

# Shell Shocked

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**Grades:** 1-4

**Subject:** science

**Skills:** brainstorming, problem solving, concentration

**Duration:** 30- 45 minutes

**Vocabulary:** offspring, hatchling, predator, prey, survival, population control

**Objectives:**

Students will be able to: 1) understand why not all young animals can survive.  
2) describe the obstacles Painted Turtle hatchlings must overcome on their journey from nest to pond.

**Method:**

Students experience survivability amongst hatchling Painted Turtles.

**Background:**

In Algonquin Provincial Park there has been a long-time study of Painted Turtles. Researchers have found that Painted Turtles have a survival rate of 99% once they reach adulthood. It is known that Painted Turtles are long-lived, but researchers do not know just how long they might live. It is theorized that Painted Turtles might live to be a hundred years old or even possibly 300 years old. The reason for speculating on the longevity of turtles is simply because the age of a turtle is hard to determine as there is no reliable method for aging adult turtles. Only if hatchlings are marked can they be monitored in successive years and age established. In Wolf Howl Pond and West Rose Lake in Algonquin Park where the Painted Turtle research is conducted, researchers know that the turtles there are at least twenty-five years old.

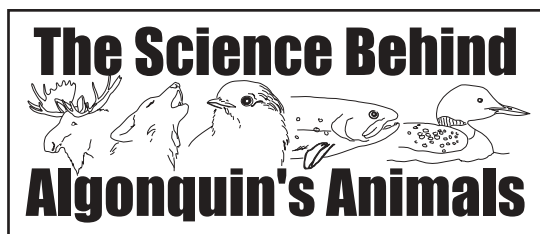
While adult Painted Turtles have a high yearly survival rate, Painted Turtle hatchlings have a very high mortality rate, reaching 95-100% in most years. This combination helps keep the population at normal levels. If there was not this balance Algonquin Park would quickly become overrun with



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turtles! Despite the high mortality of hatchling turtles, a female Painted Turtle during her lifetime, only needs two of her offspring survive to sustain the population.

The high mortality of turtle hatchlings is caused by predators and environmental factors. Eggs in a nest are frequently predated by foxes, raccoons, and skunks. If a nest manages to stay intact until the winter the hatchlings will be safe from predators until the spring. Painted Turtle hatchlings survive the winter in the nest by producing natural antifreeze that allows them to partially freeze. If nest temperatures become too cold the young turtles will die. Nest temperatures are also important during the summer months. If the nest has been laid in a cool area temperatures will not be warm enough to allow the embryos to fully develop. Once the young turtles emerge from the nest in the spring they are vulnerable to foxes, raccoons, skunks, mink, otters, snapping turtles, and birds, such as crows, ravens, and herons.

**Materials:**

✓	Items Required	Quantity
	picture of Painted Turtle	one
	Painted Turtle hatchling maze	one per student
	pencil	one per student
	crayons, pencil crayons or markers	enough for class

**Procedure:**

- 1) Ask students if they have ever seen a turtle and where. Ask the students what is the one distinguishable feature of a turtle and what is it used for (the shell for protection). Explain to the students that when turtles are hatchlings (babies) their shell does not protect them from predators because they are so small.
- 2) Ask the class if anyone has seen a Painted Turtle. Show the Painted Turtle picture to the class. Explain to the students that in Algonquin Provincial Park Painted Turtles have been studied by wildlife researchers for many years. What researchers have found is that each year most, or sometimes all, Painted Turtle hatchlings do not survive.




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# The Science Behind Algonquin's Animals



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- 3) Explain to students that in nature not all young animals survive. If they did there would be too many animals and not enough food or places to live. Tell students that Painted Turtles can live for a very long time, but researchers are unsure of just how long, maybe 100 years, maybe up to 300 years. Because turtles can live so long only very few baby turtles have to survive to maintain the population. Tell the students that a female Painted Turtle lays between four and 16 eggs each summer. In the two study ponds in Algonquin Park there are approximately 400 female Painted Turtles. If each female laid 10 eggs in one summer that would be 4000 baby turtles, and if they did that for just 10 years that would be 40,000 baby Painted Turtles! If that happened all over Algonquin pretty soon the Park would be overrun with turtles.
- 4) Tell the class that only one or two baby turtles will survive out of the hundreds of eggs that one female Painted Turtle will lay in her lifetime.
- 5) Ask the students what might cause a lot of Painted Turtle eggs and baby turtles not to survive: weather and predators.
- 6) Explain that there are a lot of predators that will eat Painted Turtle eggs and hatchlings. Have the class brainstorm what animals in Algonquin Park these might be.
- 7) Tell the class that they will be a Painted Turtle hatchling, and will have to make their way from the nest through a maze, avoiding obstacles and predators in order to safely reach the pond.
- 8) Hand out the Painted Turtle hatchling maze. Have the students work their way through the maze. If they run into an obstacle or predator they have to start back at the beginning.

## **Evaluation:**

Ask students to:

- 1) Colour in the pictures on the maze.
- 2) Complete and hand in the maze.



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