

# Natural History along the Natchez Trace Parkway



Classroom Lesson:

## Spotted Salamanders (code 1SS)

› **Grade Level:**

1<sup>st</sup> Grade

› **Subject Areas:**

Science

› **Setting:**

Classroom

› **Duration:**

40 minutes

› **Skills:**

Listening, coloring,  
Inference,  
observation

› **Vocabulary:**

salamander

**Summary:**

The students will learn that salamanders lay eggs, and change shape and go through several growth changes on their way to becoming adults.



**Materials Needed:** A blank copy of the Spotted Salamander Life Stages worksheet for each student. A copy of Spotted Salamander reading for each student if they are reading. Colored pencils. Photos of spotted salamanders. (see below for recommended web site. )

### Instructional Information

Tennessee Grade Level Expectations:

**Inquiry**

GLE 0107.Inq.1 Observe the world of familiar objects using the senses and tools.

GLE 0107.Inq.2 Ask questions, make logical predictions, plan investigations, and represent data.

GLE 0107.Inq.3 Explain the data from an investigation.

**Heredity**

GLE 0107.4.1 Observe and illustrate the life cycle of animals.

GLE 0107.4.2 Describe ways in which animals closely resemble their parents.

**Biodiversity and Change**

GLE 0107.5.1 Investigate how plants and animals can be grouped according to their habitats.

**Learning Objectives:** The students will be able to: 1) Correctly color a picture of spotted salamander life stages and number 2) number salamander life stages in the correct sequence.

**Teacher Set:** The students will learn that spotted salamanders live in our neighborhoods and along the Natchez Trace Parkway. They are very pretty but taste terrible if another animal tries to eat them. Explain to the students that scientists study the salamanders to learn all about their lives. Students will read the attached student reading and correctly sequence the chronological or mixed up life stages sheet.

**Teacher Overview:** Spotted Salamanders like most other amphibians lay their eggs in water and live their adult lives on land. Salamanders and lizards are basically different because salamanders lay eggs in water and juveniles metamorphose and lizards lay eggs on land and juveniles are precocious. See teacher information sheet.

**Student Instruction:** Students will read or listen to the Spotted Salamander reading. Students will look at drawings of the life stages of a salamander and label the stages of in the correct order.

**Student Task:** Discuss the reading with the students and then have the students look at the life stages worksheet. Ask the students which stage is first. Have them label the life stages with numbers or with descriptive words.

**Teacher Closure:** Tell students that salamanders are similar to frogs because frog lay eggs in the water too. Ask the students if they have ever seen tadpoles.

**Student Assessment:** Participation in discussion. Assess if the students filled out the life stages sheet correctly.

**Suggestions for re-teaching:** Review the spotted salamander when teaching about other animals.

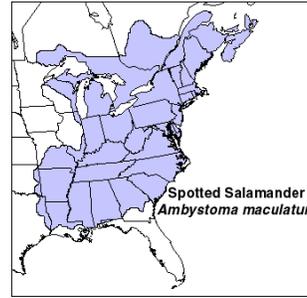
**Teaching extension:** The teacher may introduce the students to the concept that the salamanders have trouble crossing the roads. They do not know to look both ways before they cross the street.

**Recommended website:**

[http://www.wildlife.state.nh.us/Wildlife/Nongame/salamanders/spotted\\_sal.htm](http://www.wildlife.state.nh.us/Wildlife/Nongame/salamanders/spotted_sal.htm)

Teacher Information Fact Sheet for  
Spotted Salamander *Ambystoma maculatum*

Kingdom: Animalia  
Phylum: Chordata  
Class: Amphibia  
Order: Caudata  
Family: Ambystomatidae - Mole Salamander



Description: Spotted Salamanders are black, dark grey or 24 to 45 round yellow or sometimes orange spots. The belly grey. The females may grow up to 10 inches (25cm) long. The males are usually 6 inches (15cm) or less. Glands on their backs and sides produce a mildly toxic, nasty tasting liquid if the spotted salamander is grabbed by a predator.

brown with  
is dark

Habitat: They usually live in shallow burrows they have found and only leave them during breeding season or when they cannot find enough food in their burrow. They are territorial and protect their burrows from other spotted salamanders. Each salamander only uses about 9 square yards (9 m<sup>2</sup> or 29 ft<sup>2</sup>) of forest floor.

Life History:

Eggs:

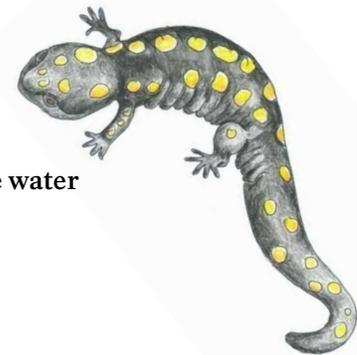
- laid in water in jell-covered groups of 100-300 eggs
- attached to vegetation or debris on bottom of pool
- take 28 to 49 days to hatch, depending on the temperature of the water

Larval stage:

- has gills and weak front legs when they hatch
- about 12 to 17 mm (1/2" to 2/3" inch) long when they hatch
- are dull olive green
- live in leaf litter on the bottom of vernal pool
- take 60-120 days to metamorphose into small adult (27 to 60 mm)

Adult:

- active only at night
- eats insects, worms, spiders, millipedes
- take two to three years to become an adult (or in the north, up to 7 years)
- may live up to 30 years



Breeding behavior: Vernal ponds are ponds that exist during rainy seasons but disappear during warmer dryer seasons. They lay eggs in vernal ponds because these ponds do not contain fish that would eat the salamanders' eggs. The pond where a salamander lays its eggs is usually the very same one from which it hatched. Salamanders return to the same pond year after year to breed. They will bypass closer ponds to find their home pond.

Their breeding routine starts with spring rains. They migrate en masse from their forest habitat areas to the ponds. They move to the ponds only on rainy nights. The males get to the ponds before the females and do a special "dance", bumping each other and coming up to the surface to gulp air.

Of the approximately 200 eggs laid, only about 40 survive to leave the pool. Of those 40, perhaps only one will survive to adulthood.

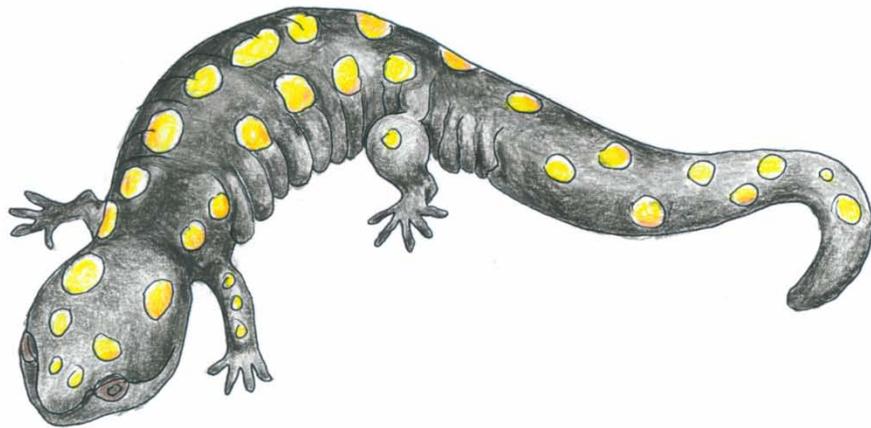
Information from: Pajerski, L., G. Hammond and N. Stout. "Ambystoma maculatum" (On-line), Animal Diversity Web. Accessed May 25, 2010 at [http://animaldiversity.ummz.umich.edu/site/accounts/information/Ambystoma\\_maculatum.html](http://animaldiversity.ummz.umich.edu/site/accounts/information/Ambystoma_maculatum.html).

# Spotted Salamanders

Spotted salamanders are black with yellow spots. They lay their eggs in the water. The babies start to grow in the eggs.

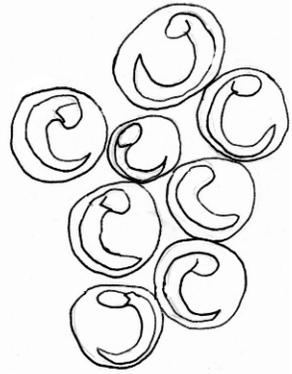
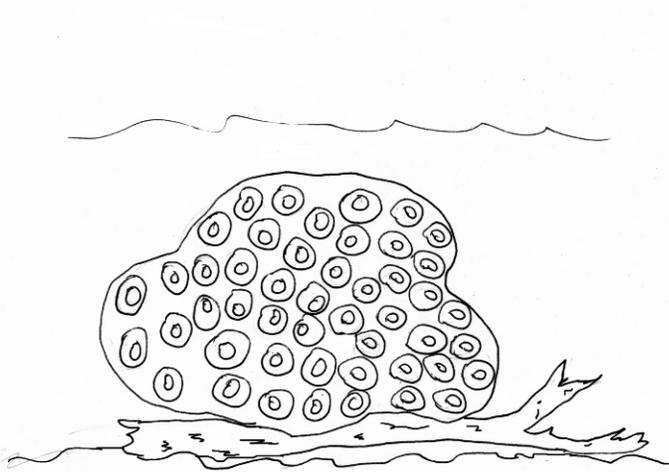
When they come out of the eggs they only have two legs. Gills help them to breathe under water. They cannot live on the land.

When they get bigger, they grow two more legs. The gills get smaller and go away. The salamander can now live on the land.



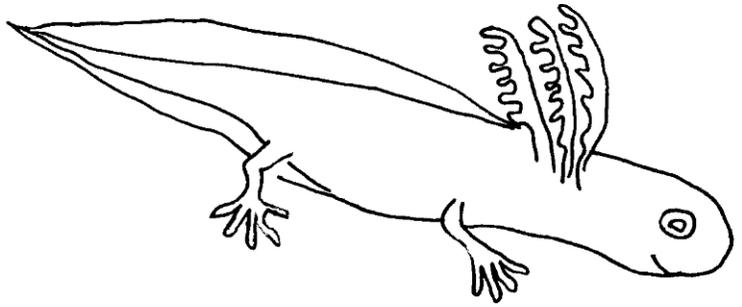
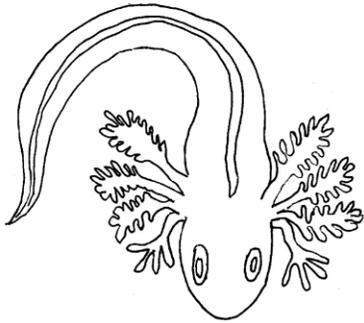
Spotted Salamander

# Spotted Salamander Life Stages



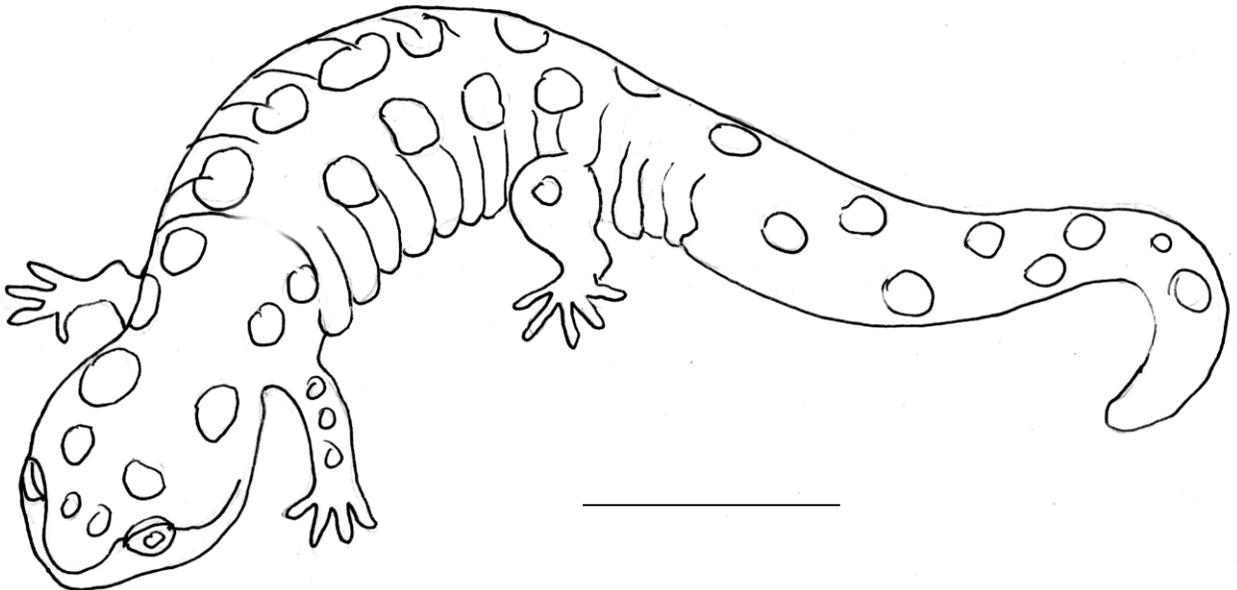
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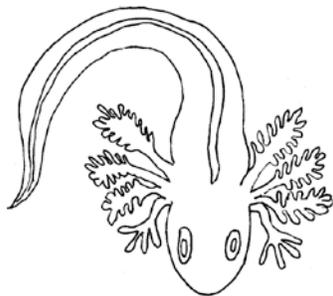
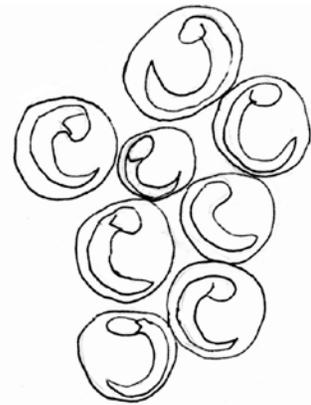
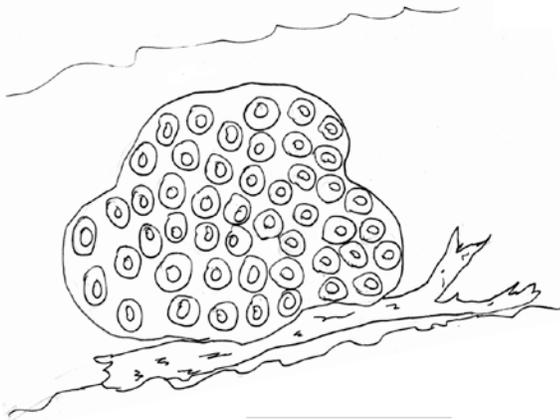
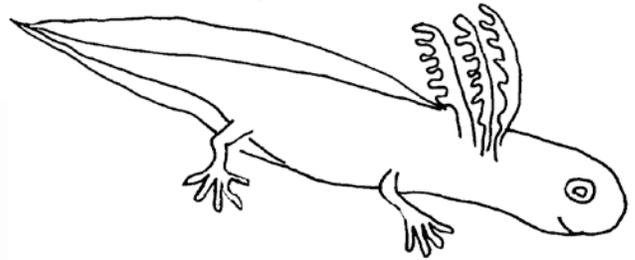
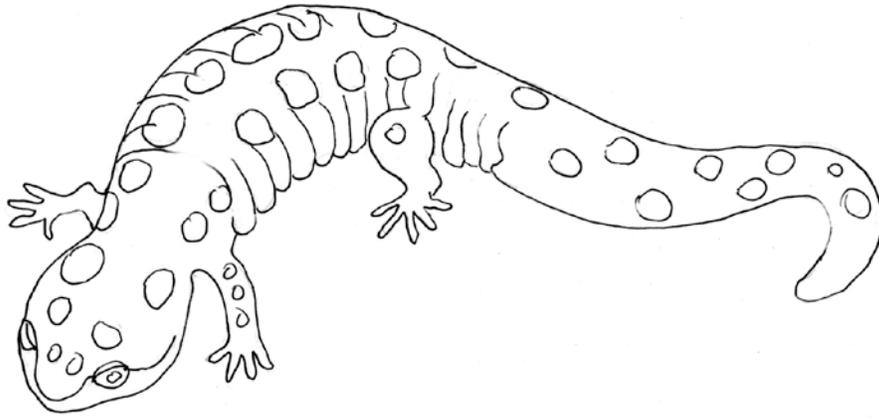
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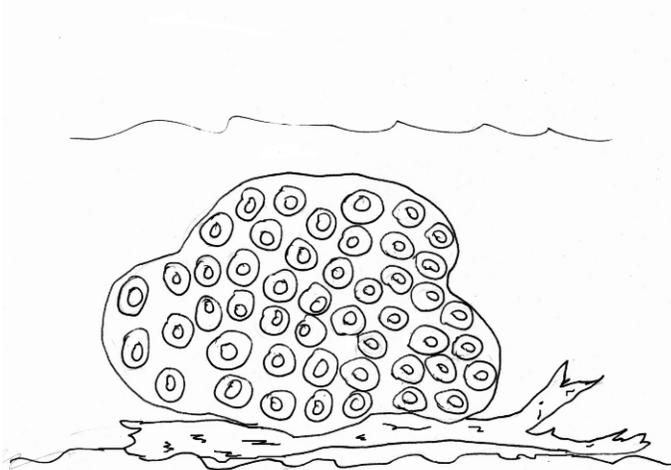
# Spotted Salamander Life Stages



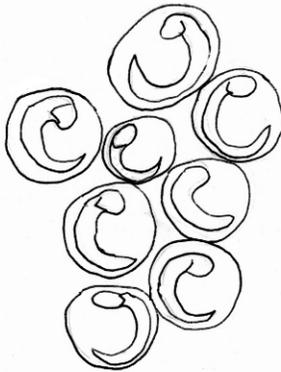
These are not in the correct order. Starting with the eggs, put a number by each growth stage to show the correct order.

# Spotted Salamander Life Stages

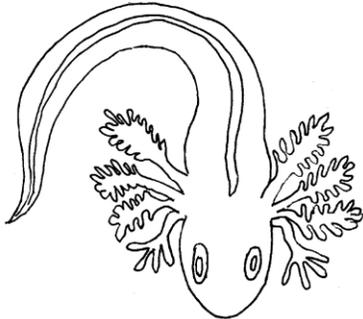
## Answer Sheet



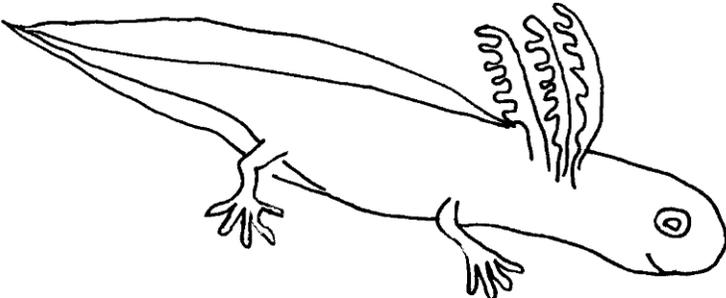
— 1 or eggs —



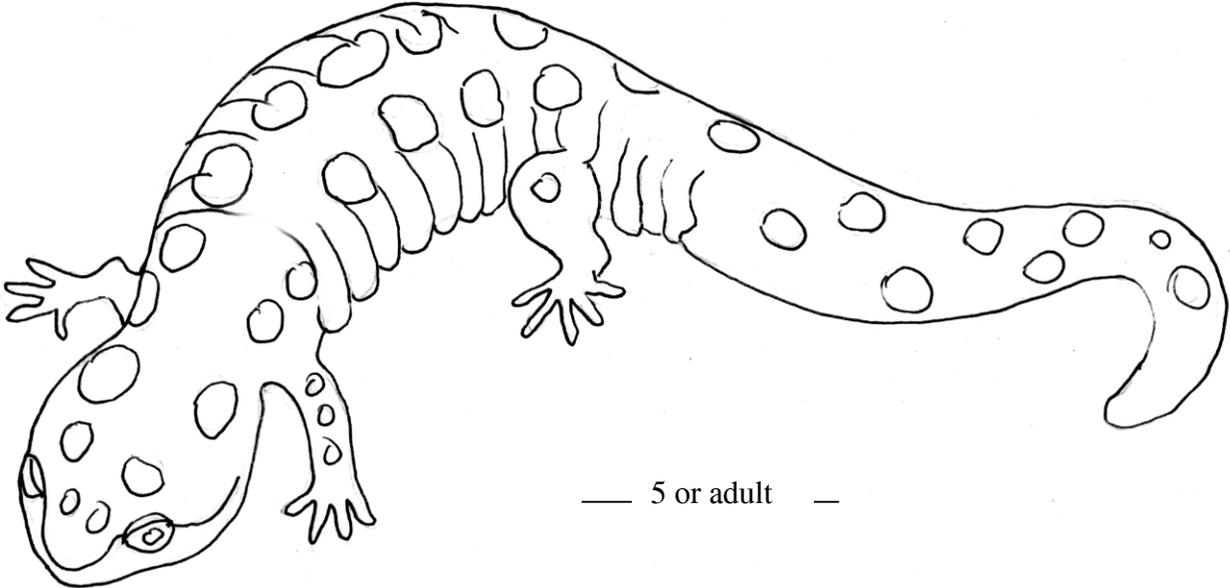
2 or small baby in egg



3 or small larva



4 or big larva



— 5 or adult —