

Hands-on Herpetology

Pre-/Post-Site Materials



Forest Preserve District
OF WILL COUNTY

Bringing People and Nature Together

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Illinois Department of Natural Resources



Correlated State Standards

Identified ELA and Science Standards are detailed below specific to this education program.

Source: Forest Preserve District of Will County, the Council of Chief State School Officers (Common Core), and the National Research Council (Next Generation Science Standards)

ELA Standards

Subject Codes	Grade 4	Grade 5	Grade 6
Reading for Information (RI)	RI.4.3, RI.4.7	RI.5.3, RI.5.7	RI.6.3, RI.6.7
Speaking and Listening (SL)	SL.4.1, SL.4.6	SL.5.1, SL.5.6	SL.6.1, SL.6.6
Language (L)	L.4.6	L.5.7	L.6.8
Science and Technical Subjects (RST)			RST.6.3, RST.6.4 RST.6.8

NGSS Standards

Disciplinary Idea	Grade 4	Grade 5	Grade 6
Life Science 1 (LS1)	4.LS1.1 4.LS1.2		MS.LS1.4



Glossary of Terms

Amphibian – A group of animals that have backbones, well developed brains and permeable skin. Amphibians have two phases of life: a larval phase and an adult phase. The major groups of Amphibia are caecilians, frogs and salamanders.

Aquatic – Living in water. Amphibian larvae are usually aquatic. Some amphibian adults are also aquatic.

Biodiversity – All of the plants and animals within a region or in the world – including the habitat in which they live – because they are all unique as individuals and as communities.

Bioindicator – A plant or animal that helps us assess the health of a habitat. Amphibians are believed to be good bioindicators because they have permeable skin and are sensitive to changes in water (as larvae) and on land (as adults).

Caecilian – One of a group of amphibians that have no arms or legs because they are adapted to a burrowing lifestyle. Caecilians are only found in tropical areas of the world.

Camouflage – Body coloration pattern that helps hide an animal within a habitat. *Cryptic coloration* patterns help blends the animal with the habitat, while *disruptive coloration* misleads a predator by breaking up the body outline.

Diurnal – Active during daylight.

Ecosystem – The relationship between plants and animals and the habitat in which they live.

Frog – One of a group of amphibians that have strong back legs that are specialized for jumping and swimming. Frogs do not have tails. Tree frogs, true frogs, dart-poison frogs, toads and flying frogs are examples of frog families.

Gill – Oxygen-gathering tissue located on the head and used by fish and larval amphibians. Gills are usually replaced by lungs when an amphibian metamorphoses, though some salamanders retain gills as adults.

Habitat – The place where a plant or animal lives. Soil, rocks, plants, animals, water and weather help to make

different types of habitat. *Habitat fragmentation* occurs when the habitat is broken into small, non-continuous sections. *Habitat degradation* occurs when the overall health of the habitat is lowered.

Larva – Juvenile form of amphibians. Larval frogs are also called “tadpoles” or (more casually) “polliwogs.” More than one larva are called larvae.

Larval – Referring to the juvenile stage.

Lung – Oxygen-gathering tissue located in the chest and found in most adult amphibians.

Metamorphosis – The process by which amphibians change from larvae to adults.

Migration – The seasonal movement of an animal from one region to another for breeding, hibernation or feeding.

Nocturnal – Active at night. Most amphibians are nocturnal.

Permeable – Having pores that allow fluids to pass through. Amphibians have permeable skin. Water and other substances (including pollution) can pass through their skin. Oxygen can also pass through permeable skin. Some amphibians (certain terrestrial salamanders) have no lungs or gills and breathe entirely through their skin.

Salamander – One of a group of amphibians with arms and legs that are about the same size and shape. Salamanders have long tails.

Secretion – Fluid that flows onto the skin out of skin pores.

Tadpole – Frog larva. Tadpoles are more specialized than larval salamanders. They begin with a strong tail for swimming and a round body for holding lots of food. As they develop, they grow back legs, then front legs and their tail is resorbed.

Terrestrial – Living on land. Most amphibians live on land as adults.

Toxic – Poisonous, relating to a harmful chemical that can cause illness or death.



What Is Herpetology?

Herpetology is the branch of zoology which deals with the study of reptiles and amphibians such as snakes, turtles and salamanders. It studies their behaviors, geographic ranges, development, genetics and more.

Photo: Not much is known about Kirtland's snakes, but researchers from the Illinois Natural History Survey are using one Will County preserve to change that. Watch the video about this initiative: <https://youtu.be/6lf9EuD9gfo>.

Recommended Books

Mazer, Anne. "The Salamander Room." Dragonfly Books. 1994.

Smith, Hobart & Herbert Zim. "Reptiles and Amphibians. A Golden Guide." St. Martin's Press. 1953.

Recommended Websites

Amphibian Education Resources: Curriculum for Teachers

(www.aza.org/amphibian-education-resources)

Numerous educational activities and games, including some in Spanish and at different difficulty levels, have been developed and are available for anyone to download.

AmphibiaWeb

(www.amphibiaweb.org/)

AmphibiaWeb provides information on amphibian declines, natural history, conservation and taxonomy.

A Thousand Friends of Frogs

(www.cgee.hamline.edu/frogs/)

Hop around this website to find useful resources for you and your students, answers to many questions about frogs and toads and how to get involved with the project.

iNaturalist

(www.inaturalist.org/check_lists/13033-Amphibians-of-Illinois)

One of the world's most popular nature apps, iNaturalist helps you identify the plants and animals around you.

Wildlife Illinois

(www.wildlifeillinois.org/gallery/amphibians-and-reptiles/)

This photo gallery can help you identify reptiles and amphibians living in Illinois.



The More You Know

Source: National Wildlife Federation

Not surprisingly, lots of tree frogs live in trees. Special adaptations like toe pads and long legs aid them in climbing and jumping.

Activities

Caller ID: The Frog Matching Game

Frogs are a very vocal group of amphibians. Your students will learn how frogs find each other and how scientists use these calls to study populations.

Objective:

To have students understand a variety of calls, and simulate a frog chorus. Students will then find “mates” based on calls used.

Vocabulary:

Diurnal, Nocturnal

Background:

This is a sensory experience that recreates the sounds of a pond at night. It can serve first as an introduction to frog communication and, second, as a demonstration of the calling system used by frogs during breeding season. Each species of frog has a distinctive mating call that allows similar frogs to find each other.

Procedures:

1. Ask your students if they have ever heard frogs calling on a warm spring night. You may wish to play some sample calls. Explain that you are going to recreate this experience in the classroom.
2. Divide the group into four teams. Each team represents a different species of frog. Have each team practice their call.
 - Team 1 – Spring Peepers: “peep”
 - Team 2 – Wood Frog: “quack”
 - Team 3 – Bull Frog: “jug-o-rum”
 - Team 4 – American Toad: “thrilllllll”
3. Have the teams start their calls one at a time. Add additional teams until all teams are singing.
4. Ask the class “How would you be able to find an individual frog based on all those calls?” Explain that each species has a distinctive call to help males and females find each other. During the spring mating season, male frogs call to attract females.
5. Have the class pair up for the next activity. Ask each pair to create their own unique sound pattern, for example “snap, snap, clap.” Encourage them to use other parts of their bodies besides their mouths.
6. After each pair has demonstrated its sound pattern, explain that each pair represents a different species of frog and they need to use their sound pattern to find each other. Move the class to a large, unobstructed space (a classroom without desks). Depending on the size of your group, have 6-8 pairs put on blindfolds or close their eyes to become the “frogs.” The remaining students will serve as monitors to make sure the “frogs” don’t run into walls or each other. The monitors should take the frogs by the elbow to guide them away from hazards.
7. Ask all of the students to be quiet. The monitors should move their frogs away from each other and spin them once or twice. At your signal, the frogs should start making their sound patterns and walking around the room. Continue play until all of the pairs have found each other. The players need to be quiet until the end of the game. Now, switch pairs so the monitors become the “frogs.” Play the game until all of the students have been calling frogs.
8. Discuss the students’ impressions of how difficult the activity was. Even though the natural tendency is to laugh a lot, the task of finding each other is harder than they may think.
9. Listen to some real frog calls. Check to see if any of these frogs can be found in your area. Do any of the calls seem familiar? If your students are really talented, see how well they can imitate the calls (but not all at once)!
10. Have two students leave the room. These will be the “scientists” monitoring the frog population. Have the class decide how many frogs of each species will be calling. Have the blind-folded “scientists” return to the room. Ask them to estimate how many frogs of each species are calling. Change the roles and number of frogs calling and conduct several trials.
11. Discuss the challenge of this task. What methods did the “scientists” use to estimate populations?



Photo: Bullfrog at Goodenow Grove's Snapper Pond



Photo: Tiger Salamander

Soak it Up: Amphibian Skin

When is an egg like an amphibian's skin? Your students will discover the answer in this activity that demonstrates the concept of permeability.

Objective:

To understand the concept of permeability and how different body coverings can effect how much of and how fast a chemical moves into an animal's body.

Vocabulary:

Permeable, Toxic

Background:

Amphibians have unique body coverings. Along with being moist, amphibian skin is also thinner than most vertebrates which allows for high oxygen exchange with blood vessels close to the surface. Their unique skin allows them to do things that birds, mammals or reptiles could never do. This may also be one of the factors that has contributed to declining populations and extinction. In particular, it is the permeable nature of amphibian skin that may put them at risk. Permeability relates to how easily molecules can pass back and forth from the environment into the animal or from the animal into the environment. Typically, the larger a molecule is, the more difficult it is to enter the animal through its skin. Amphibian skin is much more permeable compared to other vertebrates.

Many amphibians living in moist habitats can actually absorb water from the soil around them. Toads can do this by pressing their bellies against the moist ground. Many amphibians use their skin to breathe. Oxygen dissolves into the liquid on the surface of the skin and then is picked up by blood moving close to the surface. Frogs hibernating at the bottom of ponds can get all of the oxygen they need by using their skin as a giant gill. Some salamanders are so good at breathing with their skin that they do not have lungs. The same adaptations that allow water and oxygen to move through an amphibian's skin and into its bloodstream also make it easy for harmful chemicals to move into the amphibian's body. Toxic substances present in fog or rainwater may kill frogs, but reptiles, with their scaly, less permeable covering, are not harmed.

Related Subjects:

Science, Mathematics

Materials:

- Hard-boiled eggs
- Food coloring (dark colors)
- Clear cups
- Water

Procedures:

1. Discuss the function of skin and the differences between amphibian, reptile and mammal skin.

This experiment will illustrate what "permeable" skin is.

- Take two hard-boiled eggs, one peeled, one not.
 - Measure the circumferences of both eggs first. Put both eggs into 2 cups of water that has 20 drops of red or orange food coloring added.
 - After 24 hours measure the circumference of each.
 - Peel the egg that still has a shell, and then cut both of them in half. Measure how far into the egg the food coloring has moved.
2. The shell of an egg acts like mammal or reptile skin. It is less permeable, so it serves as a barrier to the water and food coloring. The water will not penetrate into the shelled egg as far as it will into the unshelled egg.
 3. The peeled egg, with only a thin membrane surrounding it, will absorb more water. The food coloring will travel further into the egg. The absorbed water will make the egg swell, increasing the circumference.

Discussion Starters:

1. What animal do you think would be more affected by water pollution, a frog or a lizard? Why?
2. What does this experiment tell you about the susceptibility of the unshelled amphibian egg to water pollution?



Amazing Amphibians Math

1. Create a chart of sizes on the back of this page, ranging from smallest to largest of the amphibians the class has researched. For example, the giant Japanese salamander can grow to nearly 5 feet in length and weigh 88 pounds. On the flipside, the poison dart frog is only half an inch in length (no bigger than a thumbnail).
2. If a leopard frog has 200 tadpoles each year, how many frogs would be born in 5 years? _____ 15 years? _____ 22 years? _____
3. The record for a bullfrog jump is 21 feet, 5 inches. How many jumps would it take to cross a football field that is 100 yards long?
☐ 5 leaps ☐ 14 leaps ☐ 20 leaps ☐ 25 leaps
4. The record jump for any frog is the South African sharp-nosed frog. This frog jumped 33 feet, 5 inches! How many leaps would this frog have to take to cross the football field?
☐ 3 leaps ☐ 7 leaps ☐ 9 leaps ☐ 12 leaps
5. Some of these jumps are about 20 times the length of the frog. How tall are you?
_____ feet _____ inches
How long would a jump 20 times your height be?
_____ feet _____ inches

Where Do I Belong?

Objective:

This activity is useful before taking students into the field to identify amphibians or reptiles. The purpose is to help students focus on key identification features of each major group of amphibians and reptiles at the site.

Materials

- One fact sheet for each amphibian or reptile being studied. (Use the fact sheets from the Slim, Scales & Mudpuppy Tails Activity Guide on pages 12-35.)
- An ID card necklace for each student (See Step 2 in the “Procedure” section below.)
- Post-it Notes.
- Key for organisms being studied. (See illustrations from *exploringnature.org* on page 11 as examples.)

Procedure:

1. Spread the fact sheets evenly throughout the room, grouping common organisms. Each fact sheet has the common and scientific names of the organism, a picture and general information (e.g., major identification features, habitats, habits, diet, breeding).
2. Place an ID card necklace over each student’s head so that the card is hanging down the student’s back. This card can be a 3 x 5 inch index card. One side of the card has a picture of an animal while the other side has a list of anatomical features. For example, a card can read “This animal has a tail and a hard high-domed shell that is dark brown to black with yellow and orange spots, streaks and lines. Hint: This animal is the North Carolina state reptile.” The index card should have two holes punched in the top through which a piece of yarn can be tied (long enough to go around the student’s neck so that the card hangs at the middle of the student’s back). There should be a Post-it Note placed over the picture.
3. Tell students to walk around and find at least three others who can look at the picture and write something about that reptile or amphibian on the Post-it Note. The information on the back of the index card is used for clues if a child has trouble writing an observation. After a student has three observations, a teacher should look at his or her list of observations to see if there is enough information to identify the type of organism.
4. If the student has enough information, the teacher removes the Post-it Note, gives it to the student with a simple classification key and tells the student to use the observations and key to find out the group to which the animal belongs.
5. Once the student has identified the organism, he or she should find the appropriate fact sheet and read about that organism. Several students can have the same animal on their necklaces.
6. Once all students find their groups, talk about the major groups of herps represented, how to differentiate between them and in which general habitats they can be found.



Photo: Ornate Box Turtle

Reptiles

cold-blooded

Reptiles are animals.

There are many different groups of reptiles.

All reptiles share some traits.

lay eggs

teeth are all same shape and size

take care of themselves after hatching

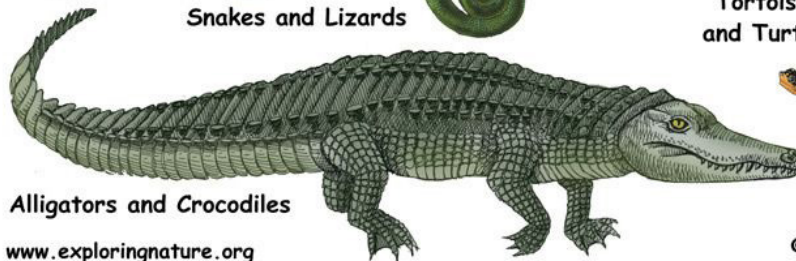
tough, dry skin protective scales or plates



Snakes and Lizards



Tortoises and Turtles



Alligators and Crocodiles

www.exploringnature.org

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Amphibians

There are many groups (Class) of animals.

Amphibians are in one group. All amphibians share some traits.

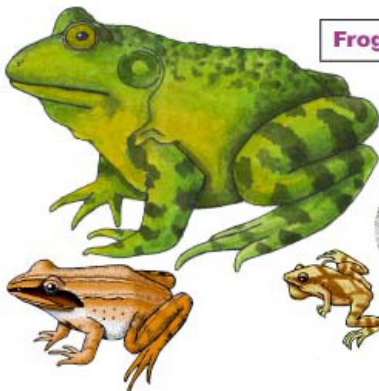
Lay eggs in the water

Breathe with gills as young, develop lungs over time

Cold blooded

Change for life on land - metamorphosis

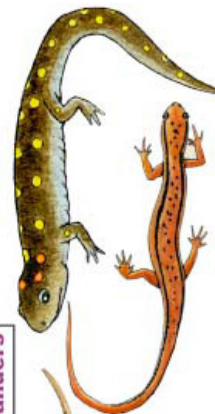
Return to the water to mate and lay eggs



Frogs and Toads



Salamanders



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State of Illinois
Illinois Department of Natural Resources

SLIME, SCALES & MUDPUPPY TAILS



WHAT IS A SCIENTIFIC NAME?

Common names for organisms are often confusing because anyone can make them up, and they may apply to more than one species. A scientific name is assigned after careful research. A scientific name is the official name for each organism. It is made up of two parts, a genus name (written first) and a species name. Sometimes a third part, the subspecies name, is also used. The name is always in Latin because when this naming process started, most people everywhere knew Latin. It must be underlined or in italics when written. Often a scientific name tells you something about the species or someone who studied it. Scientific names help scientists to study organisms, especially when working with other scientists. In this booklet, the scientific name for each species is listed below the common name.

VOCABULARY

Vocabulary words are indicated in the text by **bold** lettering.

ANNELID — segmented worm, such as an earthworm or leech

ARTHROPOD — animal with an exoskeleton and jointed appendages (leg, antenna);
examples: spider, tick, crayfish, centipede, millipede, insect

CARNIVORE — animal that receives nutrition by eating other animals

CLUTCH — a group of eggs in a nest

CONSTRUCTOR — snake that coils around its prey to prevent the prey from breathing

CRUSTACEAN — **arthropod** that breathes with gills and has jaws, two pairs of antennae and two compound eyes; examples: crayfish, pill bug, water flea

HERBIVORE — an organism that feeds on plants

METAMORPHOSIS (METAMORPHOSE) — a series of changes in body structures from egg to adult

MOLLUSK — a soft-bodied animal that may or may not have a shell; examples: snail, slug, mussel, clam

MUCOUS — a slimy, protective lubricant secreted by glands

MUSK — a greasy secretion with a powerful odor produced by a gland

OMNIVORE — animal that receives nourishment from plants and animals

TERRESTRIAL — land based

TRANSFORM — to change from a larval to an adult form

REFERENCES

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Oldfield, B. and Moriarity, J.J. 1994. *Amphibians and reptiles native to Minnesota*. University of Minnesota Press, Minneapolis/London. 237 pp.

Phillips, C.A., R.A. Brandon and E.O. Moll. 1999. *Field guide to amphibians and reptiles of Illinois*. Illinois Natural History Survey Manual 8. Illinois Natural History Survey, Illinois Department of Natural Resources, Urbana, Illinois. 282 pp.

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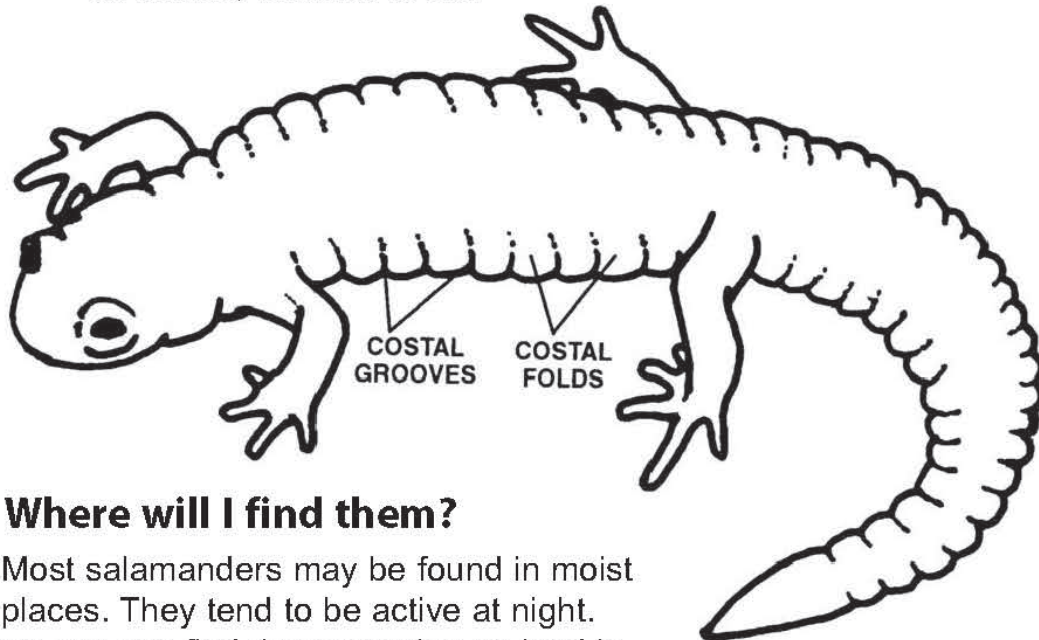
SALAMANDERS



How will I know?

Salamander adults have the following traits:

- 4 legs (most species)
- relatively long tail
- definite head
- no scales, feathers or fur.



Where will I find them?

Most salamanders may be found in moist places. They tend to be active at night.

Sometimes you can find them roaming on land in the spring or fall after a rain. In the spring you might see them at ponds when they are ready to reproduce.



What else should I know about them?

Salamanders have **mucous** glands in the skin. The mucous keeps the skin moist and slick. These animals can breathe through their skin. Because they are slick, predators may have a hard time catching them.

Salamander eggs are laid in water and covered with a jellylike substance. Eggs hatch to larvae that breathe with gills. As they grow, larvae develop legs, and in most cases, lungs. Although a few remain entirely aquatic, most adults leave the water and live on land.

Salamanders are **carnivores**. They are also a food source for many other organisms.

EASTERN TIGER SALAMANDER

Ambystoma tigrinum

(am-BIS-toe-muh tie-GRIN-um)



Is it near my house?

statewide in Illinois



What does it look like?

This large (7-8.25 inches) blue-black or brown-black salamander has irregular, yellow blotches on its upper surfaces.



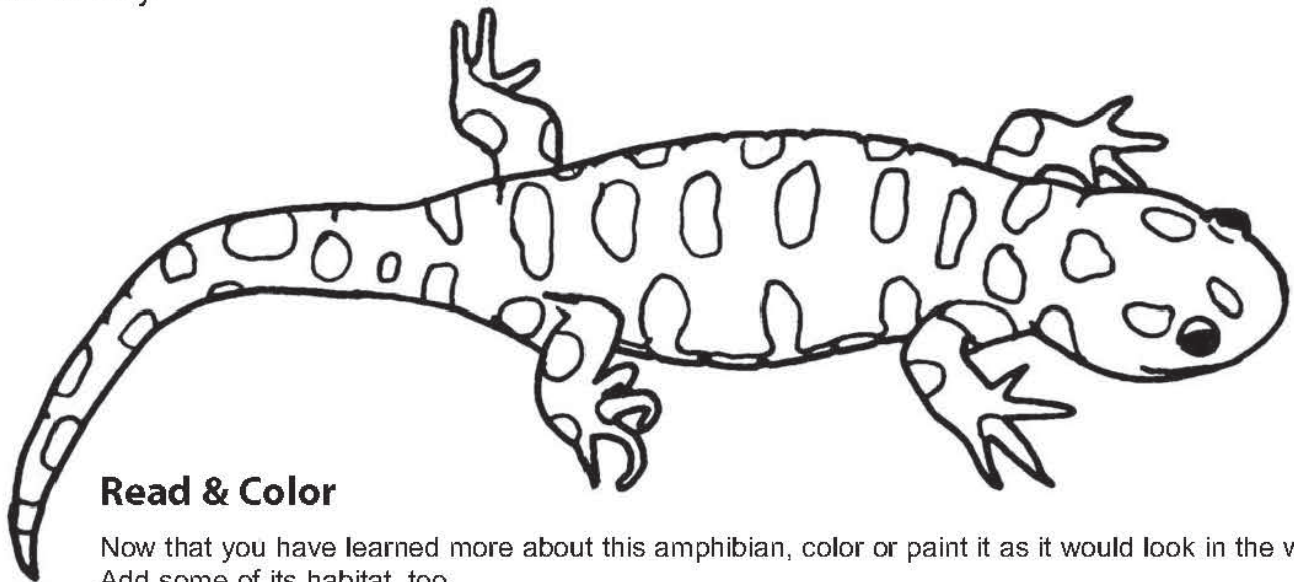
What are its habits?

The tiger salamander is active at night and spends most of its time underground. It may live in disturbed areas like cities and farm fields. It eats about anything that it can catch, especially worms and insects.



What about reproduction?

Breeding occurs in early spring. Clusters of 25-100 eggs are attached to objects on pond bottoms. Eggs hatch in about three weeks. Larvae **transform** in July.



Read & Color

Now that you have learned more about this amphibian, color or paint it as it would look in the wild. Add some of its habitat, too.

MUDPUPPY

Necturus maculosus
(NECK-tour-us MACK-u-low-sus)



Is it near my house?

statewide in Illinois



What does it look like?

This large (8-13 inches), aquatic salamander has permanent, bushy, external gills. Its head is flat. The body is gray with scattered black blotches.



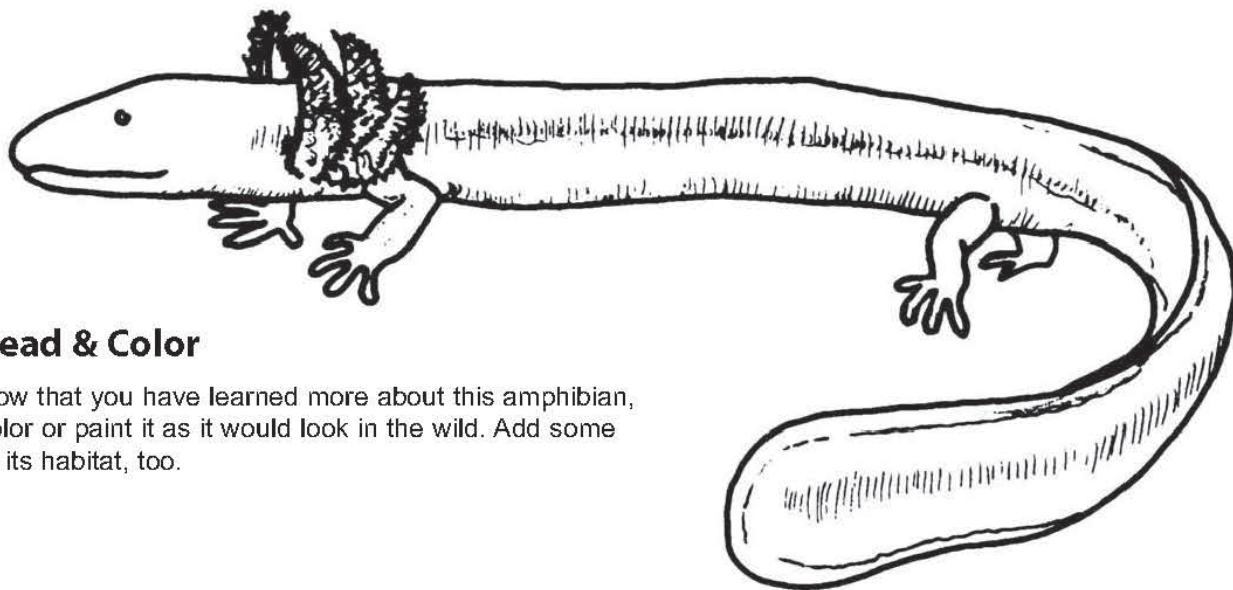
What are its habits?

Also called the waterdog, this animal lives in lakes, lagoons, rivers and large creeks. It is sometimes caught by fishermen especially in debris around bridge supports. The mudpuppy is very slimy. It eats fishes, **arthropods**, **annelids** and **mollusks**.



What about reproduction?

A female lays about 100 eggs under rocks or logs in the water. Each egg is suspended in a jellylike sac. Eggs hatch after about two months.



Read & Color

Now that you have learned more about this amphibian, color or paint it as it would look in the wild. Add some of its habitat, too.

SMALL-MOUTHED SALAMANDER

Ambystoma texanum

(am-BIS-toe-muh tex-A-numb)



Is it near my house?

southern two-thirds of Illinois



What does it look like?

The small-mouthed salamander is medium-sized (4.5-5.5 inches). It is gray, black or brown and often has patches of gray on the sides of its tail and body. The head is narrow, and the mouth is small.



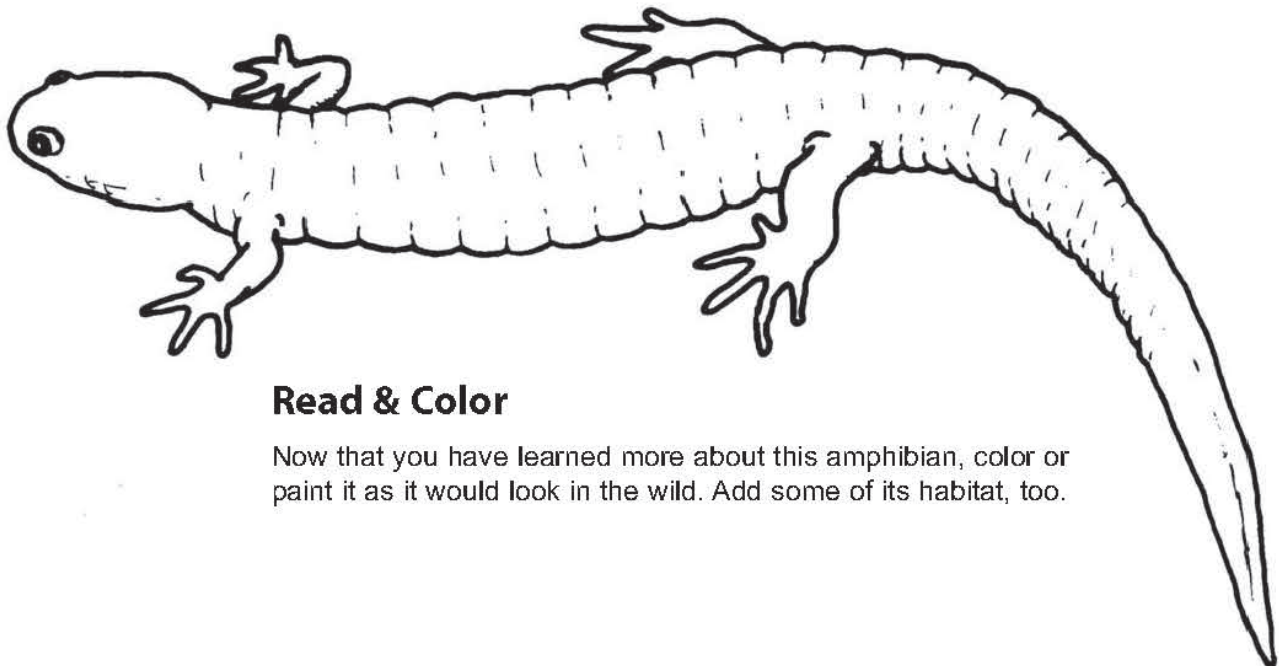
What are its habits?

The small-mouthed may be found in woodlands, prairies, pastures and cultivated fields. It feeds on earthworms, slugs and **arthropods**. It is mainly active at night and tends to spend most of its time hidden under objects or in underground burrows.



What about reproduction?

Breeding occurs in early spring. Masses containing 6-30 eggs are laid on vegetation in any standing water that can be found. Eggs hatch within a few days, and the larvae **transform** in late May through July.



Read & Color

Now that you have learned more about this amphibian, color or paint it as it would look in the wild. Add some of its habitat, too.

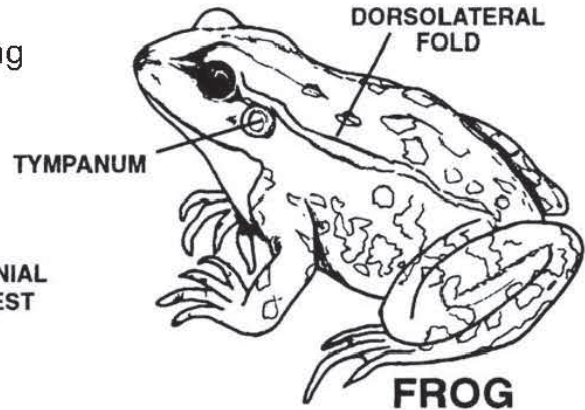
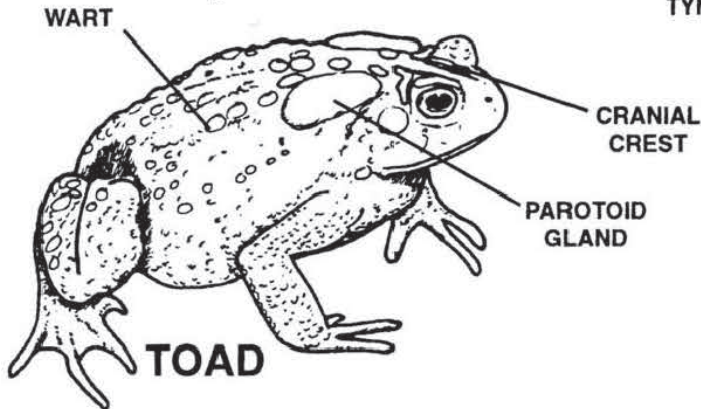
FROGS & TOADS



How will I know?

Adult frogs and toads have the following traits:

- no tail
- no neck
- long rear legs adapted for jumping
- no scales, feathers or fur
- 4 legs.



Where will I find them?

Frogs and toads live in wet places or are active when there is plenty of moisture in the air, like at night or after a rain. Some frogs are even found in trees! Toads can survive farther away from water than frogs. Breeding frogs and toads gather around ponds and other water bodies at night.



What else should I know about them?

Frogs use their skin and lungs to breathe. **Mucous** glands in their skin help to keep it moist and slick. This aids in breathing and escaping from predators. Because toads have drier skin, they do not use it as much for breathing.

Toads have many poison glands in their skin. When a predator starts to eat a toad, the poison oozes into the predator's mouth. Often the toad is dropped because the poison tastes nasty.

Frogs and toads return to water to lay their eggs. The eggs are covered with a jellylike substance. The eggs hatch to larvae (tadpoles) that breathe with gills. As they develop, the larvae grow legs and lose the gills. When fully developed, they may leave the water.

Frogs and toads are **carnivores**. They are also a good food source for many predators. Most frogs and toads can change colors to some degree.

EASTERN CRICKET FROG

Acris crepitans

(A-chris CREP-I-tans)



Is it near my house?

statewide in Illinois but uncommon in the northern one-third of the state



What does it look like?

This small frog (0.63-1.5 inches) has a tiny pad on the tip of each toe. The feet are webbed. A light line extends from each eye to the shoulder, and many light bars are on the nose. A dark triangle is between the eyes. The frog may be gray, brown, black, olive or tan.



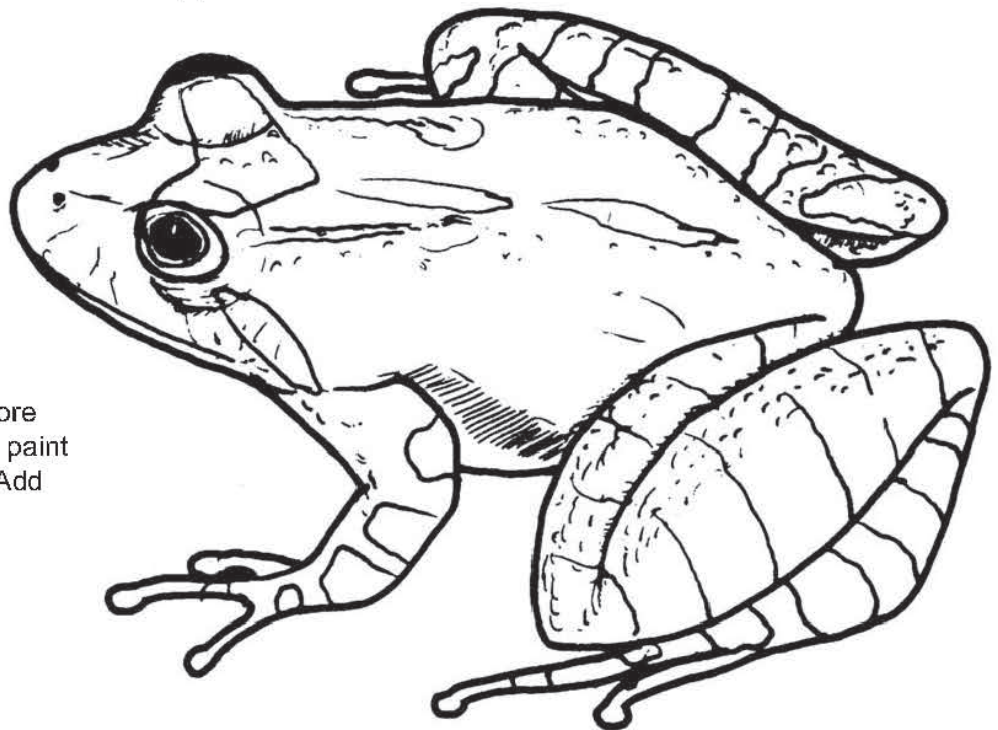
What are its habits?

The cricket frog lives in aquatic and **terrestrial** habitats but not in trees. It is fairly tolerant of cold and may be seen in the winter months if the weather is not too severe. It eats **arthropods**, particularly insects.



What about reproduction?

Breeding occurs from late April through summer. The male's call is a metallic "glick, glick, glick." Up to 200 eggs are laid in filmy packets on the water's surface. The tadpole has a black-tipped tail.



Read & Color

Now that you have learned more about this amphibian, color or paint it as it would look in the wild. Add some of its habitat, too.

AMERICAN BULLFROG

Lithobates catesbeianus

(lith-O-bates KATES-bee-ah-nus)



Is it near my house?

statewide in Illinois



What does it look like?

This large (3.5-6 inches) frog is easy to identify. It has no dorsolateral folds (see page 7) but does have short tympanic folds. Webbing on the feet extends to the toe tips. The frog may be olive, green or brown with dots or blotches. The tympanum (see page 7) is larger than the eye.



What are its habits?

The bullfrog may be found in lakes, ponds, rivers or creeks. An adult is solitary and wary during the day but easier to approach at night. A bullfrog eats almost anything that it can catch and swallow although **crustaceans** and insects make up the bulk of the diet.



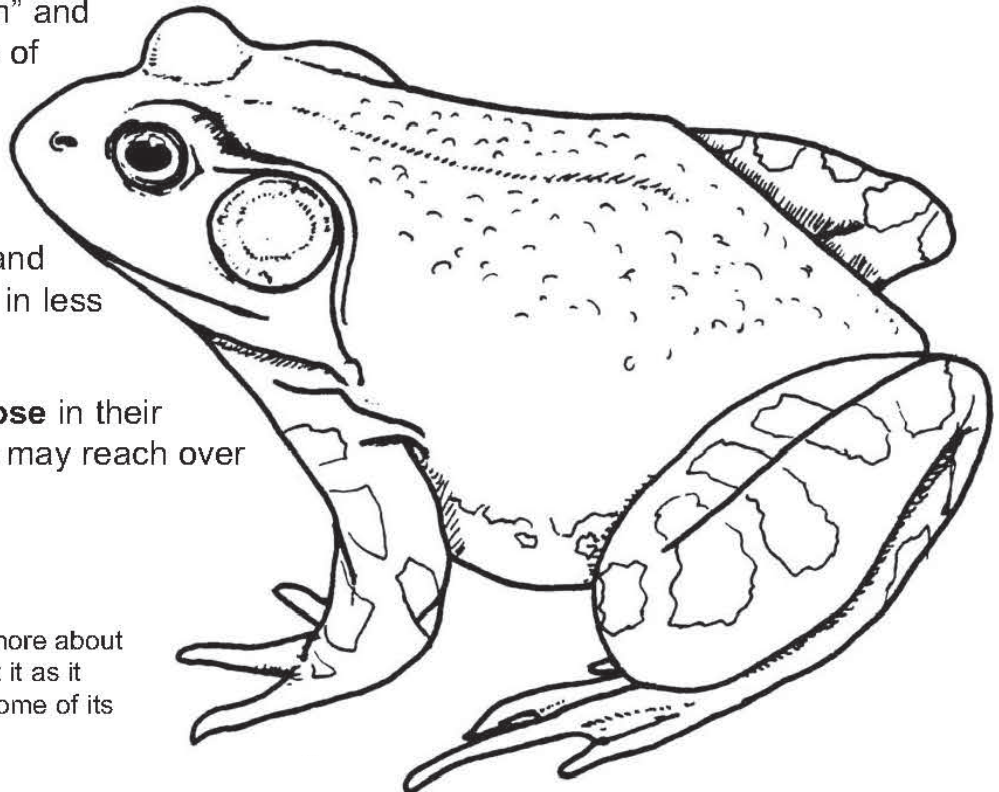
What about reproduction?

The “jug-o-rum” and “br-wum” calls of the male announce the breeding season from late April through August. Each female may lay several thousand eggs. Hatching occurs in less than a week.

Tadpoles **metamorphose** in their second year. Tadpoles may reach over six inches in length.

Read & Color

Now that you have learned more about this amphibian, color or paint it as it would look in the wild. Add some of its habitat, too.



AMERICAN TOAD

Anaxyrus americanus

(an-AX-i-rus uh-mare-i-CANE-us)



Is it near my house?

all but the southeastern portion of Illinois



What does it look like?

This large toad (2-3.5 inches) has long parotoid glands (see page 7). Its belly is spotted. Dark spots on the back include more than one wart (see page 7) in about half of the individuals.



What are its habits?

Gardens, lawns, woods and fields are all habitats for this animal. The American toad hides in soil or shrubbery during the day. It is active at night, feeding on insects and worms.

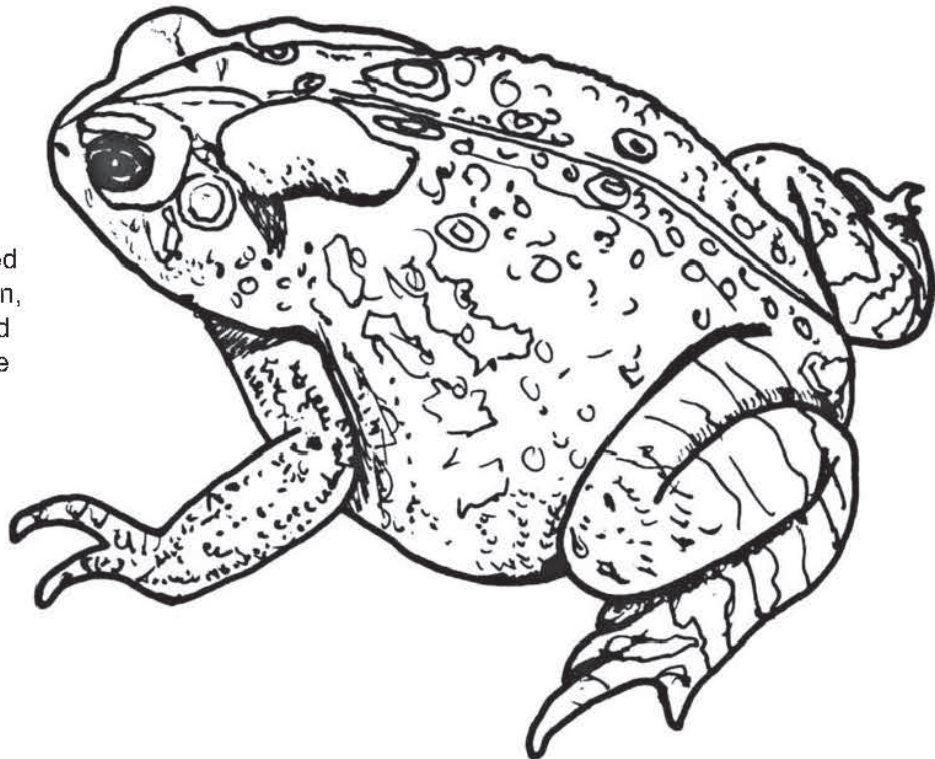


What about reproduction?

The breeding season peaks in mid-April. The male calls with a high, musical trill. Each female may lay several thousand eggs in long strings. These strings may extend for several feet along the bottom of a pond or ditch. Hatching occurs one week later with **metamorphosis** in early June.

Read & Color

Now that you have learned more about this amphibian, color or paint it as it would look in the wild. Add some of its habitat, too.



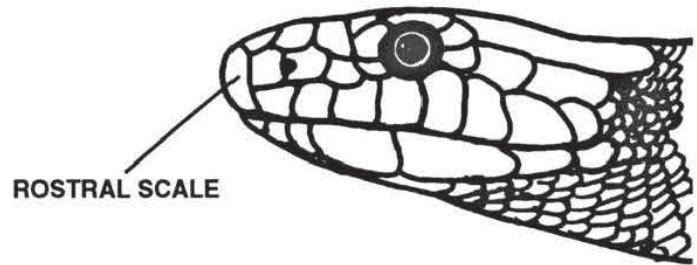
SNAKES



How will I know?

Snakes have the following traits:

- no legs
- no ear openings
- no eyelids
- scales.



Where will I find them?

Snakes can be found in many habitats. Some live on land, and some live in water. Some can be found in trees. Some tend to stay hidden under rocks or logs.



What else should I know about them?

Snakes do not see or hear well. They rely on their other senses to help them find prey. When a snake sticks out its forked tongue, it is picking up chemicals from the environment.

Snakes shed their skin as they grow. When a snake is getting ready to shed, its eye will appear milky. Snakes have no eyelid, but a clear scale covers and protects the eye. This scale is shed along with the rest of the skin. Snakes tend to be irritable before they shed their skin.

Snakes are **carnivores**. They can eat food larger than their head because their jaws are adjustable. Some snakes strike their prey while others are constrictors.

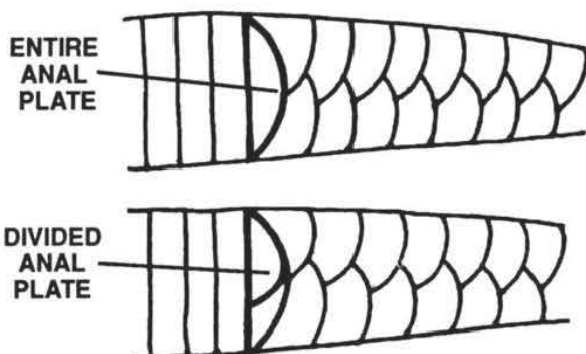
Snakes lay eggs covered by a leathery shell. Often the eggs are found in rotten wood or other dead vegetation. A few snakes give birth to fully developed young.



KEELED
SCALES



SMOOTH
SCALES



EASTERN HOG-NOSED SNAKE

Heterodon platirhinos

(HEH-ter-oh-don plat-e-RHINE-ose)



Is it near my house?

statewide in Illinois



What does it look like?

This medium-sized snake (20-33 inches) has a large shovel-like plate on the tip of its nose. Its belly may be light or dark, but the underside of the tail is always light. The scales are keeled (see page 11). The body has dark spots on a gray, tan or brown background or may be olive, brown or black without spots.



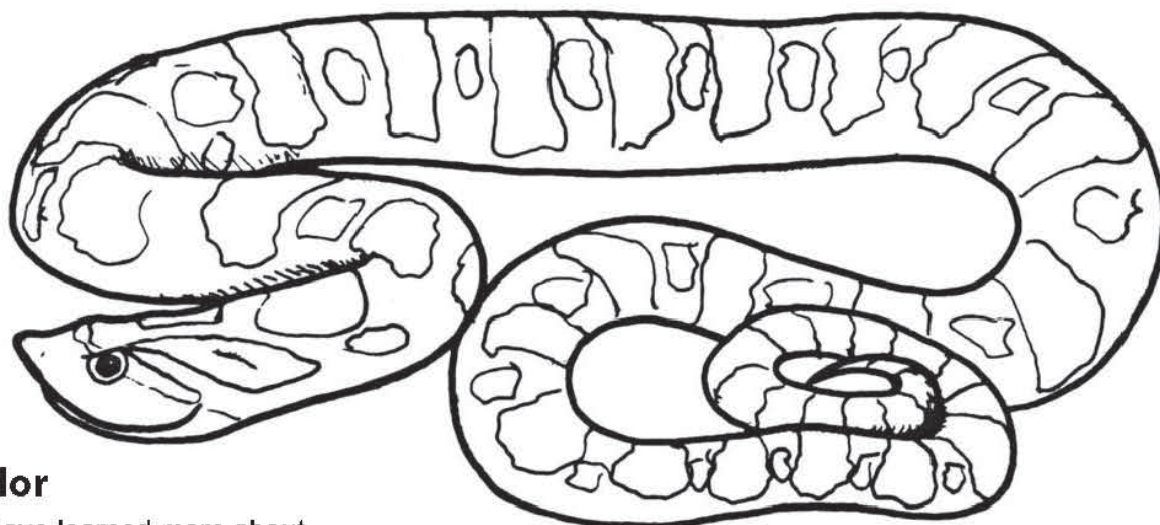
What are its habits?

The hog-nosed snake bluffs predators by spreading its head and neck and hissing. It is sometimes called the “hissing adder” or “puff adder.” It may play dead, too. When disturbed, it deposits large amounts of foul-smelling waste material. Hog-nosed snakes primarily eat toads and frogs. This species seems to be immune to toads’ poisonous secretions.



What about reproduction?

The long eggs of this snake are sometimes found under rocks, with most reproduction happening from mid-April through May. **Clutch** size averages 15-25 with eggs developing in 50-65 days.



Read & Color

Now that you have learned more about this reptile, color or paint it as it would look in the wild. Add some of its habitat, too.

DEKAY'S BROWNSNAKE

Storeria dekayi

(sto-RARE-e-uh dee-KAY-eye)



Is it near my house?

statewide in Illinois



What does it look like?

This small snake (9-13 inches) has 17 rows of strongly keeled scales (see page 11) and a divided anal plate (see page 11). It is gray or light brown, usually with a faint light stripe along the back. The stripe may have a border of dark spots or dashes. There is a dark spot on either side of the neck behind the head and below each eye.



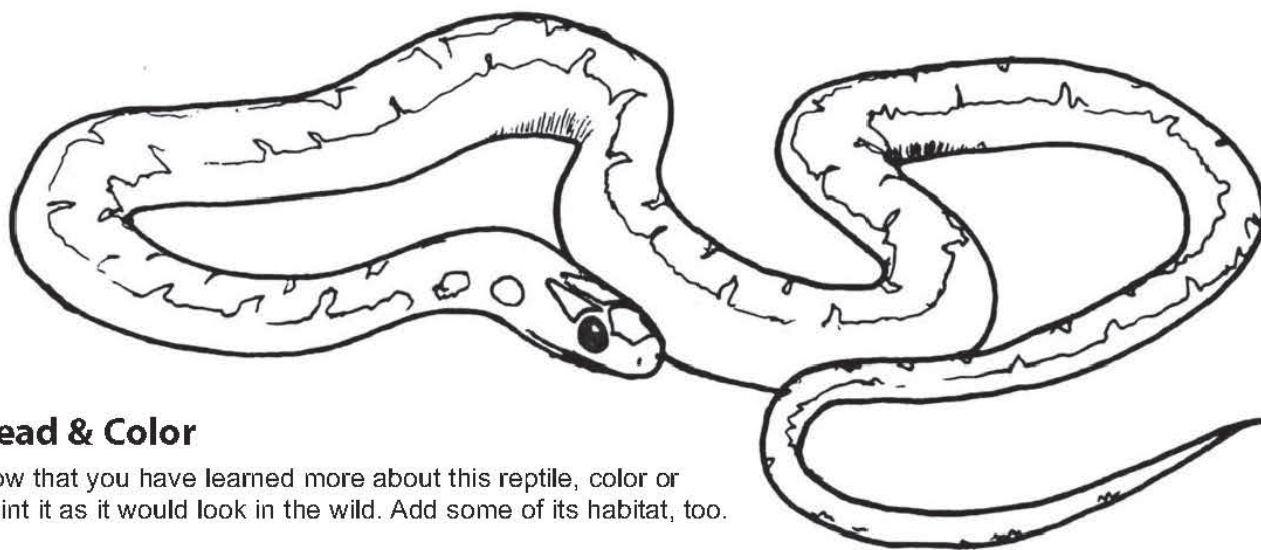
What are its habits?

Forest, prairie and floodplain habitats are home for this snake. It is often encountered under rocks and rubbish. Brown snakes primarily eat earthworms, slugs and insect larvae. They may discharge a mild **musk** when frightened. Brown snakes are eaten by many predators.



What about reproduction?

Breeding occurs in the spring. During late summer, the female gives birth to an average litter of 14. Newborn snakes must escape from a thin membrane that encloses them.



Read & Color

Now that you have learned more about this reptile, color or paint it as it would look in the wild. Add some of its habitat, too.

MIDLAND RATSNAKE

Pantherophis spiloides

(pan-ther-O-fis spi-LOY-dees)



Is it near my house?

statewide



What does it look like?

Midland ratsnakes are large (up to about six feet in length) and heavy-bodied. The scales are weakly keeled (see page 11), and the anal plate is divided (see page 11). These snakes are dark in color with a variable pattern that can include light blotches or no blotches. The belly shows a pattern of black and white checks.



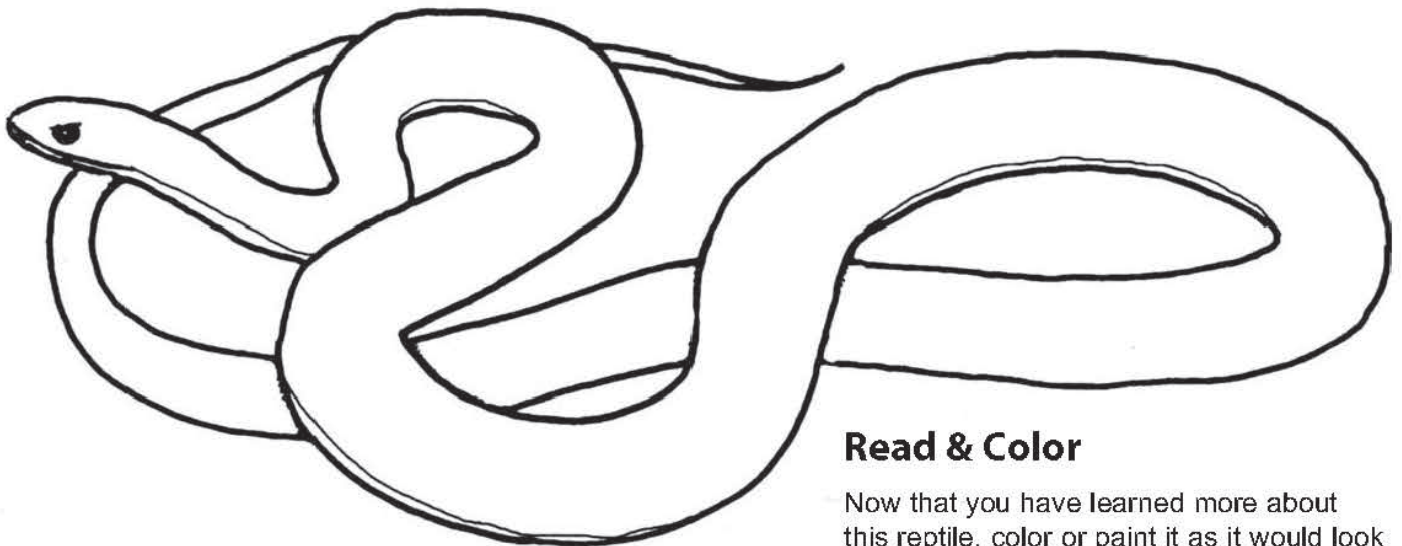
What are its habits?

An excellent climber, the movements of this snake are slow and deliberate. Disturbed individuals often “freeze” into position. If bothered it may raise its head, vibrate the tip of its tail and lunge. This snake eats birds and small mammals. It is a **constrictor**.



What about reproduction?

The eggs are often placed in rotten wood. An average **clutch** would contain 10-20 eggs. Eggs tend to stick together in the nest. Hatchlings emerge in late July through early September.



Read & Color

Now that you have learned more about this reptile, color or paint it as it would look in the wild. Add some of its habitat, too.

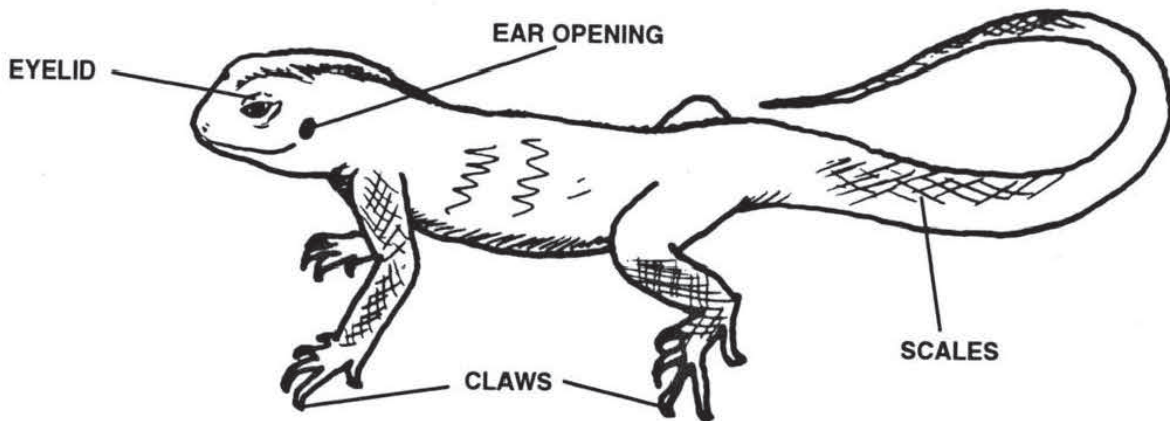
LIZARDS



How will I know?

Lizards have the following traits:

- 4 legs (most species)
- eyelids
- ear openings (most species)
- claws (most species)
- scales.



Where will I find them?

Lizards are land based and may be seen sunning on logs or rocks. They climb trees, too. They are secretive and shy. Lizards run very fast to escape danger and may even drop part of their tail. The tail will grow back, but it will be shorter than the original.



What else should I know about them?

Lizards are covered with dry scales. They shed their skin in patches as they grow, sometimes eating it to recover nutrients. Most lizards can change colors to some degree. Breeding male lizards are frequently very colorful.

Shelled eggs are laid under bark, rocks or in rotten logs. The eggs may or may not be guarded by an adult.

These animals are **carnivores** with insects making up a large portion of the diet.

Like snakes, lizards use their tongue to pick up chemicals from the environment.

EASTERN FENCE LIZARD

Sceloporus undulatus

(skel-AW-pore-us un-dew-LATE-us)



Is it near my house?

southern one-third of Illinois



What does it look like?

The fence lizard (4-7.25 inches) is covered with rough, overlapping scales. Each scale has a spine that points toward the tail. The heavy body is gray with 5-8 brown or black bands.



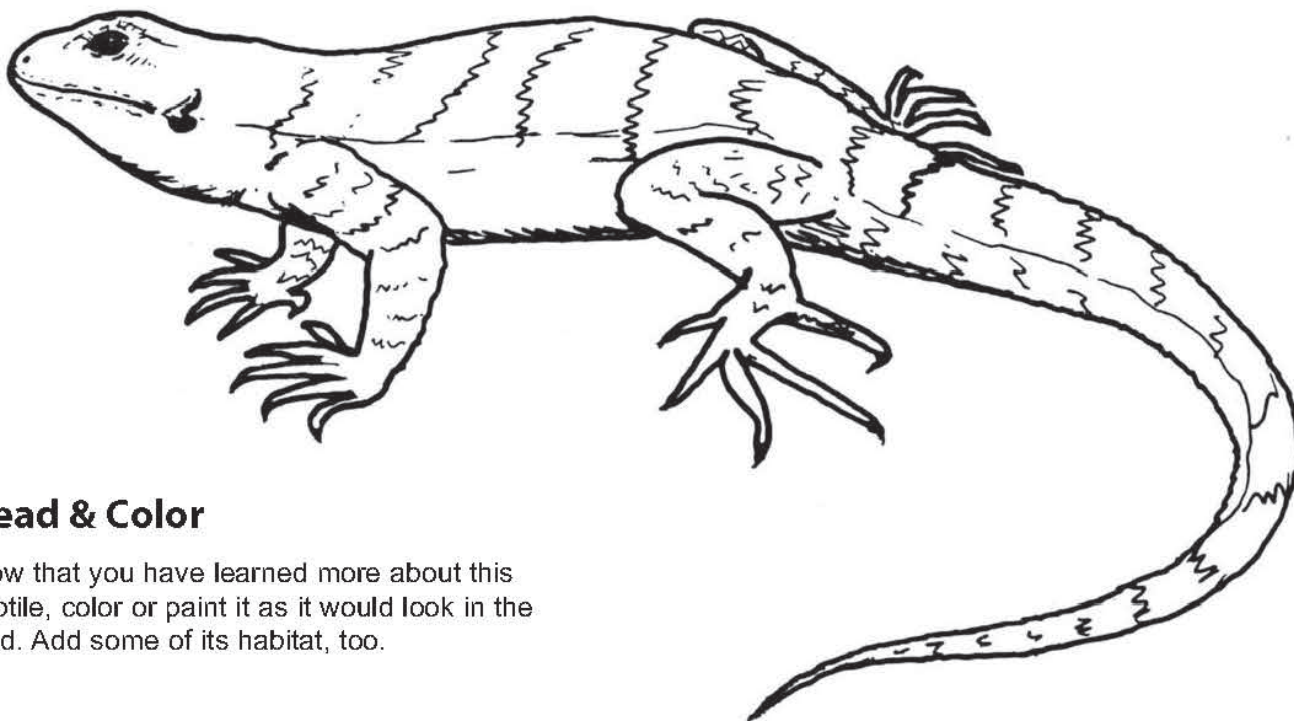
What are its habits?

This lizard is found in open, dry wooded areas such as rocky hillsides or woodlots. You may see it sunning itself on fallen trees, stumps or rail fences. It is a good climber. Sometimes the lizard is seen doing “push-ups” with its front legs. It eats insects and other **arthropods**.



What about reproduction?

The fence lizard breeds in late April and early May. The female deposits eggs in rotten logs or stumps. Hatchlings may be found by August.



Read & Color

Now that you have learned more about this reptile, color or paint it as it would look in the wild. Add some of its habitat, too.

SLENDER GLASS LIZARD

Ophisaurus attenuatus

(oh-fee-SATUR-us uh-TEN-you-ate-us)



Is it near my house?

statewide but not common



What does it look like?

This tan, limbless lizard is 22-42 inches long and has a distinct dark stripe along the middle of its back. It may have white stripes along its side.



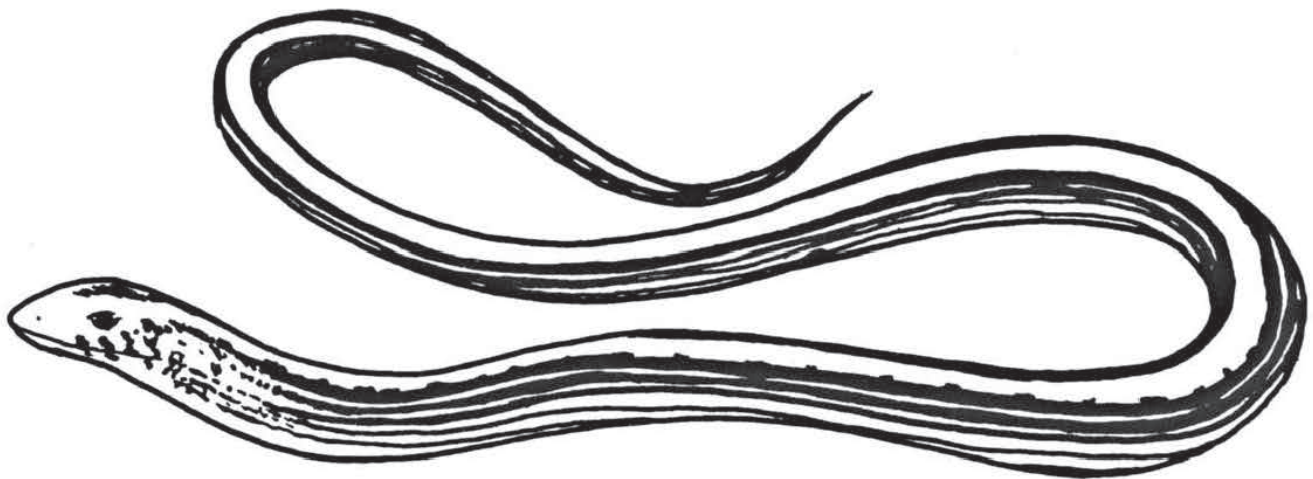
What are its habits?

The animal is **terrestrial** and prefers areas with loose soil and sand where it may be found under rocks, logs and other objects. Its tail is very fragile and breaks easily. It is a **carnivore**, eating animals such as lizards, snakes and crickets.



What about reproduction?

Very little is known about the reproduction of this species.



Read & Color

Now that you have learned more about this reptile, color or paint it as it would look in the wild. Add some of its habitat, too.

COMMON FIVE-LINED SKINK

Plestiodon fasciatus

(PLES-tea-o-don fas-e-AH-tus)



Is it near my house?

southern half of Illinois



What does it look like?

This animal is 5-8 inches long. Females and young have five long, light stripes on a dark background. Mature males are tan, gray or bronze with red cheeks. Young have blue tails.



What are its habits?

Often seen on sunny days around abandoned buildings, rotten logs, dead trees or rock outcrops, this skink can move very quickly if disturbed. It may lose its tail to distract a predator. **Arthropods**, earthworms and **mollusks** make up a large part of the diet. The five-lined skink will bite if you try to pick it up.



What about reproduction?

Each female lays about nine eggs in rotten logs or stumps during July. The eggs are guarded by the female.



Read & Color

Now that you have learned more about this reptile, color or paint it as it would look in the wild. Add some of its habitat, too.

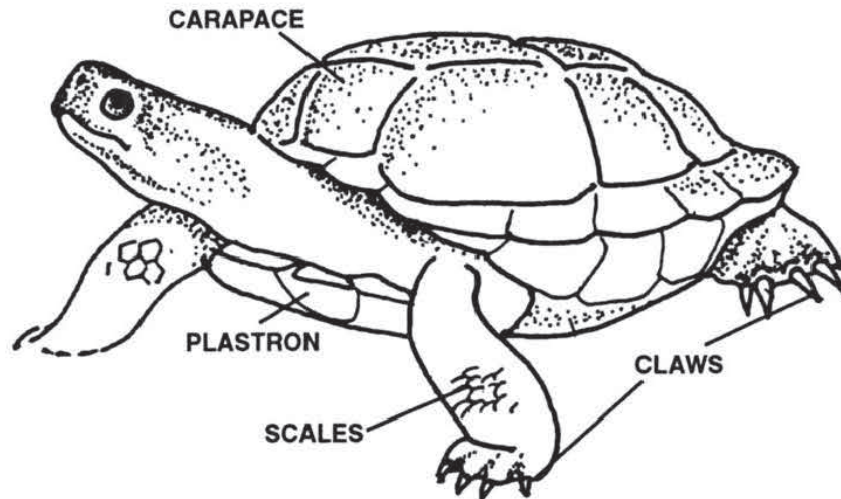
TURTLES



How will I know?

Turtles have the following traits:

- 4 legs
- tail
- scales and/or plates
- no teeth
- claws
- shell.



Where will I find them?

Turtles may be found in many habitats from water to forests to prairies to urban areas. Aquatic turtles are often seen sunning on rocks or logs in the morning hours. Turtles are most active during the day.



What else should I know about them?

The shell of a turtle has an upper portion called the carapace and a lower portion called the plastron. The two parts are joined by a bridge. The shell is arranged to allow a turtle to draw in its head, tail and legs, although most turtles cannot completely close the shell. Some turtles have a leathery shell instead of a hard one.

Females dig a hole on land for the eggs. Once the eggs are laid, the hole is filled with dirt. When the turtles hatch, they must dig their way to the surface.

Turtles may be **herbivores**, **carnivores**, or **omnivores**. The adults, hatchlings and eggs are all food sources for several predators.

SNAPPING TURTLE

Chelydra serpentina

(chuh-LIH-druh sir-pen-TEE-nuh)



Is it near my house?

statewide in Illinois



What does it look like?

This large turtle (8-12 inches, 10-35 pounds) has an enormous head, thick legs and a relatively long tail. The carapace has three keels that tend to be covered with algae in adults. The plastron is too small to cover the head, tail and legs. Young animals are black with some gray or olive spots. Adults are olive, gray or black.



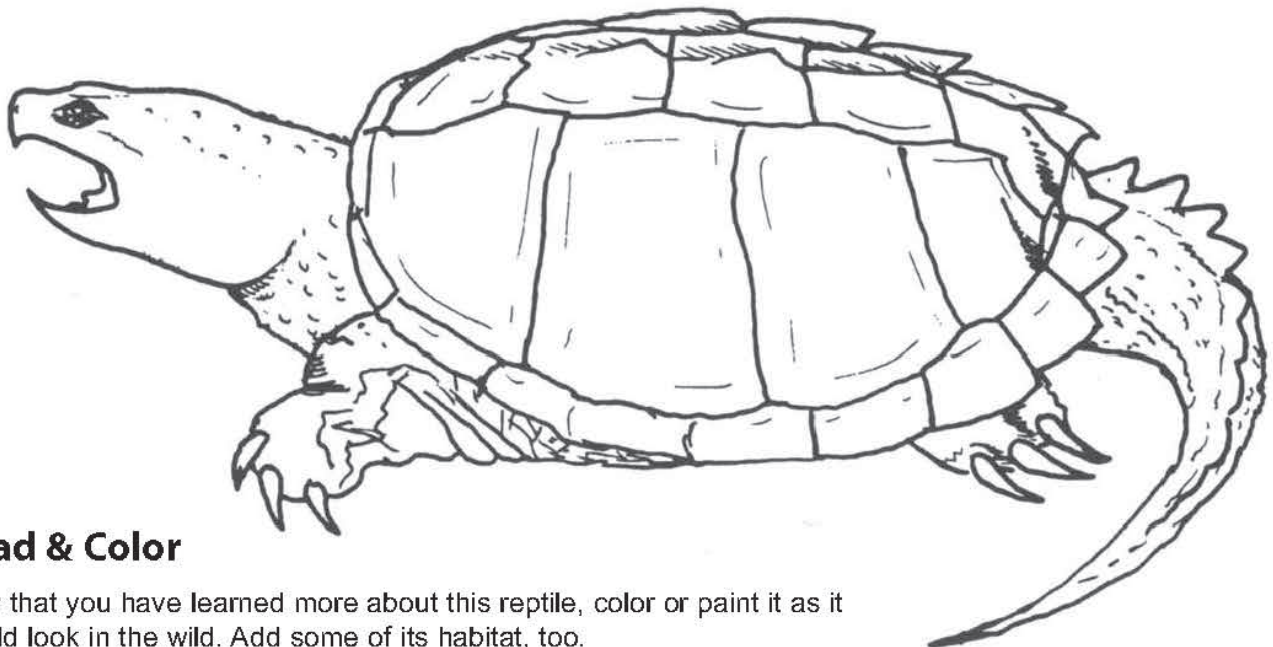
What are its habits?

Found in all types of water bodies, the snapping turtle may also migrate on land. It is slow-moving and awkward both in and out of the water. In water, it spends much time on the bottom waiting for prey. This turtle is a scavenger and predator and will eat most anything.



What about reproduction?

Twenty to 30 eggs are laid in June. Hatchlings may be found in September and October.



Read & Color

Now that you have learned more about this reptile, color or paint it as it would look in the wild. Add some of its habitat, too.

EASTERN MUSK TURTLE

Sternotherus odoratus

(stern-AH-ther-us oh-door-A-tus)



Is it near my house?

statewide in Illinois



What does it look like?

This small (3.25-4.5 inches) turtle has an oval-shaped, high-domed shell. The front of the plastron is much shorter than the back. A large head, nose that projects beyond the mouth, pair of chin barbels and pair of yellow stripes on each side of the head are also features. The carapace may be black, olive or brown.



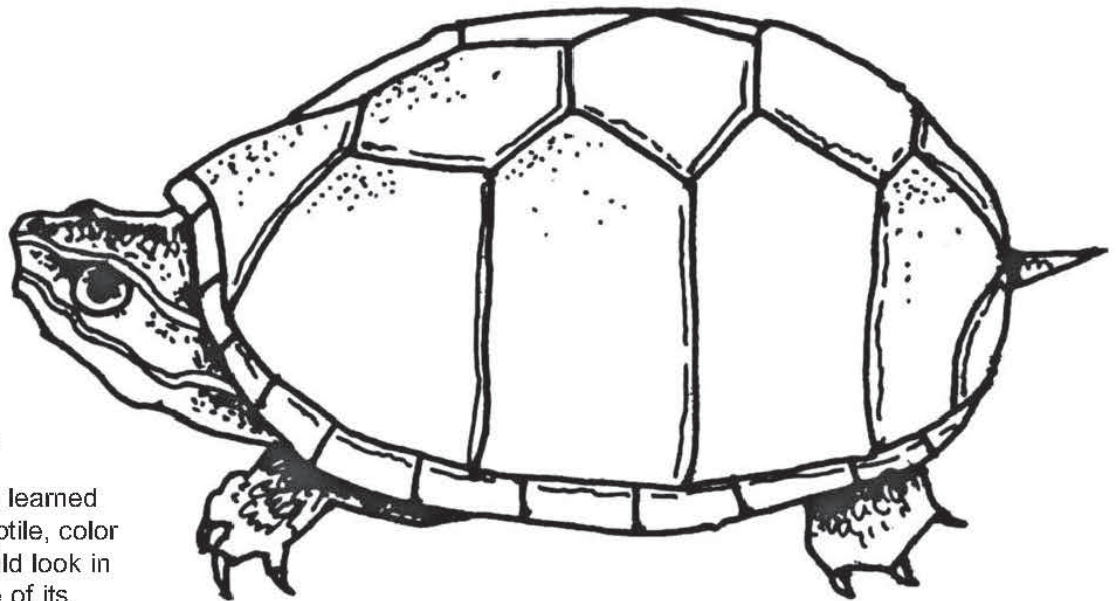
What are its habits?

The common musk turtle is aquatic and swims well, although it mainly crawls on the bottom of water bodies. Its name comes from an unpleasant **musk** it may release from its scent glands. This ill-tempered animal is a **carnivore**, eating mainly **arthropods**, fish, worms and **mollusks**.



What about reproduction?

Eggs are laid in June in a nest near a pond. The **clutch** of 3-5 hard-shelled eggs hatches in early fall.



Read & Color

Now that you have learned more about this reptile, color or paint it as it would look in the wild. Add some of its habitat, too.

SPINY SOFTSHELL TURTLE

Apalone spinifera

(ap-uh-LONE spin-IF-er-uh)



Is it near my house?

statewide in Illinois



What does it look like?

The softshell is a large (females 7-17 inches, males 5-9.25 inches), aquatic turtle with a tan leathery carapace lined with bumps. Each side of the head is dark with a light stripe behind the eye and a light line behind the jaw. The neck and legs are olive with dark mottling.



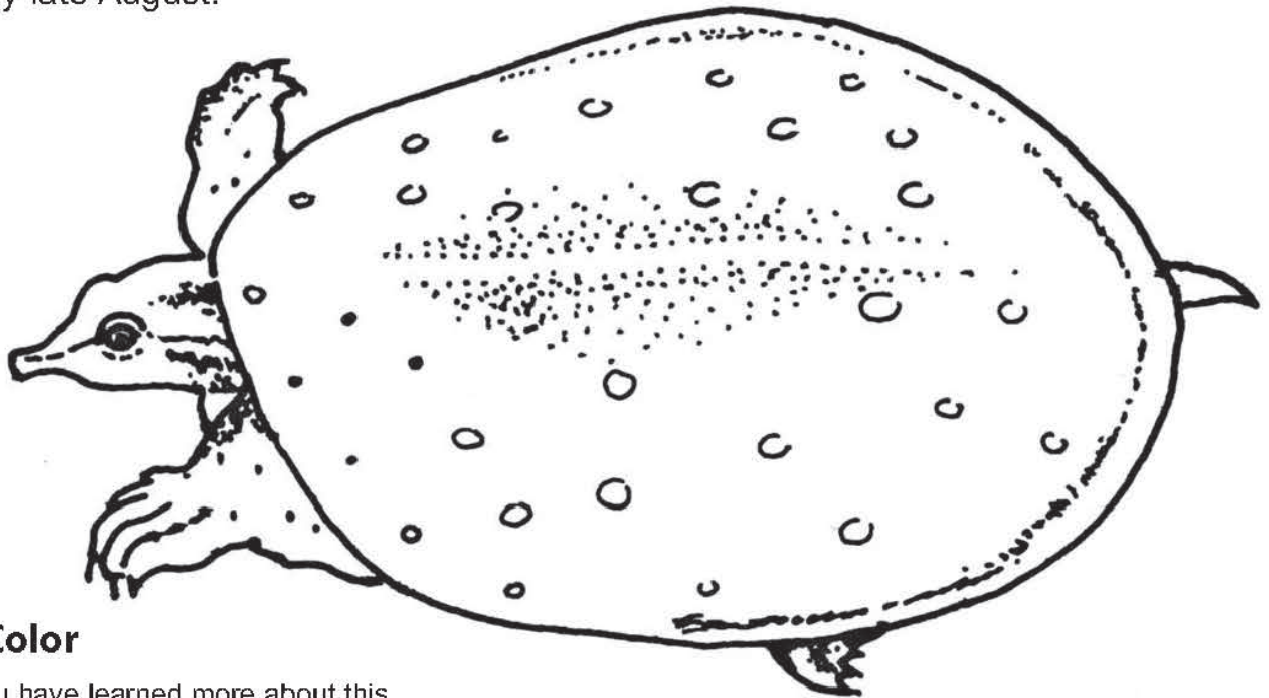
What are its habits?

The softshell turtle may be found basking on sandbars, buried in sand at a stream's edge or floating at the surface. It is basically a river turtle but may be found in quiet bodies of water where sandbars and mudbars are present. This carnivore will readily bite if disturbed. It may stay underwater for long periods of time.



What about reproduction?

An average of 18 eggs is buried in a nest in June. Hatchlings may be seen by late August.



Read & Color

Now that you have learned more about this reptile, color or paint it as it would look in the wild. Add some of its habitat, too.

WORDS ABOUT REPTILES AND AMPHIBIANS



FIND THE FOLLOWING WORDS IN THIS PUZZLE.

BACKBONE

FROG

LUNGS

SALAMANDER

SNAKE

COLD-BLOODED

GILL

METAMORPHOSIS

SCALES

TOAD

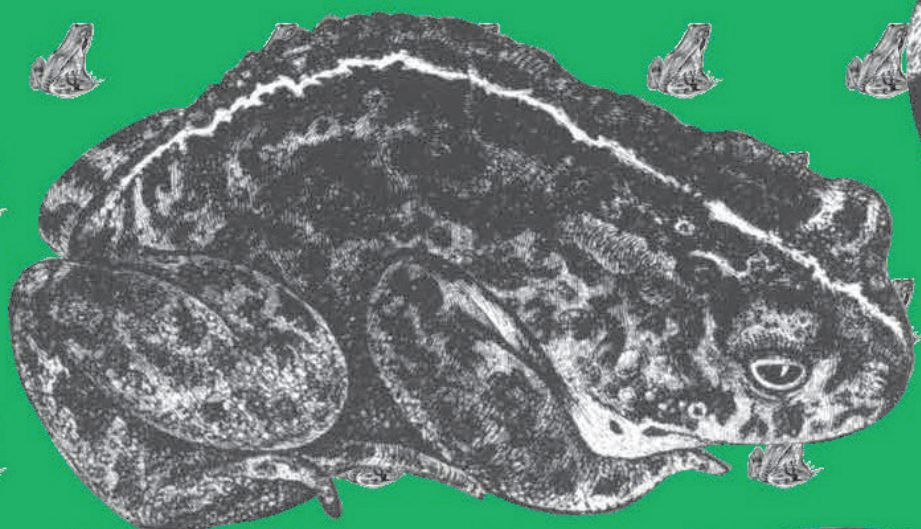
EGG-LAYER

LIZARD

PLASTRON

SHELL

VENOMOUS



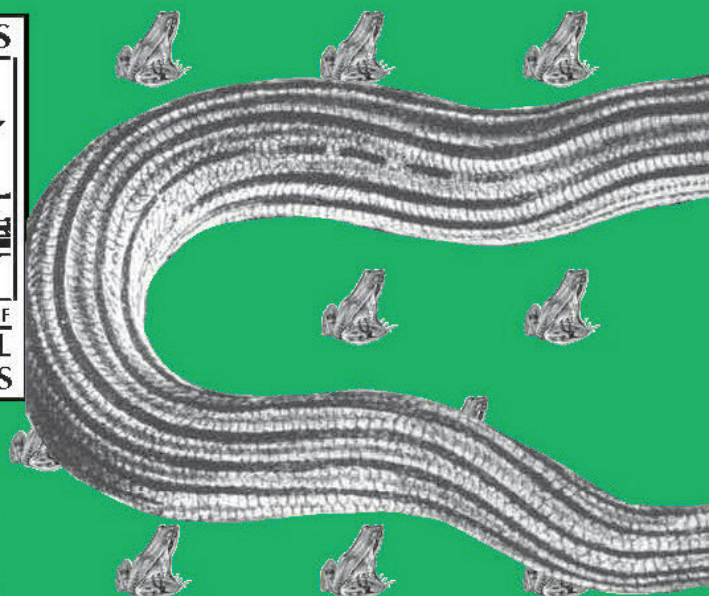
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