

NATURE STUDY OF ANIMALS.

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Coverings of Animals.

Compare the natural coverings of man, ape, horse, cow, sheep, pig, dog, cat, rabbit, porcupine, mink, hen, turkey, turtle, snake, frog, fish, lobster, grasshopper, and earthworm. Add other animals to this list, and name those covered with hair, fur, wool, feathers, or scales.

Of what use is the body covering to animals? Note how it varies from season to season in different animals, and its general adaptation to the life conditions of each.

At what time, or times, of year do animals change their coverings? Name the process in different animals. Why is a change of covering necessary?

What is the difference between hair, fur and wool? To what use is each put in the industrial arts? What is leather? What is the annual value of the fur and wool produced in Canada? Name our fur-bearing animals, and show how the story of the fur-trade is connected with the history of Canada.

What parts of Canada are especially adapted for the production of wool? Name the chief breeds of sheep raised in Canada, and indicate the best wool producers. How is the wool got from the sheep?

What are vertebrate animals? Name those in our list,—the others may be classified as invertebrates. Vertebrata is the phylum or group-name of vertebrate animals, and is made up of several classes, mammalia being the highest. Define the class mammalia, and name the mammals in our list. This is the only class of animals in which we find a covering of hair, fur, or wool. Do they ever have any other kind of covering?

Birds belong to the class aves, and are provided with feathers. Examine a pigeon or fowl for their arrangement, and note that the whole body is not covered, but that they are distributed in lines and patches, called feather tracts. How many kinds of feathers do you find on birds? (See EDUCATIONAL REVIEW, December, 1913, page 133). Note the use of each. What is the special advantage of feathers as a covering?

Compare the plumage of male and female birds, also of young and mature birds.

What part of the bird is not covered with feathers? The scales of the feet suggest a relationship to reptiles.

Snakes, lizards, turtles, etc., belong to the class reptilia. Note the covering of these animals as a class. Why does the snake shed its skin, and how often?

What is the covering of frogs and toads? These animals, with newts and salamanders, are common representatives of the class amphibia. Contrast their covering with that of reptiles, and explain how to distinguish a lizard from a newt or salamander.

Pisces or fishes is the last and lowest class of vertebrates. How are the scales of fish arranged? Note their difference in size and color on different parts of the body. The colors are chiefly due to pigments within special dermal cells, called chromatophores.

Examine scales with a hand lens, and note the star-shaped pigment spots. The simple pigments are either red, orange, yellow or black, but other colors are produced by a combination of chromatophores; for example, yellow and black give brown. Note that colors are usually arranged on fish in longitudinal or transverse stripes. How are the fins colored? On which part of the body are the lighter colors? How do they compare with land animals in this particular?

Fish also change in color with a change in the color of their surroundings, and most boys have noticed some difference in the color of trout from different streams, and at times from different parts of the same stream. Frogs are also subject to similar changes, but the best example of all is the little chameleon, which varies its color almost instantly with a change in the color of its surroundings.

These animals are said to enjoy a high degree of protective coloration. Do other animals have protective coloring? Is it more pronounced in domestic or wild animals?

Study animals in their haunts, and note how different colors and different combinations of colors, serve as protection coloration for different animals:—the toad in the garden, the frog by the pool, the partridge on the ground, the rabbit in the woods, etc., etc. How has it happened that we find each animal clothed in colors best suited to its need? Are the coverings of animals in general equally well adapted