

Excretion

Chapter 29 - Page 755

Most animals have an excretory system that rids the body of metabolic wastes (ammonia) while controlling the amount of water in the tissues.

In aquatic invertebrates, ammonia diffuses from their body tissues into the surrounding water.

Flatworms use a network of flame cells to eliminate excess water. Fluids travel through excretory tubules and leave the body through tiny pores in the animal's skin.

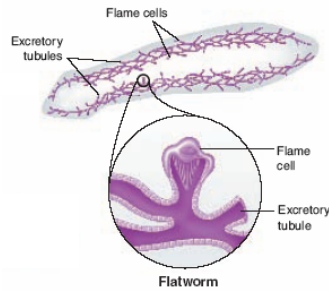


Figure 29-11
Page 755

Terrestrial invertebrates must conserve water while removing nitrogenous wastes.

ammonia -> urea

Urea is eliminated from the body in urine. Urine is highly concentrated so little water is lost.

In some invertebrates, urine forms in tubelike structures called nephridia. Fluid enters nephridia through structures called nephrostomes. Urine leaves the body through excretory pores.

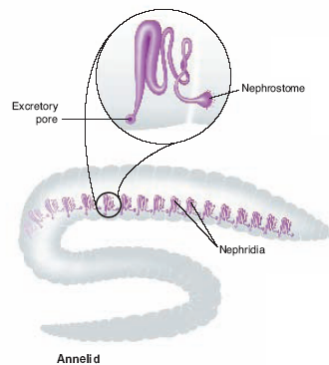


Figure 29-11
Page 755

Some insects and arachnids have Malpighian tubules, saclike organs that convert ammonia into uric acid. Uric acid and digestive wastes combine to form a thick paste that leaves the body through a structure called the rectum. There is little water loss because the paste contains little water.

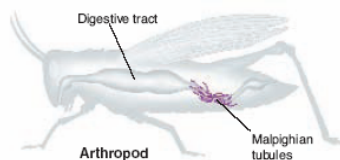


Figure 29-11
Page 755

Response

Chapter 29 - Page 756 ✓

Nervous systems gather and process information from the environment and allow animals to respond appropriately. }

Invertebrates show three trends in the evolution of the nervous system: }

- centralization
- cephalization
- specialization

Centralization and Cephalization

simplest nervous systems -> nerve nets
ganglia -> clumps of nerve tissue
brain -> concentration of nerve tissue

Fig
29-12

Specialization

Complex animals may have a variety of specialized sense organs that detect light, sound, chemicals, movement and even electricity to help them discover what is happening around them. }

Movement and Support ✓

Chapter 29 - Page 756

Invertebrates have one of three main kinds of skeletal systems.

hydrostatic skeleton -> muscles surround a fluid-filled cavity that supports the muscles }

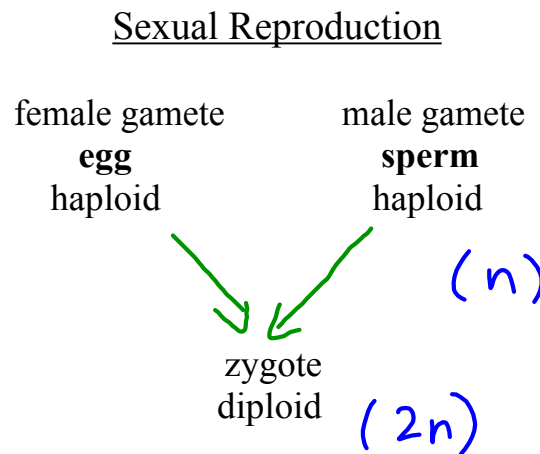
exoskeletons (external skeleton) -> tough, external covering that protects and supports the body } |

endoskeleton - structural support inside the body

Sexual and Asexual Reproduction

Chapter 29 - Page 757 ✓

Most invertebrates reproduce sexually during at least part of their life cycle. Depending on environmental conditions, many invertebrates may also reproduce asexually.



Usually, individual animals have a single sex and produce either sperm or eggs.]

hermaphrodite - individual that produces both sperm and eggs
(ie/ earthworms)

external fertilization -> eggs are fertilized outside the female's body

internal fertilization -> eggs are fertilized inside the female's body

Asexual Reproduction .

Asexual reproduction does not involve gametes. .

All offspring are genetically identical to the parent. .

In budding, new individuals are produced by outgrowths of the .
body wall. Some animals reproduce asexually by dividing in two.

1