Examine a living frog when one is available. Place the frog on the floor and observe its locomotion.

Touch the surface of the eye with a blunt probe. Is there an eyelid present?

Observe breathing movements of the frog. What is its breathing rate?

**Integument**
Examine a microscopic cross-section of frog or salamander skin. Make a drawing of a portion of its epidermis, dermis, and glands showing a duct. Are the glands epidermal or dermal? In which layer do they lie?

Examine the external features of a preserved *Necturus*. How does the post-anal length of the animal compare with the pre-anal length?

Note the shape of the tail. Do the limbs appear to be well adapted for walking? How many digits are on each foot?

Examine the gills. Are these animals adults? Are there external narial openings? Eyelids?
Skeletal material
Observe and compare the skeletal material available for frogs and salamanders. List at least four major differences between the two.

What bones are responsible for the distinct hump in the back of a resting frog?

Be able to recognize individuals (living, pickled, or photographed) for the following taxonomic groups:

Class Amphibia – Order Anura: Toads and Frogs
Pelobatidae
- *Scaphiopus couchii*  
  Couch’s Spadefoot
- *Scaphiopus holbrooki hurterii*  
  Eastern Spadefoot

Bufonidae
- *Bufo houstonensis*  
  Houston Toad
- *Bufo punctatus*  
  Red-spotted Toad
- *Bufo woodhousii*  
  Woodhouse’s Toad
- *Bufo speciosus*  
  Texas Toad
- *Bufo valliceps*  
  Gulf Coast Toad

Microhylidae
- *Gastrophryne carolinensis*  
  Eastern Narrowmouthed Toad
- *Gastrophryne olivacea*  
  Great Plains Narrowmouthed Toad
<table>
<thead>
<tr>
<th>Family</th>
<th>Genus</th>
<th>Species</th>
<th>Common Name</th>
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<tr>
<td>Hylidae</td>
<td>Acris</td>
<td>crepitans</td>
<td>Northern Cricket Frog</td>
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<td>Hyla</td>
<td>cinerea</td>
<td>Green Treefrog</td>
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<td>clarkii</td>
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<td>Rana</td>
<td>palustris</td>
<td>Pickerel Frog</td>
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<td>Rana</td>
<td>sphenocephala</td>
<td>Southern Leopard Frog</td>
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<td>Class Amphibia – Order Caudata: Salamanders</td>
<td>Ambystomatidae</td>
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<td>Necturus</td>
<td>beyeri</td>
<td>Gulf Coast Waterdog</td>
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<td>Salamandridae</td>
<td>Notophthalmus</td>
<td>viridescens</td>
<td>Central Red-spotted Newt</td>
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Sirenidae

*Siren intermedia*  
Lesser Siren

**CLASS REPTILIA – TURTLES, LIZARDS, SNAKES, AND ALLIGATORS**

**Examination of a live snake**

Examine a living snake when one is available. Place the snake on a table top or on the floor, depending on its size, and observe its locomotion. Place a small snake on a glass plate and observe it from below.

Touch the surface of the eye with a blunt probe. Is there an eyelid present?

Observe breathing movements of the snake. What is its breathing rate?

**Integument**

On a preserved specimen, examine the scales. Are the scales overlapping?

A scale having a distinct ridge running lengthwise on its midline is keeled; if no ridge is present, the scale is smooth. Are the scales on the preserved snake keeled?

About midway along the body, count the number of scale rows starting with the first row above the belly scutes and continuing obliquely over the back and down to the corresponding row on the opposite side. How many rows are there?

Note that the squamation of the belly is different from that of the lateral and dorsal parts of the body. Which edge, if either, of the belly scutes is free?

Examine the scales covering the cloacal opening. Is this anal plate entire (one piece) or divided? How are the ventral scutes beyond the vent different from those ahead of it?

Examine the scales on the top of the head to see how they differ from those in other locations.

On the head, look for ear and nareal openings. Are they present?
Find the tongue in its sheath in the lowermost part of the mouth cavity. Are the internal nares visible?

Look for teeth in both the upper and lower surfaces of the mouth. On what bones of the skull are teeth found?

**Examination of a live lizard and turtle**
When these animals are available, watch their breathing movements for several minutes. Describe the movements of each.

Touch the eye surfaces of each of these animals with a blunt probe. Is there an eyelid present?

Observe breathing movements of the snake. What is its breathing rate?

**Integument**
On a preserved lizard, examine the scales. How does the lizard’s ventral scales compare to those of a snake? What differences do you note?

On the head, look for ear and nareal openings. Are they present?

**Turtle skeleton**
Examine the turtle skulls provided. Note the absence of teeth. The horny covering that serves as cutting edges may or may not be present on the jaw bones. Examine the roof of the mouth to see if a bony palate is present.

Examine the occipital region of the skull. How many condyles are present?

Are temporal openings present? To what subclass do turtles belong?

Examine a complete turtle skeleton. Note that the thoracic, lumbar, and sacral vertebrae and the ribs are fused to dermal bony plates to form the bony part of the **carapace** or upper shell. How many sacral vertebrae are present?

Examine the carapace from which some of the epidermal scales are removed. Do the epidermal laminae correspond exactly to the underlying plates of bone?
**Alligator skull**

Examine an alligator skull. Is a bony palate present?

How many occipital condyles are there?

Are temporal foramina present? To what subclass to alligators belong?

Note the teeth in the premaxillary and maxillary bones of the upper jaw as well as the dentary bone of the lower jaw. Is the alligator homodont or heterodont? How are the teeth classified with respect to their attachment to the bones?

**Be able to recognize individuals (living, pickled, or photographed) for the following taxonomic groups:**

Class Reptilia – Order Testudinata: Turtles

Chelydridae

- *Chelydra serpentina* Common Snapping Turtle
- *Macrochelys temminckii* Alligator Snapping Turtle

Emydidae

- *Deirochelys reticularia* Chicken Turtle
- *Graptemys pseudogeographica kohni* Mississippi Map Turtle
- *Pseudemys concinna* Metter’s River Cooter
- *Terrapene carolina* Three-toed Box Turtle
- *Terrapene ornata* Ornate Box Turtle
- *Trachemys scripta* Red-eared Slider

Kinosternidae

- *Kinosternon flavescens* Yellow Mud Turtle
- *Kinosternon subrubrum* Mississippi Mud Turtle
- *Kinosternon carinatus* Razor-backed Musk Turtle
- *Kinosternon odoratus* Stinkpot

Trionychidae

- *Trionyx muticus* Smooth Softshell
- *Trionyx spiniferus* Spiny Softshell

Class Reptilia – Order Squamata; Suborder Lacertilia: Lizards

Anguidae

- *Ophisaurus attenuatus* Slender Glass Lizard
Gekkonidae
   *Hemidactylus turcicus*  Mediterranean Gecko

Iguanidae
   *Anolis carolinensis*  Green Anole
   *Phrynosoma cornutum*  Texas Horned Lizard
   *Sceloporus olivaceus*  Texas Spiny Lizard
   *Sceloporus undulatus*  Northern Fence Lizard

Scincidae
   *Eumeces anthracinus*  Coal Skink
   *Eumeces fasciatus*  Five-lined Skink
   *Eumeces laticeps*  Broad-headed Skink
   *Eumeces septentrionalis*  Southern Prairie Skink
   *Scincella lateralis*  Ground Skink

Teiidae
   *Cnemidophorus sexlineatus*  Six-lined Racerunner

Class Reptilia – Order Squamata; Suborder Serpentes: Snakes
Elaphidae
   *Micrurus fulvius*  Texas Coral Snake

Colubridae
   *Coluber constrictor*  Buttermilk Racer
   *Diadophis punctatus*  Mississippi Ringneck Snake
   *Elaphe guttata*  Corn Snake
   *Elaphe obsoleta*  Texas Rat Snake
   *Farancia abacura*  Western Mud Snake
   *Heterodon nasius*  Dusky Hognose Snake
   *Heterodon platirhinos*  Eastern Hognose Snake
   *Lampropeltis getula*  Speckled Kingsnake
   *Lampropeltis triangulum*  Milk Snake
   *Masticophis flagellum*  Coachwhip
   *Nerodia cyclopion*  Green Water Snake
   *Nerodia erythrogaster*  Blotched Water Snake
   *Nerodia fasciata*  Broad-banded Water Snake
   *Nerodia rhombifer*  Diamond-backed Water Snake
   *Opheodrys aestivus*  Rough Green Snake
   *Pituophis melanoleucus*  Louisiana Pine Snake
   *Regina grahamii*  Graham’s Crayfish Snake
   *Regina rigida*  Gulf Crayfish Snake
   *Storeria dekayi*  Brown Snake
   *Tantilla gracilis*  Flat-headed Snake
*Thamnophis proximus*  
*Thamnophis sirtalis*  
*Virginia striatula*  
*Virginia valeriae*  

**Leptotyphlopidae**  
*Leptotyphlops dulcis*  

**Viperidae**  
*Agkistrodon contortrix*  
*Agkistrodon piscivorus*  
*Crotalus atrox*  
*Crotalus horridus*  

**Class Reptilia – Order Crocodilia: Turtles**  
**Crocodylidae**  
*Alligator mississippiensis*  

Western Ribbon Snake  
Common Garter Snake  
Rough Earth Snake  
Western Earth Snake  
Plains Blind Snake  
Copperhead  
Western Cottonmouth  
Diamond-backed Rattlesnake  
Timber Rattlesnake  
American Alligator