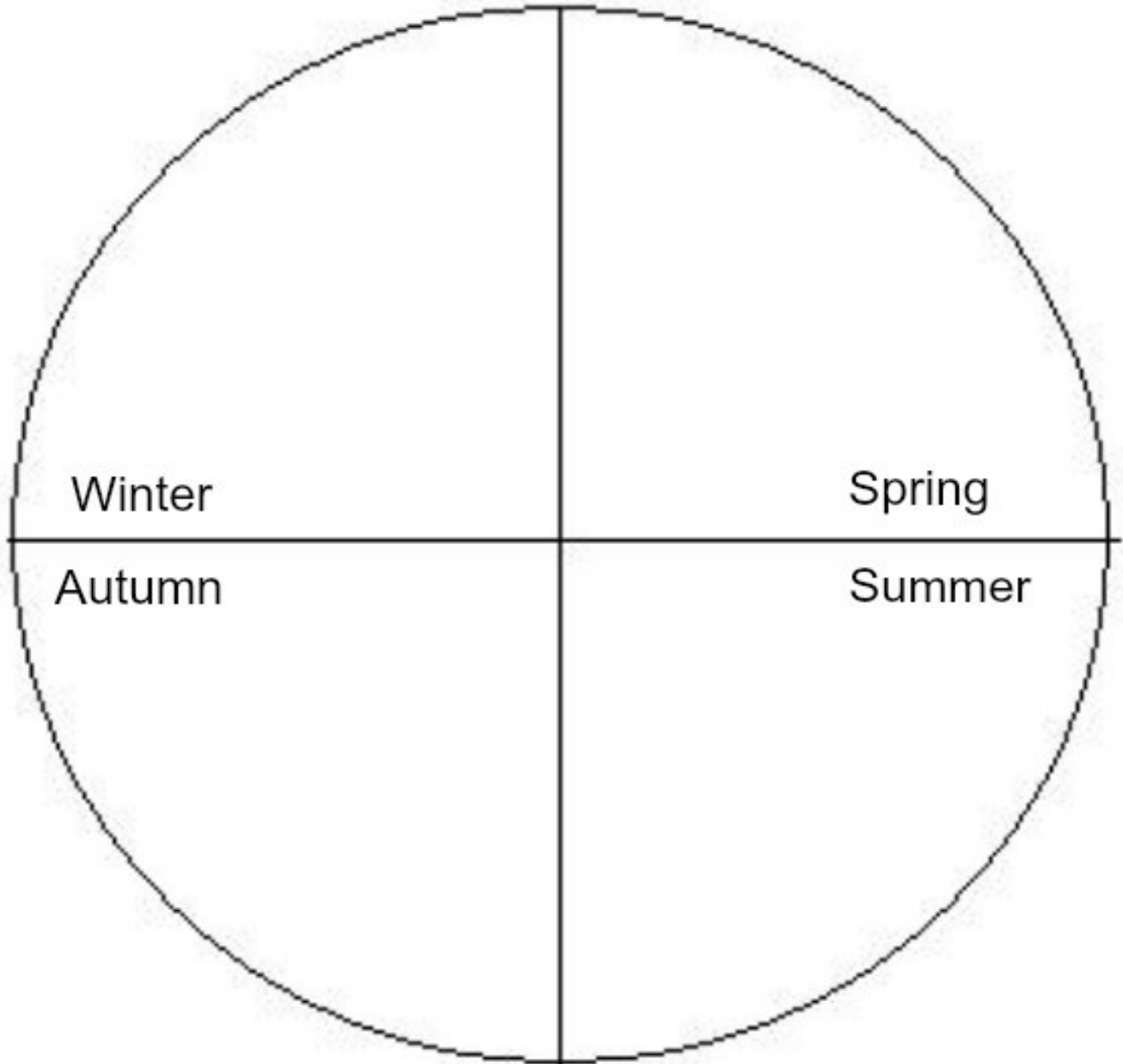
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## *Activity*

Draw a picture to go in each season of the year.

# Seasons of a Pond



# Day Three: Cattails

The tallest plants around a pond are usually the cattails. They are known by many different names around the world: bulrushes, reeds, corn-dog plants, etc. They have long flat leaves and tall stalks, which are topped with dark fuzzy heads. Cattails roots, called rhizomes, spread beneath the mud in the wet ground.

The cattail plants are edible to humans. The rhizomes, the young shoots, and even the flower buds can be eaten. When the head is fully developed, the nutritious pollen can be gathered for flour. American Indians used the cattail plant for many things: baskets, torches, medicine, and the fluff for starting fires.

Many animals depend on the cattail plants as well. The muskrats eat the roots. Ducks and redwing blackbirds nest among their stalks. Frogs and fish lay their eggs among the underwater reeds. Cattails are very versatile plants.

[http://www.fcps.edu/islandcreekes/ecology/common\\_cattail.htm](http://www.fcps.edu/islandcreekes/ecology/common_cattail.htm)

## Vocabulary



Find these words and underline them in the paragraphs above.

Use the lines below to place them in alphabetical order

medicine rhizomes American nutritious cattails edible versatile

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# Day Four: Water Lilies

Water lily plants are mostly submerged with a long stem and round waxy leaf, which floats at the surface of the pond. Like cattails, they have rhizome roots buried in the mud. Each plant produces a yellow or white fragrant flower.

Many aquatic animals depend on the water lily for food and protection. Frogs and insects often use the lily pads as resting spots to bask in the sun. Bees and ants pollinate the water lilies as they enjoy the sweet nectar in the flowers.

The water lily plant produces a nut-like fruit which ripens underwater and bursts, sending its seeds to float to other parts of pond. The seeds then sink to the bottom and grow into new rhizomes and water lilies.

[http://www.fcps.edu/islandcreekes/ecology/yellow\\_pond\\_lily.htm](http://www.fcps.edu/islandcreekes/ecology/yellow_pond_lily.htm)

## Vocabulary



Find words from the reading selection above, and place them in the categories listed below.

### Surface

### Underwater

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|----------|----------|
| 1. _____ | 1. _____ |
| 2. _____ | 2. _____ |
| 3. _____ | 3. _____ |



# Day Five: Green Algae

Green algae are the smallest plants in a pond. There are many different kinds of algae. Some have only one cell. To look at one alga, you would need a microscope.

Algae produce oxygen for fish and other animals in the pond by photosynthesis. The chlorophyll in algae makes them look green. Algae needs warm temperatures and sunshine and nutrients from waste to be able to grow. Algae don't have roots, but float freely in the water. They can spread from pond to pond on visiting animals.

Most smaller animals (insects, fish, tadpoles, etc.) eat algae. They keep the water clean by transforming waste (poop, decayed plants, and dead animals) into oxygen, but too much algae tells scientists that the water may be polluted.

[http://www.fcps.edu/islandcreekes/ecology/green\\_algae.htm](http://www.fcps.edu/islandcreekes/ecology/green_algae.htm)

## Vocabulary



Usually we make words plural by adding "s" to the end of them, but not always.

Write the plural for these words – Use a dictionary to help you.

Alga Fish Bird Goose Turtle Frog Deer Mouse Lily Leaf

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## Math

### Beginner

Tom looked at a drop of pond water with a microscope. He counted 23 algae in it. After 3 days, the algae multiplied themselves 5 times. How many did he see in the next drop of water?

### Advanced

Scientists are finding new species of algae every year. Most are found along the ocean coasts. If scientists estimate that there are over 72,500 species of marine algae in the world, with 23,000 species from Europe, 1300 from Australia, 1200 from Africa, and 15000 from North America. How many more are scattered throughout the world?

