

## Answers to pg 708

### 27-4 Section Assessment

1. A mollusk is a soft-bodied animal that usually has an internal or external shell.
2. Foot, mantle, shell, visceral mass. Descriptions should agree with information on page 702.
3. Gastropods—shell-less or one shell, ventral foot; bivalves—two shells; cephalopods—head attached to foot.
4. Land snails respire using a mantle cavity lined with blood vessels. This lining must be kept moist.
5. Cephalopods exhibit complex behavior and can locate a variety of prey. Students should describe cephalopods' complex sense organs.
6. In an open circulatory system, blood leaves the vessels and moves through sinuses. In a closed circulatory system, blood is contained within vessels. A closed circulatory system supports greater oxygen needs because blood moves quickly.

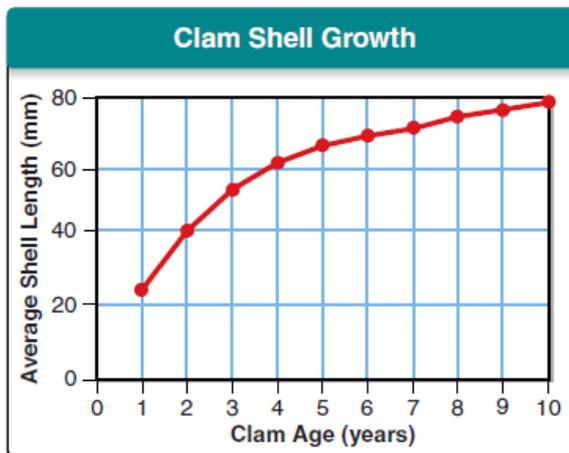
## Analyzing Data

### Raising Clams

Aquaculture is the growth of aquatic animals and plants for use by humans. In one example of aquaculture, hard clams are first grown in commercial hatcheries under very favorable conditions. The young clams are then removed from the hatcheries and placed into the mud beds of creeks, where they develop into adults. At that time, the size of the young clams is around 40 millimeters.

Because Georgian clams grow so quickly, they are ideal for aquaculture. Unlike the hard clams in the northeastern United States that grow only during the warm months, Georgian hard clams grow year-round. As a result, the Georgian clams grow to market size in less than half the time that the northeastern clams need to grow. The graph shows how clam shells grow over a period of 10 years.

1. **Using Tables and Graphs** Approximately how many years does it take clams to reach a size at which they can be removed from hatcheries and put in creeks?



2. **Applying Concepts** How does climate affect the growth of most clams?

3. **Using Tables and Graphs** How much did the clams grow during the first 5 years? The next 5?

4. **Formulating Hypotheses** Formulate a hypothesis to explain the slower growth rate from years 5 to 10.

5. **Drawing Conclusions** What general trends do you observe about growth from the graph?

### Answers

1. Approximately 2 years

2. Most clams grow only during warm months.

3. The clams grew to about 68 mm during the first five years. They grew an additional 12 mm, to 80 mm, during the next five years.

4. Sample hypothesis: The older the clam, the less frequently its cells divide.

5. Clam growth is greatest in the first four or five years. Then, it levels off to a slow but steady growth.

## Answers to pg 738

1. An echinoderm has a spiny skin, an internal skeleton, and a water vascular system with tube feet. Most have five-part radial symmetry.
  2. The water vascular system is a system of internal tubes. The system carries out respiration, circulation, and movement functions.
  3. Classes include; 1) Sea urchins and sand dollars (2) brittle stars (3) sea cucumbers (4) sea stars (5) Sea Lillies and Feather stars
- \*\*\*Characteristics can be found on pg 737-738.
4. Tube feet are structures attached to the radial canal of echinoderms. Each sucker on the end, and muscles pull the center of the sucker upward, creating suction. Tube feet allow echinoderms to walk and pull open shelled prey.

### Answers to Arthropods

- 1) Crustaceans (crab, shrimp, lobster, crayfish and barnacles)
  - a) Two antennae
  - b) Two or three body sections
  - c) Chewing mouth parts called mandibles
  - d) Include sub- groups such as decapods (motile) and barnacles (sessile)
- 2) Chelicerates (horseshoe crab, spiders, ticks, and scorpions)
  - a) mouth parts called chelicerae
  - b) two body sections
  - c) nearly all have four pairs of walking legs
  - d) Divided into two main classes: 1) Merostomata (horseshoe crabs) (2) Arachnida (spiders, mites, ticks and scorpions)

### Answers to Arthropods

3) Uniramians (Insects and relatives)

a) this subphylum contains more species than all other groups of animals

b) jaws

c) one pair of antennae

d) and unbranched appendages

e) 3 part body adapted for flying