

# VOCABULARY

**Amplexus:** mating embrace of amphibians. The male clasps the female either around the waist or chest during courtship and/or when the eggs are being released by the female and fertilized by the male.

**Arthropod:** the phylum, Arthropoda, of invertebrate animals characterized by a hard exoskeleton and jointed appendages. Arthropods include insects, spiders, millipedes, centipedes and crustaceans.

**Brilles:** transparent scales covering the eyes of snakes.

**Carapace:** the upper (dorsal) portion of a turtle's or tortoise's shell.

**Carnivorous:** refers to an organism that catches and consumes animals.

**Cloaca:** an internal receptacle that collects excretory and reproductive products. These products are passed through an opening of the cloaca called the vent or anus.

**Crocodylian:** a member of the order Crocodylia, which includes crocodiles, caimans, alligators and the gharial.

**Detritus:** matter (plant, animal or mineral) in the process of decaying or breaking down. Animals that feed on detritus eat decaying plant or animal matter.

**Direct development:** the process of development in which the young complete the larval stage within the egg (inside or outside the mother's body) and are born or hatch as fully-formed, small adults.

**Ectothermic:** dependent on the outside environment to regulate internal body temperature.

**Estivation:** a state of lowered body functions, such as metabolism and breathing, that occurs during hot, dry weather conditions.

**Hemipenes:** the paired copulatory organs of male snakes and lizards.

**Herbivorous:** refers to an organism that relies on plant matter for nutrition.

**Herpetology:** the study of reptiles and amphibians.

**Jacobson's organs:** a pair of small organs located in the roofs of the mouths of reptiles and amphibians that respond to chemical stimuli, such as smells and tastes. Also called vomeronasal organs.

**Larval:** refers to the early developmental stage of an animal that is physiologically unlike the adult form. The animal must complete metamorphosis before it takes on the adult form.

**Metamorphosis:** an abrupt change in physical form or structure that occurs between developmental stages (larval and adult) of some animals.

**Neoteny:** the retention of larval characteristics in the sexually mature, adult stage.

**Oviparous:** refers to animals in which the young develop in eggs that are laid and hatched outside the body of the mother. The eggs are laid before any significant development of the embryo has occurred. In amphibians, larvae may hatch from these eggs at any stage of development, from undeveloped larvae to fully metamorphosed, small adults (direct development).

**Ovoviviparous:** refers to animals in which the young develop in eggs that are carried within the body (or in some species of amphibians, in a skin pouch or on the back) of the mother. Nourishment is provided by a yolk, not directly from the mother. Eggs developed in this manner may hatch just before or immediately after exiting the mother's body. In amphibians, larvae may hatch from these eggs at any stage of development, from undeveloped larvae to fully metamorphosed, small adults (direct development).

**Parthenogenesis:** reproduction in which an unfertilized, often female, egg develops into adulthood. In some species, individuals produced through parthenogenesis are genetically identical to their mothers and to their parthenogenically-produced siblings. In other species, limited genetic rearrangement occurs.

**Phallodeum:** the copulatory organ of male caecilians.

**Plastron:** the lower (ventral) portion of a turtle or tortoise's shell.

**Scute:** a large, horny scale of a reptile, such as the plates of a turtle or tortoise's shell.

**Spermatophore:** a packet of sperm deposited by a male and taken into the reproductive tract by a female, as in external fertilization of salamanders.

**Viviparous:** refers to animals in which the young do not develop within eggs but are directly nourished by the mother inside her body and are born as fully-metamorphosed, small adults.

**Vomeronasal organs:** see "Jacobson's organs".

# RESOURCES

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## BOOKS FOR STUDENTS (Nonfiction)

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Sill, Cathryn P. *About Reptiles: A Guide for Children*. Atlanta: Peachtree Publishers, 1999.

Simon, Seymour. *Crocodiles & Alligators*. New York: HarperCollins Juvenile Books, 1999.

Simon, Seymour. *Snakes*. New York: HarperTrophy, 1994.

Tesar, Jenny. *What On Earth Is A Tuatara? What On Earth Series*. Blackbirch Marketing, 1994.

Winner, Cherie. *Salamanders*. Minneapolis: Carolrhoda Books, Inc., 1993.

## TEACHING RESOURCES

*A Thousand Friends of Frogs: Educator Activity Guide, Student Activities for K-12 Classrooms*.

Saint Paul, MN: Center for Global Environmental Education, Hamline University Graduate School of Education, 1998.

- Available for \$10 by contacting  
Center for Global Environmental Education  
Hamline University Graduate School, MS-A1760  
1536 Hewitt Avenue, St. Paul, MN 55104-1284  
Phone: (651) 523-2480  
Fax: (651) 523-2987

- Information and activities available at:  
[cgee.hamline.edu/frogs/index.htm](http://cgee.hamline.edu/frogs/index.htm)

Braus, Judy, ed. *Let's Hear It For Herps!* NatureScope. Washington, DC: National Wildlife Federation, 1987.

Braus, Judy, ed. *Pollution: Problems & Solutions*. NatureScope. Washington, DC: National Wildlife Federation, 1990.

Goodman, Nancy. *Frogs: Activity Guide for Grades K-2*. Chicago: John G. Shedd Aquarium Education Department.

Marshall, Jody. *Reviled and Revered: Toads, Turtles, Snakes, Salamanders, and Other Creepers and Crawlers*. Washington, D.C.: Smithsonian Office of Education, 1992. [educate.si.edu/resources/lessons/siyc/herps/start.html](http://educate.si.edu/resources/lessons/siyc/herps/start.html)

Ortleb, Edward and Richard Cadice. *Fish, Amphibians and Reptiles: Experiences in Science, Grades 5-9*. St. Louis: Milliken Publishing Company, 1991.

Student Partners in Reptile and Amphibian Conservation (SPARC)

- Information on conducting a schoolwide virtual walk to learn about reptiles and amphibians in your region: [www.parcplace.org/education/sparc/index.htm](http://www.parcplace.org/education/sparc/index.htm)

## REPTILE/AMPHIBIAN CARE INFORMATION

### The Herpetocultural Library Series

- A series of booklets with very thorough care information on popular species of reptiles and amphibians. Titles include *Corn Snakes*, *Leopard Geckos*, *Bearded Dragons*, *Horned Frogs* and *Boa Constrictor Manual*.
- Can be ordered from:  
Advanced Vivarium Systems  
The Herpetocultural Library Series  
1924 Mission Rd., Suite N  
Escondido, CA 92029  
1-877-428-7266  
[www.avsbooks.com/](http://www.avsbooks.com/)
- Also available in most pet stores, or the pet store can order them for you.

## WILDLIFE/ENVIRONMENTAL MONITORING and/or RESTORATION PROGRAMS

### King County Water Quality Stewardship Fund

Ken Pritchard

(206) 296-8265

[ken.pritchard@metrokc.gov](mailto:ken.pritchard@metrokc.gov)

- King County Urban Reforestation and Habitat Restoration
- Community Stewardship Grants (watershed education and enhancement – unincorporated King County)
- King County Water Quality Stewardship Funds:  
General Water Quality Grants  
Puget Sound Urban Resources Partnership Grants (promote environmental stewardship in neighborhoods affected by environmental neglect)

### NatureMapping

- A program that involves citizens, including students, in recording wildlife sightings into a state-wide database. Students learn wildlife identification and data collection techniques as well as location mapping skills. NatureMapping workshops provide training in project design and GIS (Global Information System) technology.
- For more information contact:  
Karen M. Dvornich  
University of Washington  
School of Fisheries, Box 357980  
Seattle, WA 98195  
(206) 543-6475  
e-mail: [kgap@fish.washington.edu](mailto:kgap@fish.washington.edu)  
[www.fish.washington.edu/naturemapping/](http://www.fish.washington.edu/naturemapping/)

### Seattle Public Utilities/Department of Neighborhoods Grant Central Station – Conservation and Environment Grants

- [www.ci.seattle.wa.us/util/ept/grantcentralstation/](http://www.ci.seattle.wa.us/util/ept/grantcentralstation/)
- Or call (206) 684-0224 to receive more information about water quality grants

### Volunteer Amphibian Monitoring Program

- This program, conducted by King County Water and Land Resources, trains volunteers to survey for pond-breeding amphibians in early spring. Participants receive training in identification of adult amphibians and of egg masses. Trainings are held on a Saturday in late February, but space is limited and early registration is required. Field surveys are conducted once a month during March, April and May.
- *Note: Amphibian monitoring is most appropriate for small groups, such as families, due to the sensitive nature of wetlands. Teachers can recommend this activity to interested students and their families, but may not want to involve large groups of students in amphibian monitoring projects*
- Contact Klaus Richter at (206) 205-5622
- Or see [splash.metrokc.gov/wlr/waterres/amphibian/index.htm](http://splash.metrokc.gov/wlr/waterres/amphibian/index.htm)
- To receive a copy of the first report on volunteer amphibians surveys from 1993 to 1997 (\$25 fee), contact Bonnie Thompson at (206) 296-8332.

### Watch Over Washington

- A joint project between the Department of Ecology and the Governor's Council on Environmental Education to help monitor local habitats
- Contact:  
Annie Phillips  
Department of Ecology  
(360) 407-6408  
[aphi461@ecy.wa.gov](mailto:aphi461@ecy.wa.gov)  
[www.wa.gov/ecology/wq/wow](http://www.wa.gov/ecology/wq/wow)

### Watershed Stewardship Funding (from a variety of sources):

- [www.state.wa.us/ecology/sea/pubs/96-120/961204c.html#urban](http://www.state.wa.us/ecology/sea/pubs/96-120/961204c.html#urban)