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BIOLOGY by Miller & Levine [complete table of contents] Use the pull-down menu to go to any of the 40 chapters of the book: Additional Resources: Chapter 27 Worms and Molluscs: In this chapter, students read about general characteristics, life cycles and main types of worms and molluscs. They also read about the importance of some types of worms as human parasites. . Hot Links Chapter Self-testing Take it to Net Teaching Links section 27-1: Flatworms Flatworms are soft, flattened worms with tissues and internal organ systems. They are the simplest animals with three embryonic germ cell layers, bilateral symmetry and cephalization. Turbellarians are free-living sea or freshwater flatworms. Flukes are parasitic flatworms, which usually infect their hosts' internal organs. Tapeworms are long, flat, parasitic flatworms adapted to life in their hosts' intestines. Episode 27-2: Roundworms Roundworms are indigestible worms with pseudocoelomes and a digestive system with two openings - mouth and anus. Parasitic round worms include trichinosis-causing worms, phillanthic worms, ascariid worms and hookworms. Episode 27-3: Annelids Annelids is worms with segmented bodies. They have a real coelom that is completely lined with mesoderm. Oligochaetes are annelids that typically have only a few setae and live in soil or fresh water. Leeches are typically external parasites that absorb their hosts' blood and bodily fluids. Polychaetes are sea annelids paired with paddling-like chaetae poured with a setae. Episode 27-3: Annelids Annelids is worms with segmented bodies. They have a real coelom that is completely lined with mesoderm. Oligochaetes are annelids that typically have only a few setae and live in soil or fresh water. Leeches are typically external parasites that absorb their hosts' blood and bodily fluids. The typical mollusc trunk plan has four parts: foot, mantle, shell and mass of internal organs. Gastropods are shellless or single-shell mollusk that move using a muscular leg located on the side of the chamber. There are two shells of mussels, which one or two strong muscles hold together. Phalopods are typically soft-bodied mollusks, where the head is attached to one leg. The leg is divided into tentacles or arms. Thank you for your participation! Thank you for your participation! Transcript for BIO_ALL_INL_SIGd_lesson_ch27 8/7/03 5:25 PM Page 441 Name _____ Class Chapter 27 Worms and molluscs: Section 27-1 Flatworms (pages 683-688) TEKS FOCUS: 10A Functions of organ systems; 12B Parasitism; TEXT SUPPORT: 8A Category of organisms in this Part the defining properties of flatworms. It also describes groups of flatworms of three. What is Flatworm? (Page 683) Platyhelminthes 1. Flatworms form a phylum. 2. What are the defining properties of flatworms? Flatworms are soft, flattened worms with tissues and internal organs. They are the simplest animals with three embryonic germ cell layers, bilateral symmetry and cephalization. 3. A liquefied body cavity lined with mesoderm tissue is called a(n) coelom. 4. Why are flatworms known as acelomates? There is no coelom between the tissues of flatworms. 5. Is the next sentence right or wrong? Flatworms are the simplest animals with three layers of bacteria. actual shape and function of flatworms (pages 684-688) 6. Circle the letter of each sentence, which is true flatworms. A. Parasitic flatworms are typically simpler in structure than free-living species. B. Free-living flatworms have organ systems for digestion, excretion, response and reproduction. C. Free-living species are likely to have evolved from parasites. D. All flatworms rely on diffusion in some essential functions. 7. What do free-living flatworms feed on? They can be carnivores that feed on small aquatic animals or scavenging animals that feed on recently dead animals. 8. The near-mouth muscle tube at the end of the gastrovascular cavity is called a(n) pharynx. 9. What is the function of the pharynx? Flatworms use pharynx to suck food into the gastrovascular cavity. 10. What are flame cells and what is their function? Flame cells are specialized cells that remove excess water from the body. They can also filter and remove metabolic waste such as ammonia and urea. Reading and Study Work WizardPaper 27 441 BIO_ALL_INL_SIGd_lesson_ch27 8/7/03 5:25 PM Page 442 Name _____ Category _____

What are they doing in flatworms? Ganglia are groups of nerve cells, and they control the nervous system in flatworms. 12. A group of cells capable of detecting changes in the amount of light in the flatworm's eye-spot environment is called a(n) . 13. How does cilia help flatworms move, and what do muscle cells allow them to do? Cilia helps flatworms slide through the water over the bottom of a stream or sheep. Muscle cells allow them to twist and turn to react to stimuli in the environment. 14. What is hermaphrodite? Hermaphrodite is an individual with reproductive organs of both males and females. 15. What happens during fission? The organism is divided into two, and both halves grow new parts into a complete organism. Is the next sentence true or wrong? Free-living flatworms are often a complex life cycle involving both sexual and asexual reproduction. Flatworms groups were untrue (pages 686-688) 17. Run Run the main groups of flatworms. FLATWORMS GROUPS Class Description Turbellarians Turbellaria Free-living bottom dwellers Flukes Trematoda Parasitic flatworms, which cling to the internal organs of hosts or beyond Tapeworms Cestoda Long, flat, parasitic worms living in the intestines of hosts on 18 December 2011. Circles the letter of each sentence, which applies to turbellarian. A. Most live in sea or fresh water. B. Most are the same color, shape and size. C. Most are Ostrobothnian. D. The most familiar are planarians. 442 Guided Reading and Study WorkbookChapter 27 6 Pearson Education, Inc. All Rights Reserved. Generic name BIO_ALL_INL_SIGd_lesson_ch27 8/7/03 5:25 PM Page 443 Name _____ Category _____

Blood flukes increase sexually in the primary host and asexually in the middle. 21. Mark the primary host and the indirect host in the picture of the life cycle of the blood clot. Primary Host © Pearson Education, Inc. All Rights Reserved. 22. In which areas is schistosomiasis particularly widespread? It is widespread in tropical areas where there are no proper sewerage systems where human waste is dumped in streams or used as fertilizer. 23. The head of an adult tapeworm is called a(n) scolex. 24. What does the tapeworm use its scolex for? The tapeworm uses its scolex to attach to its host's intestinal wall, where it absorbs nutrients. 25. What are proglottids? They are segments that make up most of the body of the tapeworm. 26. Sperm is produced by male reproductive organs called testes. 27. Is the next sentence right or wrong? Sperm produced by apamado sperm can fertilize the eggs of the same individual. Reading and Study Workbook WizardPaper 27 True 443 BIO_ALL_INL_SIGd_lesson_ch27 8/7/03 5:25 PM Page 444 Name _____ Class _____

Section 27-2 Roundworms (pages 689 through 693) Date _____

56 Cell differences; 10A Systems for organisms; 12B Parasitism; TEXT SUPPORT: 8A Category of organisms This section describes the defining features of round worms. It also identifies which round worms are important in human diseases. What's a roundworm? (page 689) 1. Circle the letter of each sentence, which is true of round worms. A. Parasitic round worms live in plants and animals. B. All round worms are brilliant. C. Some round worms are one metre long. D. All round worms develop from three bacterial layers. 2. cavity lined only partially with mesoderm derived tissue is called (an) pseudocoelom. 3. How can the digestive tract of a round worm be like a tube inside a tube? The inner tube is and the outer tube is a body wall. 4. The gastrointestinal back opening is called anus. 5. Circle the letter of each round worm property. a. pseudocoelom b. mouth c. anus Shape and function roundworms d. coelom (page 690) 6. With more complex body systems, free-living or parasitic roundworms? The body systems of free-living round worms are more complex. 7. Is the next sentence true or false? Many free-living round worms are predators, real body walls. 9. What is detected by the sensory organs of roundworms? They detect chemicals donated by prey or hosts. 10. Do round worms reproduce sexually or asexually? Sexually round worms and human disease (pages 690-692) 11. How do Trichinella roundworms cause pain in their hosts? They pass through the blood supply and burn into organs and tissues. 444 Guided Reading and Study BookChapter 27 6 Pearson Education, Inc. All Rights Reserved. 8th. Circular worms exchange gases and secrete metabolic wastes BIO_ALL_INL_SIGd_lesson_ch27 8/7/03 5:25 PM Page 445 Name _____ Class _____

Complete the table of swirls and people's diseases. DISEASES ARE CAUSED BY ROUNDWORMS Roundworm disease or a condition caused by how the disease spreads Trichinella Trichinosis By eating the muscle tissue of an infected animal Filarial worms Elephantiasis Malnutrition of biting insects, especially mosquitoes, ascariid worms Host hookworms feces Weakness and poor growth Burrowing through an unprotected leg on 13 March. What's an elephant? It is a condition in which part of the body swells enormously. Swelling is caused by large amounts of filarial worms, which prevent the passage of fluids in the lymph nodes. 14. Circles the letter of each sentence, which is true of Ascaris' life cycle. A. Lung larvae cough and swallow. B. Eggs develop into larvae of the lungs. C. Fertilized eggs leave the host's body excrement. D. The host eats Ascaris eggs in contaminated food or water. 15. How do ascariid worms spread in general? They are spread by eating vegetables or other foods that are not washed properly. 16. Where do hookworm eggs hatch and develop? They hatch outside the host's body © Pearson Education, Inc. All rights reserved. develop in the soil. Study C. elegans (page 693) 17. Circles the letter of each sentence, which is true in C. elegans. A. It is a free-living round worm. B. Its DNA was the first multicellular animal to be completely sequenced. C. It feeds rotting vegetation. D. Its DNA has 30 times more basic pairs than human DNA. Chapter and Study WorkbookPaper 27 445 INL_SIGd_lesson_ch27 8/7/03 5:25 PM Page 446 Name _____

research into scientific thought: 10A Systems for organisms; 12B Parasitism; TEXT SUPPORT: 8A Classification of organisms This section describes the defining characteristics of annelids. It also describes the characteristics of the annelids three categories. Introduction (page 694) 1. Which phylum are the earthworms? Begging 2. What evidence is there that annelids are more closely related to mussels and snails than to flatworms or round worms? Annelids, mussels and snails share a similar larval stage. What is Annelid? (page 694) 3. What is a partition? The partition is the inner wall between two segments of the annelid body. 4. Bristles called 5 are attached to each annelid segment. Annelids is

one of the simplest animals with real shape and function when annelids setae . Coelom, what are you? (pages 695 to 696) 6. How to use the pharynx weight differently in carnivory species than in annelids, which feed on the lavaging vegetation? In carnivores, the pharynx has usually two or more sharp jaws, which are used to attack prey. In vegetation-eating worms, the worm collects food by expanding the pharynxing covered with sticky soak and pressing against the sediments surrounding it. 7. What is a closed circulatory system? It's a system where blood is in the network of blood vessels. 8. What is gill? Gill is an organ that specializes in the exchange of gases underwater. Water annelids often breathe through gills, while land-based annelids breathe through their moist skin. 10. How does annelids keep their skin moist? They separate a thin protective coating called a cutter. 11. What are the two large muscle groups of annelids called? A. Longitudinal muscles b. Round muscles 12. Men-annelid has canoeing-like appendages called 446 parapods . Guided Reading and Study Workbook/Chapter 27 © Pearson Education, Inc. All Rights Reserved. 9. How does water annelids henkoa differently from land-based annelids? BIO_ALL_IN1_SIGd_tese_ch27 8/7/03 5:25 PM Page 447 Name _____ Class _____

14. Type annelid image labels for each feature you point to. Setae Body segments Clitellum Groups Annelids (pages 687–688) 15. Complete the table of common oligochaetes. © Pearson Education, Inc. All rights reserved. OLIGOCHAETES Oligochaete type Description Habitat Earthworms Long, light brown worms with few setae forests, fields and gardens Tubifex worms Red, wire-like worms with few setae aquatic environments 16. Circles the letter of each sentence, which is true of the milks. A. They suck blood and bodily fluids from their hosts. B. Most wet, tropical habitats. c. They are typically external external d. All are carnivores that feed on snails. 17. Circles the letter of each sentence, which is true of polychaetes. A. They typically only have a few setae. B. They've combined, canoeing-like appendages poured with a setae. c. They suck their master's blood. d. They are marine annelids. Reading and Study Work Wizard/Paper 27 447 BIO_ALL_IN1_SIGd_tese_ch27 8/7/03 5:25 PM Page 448 Name _____ Category _____

They include sand esmados, blood stains and their relatives. Annelids Ecology (page 689) 19. How do tunnels of earthworms affect other organisms? Baptismal tunnels provide passageways to plant roots and water and allow the growth of useful, oxygen-intensive soil bacteria. 20. Circles the letter of each sentence, which is true of annelides. A. Earthworms are important for the diet of birds. B. Annelids brings minerals from deep layers of soil to the surface. c. Marine Annelids spend their lives digging through the soil. d. Annelid larvae are part of the plankton of animals. Skill training You can use flowchart to remember the order of a process or sequence of events. On a separate sheet of paper, make a flowchart for the process of feeding and digestive tract described on page 695. For more information about flowcharts, see arranging information in Textbook Insert A. Students should film food pumped into the esophagus by the pharynx, then pass through the crop, gizzard and intestines. © Pearson Education, Inc. All rights reserved. 448 Study Book Referred/Paper 27 BIO_ALL_IN1_SIGd_tese_ch27 8.7.2003 17:25 Page 449 Name _____ Part 27–4 Mollusc class _____ Date _____

106 Relationships between organ systems This section describes the characteristics of mollusc. It also describes the basic organ plan for mollusc and the characteristics of the three main categories of mollusc. What is Mollusc? (page 701) 1. Mollusc are members of mollusc phylum. 2. Circle the letter of each sentence true of mollusc. A. They have similar stages of development. B. They usually have an internal or external shell. c. They are the ancestors of annelids. d. They are soft-toed animals. 3. What is a trocophore? It is the larva stage of the mollusc. Shape and function of mollusc (pages 702-704) 4. What are the four parts of most mollusc body plan? a. Foot b. Mantle c. Shell d. Visceral mass 5. What kind of shapes do a muscular mollusc leg take? Flat structures for indexing. structures for digging and tentacles for capturing prey 6. The thin layer of tissue that covers most of the mollusc's body is called G Pearson Education, Inc. All Rights Mantle. 7. How is the mollusc shell prepared? It is made from mantle glands that excrete calcium carbonate. 8. Snails and snails feed on a tongue-shaped structure known as al(an) radula. 9. What is a siponic? Sipon is a tubular structure through which water enters and leaves the body. 10. Why do land snails and snails typically live only in damp places? Those spirits use a diaper cavity with a large area lined with blood vessels, and the lining must be kept moist so that oxygen can decompose on its surface. 11. How does an open circulatory system carry blood to all parts of the mollusc's body? Blood is pumped through the container with a simple heart. The blood eventually leaves the blood vessels and works its way through different sinuses. Reading and Study Work Wizard/Paper 27 449 BIO_ALL_IN1_SIGd_tese_ch27 8/7/03 5:25 PM Page 450 Name _____ Class _____

13. Ammonia is removed from the blood and released from the body by tube-shaped nephridia. 14. Circle the letter of each sentence true of the mollusc's answer. A. Shellfish have a simple nervous system. B. Octop and their relatives have the most developed nervous system of all invertebrates. c. Shellfish have a well-developed brain. d. Vertebrates are smarter than octopus. 15. Where does fertilization occur in tentacles in mollusc and certain snails? It happens inside a woman's body. Mollusc groups (pages 705 to 707) 16. Fill in the tables for mollusc groups. MOLLUSC GROUPS Shell generic description Description Examples of Gastropoda Gastropods Shell-less or single shell Pond snails, land snails, sea hares, nudibranches Bivalvia Bivalves Two shells held together by one or two strong muscles Mussels, oysters, mussels, scallop Cephalopoda cephalopoda cephalopoda cephalopods Only small internal shells or not peel Octopus, squid, cuttlefish, nautilus 17. Circle the letter of every sentence that is true of bivalvei. A. Mussels attach themselves to the stones with sticky wire. B. Some mussels feed on material deposited in sand or mud. c. Bivalve molluscs move by blinking their shells quickly when threatened. d. Scallops sting predators with recycled cridianan nematocytes. 450 Guided Reading and Study Workbook/Chapter 27 © Pearson Education, Inc. All Rights Reserved. Category BIO_ALL_IN1_SIGd_tese_ch27 8/7/03 5:25 PM Page 451 Name _____ Class _____

They move using a muscular leg located on the side of the chamber. 19. The head of the main legs is attached together to the 100th. What is the leg of the main legs divided into? Foot. Tentacles or arms 21. What makes it possible for squids to locate a wide variety of prey? They have large, complex eyes that can distinguish objects as small as centimeters away from a meter away. 22. The only existingphalopods with external shells are the ecology of mollusc sea. (Page 708) 23. What allows mollusc to live in an extreme environment around deep-sea volcanic vents? Inside the clams around these vents are symbiotic bacteria that extract chemical energy from compounds in the water. From this energy, bacteria produce food molecules that can be used by mollusc. 24. Why can careful inspection of bivalve molluscs alert public health officials to possible health problems? Shellfish feeding the filter concentrate dangerous pollutants and microorganisms in their tissues. Therefore, if certain mussels contain high concentrations of impurities, © Pearson Education, Inc. All rights reserved. people are warned not to eat them. Reading and Study Work Wizard/Paper 27 451 BIO_ALL_IN1_SIGd_tese_ch27 8/7/03 5:25 PM Page 452 Name _____ Category _____

Then find the words diagonally, down, or diagonally. Circle every word in a word-of-hide puzzle. Tips Glossary Terms scolex Head of adult tapeworm crop Where food is stored in a earthworm A liquid-ridged body cavity lined with tissue from mesoderm coeum A group of nerve cells ganglion uncle Harjas attached to annelid segment A filamentous body specializing in gas exchange underwater gill pharynx Muscular tube near oral fission Assexual reproduction, where the animal is split in two f x y m h a c r o p i n o q i t m h h h s i t e l g n p a s b v i x n r i o o o o o o m o p a n g l o n u e s c o l e x © Pearson Education Inc. All rights reserved. 452 Study Book Referred/Paper 27 27