

Key Words

- mammals:** vertebrates that have mammary glands, and hair; most give birth
- mammary glands:** special glands in the female that produce milk to feed to the young
- placenta:** special organ that connects the unborn young to the mother inside the mother's body

KEY IDEAS

Mammals are the most complex and successful of the vertebrates. They give birth to live young and then take care of the young for long periods of time.

Mammals are the most complex and the most successful of all vertebrates. Mammals have adapted to live almost anywhere—in oceans, in desert sands, in tropical forests and snow-capped mountains, and even in the air. Mammals range in size from the tiniest mouse to humans to the giant blue whale. The blue whale is the largest animal to ever live on the earth. Living in the water helps the whale support its immense weight.

Characteristics of Mammals. Vertebrates that have hair and mammary glands are **mammals** (MAM-uhlz). Most mammals give birth. Birth occurs when a young animal leaves its mother's body in which it has been growing. **Mammary glands** (MAM-uh-ree glandz) are special glands in the female that produce milk to feed to the young soon after it is born. Most young mammals go through a long period of development after they are born. Their parents care for them during this time.

Mammals are the only animals that have hair on their bodies. Some mammals have more hair than others. A furry black bear, for example, has more hair than an elephant. Hair has two functions: it protects the skin from injury and helps keep the body warm.

Mammals have well-developed organ systems. Like birds, mammals are endothermic and have four-chambered hearts. Mammals also have large and well-developed brains. Their brains help them adapt to changes and direct many kinds of complex behavior.

1. What is a mammal? _____

2. What are two functions of hair? _____

Classification of Mammals. Mammals are classified into three groups based on how they reproduce. The three groups are egg-laying mammals, pouched mammals, and placental mammals.

Only two kinds of egg-laying mammals live on the earth. They are the duck-billed platypus and the spiny anteater. Both of these animals live in Australia. These mammals have mammary glands and hair. But unlike most mammals, they do not give birth. Instead, these mammals lay eggs. After the eggs hatch, the young mammals drink the mother's milk and are cared for by their parents.

Pouched mammals include kangaroos, opossums, and koalas. Most of these mammals live in Australia, but a few live elsewhere. These animals give birth to live, undeveloped young. The young mammals complete their development inside their mother's protective pouch.

The most common mammals are the placental mammals. These mammals have a special organ called a placenta. The **placenta** (phuh-SEHN-tuh) connects the unborn young to the mother inside the mother's body. The young grows and develops inside the mother's body. At birth, the young must be large and developed enough to survive in the outside world. After they are born, young placental mammals need their parents to care for them.

3. How is a duck-billed platypus different from most other mammals? _____

4. What is the placenta? _____

TAKE ANOTHER LOOK

Fig. 38-1 lists the characteristics of some mammals.

Fig. 38-1

Type of Mammal	Characteristics	Examples
Egg-laying mammals	Mothers lay eggs	Platypus, spiny anteater
Pouched mammals	Young poorly developed at birth; remain in mother's pouch until fully developed	Kangaroo, koala, opossum
Placental mammals: Hand-winged	Only flying mammal; active at night; sharp teeth; large ears	Bat
Odd-numbered toes	Odd number of toes; plant eaters	Horse, rhinoceros
Trunk-nosed	Has a trunk, tusks, and massive legs; plant eater; large size	Elephant
Flesh eaters	Meat and/or plant eaters; sharp teeth and claws; powerful legs; predators	Bear, cat, dog, seal
Whales	Marine animals; streamlined bodies; paddlelike front limbs; no hind limbs	Whale, dolphin, porpoise
Gnawers	Small; one pair of upper incisors used for gnawing	Squirrel, mouse, rat, beaver, porcupine
Primates	Most are tree dwellers; have opposable thumbs; most have eyes in front; capable of standing upright	lemur, monkey, ape, human

Check Your Understanding

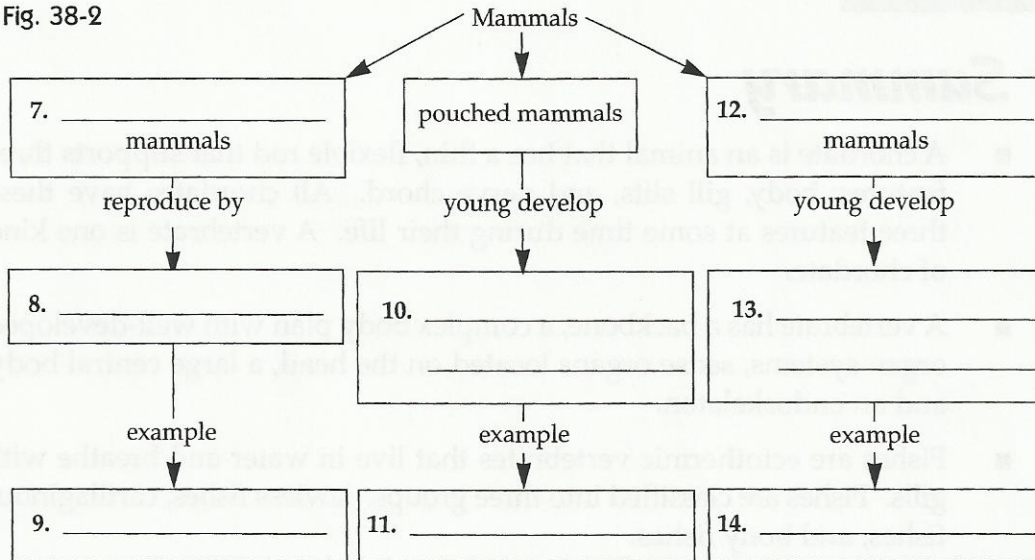
Write a sentence explaining the connection between each pair of words.

5. mammal, mammary glands _____

6. mammal, bird _____

Complete the concept map using the following words and phrases: *egg-laying, human, inside the mother's pouch, attached to the placenta, kangaroo, laying eggs, placental, spiny anteater.*

Fig. 38-2



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15. What are three characteristics of mammals that make them different from other vertebrates? _____

 16. What is the advantage to a mammal of having a well-developed brain?

 17. Describe the differences in reproduction among the three groups of mammals. _____

