

## Key Words

<b>flatworms:</b>	worms that have a flat body and a distinct head and tail
<b>parasite:</b>	organism that lives on or in a host and harms it
<b>roundworms:</b>	smooth, tube-shaped worms that are pointed at both ends
<b>segmented worms:</b>	complex worms with bodies made up of many segments
<b>fission:</b>	type of asexual reproduction in which an organism splits into two parts
<b>regeneration:</b>	process by which an organism grows new parts to replace lost ones

## KEY IDEAS

Worms are invertebrates that live in many different environments. Many worms are parasites. Three types of worms are flatworms, roundworms, and segmented worms.

Fig. 26-1 Flatworm

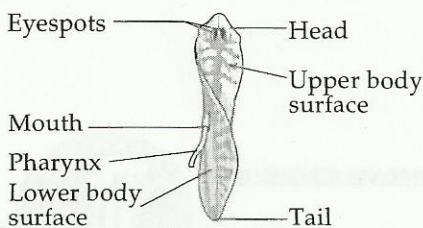
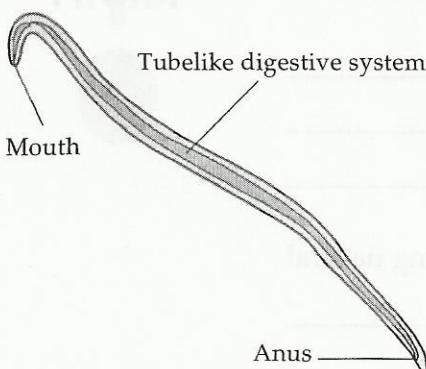


Fig. 26-2 Roundworm



Worms are invertebrates that are classified into three large groups: flatworms, roundworms, and segmented worms. Compared to sponges and cnidarians, all worms are complex. All worms have three layers of tissue and an organ system.

**Body Form.** Worms that have a flat body and a distinct head and tail are called **flatworms** (FLAT-wurmz). They have a digestive cavity with only one opening at the end of the pharynx. See Fig. 26-1. Flatworms are the simplest type of worms. Most flatworms are parasites. A **parasite** (PAR-uh-seyet) is an organism that lives on or in another organism, called a host, and causes the host harm. Some flatworms are free-living. They are nonparasitic and live in fresh water or in the ocean.

**Roundworms** (ROUND-wurmz) are smooth, thin, tube-shaped worms that are pointed at both ends. Roundworms have a digestive cavity, or tube, that is open on both ends. The mouth is at one end of the tube; the anus is at the other. See Fig. 26-2. Roundworms also have muscles that run the length of their bodies. Roundworms are the most common worms on the earth. Many live in soil and are free-living. Other roundworms are parasites that can harm humans.





## 1. How do the body forms of flatworms and roundworms differ?

**Segmented worms** (SEHG-mehnt-uhd wurmz) are the most complex worms. Their bodies are made up of many segments, or parts, that can be seen on the outside of the body. See Fig. 26-3. Each segment has hairlike bristles. Like roundworms, their digestive system has openings at both ends. However, segmented worms are different from flatworms and roundworms because they have a tube-within-a-tube body plan. Segmented worms also have sets of muscles, and circulatory, respiratory, and nervous systems that are more complex than those of other worms. Most segmented worms are free-living and live in the ocean. Others live in fresh water. The best known segmented worm—the earthworm—lives in soil.

**Feeding.** The three different types of worms feed in different ways. Flatworms, such as the planarian, feed on dead or slow-moving animals. The worm secretes enzymes through a special structure in its mouth and partially digests its food outside its body. The food is then brought into the body where it is further digested. Wastes leave the body through the mouth.

Roundworms take in food through their mouths. Food is absorbed by the body from the digestive tube. Undigested food leaves the body through the anus.

One kind of segmented worm, the earthworm, feeds as it moves through soil. As an earthworm moves forward, it swallows soil that passes through the worm's digestive system. The earthworm removes the food from the soil. The remaining soil leaves the worm through the anus. The earthworm's wastes enrich the soil, and its movement loosens the dirt, making the area better for plant growth.

**Reproduction.** Each of the three kinds of worms reproduces in a different way. Flatworms, such as planarians, reproduce asexually by fission. **Fission** is the process in which an organism splits into two. See Fig. 26-4. Planarians, for example, split in half between their head and tail end. One half then grows a new head. The other half grows a new tail. This process of growing new parts to replace lost ones is called **regeneration**. Planarians can also regenerate if they are cut into pieces.

Flatworms also reproduce sexually. Each adult flatworm contains both male and female sex organs and produces both sperm and eggs. Sperm from one flatworm generally fertilize the eggs of another flatworm.

Fig. 26-3 Segmented Worm

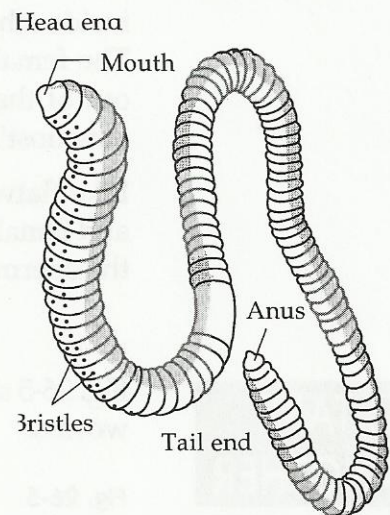
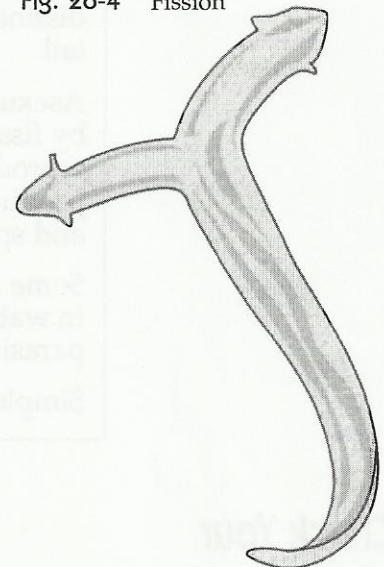


Fig. 26-4 Fission







2. How does a flatworm reproduce asexually?

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An *ascaris* is a common type of roundworm. It is a parasite and reproduces inside a host. Male and female adult worms live inside the host's intestine. The female produces eggs; the male produces sperm. Fertilized eggs pass out of the host's intestine with body wastes. The eggs eventually enter a new host's body, where they hatch when they reach the new host's intestine.

Like flatworms, segmented worms such as the earthworm have both male and female sex organs. They produce both sperm and eggs. Like flatworms, the sperm from one segmented worm fertilize the eggs of a different worm.

Fig. 26-5 shows the different traits of flatworms, roundworms, and segmented worms.

Fig. 26-5

**TAKE  
ANOTHER  
LOOK**

Flatworms	Roundworms	Segmented worms
Flat body with distinct head and tail	Smooth, thin, tube-body	Segmented body with bristles on each segment
Asexual reproduction by fission; sexual reproduction, adult produces both egg and sperm	Sexual reproduction, with separate male and female adults	Sexual reproduction, adult produces both eggs and sperm
Some are free-living in water. Most are parasites.	Free-living in water and soil; some parasites	Free-living in water or soil; few parasites
Simplest type of worm	Most common worm	Most complex worm

**Check Your Understanding**

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

3. flatworms, roundworms \_\_\_\_\_  
\_\_\_\_\_

4. segmented worms, tube \_\_\_\_\_  
\_\_\_\_\_

Complete the following paragraphs by adding the correct words.

Flatworms are worms with a (5)\_\_\_\_\_ body and a (6)\_\_\_\_\_ structure. They have a distinct (7)\_\_\_\_\_ and (8)\_\_\_\_\_. Most flatworms are (9)\_\_\_\_\_. Some flatworms reproduce asexually by the process called (10)\_\_\_\_\_.

Roundworms are smooth, thin, tube-shaped worms that are (11)\_\_\_\_\_ at both ends. Roundworms are the (12)\_\_\_\_\_ common worms on the earth. Some roundworms reproduce inside their host's (13)\_\_\_\_\_.

Segmented worms are the most (14)\_\_\_\_\_ type of worm. Their bodies are made up of many (15)\_\_\_\_\_. The best-known segmented worm is the (16)\_\_\_\_\_. When it reproduces, each earthworm produces (17)\_\_\_\_\_ and (18)\_\_\_\_\_.

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19. In what way is the reproduction of a flatworm and that of a segmented worm similar? \_\_\_\_\_

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20. How does soil pass through an earthworm as an earthworm moves? \_\_\_\_\_

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