## Nature Trivia Questions – Part 3

## (Questions #21-30)

(Please note: Answer page can be found on a separate attachment)

#21- Why do fire flies flicker their lights at night?

#22- What insect has an alias name called “Mosquito Hawk”?

#23- What insect can live underground in a nymph stage for up to 17 years before surfacing and then climbs into the trees to become a fully developed adult?

#24- What living thing has eight eyes?

a) Octopus
b) Spiders
c) House Fly

#25- Why is the moon important for the Earth?

#26- What is another name Ursa Major?

#27- Which of the plants below are harmful to humans?

a) Poison Ivy
b) Wild Parsnip
c) Giant Hogweed
d) Cat tail
e) All of the above

#28- How is Lyme’s disease spread to humans?

#29- Can porcupines shoot their quills at predators?

#30- Can chipmunks swim?

## 2-Bonus questions about frogs

#1 - Which of the frogs below are tree frogs that can be found in Quebec?

A- Green Frog
B- Boreal Chorus Frog
C- Spring Peeper
D- Gray Tree Frog
E- All of the above

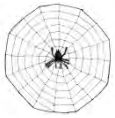
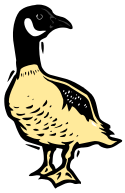
# 2 – What is the most widely distributed amphibian in Canada and is found in every province and territory and can even survive living in the Arctic?

# Nature Scavenger Hunt

**Aims and Objectives:**

To have the students' become familiar with the living and non-living concepts.

To have the students' sort and distinguish natural objects from the environment into 3 categories: plant; animal; and non-living elements.

| Plant-living | Animal-living | Non-living |
|---|---|---|
| 1.  Pine cone____ | 1.  Squirrel___ | 1.  Black rock____ |
| 2.  Acorn____ | 2.  Animal track____ | 2.  Pink rock____ |
| 3.  Helicopter seed___ | 3.  Toad/frog____ | 3.  White rock____ |
| 4.  Flower____ | 4.  Centipede ___ | 4.  Small stick____ |
| 5.  Leaf____ | 5.  Snail____ | 5.  Soil____ |
| 6  Pine needle____ | 6.  Spider____ | 6.  Sand____ |
| 7.  Fern____ | 7.  Worm____ | 7.  Cloud____ |
| 8.  Grass____ | 8.  Caterpillar____ | 8.  Sun____ |
| 9.  Moss____ | 9.  Chickadee ___ | 9.  Water____ |
| 10.  Tree with leaves ____ | 10.  Crow ____ | 10.  Piece of plastic____ |
| 11  Tree with needles ____ | 11.  Canada Goose ____ | 11.  Piece of paper____ |
| 12.  Living tree with holes____ | 12.  Robin____ | 12.  Dead tree with holes ___ |

# Superheroes: From Fiction to Reality

*Children's natural fascination with heroes can be channeled toward values and actions needed to solve global problems*

**by Ron Ballentine, Al Finlayson, and Sharon Laivenieks**

**Subject areas:** language arts, visual arts, drama, social studies, science and technology

**Key concepts:** adaptation, biodiversity, compromise, conflict resolution, environmental protection, global perspective, heroes, interdependence

**Skills:** problem solving, goal setting, decision making, inquiry/research, communication skills

**Location:** indoors

**Materials:** markers, tempera paints (to color models), tissue paper (for stuffing), materials for papier-mâché (or drawing paper)

Many teachers are familiar with the phenomenon of students who resist reading in school but are nevertheless fascinated by comic books. What is it about the comics that appeals to these kids? The stories present a wide variety of conflicts, characters, and creatures — but one feature appears common to all: in replaying the age-old battle between good and evil, comic books serve up an abundance of larger-than-life heroes. From Superman to Batman, from Spiderman to the X-Men (three of whom are women), these modern superheroes are usually athletic, good-looking, and — most important — in possession of special powers to defend values that would better our world. As educators we hope that our students, too, will come to hold values that lead them to take action to improve the world. Education for a global perspective is one means of encouraging this.

Sharon Laivenicks

In its simplest terms, global education seeks to help students to see the big picture, to look beyond national interests to the global community. It encourages them to regard themselves and others as "crew members," dependent on one another and on the limited resources of "Space Station Earth." This unit on superheroes may be one way that we can link this perspective with students' ready admiration of comic book superheroes. It places current issues at the heart of learning by asking students to develop a team of superheroes for a story about non-violent resolution of a major global problem. In considering how heroism is defined, students are exposed to positive role models and come to realize what ordinary individuals and small groups can do to improve the world. It has the potential to strengthen students' development as responsible, action-oriented global citizens who care enough and know enough to be able to do at least one thing to improve the planet. Perhaps, years from now, you might even recognize the name of a new global hero.

### Preparation:

One of the aims of this unit is to motivate students to improve their reading and writing, their creative thinking, and their ability to work collaboratively with others. Before starting, some teachers may find it helpful to lay a foundation for creative thinking and problem solving using exercises that promote divergent thinking in a wide variety of situations.

Similarly, if one of the primary goals is to develop the social skills necessary for successful collaboration, you might spend time on self-esteem and cooperative group exercises and experiences. (See suggested texts in Resources, page 162)


Sharon Laivenicks

**Procedure:**

1. Begin by reviewing what the students already know about heroes, and generate a list of the common characteristics of a hero (i.e., is admired, works for the common good, cares for others, solves problems).

   *Note:* Rovin's *Encyclopedia of Superheroes* (see Resources page 162) provides lists of characteristics common to superheroes.

2. Have students brainstorm a list of global heroes, past and present. The choice of persons does not matter as much as students' recognition that such people are real heroes who have made a difference. They could include individuals from a variety of backgrounds (e.g., science, medicine, the arts, sports, and politics) as well as "ordinary" people whose accomplishments make them a role model for others; for example:


Sharon Laivenicks

   - Rachel Carson for her groundbreaking work in drawing attention to threats to the environment
   - Nelson Mandela or Martin Luther King for fighting racism
   - Mahatma Gandhi for championing the rights of the oppressed through non-violent means
   - Terry Fox for his contribution to cancer research
   - Marshall McLuhan for his vision of the "global village"
   - David Suzuki for his championship of environmentalism

   Others to consider are the "eco-heroes" selected annually for the Goldman Environmental Prizes, many of whom are ordinary citizens who have been stirred to action by environmental problems in their midst.

3. Have students, individually or in small groups, research the life and contribution of one of these global heroes. In addition to looking at the person's accomplishments, students may consider why their subject qualifies as a hero and examine the values and vision underlying the individual's actions. As a way to emphasize the hero in all of us, you might provide a chart on which students compare their own values, characteristics, and accomplishments with those of people regarded as global heroes (or at least national heroes).

   *Note:* To reduce the time for brainstorming and subsequent research, teachers could collect information about individual global heroes (such as those mentioned above) in folders that students can share or work on collaboratively.

4. To introduce the concept of superheroes, have students bring their comic books to read and exchange. Then have the class generate a list of comic book superheroes and repeat the process (from step 1, above) of looking for common features (i.e., have extraordinary mental or physical powers and weapons, are not selfish or vindictive). Students might also look at myths and legends of the past to learn that superheroes, such as Hercules of ancient Greece or Robin Hood of the Middle Ages, fulfilled needs that could not be met by other means.

   *Note:* Rovin's *Encyclopedia of Superheroes* provides excellent links to myths and legends.

5. Have the students examine their list of superheroes to determine how many use violence to solve their problems. They will likely find that most use violence despite their good intent. Discuss alternative methods of conflict resolution and extend the discussion to

superheroes on the list. How might a superhero solve problems without resorting to violence? Stress that the real-life heroes about whom they have learned often do not use violence.

6. Ask students to list the big problems that are facing planet Earth. Sort these problems into such categories as political, economic, social, and environmental.
7. Divide the class into groups and have each group select one category of global problem and one problem within that category.
8. Ask each group to create a team of global superheroes who solve the problem using their own talents and skills and without using violence. (See example, page 162) Have students complete one Global Superhero Worksheet to describe the characteristics and qualities of each of their superheroes.

   *Note:* Students may work individually to create their own superheroes; however, working in cooperative groups reinforces the idea of interdependence.
9. Once they have established characters and conflict, ask students to develop a plotline that shows the superheroes in action. It is important to remind students that the real heroes who succeed in improving the world do not see issues as simply black and white or good and evil. Instead, they view complex issues from various perspectives and practice the art of compromise. They also rely heavily on the support and hard work of others. You could guide students to understand that anyone can embrace these characteristics and work toward the good of their community, locally, or globally.

   *Note:* In story writing, students might be more responsive if given the freedom to use such comic book conventions as mutancy and superhuman powers. You could guide them to combine these components into a scenario involving, for instance, an environmental problem (e.g., toxic waste) and a mutation that strengthens an existing positive power (e.g., exceptional linguistic intelligence transformed into telepathy). Since an essential component of this exercise is to promote positive and non-violent solutions to problems, students should be guided away from powers or scenarios involving destruction of life. This may be an enormous challenge because even students with experience in conflict resolution find it difficult to avoid the pervasive influence of violence in comic books, television,

## Global Superhero Worksheet

Fill in information about each Global Superhero.

Age: _____
Gender: _____
Culture: _____
Values: _____
_____
_____
Powers: _____
_____
_____
_____
Other characteristics: _____
_____
_____
_____
_____

Select your Superhero's most important value and draw the symbol that you think best represents it.

My Superhero's most important value is:

_____

The symbol for this value is:

Design your superhero's costume: _____
_____
_____
_____
_____

Circle the best colors for your Superhero's costume. Make sure the colors are representative of your Superhero's symbol, name, values, powers, and other characteristics.

**Traditional Color Symbolism**

| | |
|---|---|
| purple | royalty, reverence, honor |
| red | liberty, love, life, protection |
| white | strength, purity, innocence, immortality |
| blue | truth, protection, strength, holiness |
| yellow | sacredness, life, sun, truth, family |
| green | abundance, happiness, good fortune, growth |
| black | strength, magic, death, fear, sorcery |
| brown | pleasure, earthiness, humility |

## Example of a Team of Global Superheroes

In creating a team of global superheroes to present to students as an example, we wanted to break with traditional stereotypes and create characters who depend mainly on their wits and stamina rather than on violence, supernatural powers, and wondrous technologies. To stress interdependence and diversity among people, we came up with the idea of an interdependent team of superheroes who would represent not only the power of collaborative problem solving but also our multi-age, multiracial, and multicultural global community. These heroes would champion tolerance and equity, encourage others to examine their values, and empower others with the confidence to improve their lives. We decided on a team of four, two male and two female, who possess the critical skills needed to resolve world problems. Here is our example team:

- Annet is a young Afro-American girl who is a genius at computers, math, and telecommunications, and has expertise in environment-friendly technologies.

- Guya is a Thai man, a systems thinker, philosopher, and environmental scientist who understands the workings of the forces of nature.

- Liv is a Swedish woman who is an expert in conflict resolution and gains spiritual power from meditation and the martial arts, but uses that power to redirect aggression into positive action and to promote personal and planetary well-being.

- Teyoninhokarawen (*trans.* he who speaks clearly) is an elderly aboriginal storyteller with extraordinary telepathic skills, a blind artist well versed in all of the fine arts, a musician and composer skilled in communications media.

Tom Goldsmith

movies, and electronic games. Further discussion and practice of conflict resolution through role-playing and peer mediation may open students' imaginations to other means by which their created heroes can solve problems.

10. When the superheroes and their stories are complete, students could design and create life-sized three-dimensional models of their superheroes.

**Wrap-up:** Have students present their superheroes and stories to the class.

**Extension:** Teachers might consider proposing the scenario of a global summit meeting in which the superheroes are invited to address a current crisis.

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### RESOURCES

**Creative and divergent thinking**

Bellanca, James, and Robin Fogarty. *Teach Them Thinking.* Skylight Publishing, 1986.

Gardner, Martin. *Aha! Insight.* Scientific American with Freeman and Co., 1978.

Von Oech, Roger. *A Kick in the Seat of the Pants.* Harper & Row, 1986.

Von Oech, Roger. *A Whack in the Side of the Head.* Warner Books, 1990.

**Cooperative teamwork**

Bennett, Barrie, Carol Rolheiser-Bennett, and Laurie Stevagn. *Cooperative Learning: Where Heart Meets Mind.* Educational Connections, 1991.

**Heroic lives**

Boulton, Marsha. *Just a Minute.* Little, Brown & Co., 1994.

Merritt, Susan E. *Her Story.* Vanwell Publishing, 1993.

Nader, Ralph, et al. *Canada Firsts.* McClelland & Stewart, 1992.

Rovin, J. *Encyclopedia of Superheroes.* Facts on File Publications, 1985.

Wallace, Aubrey. *Eco-Heroes.* Mercury House, 1993.

## Nature Trivia Questions and Answers – Part 3

## (Questions # 21 -30)

#21- Why do fire flies flicker their lights at night?

**Answer: Fire flies use their flash to communicate and attract a mate. (Fun facts: Fire flies are also called lightening bugs or glow worms. A chemical reaction inside the lower abdomen of the fire fly gives off a yellowish light or a bioluminescence glow. It is believed that most, if not all, species have their own flash pattern or Morse code used to communicate with others. In fact, some female fire fly species are known to copy the pattern of other firefly species in order to lure males in and then eat them. Fire flies also contain a chemical causing them to taste bad to predators even in the young stages. The flashing light alerts those that have tasted them in the past to steer clear).**

#22- What insect has an alias name called "Mosquito Hawk"?

**Answer: The Dragon Fly. (Fun facts: Arriving on the scene around 300 million years ago, dragonflies were one of the first insects to inhabit this planet. They've had a long time to perfect the art of flying, hunting and just being amazing. They are the among the deadliest friend humans can have. They may look scary, but they do harm people. They are like helicopters seeking out mosquitos and black flies flying up to speeds of 30 km/hour. Dragonflies have two sets of wings with muscles in the thorax that can work each wing separately. This allows them to change the angle of each wing and practice superior agility in the air. They can fly in any direction, including sideways and backward, and can hover in a single spot for a minute or more. Dragonflies have enormous eyes with near-360-degree vision, with just one blind spot directly behind them. Dragonflies also have incredibly sharp mandibles for catching and eating prey).**

#23- What insect can live underground in a nymph stage for up to 17 years before surfacing and then climbs into the trees to become a fully developed adult?

a) Bees
b) Ants
c) Cicadas
d) Lady bug
e) None of the above

**Answer: C)-The Cicada (Fun facts: "Cicada" comes from the Latin, meaning "tree cricket." They sing by using special organs called tymbals. Tymbals are membranes that vibrate very quickly when they flex their abdomen. This call is made by males which sounds like a loud buzzing electrical current noise. Males call use their vibrating abdomen while females respond and call back by clicking or snapping their wings. The 13 to 17-year life cycle of the cicada begins when an adult female cicada lays her eggs in the twigs and branches of trees. When the eggs hatch, they nymphs drop to the ground and burrow into the soil. The growing cicada then spends the next 13 to 17 years underground as a nymph. They can live at depths of 30 centimeters or more and eating sap of plant roots. 13 to 17 years later they burrow their way to the surface. They then climb a tree, where they shed their nymph skin and emerge as adults).**

#24- What living thing has eight eyes?

a) Octopus
b) Spider
c) House Fly

**Answer- B)- Spider. (Fun facts- Spiders have eight eyes as well as eight legs. Most spiders usually have eight eyes but they few have poor eyesight. They rely instead on touch, vibration and taste to navigate and find their prey. Spiders are arachnids, not insects. Other members of the arachnid family include scorpions, mites, ticks and harvestmen. Spiders have 8 legs while insects have 6. Spiders don't have antennae while insects do. Spiders are found on every continent of the world except Antarctica. There are around 40,000 different species of spider. Most spiders make silk which they use to create spider webs and capture prey. Abandoned spider webs are called cobwebs. Some spiders reuse their webs by eating them. It is common for spiders to eat their own web daily to recoup some of the energy used in spinning the silk. The silk proteins are therefore recycled. Spider silk is approximately five times as strong as steel. Most spiders are harmless to humans but a few spider species, such as the black widow, can bite humans and inject venom. Deaths from spider bites are rare however. Spiders are helpful to humans since they eat pests. Their diet consists of common insect pests you find indoors, like roaches, earwigs, flies, moths and pesky mosquitoes. Spiders are also on our side because they can help prevent spread of disease. Some of these pest bugs can cause disease. Fleas, for example, can spread bubonic plague or typhus. Other disease-carrying critters they eat include mosquitoes, flies and cockroaches).**

#25- Why is the moon important for the Earth?

**Answer: The moon influences life as we know it on Earth. It influences our oceans, weather, and the hours in our days. (Fun facts: Without the moon, tides would fall, nights would be darker, seasons would change, and the length of our days would be disrupted. The Moon makes Earth more livable by stabilizing our home on its axis, which leads to a safer climate. It also causes tides, creating a rhythm that has guided humans for thousands of years. The moon's gravitational pull generates something called the tidal force. The tidal force causes Earth—and its water—to bulge out on the side closest to the moon and the side farthest from the moon. These bulges of water are high tides. ... High tides and low tides are caused by the moon. The Moon is also the brightest and largest object in our night sky. The rhythm of the moon's phases has guided humans for thousands of years. For instance, calendar months are roughly equal to the time it takes to go from one full moon to the next. The Man on the Moon is made up of large areas of lava that covered up old craters and then cooled, becoming smooth, basalt rock. The near side of the Moon, containing these hills, holes and crater surfaces are what make up the man's face which is always staring down at Earth).**

#26- What is another name Ursa Major?

**Answer: The constellation Ursa Major is a group of stars commonly called the Big Dipper. (Fun facts: Ursa is the Latin name for Bear. In many countries around the world the Big Dipper was referred to as "The Bear". The handle of the Dipper is the Great Bear's tail and the Dipper's cup is the Bear's body. The Micmacs of Nova Scotia have a story in which the four stars making the cup of the Big Dipper represent a bear and the remaining stars make the handle, plus other nearby stars represented birds. Each spring birds hunted the bear. In the Fall the lead bird Robin would shoot an arrow into the bear and the blood splashed onto the robin giving it a red breast. The blood would also drip below giving the leaves their fall colors. The position of the constellation in the night sky would serve as a calendar to record the seasons, while the movement of the bear through the night would serve as a clock. The Big dipper is the first constellation we learn since it is east to pick out. But also, two of the stars conveniently point to the North Star which is known as Polaris. Polaris also happens to be the first star in the handle of Ursa Minor; "the Little Dipper").**

#27- Which of the plants below are harmful to humans?

a) Poison Ivy
b) Wild Parsnip
c) Giant Hogweed
d) Cat tail
e) All of the above

Answer: A) + B) + C)

A)- Poison Ivy

**Poison ivy has three leaves on the same stem. It has a thick waxy like surface with a smooth edge. It can grow and creep along the ground surface in large patches under trees, but also can climb up trees and fences as a vine.**

**The most obvious reaction to poison ivy is a red, itchy rash that occurs in patches. These rashes can appear in various places on the body and may even develop into small blisters.**

**B)- Wild Parsnip**-

**The Wild Parsnip is a tall plant with yellow flowers that looks like the Queen Anne's Lace flower and plant. However, Wild Parsnip has yellow flower while Queen's Anne's Lace has white one. Wild Parsnip grows abundantly in open fields, ditches, and along the side of the road. Touching the plant's sap from the leaves, stems or flowers can result in severe skin burns and blistering. The burns are a reaction between the plant's sap and your skin. The reaction can be further triggered by sunlight months or even years later (known as phytophotodermatitis). Symptoms start with an intense local burning sensation, followed by a red rash. Over the next couple of days, the rash may get worse; sometimes with severe blistering. Avoid touching any part of the plant.**

**C)- Giant Hog Weed**

**What can grow 3- 4 meters tall, green, hairy, and covered in toxic sap? It may sound like a monster, but this scary beast is actually Giant Hogweed, It is a towering invasive plant whose sap can cause painful burns, and scarring. The plant is found in open fields, road side ditches, along streams and open woodlands. It is also known as cartwheel-flower, giant cow parsley, giant cow parsnip, or hogsbane.**

**The danger of Giant Hogweed stems from its sap, which is present on all parts of the plant including the leaves, stems, and flowers. It causes burning rashes and blisters. The reaction can be further triggered by sunlight months or even years later (known as phytophotodermatitis). It has very thick stock, stem and can grow quite tall with a very large colony of white flowers that can look like cauliflowers. Avoid touching any part of the plant.**

28- How is Lyme's disease spread to humans?

**Answer: Lyme disease is an infectious disease caused by bacteria which is spread by ticks to humans.**
**(Fun Facts: Deer, bear, raccoons, mice, squirrels, other mammals, and birds are responsible for transmitting Lyme disease bacteria to humans. Ticks search for host animals from the tips of grasses and shrubs (not from trees) and transfer to animals or persons that brush against the vegetation. Ticks only crawl; they do not fly or jump. Ticks feed on blood by inserting their mouth parts (not their whole bodies) into the skin of a host animal. They are slow feeders: a complete blood meal can take several days. As they feed, their bodies slowly enlarge. The most common sign of infection is an expanding area of redness on the skin that appears at the site of the tick bite about a week after it occurred. The rash can appear round and look like a bull's eye. The early stage of Lyme disease can have one or more of the following symptoms and signs: fatigue, chills and fever, headache, muscle and joint pain, swollen lymph nodes, a characteristic skin rash in the shape of a bull's eye ring. Campers, hikers, outdoor workers, and others who frequent wooded, brushy, and grassy places are commonly exposed to ticks. The chances of being bitten by a tick can be decreased with a few of these suggested precautions:**
**-Avoid tick-infested areas, especially in May, June, and July (many local health departments and park or services have information on the local distribution of ticks).**
**-Wear light-colored clothing so that ticks can be spotted more easily. -Wear long pants. -Tuck pant legs into socks or boots and shirt into pants. -Tape the area where pants and socks meet so that ticks cannot crawl under clothing.**
**-Spray insect repellent containing DEET on clothes and on exposed skin other than the face, and/ or include clothing (especially pants, socks, and shoes).**
**-Wear a hat and a long-sleeved shirt for added protection.**
**-Walk in the center of trails to avoid overhanging grass and brush).**

#29- Can porcupines shoot their quills at predators?

Answer: **No, porcupines cannot shoot quills at predators as some people might think, but the quills do detach easily when touched by an animal. (Fun facts: Many animals come away from a porcupine encounter with quills protruding from their mouth or body. When a porcupine feels threatened, it tenses up and attacks predators with the swat of its tail, embedding quills into their skin. Only on occasion loose quills fall out before it strikes, creating the illusion that they're being shot out. Porcupines can have up to 30,000 quills covering their body. Lost quills are replaced with new ones as they can grow back. The porcupine has a small face, small ears, short legs and a thick, small tail. Its flat feet and sharp, rounded claws make it well adapted to climb trees. Porcupines are primarily creatures of the night that sleep in hollow logs, trees, and crevices during the day, and later come out to eat tree bark, grass, twigs, stems, berries, and other plant material. When baby porcupines are born their quills are soft, but within an hour they harden).**

#30- Can chipmunks swim?

**Answer: Chipmunks can swim, but their dog paddle stroke means they are slow swimmers. (Fun facts: Chipmunks are the smallest member of the squirrel family. There are twenty-four different species of chipmunks found in different areas of North America from Canada to Mexico. The local chipmunk we have around us is called the Eastern Chipmunk which has a scientific name of Tamias Eutamias which in Greek meaning, highlights their behavior for storing their food in burrows. Eastern chipmunks are at home in forests where there are plenty of hiding spots, such as under rocks or in fallen trees. This cover helps the critter escape its predators. These animals will eat fruits, nuts, seeds and mushrooms - sometimes even bird eggs and earthworms. Each chipmunk builds a burrow where it may live for several years. Chipmunks mostly stay away from each other's homes. To make its burrow, the chipmunk digs a tunnel and fills the space with fluffy seeds, leaves and grasses. Underneath this bedding, it hides nuts and seeds for winter. During winter, chipmunks mostly stay in their burrows. They wake up every few days or weeks to snack from their stored food. In spring or summer, a female chipmunk gives birth to an average of three to five babies, which have no fur, are blind and weigh only about three grams!).**

## 2-Bonus questions about frogs

#1 - Which of the frogs below are tree frogs that can be found in Quebec?

A- Green Frog
B- Boreal Chorus Frog
C- Spring Peeper
D- Gray Tree Frog
E- All of the above

Answer: B) + C) + D) Boreal Chorus Frog, Spring Peeper and the Gray Tree Frog

(Fun facts:
The Boreal Chorus Frog is a small, smooth skinned tree frog. Call: The breeding call resembles the sound of drawing your finger down the teeth of a comb. The boreal chorus frog inhabits forest openings around woodland ponds but may be found in any non-flowing, fishless pond with at least 10 centimeters of water, including splash pools, roadside ditches, flooded fields, beaver ponds, marshes, swamps, shallow lakes and other water bodies with little or no current. The boreal chorus frog usually overwinters usually under logs or underground.

The Spring Peeper is a typical tree frog being small, with enlarged toe pads and varying in color from tan, bronze to gray. Adults are small only growing up to 3.5 cm in length. The spring peeper is the only frog in Quebec with a dark X-shaped marking on its back. Spring peepers are found in a wide range of habitats and seem to breed almost anywhere there is shallow water, but mostly in temporary woodland ponds. The female lays between 800 and 1,000 eggs, singly or in small groups. The tadpoles hatch in one to two weeks and complete their metamorphosis within three months. The blood chemistry of the spring peeper allows it to withstand temperatures up to a few degrees below zero without freezing to death. This explains why it is one of the earliest frogs to begin its breeding call in the spring. Each call is a single, loud, high pitched peep repeated over and over. Peep…peep…peep

The gray tree frog, as its Latin name suggests, has the chameleon-like ability to change its color from gray to green in approximately 1 hour. The gray tree frog has “warty” green, brown or grey skin with large darker blotches on the back. Like many true tree frogs, this species has large suction-cup-like toe pads. It has a white patch under each eye and is bright yellow-orange under the thighs. Adults size range from 4.5 cm up to a length of six cm. These frogs live up high in the tops of trees and rarely ever descend except for breeding. They are strictly nocturnal. Male gray tree frogs are

mostly solitary animals, but might vocalize competitively during the height of breeding periods. Gray tree frogs may be found around windows and porch lights to eat insects that are attracted to the light. During the day they often rest on horizontal tree branches or leaves out in the open, even in the sun. The call of this species is a short flute-like trill.

# 2 – What is the most widely distributed amphibian in Canada and is found in every province and territory and can even survive living in the Arctic?

**Answer: The Wood Frog is the most widely distributed amphibian in North America and is found in every province and territory in Canada. (Fun facts: Wood frogs are the only frogs that live north of the Arctic Circle. Most animals that hibernate during cold winter months have thick coats of fur or layers of fat to protect them. However, the wood frog that can be found in Alaska and the Arctic Circle has neither. Scientists believe that it is the concentration of glucose and urea that acts like 'anti-freeze' and protects frogs from freezing totally solid. This tiny amphibian has adapted by freezing and thawing itself in cold temperatures in order to convert the glycogen stored in their liver into glucose. By the time winter rolls around, wood frogs have gone through 10-15 freeze-thaw cycles allowing them to accumulate large amount of glucose inside their cells. Wood frogs also have a higher amount of urea compared to those that live in the warmer regions. Therefore, it is the glucose and the urea act as substances that prevent them from freezing and allow their range to extend into colder regions of Canada).**

## Threat to all frogs:

**The loss of forest habitat and breeding wetlands is the primary threat to frogs. Pollution, such as herbicides and pesticides, and road salt can be detrimental to frog populations by causing direct mortality as well as developing deformities. Large numbers of frogs are killed on roads every year during migrations to and from breeding sites which can also cause long-term decline of local frog populations. Climate change can also pose future threats to Canada's frog populations.**