

Chapter 22

Use with Section 1

ENRICHMENT**• Diversity of Life****Size Adaptations Among Animals**

Read the following information. Then answer the questions.

Is there a reason why a hippopotamus is larger than a rabbit or a whale is larger than a salmon? By studying many species, scientists have found that there is a typical range of size for every type of animal. This size is an adaptation to the animal's environment.

Light Enough to Fly

Birds are usually light in weight, which helps them fly. Although some large birds can fly, such as pelicans, there is a limit to how large a flying bird can be. If you double the weight of a bird, the amount of power needed for it to fly increases four times. A very large flying bird needs to have enormous, powerful wings.

Large Enough to Keep Warm

Animals that live in very cold climates tend to be large mammals or birds, such as polar bears, walruses, and penguins. Cold-blooded reptiles and amphibians, as well as small birds and mammals, cannot keep warm. Small mammals lose heat through the surfaces of their bodies, and these surfaces are big in relation to their size. Even in a temperate climate, a mouse has to eat one-fourth of its weight in food every day just to keep warm. In the arctic, a mouse could not possibly eat enough food.

Too big for land?

Finally, consider the largest animals that have ever existed, the blue whales. These creatures can be over 30 meters long and weigh over 150 metric tons. Could such huge animals exist on land? The largest known dinosaur weighed 80 metric tons. A land animal as large as the blue whale would need such strong, bulky legs that it is doubtful it could move.

Applying Problem-Solving Skills

1. How does an animal's size affect its relationship with other animals?

2. When insects breathe, oxygen reaches many parts of their bodies by spreading fairly slowly through their cells. Why do you think very few insects are more than 1 centimeter thick?
