

## Animal Coverings

Different kinds of animals have different body coverings. Animals with backbones (vertebrates) include 5 major groups based on observable features including body covering, among other characteristics:

- Fish have skin covered with wet scales
- Amphibians have bare skin that is usually moist or wet
- Reptiles have skin covered with dry scales
- Birds have skin covered with feathers
- Mammals have skin covered with hair (fur)

Animals without backbones (invertebrates) are extremely diverse in form, and have many different kinds of body coverings. Most arthropods, the group to which horseshoe crabs and insects belong, are covered by exoskeletons. An exoskeleton is a hard outer covering made of a hard, semi-transparent substance called chitin.

### FUNCTIONS:

The exoskeleton of arthropods and the skin and other coverings of vertebrates are very important to these animals. These body coverings provide protection and insulation, as well as a number of additional functions for individual animal groups.

#### 1. Protection

Body coverings provide a protective layer against physical damage as well as acting as a barrier to disease-causing organisms like fungi and bacteria. Vertebrate structures formed from a protein called keratin may act as an additional barrier between the animals' internal tissues and the environment, as well as providing the animal with a structure that can be used for defense, such as a horn or claw. Structures made of keratin include scales, horns, claws, nails, hooves, and hair. The hard outer covering, or exoskeleton, of arthropods acts as a defense against predators as well as environmental damage.

#### 2. Insulation

Body coverings may help exothermic (cold-blooded) animals such as arthropods, fish, amphibians, and reptiles to retain or release heat from their environments. Body coverings may help endothermic (warm-blooded) animals such as birds and mammals to maintain and regulate their internal body temperatures.

#### 3. Other Functions

Other functions associated with some body coverings include:

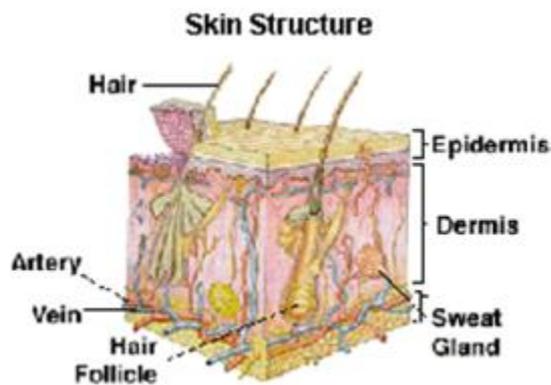
- camouflage for protection against predators
- recognition signal to mates or members of the same population
- flight (contour feathers)

- sensory organs (whiskers)
- protection against harmful UV rays from the sun
- waterproofing and protection against desiccation (drying out)
- structure and rigidity (exoskeleton)
- \* breathing (amphibians)

Mammals and their covering:

Skin of mammals include receptors for touch, temperature and pain

Structure of skin:



## Glossary

amphibian *Noun*. Any cold-blooded vertebrate of the class Amphibia, including frogs and toads, newts and salamanders, where the larvae is usually aquatic and breathes by using gills, while the adults are usually semi-terrestrial, and breathes by using lungs and through their moist skin.

antiseptic *Adjective*. Free from, or cleaned of, germs and other microorganisms.

arthropod *Noun*. An invertebrate having a segmented body, jointed limbs, and usually a chitinous shell that undergoes moltings, including the insects, spiders and other arachnids, and crustaceans.

bird *Noun*. Any warm-blooded vertebrate of the class Aves, having a body covered with feathers, forelimbs modified into wings, scaly legs, a beak, no teeth, and bearing young in a hard-shelled egg.

blubber *Noun*. The fat layer between the skin and muscle of whales and other animals, from which oil is made.

bristle *Noun*. One of the short, stiff, coarse hairs of certain animals.

camouflage *Noun*. Concealment by some means that alters or obscures the appearance.

chitin *Noun*. A substance that that forms a semitransparent, horny substance and is a principal constituent of the exoskeleton, or outer covering, of insects, crustaceans, and arachnids.

contour feather *Noun*. One of the three types of feathers possessed by birds that provides an ideal plane for flight.

desiccation *Verb*. To dry thoroughly.

down feather *Noun*. The soft under-plumage of birds.

ectotherm *Noun*. An organism that regulates its body temperature largely by exchanging heat with its surroundings.

endotherm *Noun*. An organism that generates heat to maintain its body temperature, typically above the temperature of its surroundings.

exoskeleton *Noun*. An external covering or a skeleton on the outside of an animal's body.

filoplume feather *Noun*. One of the three types of feathers possessed by birds that are hair-like and associated with down feathers.

fish *Noun*. Any of various cold-blooded, aquatic vertebrates, having gills, usually fins, and typically an

elongated body covered with scales.

insulation *Noun*. A material that covers, lines, or separates in order to prevent or reduce the passage, transfer, or leakage of heat.

invertebrate *Noun*. Not having a backbone or spinal column.

keratin *Noun*. A type of protein material found in the dead outer skin layer, and in horn, hair, feathers, hoofs, nails, claws, bills, etc.

mammal *Noun*. Any vertebrate having the body more or less covered with hair, nourishing the young with milk from the mammary glands, and, with the exception of the egg-laying monotremes, giving birth to live young.

mucous *Noun*. A viscous, slimy mixture of water and other substances that is secreted by glands lining certain body cavities which serves primarily to protect and lubricate surfaces.

respiration *Noun*. The inhalation and exhalation of air; breathing.

reptile *Noun*. Any cold-blooded vertebrate, including groups such as the turtles, snakes, lizards, crocodilians and various extinct members including the dinosaurs.