

Topic 6: Vernal Pools



Day 1 Mapping

Vernal pools are temporary ponds on the forest floor that are made by snow melting and spring rain. These ponds are special because they are only found during the spring and evaporate in the summer. Head out to the forest and draw a map of an area with vernal pools. Include landmarks such as down trees, stumps, vernal pool boundaries and other important objects.

Day 2 Leaves

Located on the forest floor, the bottoms of vernal pools are covered in leaves from the surrounding trees. These leaves are important for the animals that use the temporary wetlands such as frogs, insects and other invertebrates. The leaves can be used for shelter from predators and inclement weather as well as a source of food. Using a net, dipper, cup, or bowl, dip down into the leaves in the bottom of a vernal pool. What did you find?

Day 3 Life Cycle

Vernal pools are used by many different animals to complete their life cycle. Because vernal pools are temporary they allow animals with short life cycles to lay their eggs in the water and have enough time for their young to change into adults. Spend some time dipping in a vernal pool and chart how many different life cycle stages (egg, juvenile, adult) you were able to collect.

Day 4 Vibrations

Vernal pools can be very noisy places. Frogs and toads move to vernal pools to call for mates. To do this, male frogs take in air and release it through their vocal sac. When the air moves over the vocal sac it sends vibrations from its body out into the air which moves as a wave toward other frogs. When it reaches the other frogs' tympanum, the circle behind its eye, it vibrates the frog's eardrum and they can "hear" the call. Watch this video and look for the sound waves moving through the water. Visit a vernal pool or pond and see if you can observe this in person.

Day 5 Effects of Sun

The sun can have a powerful effect on what is happening in a vernal pool. When there is a lot of sun, cold-blooded animals such as frogs, toads and insects are more active and the water begins to evaporate; when there is more shade the temperature of the pool stays cool and cold-tolerant animals such as fairy shrimp are active. Head out to a vernal pool and notice how much sun and shade there is. Does it seem like there is a lot of activity in the vernal pool? Why do think that is?

Vernal Pool Conversation Starters by Grade Level

Kindergarten

Vernal pools are helpful to animals because they are not ponds all year. By only holding water for part of the year predators like fish cannot live there. What do you think happens to the water if it doesn't stay in the forests all year long? Does it seep into the ground? Does it evaporate? Explain to someone else the evidence for your idea.

1st Grade

Sound travels as waves. Although we can't see it, when sound waves travel through the air they vibrate the air molecules. When sound travels through water it can be seen as ripples. Watch animals making noise in water or create your own noise in a glass of water and observe the ripples. Make a different sound; did the waves change? Do loud sounds make different waves than soft sounds?

2nd Grade

Spend two different days in the same section of forest with vernal pools. Map the water you find each day. After completing your second map compare your findings. Did you find new spots of water? Did your vernal pool grow or shrink? What sort of weather has there been and how could that affect your vernal pool?

3rd Grade

Vernal pools are used like nurseries for animals to lay eggs. Spend some time observing a vernal pool. Can you find any groups of eggs? Do you see any young insects or amphibians swimming in the water? Do you see any adults? How many life stages can you find?

4th Grade

Frogs and toads use their vocal sac to make sound to attract a mate. Place your hand on your throat and hum; can you feel the vibrations in your vocal cords? Hum loud then soft; does the volume make a difference in the amount of vibrations you feel? How could this relate to frogs and the vibrations running over their vocal sac?

5th Grade

Buckthorn is an exotic invasive species that leaches chemicals into vernal pools when it grows in the same forests. Considering all of the animals that use vernal pools to grow from egg to adult how do you think these chemicals affect the animals? What does this mean for the food web of the forest? What could be a possible solution to the problem?