Name_____ Class_____ Date _____

Section 28–2 Groups of Arthropods

(pages 720–725)

Key Concepts

- How are arthropods classified?
- What are the distinguishing features of the three major groups of arthropods?

Introduction (page 720)

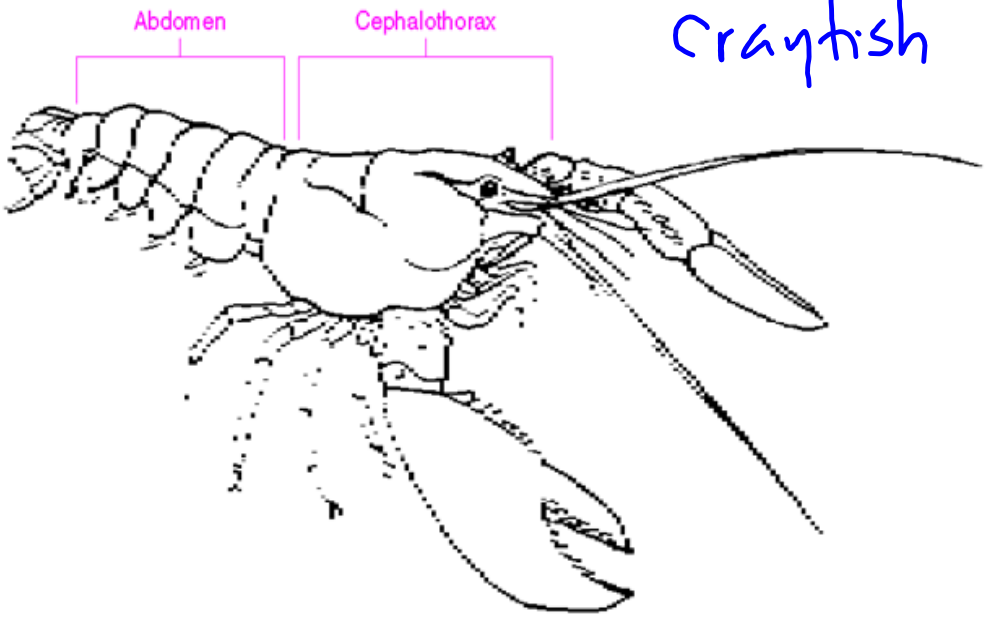
1. What characteristics do biologists use to classify arthropods? Arthropods are classified based on the number and structure of their body segments and appendages—particularly their mouthparts.

2. What are the three major groups of arthropods?
   a. Crustaceans
   b. Spiders and their relatives
   c. Insects and their relatives

Crustaceans (pages 720–721)

3. Circle the letter of each description of structures that crustaceans typically have.
   (a.) two pairs of branched antennae
   b. four or five body sections
   (c.) chewing mouthparts called mandibles
   (d.) two or three body sections

4. Label the two body sections of a typical crustacean.



Name_____ Class_____ Date _____

5. The largest group of crustaceans is the decapods.
6. Complete the table about crustacean body parts.

CRUSTACEAN BODY PARTS

Body Part	Description
Thorax	Section just behind the head that houses most of the internal organs
Cephalothorax	Fusion of the head with the thorax
Abdomen	The posterior part of the body
Carapace	The part of the exoskeleton that covers the cephalothorax
Mandible	A mouthpart adapted to biting and grinding food
Chelipeds	First pair of legs in decapods, which bear large claws
Swimmerets	Flipperlike appendages used for swimming

7. Circle the letter of each sentence that is true about barnacles.
   (a.) They are sessile. → Staying in one spot
   (b.) They have an outer, shell-like covering.
   c. They move backward by snapping a tail.
   (d.) They attach themselves to rocks and marine animals.

Spiders and Their Relatives (pages 722–724)

8. Horseshoe crabs, spiders, ticks, and scorpions are grouped as chelicerates.
9. Circle the letter of each description of structures that chelicerates have.
   (a.) four or five pairs of legs
   b. three or four body sections
   c. two pairs of branched antennae
   (d.) mouthparts called chelicerae
10. What is the function of the chelicerae? Chelicerae contain fangs and are used to stab and paralyze prey.
11. The appendages near the mouth that are usually modified to grab prey are called pedipalps.
12. How do spiders respire? Air enters through spiracles and then circulates across the surfaces of the book lung.

Name_____ Class_____ Date _____

13. What arthropods do arachnids include? They include spiders, mites, ticks, and scorpions.

14. How are horseshoe crabs like and unlike crabs? They are heavily armored like crabs, but they have an anatomy closer to that of spiders.

15. Why must spiders liquefy their food to swallow it? Spiders do not have jaws for chewing.

16. Circle the letter of each sentence that is true about spiders and silk.
   a. Spiders spin silk into cocoons for eggs.
   b. Spinning webs seems to be a programmed behavior.
   c. Spinnerets are organs that contain silk glands.
   d. Tarantulas cannot produce silk.

17. Is the following sentence true or false? Mites and ticks are often parasitic.
   true

18. Scorpions have pedipalps that are enlarged into claws.

19. What do ticks transmit that cause Rocky Mountain spotted fever and Lyme disease?
   They carry bacteria that cause these diseases.

Insects and Their Relatives (page 725)

20. Centipedes, millipedes, and insects are all grouped as uniramians.

21. Circle the letter of each description of structures that uniramians have.
   a. one pair of antennae
   b. unbranched appendages
   c. mouthparts called chelicerae
   d. jaws

22. Why are centipedes restricted to moist or humid areas? Their spiracles cannot close, and they lack a waterproof coating on their exoskeleton. As a result, their bodies lose water easily.

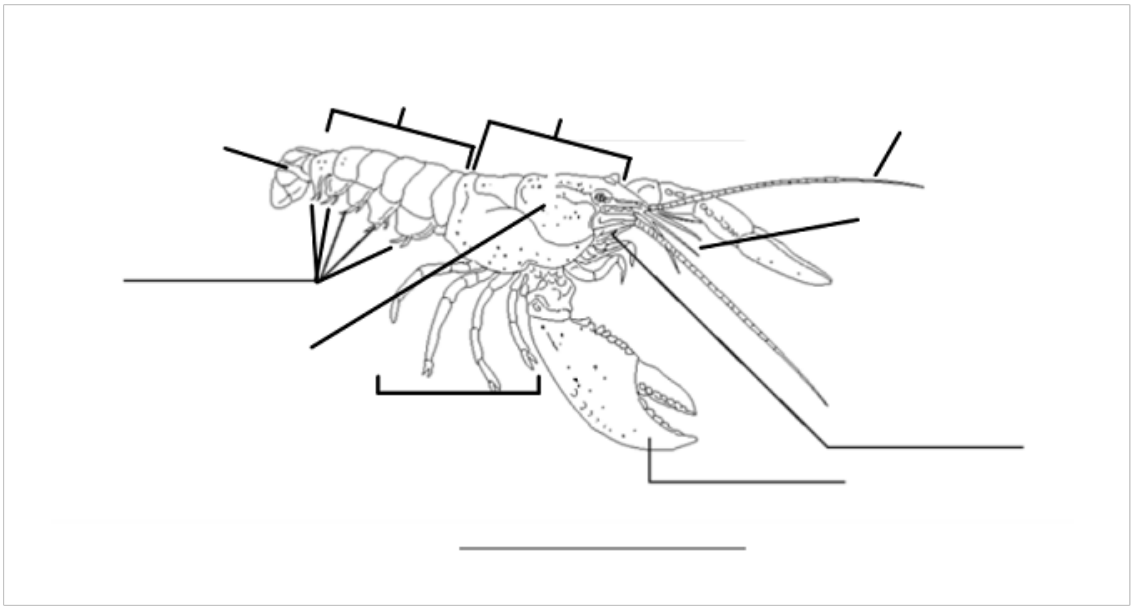
23. How many pairs of legs does each body segment of most centipedes have? Most body segments of centipedes bear one pair of legs each.

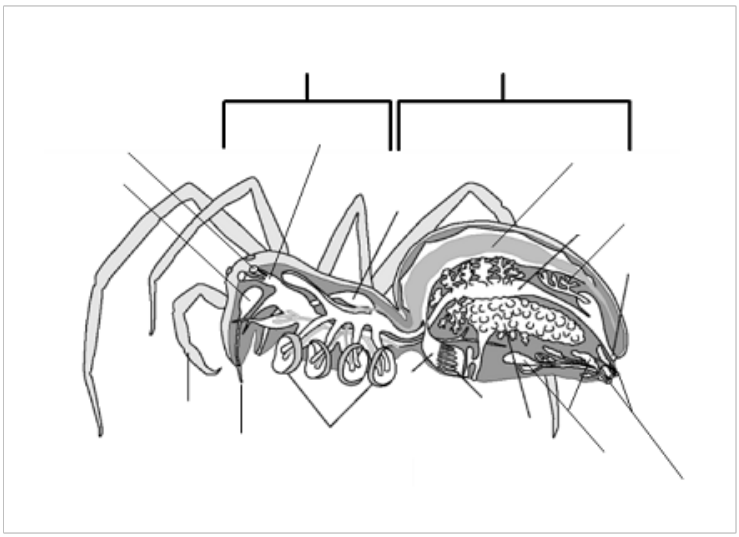
24. How many pairs per segment do millipedes have?
   Each millipede segment bears two pairs of legs.

Biology 112
Arthropods
Compare/Contrast Table

Phylum - _____

Subphylum			
Group			
Antennae			
Number of Body Sections			
Mouthparts			
Examples			





Biology 112
Arthropods
Compare/Contrast Table

Phylum - Arthropoda

Subphylum	Crustacea	Chelicerata	Uniramia
Group name	crustaceans	chelicerates	uniramians
Antennae	four (two pairs)	none	two (one pair)
Number of Body Sections	two or three	two	varied
Mouthparts	mandibles	chelicerae pedipalps	jaws
Examples	crayfish, crab, shrimp, lobster, barnacle	spider, horseshoe crab, tick	centipedes, millipedes, insects

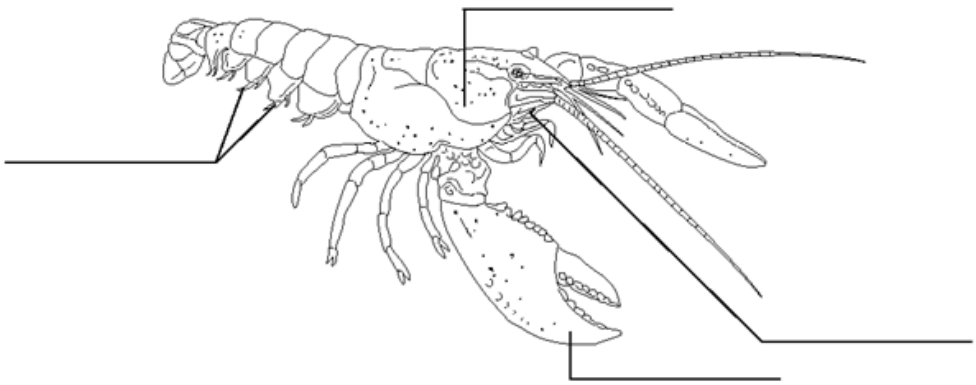
Name_____ Class_____ Date _____

Crustacean Anatomy

The crayfish shown is one example of a crustacean. Most crustaceans have similar body organization and body structures.

Color the tail section red. Color the abdomen blue. Color the cephalothorax yellow. Then use the words below to label the diagram.

carapace	cheliped	mandible	swimmerets



Use the diagram to answer the questions.

1. In what section is the carapace located? Circle the correct answer.

   abdomen cephalothorax

2. What structure does the crustacean use to catch and crush food?

   _____

3. For what does the crustacean shown use its swimmerets?

   _____

4. What does the crustacean shown use to bite and grind food? Circle the correct answer.

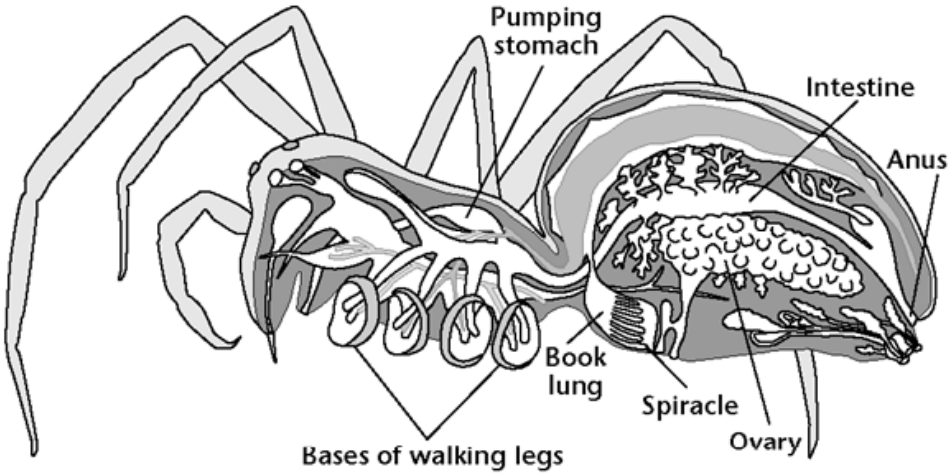
   mandible abdomen

Name_____ Class_____ Date _____

Spider Anatomy

Follow the prompts to identify the spider's body systems. The circulatory system is shaded for you.

- Color the structures in the digestive system green.
- Color the structures in the respiratory system blue.
- Color the structures in the reproductive system red.



Use the diagram to answer the questions.

1. Which organ is part of the respiratory system? Circle the correct answer.

   spinneret spiracle

2. What does a spider use its chelicerae for?

   _____

3. What labeled organs does a spider use for digestion?

   _____

4. Can spiders chew their prey? Explain.

   _____

   _____