

Outline of Amphibian Biology May 20, 2013

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Note: To look up references, see the Consciousness Bibliography, listing 10,000 books and articles, with full journal and author names, available in text and PDF file formats at
http://www.outline-of-knowledge.info/Consciousness_Bibliography/index.html.

BIOL>Zoology>Kinds>Amphibian

amphibian

Frogs, toads, basilisk lizards, and salamanders {amphibian} are cold-blooded.

skeleton: palate

Cartilage secondary palate allows breathing and eating at same time, by closing either nose or mouth.

skeleton: neck

Joint between head and trunk {neck, amphibian} allows head scanning and turning.

skeleton: pelvis

Amphibians have a pelvis, allowing hind limbs more mobility on land.

skin

Amphibians have vascularized smooth and moist skin, which can change color using pituitary intermedin hormone. Some amphibians secrete poison.

skin: claws

Claws allow better grasping by hands and feet, for better traction on land.

circulation

Four-chambered heart, divided into auricle and ventricle for pumping blood to lungs and auricle and ventricle for pumping blood to body, allows blood circulation through lungs and improved respiration.

lung

Amphibians have primitive lungs.

excretion

Amphibians have kidneys to regulate hydrogen and salt ion balance.

reproduction

Amphibians reproduce like fish.

senses: smell

Pharynx-top vomeronasal system is for olfaction, mainly for pheromones, and depends on different genes than olfactory bulb.

senses: vision

Thalamus and optic tectum evolved for vision, possibly localizing objects and detecting size.

nervous system

Amphibians can detect motion and location and use behaviors that require knowing trajectories and depth. They represent sensations in midbrain.

evolution

Amphibians evolved from Rhipidistian lobefin fish.

development

Like chordates, life stages are egg, larva, and adult. Egg and larval stages live in water. Adults stay on land. Eggs become tadpoles, which have gills, eat plants, and metamorphose to adults. Metamorphosis is under thyroid-gland control, releasing hormone after pituitary-gland signal.

regeneration

Salamanders can regenerate legs and tails.

secondary palate

Amphibians have soft palates {secondary palate}, allowing breathing and eating at same time by closing either nose or mouth.

BIOL>Zoology>Kinds>Amphibian>Larva

tadpole

Amphibians reproduce as fish do. Eggs become larvae {tadpole}|, which have gills, eat plants, and metamorphose to adults.

polliwog

Toad or frog larvae {polliwog} initially have no legs, have gills, and live in water.

BIOL>Zoology>Kinds>Amphibian>Kinds

axolotl

Mexican Ambystoma salamanders {axolotl} can retain gills and mature without metamorphosis.

bull frog

Frogs {bull frog} can be large, with low croaks.

frog

Amphibians {frog} can identify flies as small-size dark spots moving at rates. Frogs do not perform complex shape analysis [Lettvin et al., 1959]. Some tropical frogs have skin alkaloid poisons {pumiliotoxin}, such as PTX 251D.

newt

small salamander {newt}.

salamander amphibian

small, lizard shape {salamander, amphibian}.

toad

land, rough skin {toad}.