



# HERPETOLOGY

See General Rules, Eye Protection & other Policies on [www.soinc.org](http://www.soinc.org) as they apply to every event.

1. **DESCRIPTION:** Participants will be assessed on their knowledge of amphibians and reptiles.

**A TEAM OF UP TO:** 2

**APPROXIMATE TIME:** 50 minutes

2. **EVENT PARAMETERS:**

- Each team may bring one **2019 Official National Herpetology List** as well as one **two-inch or smaller standard** binder containing information in any form and from any source attached using the available rings.
- The 2019 Official National Herpetology List does not have to be secured in the binder.**
- If the event features a rotation through a series of laboratory stations in which the participants interact with samples, specimens, or displays no material may be removed from the binder while at, or in-between, laboratory stations.**

3. **THE COMPETITION:**

- Each team will be given an answer sheet on which they will record answers to each section.
- Specimens/pictures will be lettered or numbered at each station. The event may include living and preserved specimens, skeletal materials, slides, or pictures of specimens.
- Each specimen will have one or more questions accompanying it on some aspect of its life history, distribution, etc.
- Participants should be able to do basic identification and answer taxonomy questions to the level indicated on the Official National Herpetology List as well as demonstrate knowledge of anatomy and physiology, reproduction, habitat characteristics, ecology, diet, behavior, conservation, **taxonomy**, sounds, and biogeography.
- No more than 50% of the competition will require giving common or scientific names (class, order, **suborder**, **family**, or genus as indicated on the Official National Herpetology List).
- The questions will be distributed between amphibians and reptiles.
- The National competition will be based on the **2019 Official National Herpetology List**.
- The taxonomic scheme of the 2019 Official National Herpetology List is based upon a combination of traditional and current categories designed to utilize familiar terms widely used in published resources available to the students.**
- States may have a modified state or regional list which will be posted on the state website no later than November 1<sup>st</sup>.

4. **SAMPLE ACTIVITIES:**

- Identify the order, **suborder**, family, **and/or** genus of the provided sample.
- What conclusion can be drawn about the habitat(s) of the given specimens?
- Which of these animals does not fit within this **taxon**?
- What unique anatomical feature distinguishes the animal shown in the picture?
- Consider the potential impact of human activities on the survival of amphibians and reptiles.**

5. **SCORING:**

- High score wins.
- Selected questions may be used as tiebreakers.

**Recommended Resources:** The Science Olympiad Store ([store.soinc.org](http://store.soinc.org)) carries the Bio/Earth Science CD, Taxonomy CD; other resources are on the event page at [soinc.org](http://soinc.org).

## Class

### Order

- Family
  - *Genus (species-none listed)* - common name

## Class Reptilia

### Crocodylia – crocodiles and alligators

- Crocodylidae - crocodiles
- Alligatoridae – alligators and caiman

### Testudines (Chelonia) - turtles

- Chelydridae - snapping turtles
- Kinosternidae - musk and mud turtles
- Emydidae - box, pond and marsh turtles
  - *Terrapene* - box turtles
  - *Actinemys* – western pond turtles
  - *Malaclemys* - diamondback terrapins
  - *Graptemys* - map turtles
  - *Trachemys* - sliders
  - *Chrysemys* - painted turtles
  - *Pseudemys* – cooters and redbellies
  - *Clemmys* – spotted turtle
  - *Glyptemys* – wood turtle and bog turtle
  - *Deirochelys* – chicken turtle
  - *Emydoidea* – Blanding’s turtle
- Testudinidae - tortoises
- Cheloniidae - sea turtles
- Trionychidae – soft shelled turtles

### Squamata – lizards and snakes

#### SUBORDER LACERTILA OR SAURIA - LIZARDS

- Gekkonidae – gecko lizards
- Polychridae – anoles
  - *Anolis* - anoles
- Iguanidae – iguanids
  - *Iguana* – green iguana
  - *Dipsosaurus* – desert iguana
  - *Sauromalus* – chuckwalla
- Crotaphytidae – Collared lizards
- Phrynosomatidae – earless, spiny, tree, side-blotched and horned lizards
  - *Sceloporus* – spiny lizards
  - *Cophosaurus & Holbrookia* – earless lizards
  - *Uma* – fringe toed lizards
  - *Urosaurus & Uta* – tree and side blotched lizards
  - *Phrynosoma* – horned lizards
- Lacertidae – wall lizards
- Teiidae – whiptails
  - *Cnemidophorus* – racerunners and whiptails
- Scincidae – skinks
  - *Eumeces* – skinks
- Anguidae – glass lizards and alligator lizard
  - *Ophisaurus* – glass lizards
  - *Gerrhonotus* – alligator lizard
- Helodermatidae – gila monster

#### SUBORDER SERPENTES (Ophidia) - SNAKES

- Leptotyphlopidae – blind snakes
- Boidae
  - *Charina* – rubber boa and rosy boa

- **Colubridae** – typically harmless snakes
  - *Nerodia* – water snakes and salt marsh snakes
  - *Storeria* – brown snakes and redbelly snakes
  - *Thamnophis* – garter, ribbon, lined snakes
  - *Heterodon* – hog-nosed snakes
  - *Diadophis* – ringneck snakes
  - *Coluber* – racers
  - *Masticophis* – coachwhips and whipsnakes
  - *Ophiodrys* – green snakes
  - *Elaphe* – rat snakes
  - *Pituophis* – pine, bull and gopher snakes
  - *Lampropeltis* – king and milk snakes
  - *Tantilla* – crowned and blackhead snakes
- **Elapidae** – coral snakes
- **Hydrophiidae** – sea snakes
- **Viperidae** – (subfamily viperinae) pit vipers
  - *Agkistrodon* – copperhead and cottonmouths
  - *Sistrurus* – massasaugas and pigmy rattlesnakes
  - *Crotalus* – rattlesnakes

## Class Amphibia

### Caudata (Urodela) - salamanders

- **Cryptobranchidae** – hellbenders
- **Dicamptodontidae** – giant salamanders
- **Proteidae** – mudpuppies and water dogs
- **Rhyacotritonidae** – torrent or seep salamanders
- **Amphiumidae** – amphiumas
- **Sirenidae** – sirens
- **Ambystomatidae** – mole salamanders
- **Salamandridae** – newts
- **Plethodontidae** – lungless salamanders
  - *Desmognathus* – dusky salamanders & kin
  - *Plethodon* – woodland salamanders & kin
  - *Ensatina* - ensatina
  - *Aneides* – green/climbing salamanders
  - *Batrachoseps* – slender salamanders
  - *Hydromantes* – web-toed salamanders
  - *Hemidactylum* – four-toed salamanders
  - *Gyrinophilus* – spring salamander
  - *Pseudotriton* – red and mud salamanders
  - *Eurycea* – brook salamanders
  - *Typhlomolge* – Texas and Blanco blind salamanders

### Anura (Salientia) – frogs and toads

- **Scaphiopodidae** – spadefoot toads
  - *Scaphiopus* - spadefoot toads
- **Bufo** – true toads
  - *Anaxyrus* – American toad & oak toad
- **Hylidae** – treefrogs
  - *Hyla* - gray treefrog & green treefrog
  - *Pseudacris* – western chorus frog, ornate chorus frog & spring peeper
  - *Acris* – cricket frogs
- **Ranidae** – true frogs
  - *Lithobates* – bullfrog, green frog, northern leopard frog & wood frog
- **Microhylidae** – narrow-mouthed toads
  - *Gastrophryne* – narrow-mouthed toads

Note: The taxonomic scheme is based upon a combination of traditional and current categories (designed to utilize familiar terms widely used in published resources available to the students)