

# Teacher Page – Can It Be Real?

Read the information about each organism in *ITALICS* to the students, but don't say its name!  
The information not in italics can be used for further class discussion once activity is complete.

**Hognose snake** – *This snake is a wonderful actor! If threatened, it puts on a dramatic show faking its own death by writhing around, flipping over onto its back, opening its mouth, letting its tongue hang out, and sometimes vomiting or defecating. It's an Oscar-caliber performance, although the snake will occasionally break character to see if the threat has passed.* As another defense mechanism, Hognose snakes will also coil their bodies and flatten their heads and necks two to three times their normal width to make themselves look bigger while hissing loudly and striking. The eastern hognose species is found in more forested areas, while the plains hognose species is found in prairies.

**Black-capped chickadee** – *In the fall, this bird gathers seeds and stores them in thousands of hiding places in trees and on the ground to supply it with food throughout the winter. During this time, part of their brain that controls memory expands by almost 30% to help them remember where they put all their food! In the spring, when food becomes abundant again, this part of the brain shrinks back to its normal size.* Every autumn, black-capped chickadees allow brain neurons containing old information to die, replacing them with new neurons so their tiny brains can adapt to changes in their social flocks and environment. A bird almost universally considered “cute” thanks to its oversized round head, tiny body, and curiosity about everything, including humans. It has adapted well to cold weather and is a bird that we can see year around in Minnesota.

**Whirligig beetles** – *These aquatic insects have eyes that are split into two parts! One part lies below the horizon of the water and the other half rises above it, enabling them to see both under and above water at the same time in order to hunt their prey. The two upper and two lower eyes have different anatomies adapted to being in water or being exposed to air.* Whirligig beetles absorb air from the atmosphere when on the surface, but tuck an air bubble under their wings when they dive to use as an oxygen tank while under water. They swim by rowing with their flat, fringed middle and hind legs, holding their front legs forward, at the ready to grasp their prey. Impressive swimmers both above and below the water's surface. They can fly and will sometimes migrate from pond to pond.

**Skunk cabbage** – *The temperature inside this plant's its flowers is 36-63 degrees Fahrenheit warmer than the outside air, making it like an outdoor hot tub. This gives insects a nice warm place to stay when it's cold out, and acts as a lure to attract pollinators.* Skunk cabbage flowers produce little pollen or nectar, relying rely on their warmth to attract pollinating insects. By successfully capturing warmth from the sun, the flowers attract insects without needing to use their own food energy to produce much pollen. In turn, the insects end up transporting pollen from one flower to another.

**American bullfrog** – *If this frog eats something bad, such as a poisonous insect, it may actually throw up its entire stomach. The stomach literally turns inside out, and dangles from its mouth. Once in the inside-out position, the unwanted contents of the stomach usually drop away. To be sure this has occurred it will reach up and wipe the inverted lining of its stomach several times, cleaning it off manually to remove any leftovers from the toxic meal.* This hands-on approach to cleansing the palate is always done with the frog's right arm. This is because the way the stomach is connected to the frog's intestines causes it to have a shorter membrane on one side. The membrane causes the stomach to always hang out of the right side of the frog's mouth. In other words, the frog has to use his right arm, because the left arm will be too short to reach over and do the job.

**Loggerhead shrike** – *This little bird impales its prey on sharp objects like thorns, barbed wire, and other sharp objects. The impaled prey might be eaten immediately, saved for a later meal, or used by males to attract a mate. Prey items consist of insects, other birds, and small mammals. It can kill and carry birds and mammals as large as itself, transporting large prey in its feet and smaller victims in its beak.* Loggerhead shrikes impale noxious prey such as monarch butterflies and eastern narrow-mouthed toads—then wait for up to three days to eat them, which allows time for the poisons to break down. They also eat the heads and abdomens of toxic lubber grasshoppers, while discarding the insect's poisonous thorax. Loggerhead shrikes sometimes go hunting on cold mornings, when insects are immobilized by low temperatures.

**Purple pitcher plant** – *This plant traps and digests insects. Once an insect has fallen into the pitcher shaped part of the plant, stiff, downward pointing hairs prevents it from escaping. The plant produces digestive enzymes that dissolve and release nutrients from its captured prey. These nutrients are eventually absorbed by the plant.* Digestion in the pitcher is also aided by the many microorganisms that develop and feed on the decaying prey. The mosquito and midge larvae complete their life cycles in the pitchers and are not affected by the digestive enzymes secreted by the plant. The midge larvae are ravenously carnivorous but do not eat the mosquito larva with whom it shares the plant.

**Star-nosed mole** – *This animal has hyper-sensitive tendrils extending from its nose that help it identify the insects that make up much of its diet. Once found, prey is quickly gobbled up, taking only milliseconds. It is a great swimmer and uses air bubbles to smell for prey under water.* When this mole finds something that could be food, it needs just 250 milliseconds (a quarter of a second) to identify it, decide if it is edible, and eat it. The *Guinness Book of World Records* has named the star-nosed mole the fastest eating mammal on the planet. They like to inhabit wet areas, such as wet meadows, lakes, streams and banks. They can create tunnels underneath the water.

**American kestrel** – *This bird of prey is able to see ultraviolet light, which means they can see the trails of urine that mice and voles leave behind as they run along the ground. Like neon diner signs, these bright paths highlight the way to a possible meal.* North America's littlest falcon, the American kestrel packs a predator's fierce intensity into its small body. Hunting for insects and other small prey in open territory, kestrels perch on wires or poles, or hover facing into the wind, flapping and adjusting their long tails to stay in place. Kestrels hide surplus kills in grass clumps, tree roots, bushes, fence posts, tree limbs, and cavities, to save the food for lean times or to hide it from thieves.

**Indian pipe (aka ghost plant)** - *This plant does not use chlorophyll (the pigment the makes plants green) in order to make food through photosynthesis and is completely white. Instead, they are parasitic, absorbing sugars from fungus in the ground! It "fools" the fungus into thinking it's forming a mutualistic (beneficial) relationship with this plant's roots, but is actually parasitizing it and stealing the sugars from the fungus.* The fungus has a mutualistic relationship with tree roots, helping the tree absorb water nutrients. In return, it gets sugars from the tree, which the Indian pipe takes for its own use. Each stem is tipped by a single flower. The fact that the flowers hang upside down probably relates to the wet places where they grow: if the flowers pointed upward, they might collect rainwater, and the nectar that they offer visiting insects would become watered down and the pollen would get wet and be unable to stick to visiting pollinators. This plant is in the blueberry family.

Other MN organisms with interesting adaptations:

**Goldenrod soldier beetle** – To protect itself and its eggs from birds and other predators, this beetle secretes thick, white liquid that contains acid from openings on the sides of its abdomen.

**Green heron** – This bird uses tools in order to lure fish to the water's surface. It creates fishing lures with bread crusts, insects, earthworms, twigs, feathers, and other objects, dropping them on the surface of the water to entice small fish. They hunt by standing still at the water's edge, in vegetation, or by walking slowly in shallow water. When a fish approaches, the heron lunges and darts its head, grasping (or sometimes spearing) the fish with its heavy bill.

**Wood frog** – During the winter, this frog burrows into leaf litter on the forest floor. They stop breathing, their hearts stop beating, and ice crystals form within their hibernating bodies. They produce a special antifreeze that keeps liquids from freezing inside their bodies. Their fertilized eggs are not harmed by freezing either. Egg development simply stops until the water warms again. When many tadpoles of this species are in the same place, siblings seek each other out and group together.

**Black-eyed Susan** – These flowers have special ultraviolet markings on their petals that can't be seen by human eyes and serve as an illuminated landing pad for pollinating insects. Patterns of lines, dots, or solid colors lure insects to the spot where they will inadvertently pollinate the flower. Markings on the petal reflect ultraviolet light, which is visible to many pollinating insects but not to humans. The petals of the black-eyed Susan appear to be solid yellow to people. To bees, however, the petals have two tones, with ultraviolet markings near the blossom's center, at the source of the nectar.