



Teacher's Guide

Adaptive Function of Form: The Beauty of Ugly **NATURE Science Education Series**

Grade Levels:

5-12

Subject Areas:

Sciences
Life Sciences
Biology
Ecology

Synopsis:

Investigates the physical features of a number of “ugly” animals to demonstrate the efficiency of their odd appendages or disproportionate body parts. Studies include the star nose of the star-nosed mole, the tentacles of the snapping turtle, the warthog’s warts and tusks, the vulture’s head, the northern elephant seal’s proboscis, the proboscis monkey’s nose and protruding stomach, the naked mole rat’s lack of hair or fur, the whip scorpion’s alien appearance, the mouths of deep sea denizens, and the bat’s head.

Learning Objectives: Students will:

- Understand that ugly animals have unique abilities that fit form to function.
- Understand that these animals have adapted their forms for survival in their respective habitats.
- Appreciate the beauty of the integration of form and function in nature.

Vocabulary:

eccentric, effective, programmed, innocent, physical perfection, star-nosed mole, tentacles, super-sensitive, grotesque, snapping turtle, protuberance, vital, camouflaged, oddities, lugubrious, warthogs, disproportionate, muzzle, offal, persecuted, scavengers, preen, gore, vile, hygienic, proboscis, interloper, arthropods, invertebrates, whip scorpion, scintillating, gulper eel, ghoul, viper fish, rudimentary, carrion, horrific, bizarre, nocturnal, echolocation

Pre-Viewing Discussion:

What are some of the most repulsive animals in the world? What characteristics make them repulsive?

What bird elicits the most fear in human beings? Why do we find these birds revolting?

What undersea animal do you find the most repulsive? Why do you find it so repulsive?

Is it possible that the characteristics we find repulsive in animals perform a serious function? Can you think of any examples?

Post-Viewing Discussion:

What is the main purpose of the Northern sea lion's proboscis? How does this use compare with the purpose of the proboscis monkey's nose?

What are the advantages of the naked mole rat's hairless body?

Why is a bat's face shape so important?

What are the filmmakers implying when they say there is a beauty in ugly animals?

Further Activities:

Further investigate other animals to determine the functions behind their so-called "ugly" bodies or body parts.

Further investigate the relationship between sexual dominance and ugly body parts in the animal kingdom.

Use the Internet to investigate the biology of ugly animals.

Find cartoon characters that are based on ugly animals. Determine if the depiction of the cartoon animal has any basis in reality.

Related New Dimension Media Titles:

Shape of Life series

Biological Classification series