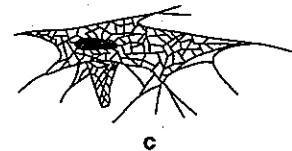
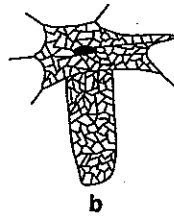
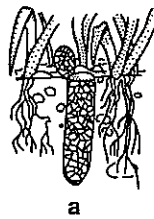


Studying Spider Webs

Spiders have developed many methods for capturing prey and different spiders can often be identified by their particular method. In this activity, you will learn about some spiders and their methods for capturing prey.

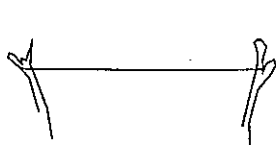
Most spiders use silk in various ways for the task of capturing prey. Ground-dwelling trap-door spiders build silk-lined tubes with silk trap doors (a). These spiders open the trap doors at night and wait to capture passing insects. Other tube-dwelling spiders place silk threads around the mouths of their tubes (b). The movement of the threads lets the spider know that a victim has been caught in the threads. A funnel-weaving spider lives in the narrow end of a silk tube. The wider end of the tube is spread out over grass or soil (c). When an insect walks across the wide end, the spider feels the movement of the threads and rushes out to catch its prey.



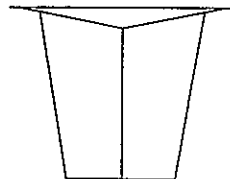
Cobweb spiders build three-dimensional webs that are anchored to threads of sticky silk. An insect that is caught in the web or that touches an anchor line of the web becomes trapped in the threads. The harder it struggles to free itself, the more it becomes tangled in the threads. If a thread breaks, it snaps and pulls the insect toward the center of the web.

The most elaborate webs are the orb webs. You may have seen orb webs covered with dew in the early morning. It takes only an hour to make an orb web, and spiders usually make them just before daybreak. These webs act as nets trapping insects that cannot see the fine silk. Figure 1 shows the basic steps involved in spinning an orb web.

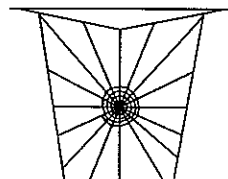
Figure 1 Spinning an Orb Web



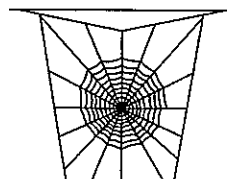
(1) Spider releases silk thread that attaches to two twigs.



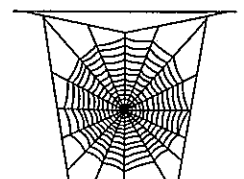
(2) The web hangs from a silk thread called the bridge.



(3) The spider attaches threads to the center of the web, like spokes on a wheel.



(4) A line of dry silk holds the spokes in place.



(5) The spider spins a sticky silk thread to trap prey.

Use the information from the reading to complete the table. The table shows that the identification of different kinds of spiders is based on the kinds of webs that they spin and the way that they hunt.

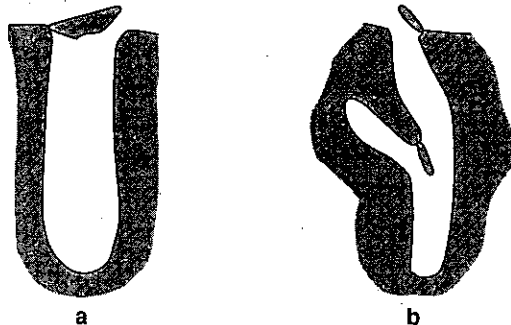
Kind of Spider	Web	Trapping of Prey
Cobweb spider	Three-dimensional; anchoring threads of sticky silk	
Trap-door spider		Silk trap doors are opened at night; spiders wait in them to capture insects.
Tube-dwelling spider	Silk threads around mouth of tube	
Orb-web spider		Insect trapped in silk
Funnel-weaving spider	Silk tubes containing narrow end that spider hides in and wide end that extends onto rocks or plants	

Answer the following questions.

1. What is the difference between orb webs and cobwebs?

2. Why do spiders rebuild their webs continuously?

Figure 2



3. Examine Figure 2. What kind of web do you think each diagram represents?

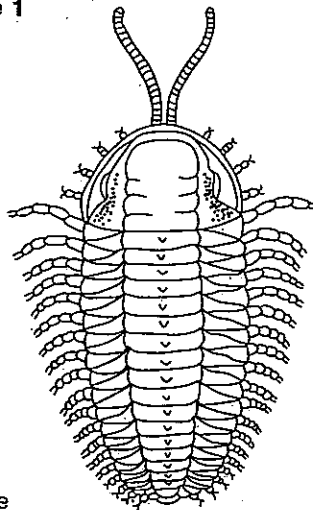
4. Compare trap *a* to trap *b*. Which of the two traps makes it easier for a spider to catch its prey? Why?

Investigating Crustaceans

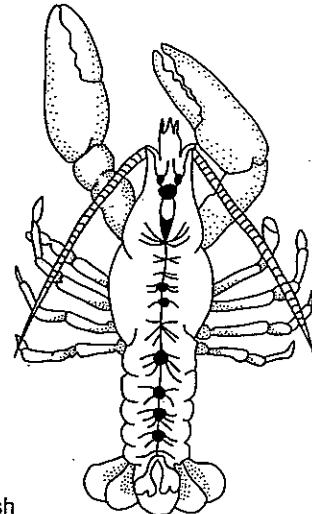
Differences in body form are often observed in animals of the same phylum. In this activity, you will compare segmentation and the development of the members of the phylum *Arthropoda*.

Figure 1 shows a trilobite and a crayfish. Both of these animals are arthropods. The trilobite lived about 300 million years ago during the Paleozoic Era. It is believed to be an ancestor of modern arthropods. The crayfish may have evolved about 225 million years ago. However, the lack of fossil evidence makes it difficult to determine exactly when it first appeared.

Figure 1



Trilobite



Crayfish

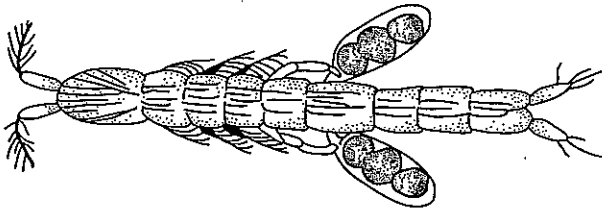
1. Compare the limbs of the two animals.

2. Describe the features that these organisms have in common.

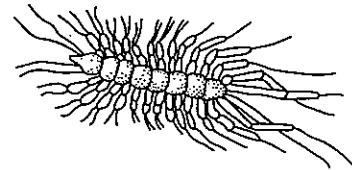
3. Based on Figure 1, summarize the changes that have occurred during the evolution of arthropods.

4. Are the trilobite and the crayfish closely related? Explain your answer.

Figure 2



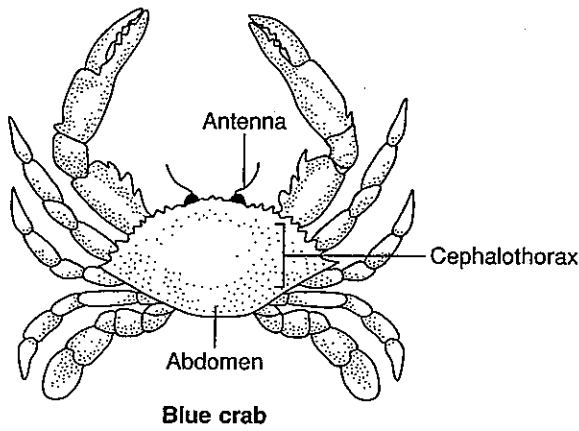
Copepod



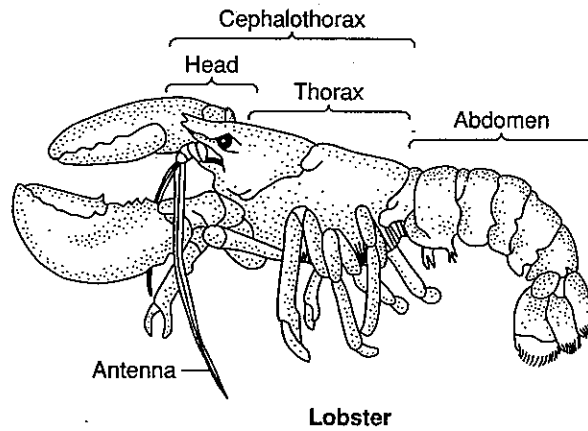
Centipede

5. Are the centipede and the copepod closely related?

Figure 3



Blue crab



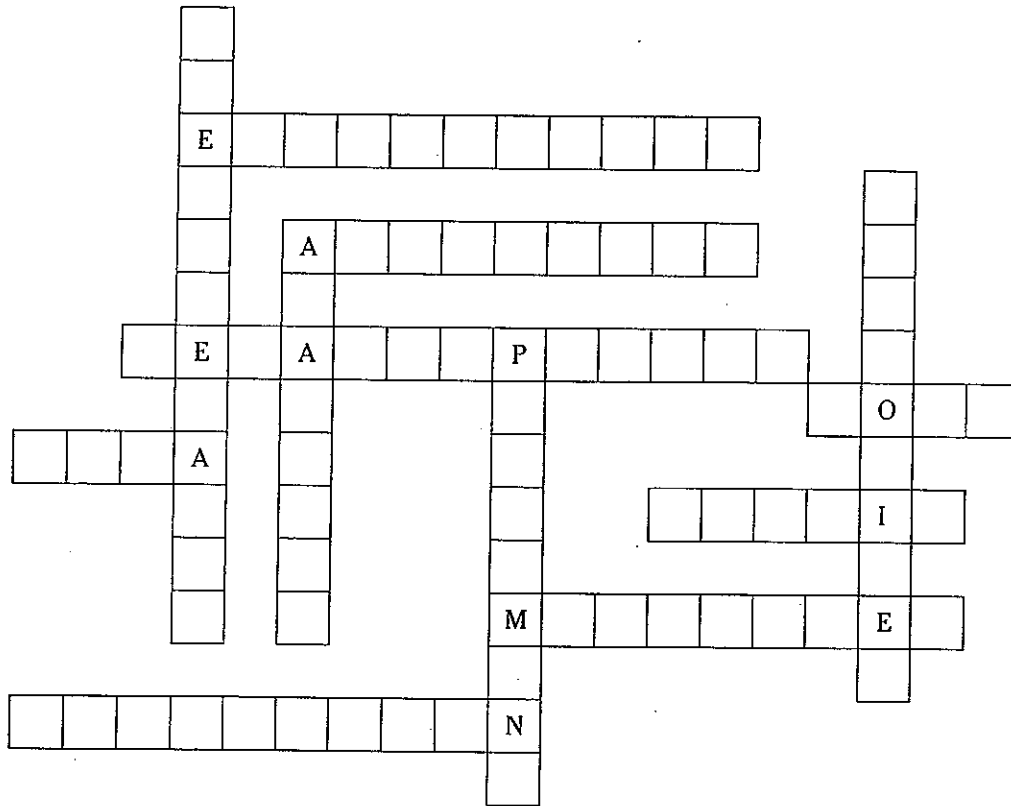
Lobster

6. Compare the cephalothorax and the abdomen of the two animals in Figure 3.

7. Compare their appendages.

Cross-a-Clue

Write the answers to the numbered clues on the lines provided. These answers will give you the words to fill in the crossword diagram below. The crossword contains letter clues to help you place the word or words correctly.



1. Extinct ocean-dwelling arthropods _____
2. Chemical messenger that affects the behavior and/or development of individuals within a species _____
3. Process of growth and development involving a dramatic change in form

4. Arthropod group that includes spiders, scorpions, ticks, and mites

5. Stage of complete metamorphosis between the larval and adult stages

6. Protein found in the exoskeleton of arthropods _____

7. Arthropods characterized by a two-part body and mouthparts called chelicerae

8. A system of external supporting structures _____

9. Act in which arthropods shed their exoskeletons _____

10. Crustacean mouthparts used exclusively for obtaining food _____

11. Organism characterized by a tough exoskeleton, a series of jointed appendages, and a segmented body _____

12. Arthropod group that includes such organisms as crabs, lobsters, and shrimp
