SECTION A: Introduction to Anatomy and Physiology

Module 1-A: Organization of the Human Body

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Suggested Activities

Instructional Plan

The following is a step-by-step instructional plan (preparation, delivery/application, and evaluation) to assist you in preparing for group instruction or to assist you in modifying the Learning Activities Sheet provided in the student guide for this module.

Preparation

- Read the module carefully and plan for instruction.
- Review "Teaching Suggestions." Plan for classroom activities.
- Obtain resources to supplement instruction of this module. See "Resources Used in Developing This Module" and "Suggested Supplemental Resources."
- Review the "Suggested Web Sites," and make a list of additional sites you may have found for students to research to learn more about the human body.
- For self-paced instruction, review Learning Activities Sheet located in the student guide. Go to "customizable files" link on teacher edition CD and modify as appropriate to include additional activities and/or resources available in your classroom. Make one copy for each student.
- Select Web sites to be inserted on the Learning Activities Sheet in the student guide.
- Review the additional resources that follow: Written Test, optional assignment sheet, crossword puzzles, and Module Review.
- Develop your instructional plan. Adjust your instructional plan for different learning styles and for students with special needs.
- The PowerPoint® slides for each module of instruction have been provided as a PowerPoint presentation on the teacher edition CD. They may be used "as is" or may be modified by the instructor to include additional information and illustrations. You may also choose to print the PowerPoint slides in order to create acetate transparencies.
- Copy the Written Test, Module Review, and crossword puzzles for distribution to your students.

Delivery and Application

- Provide the students with the module of instruction in the student edition.
- Discuss the module and specific objectives on the Module Objective Sheet.
- Discuss the Information Sheet. Implement your instructional plan to localize, supplement, and personalize the objectives presented in this portion of the module. Reinforce the basic academic and workplace skills when applicable.
- Discuss the student supplements with students.
- Discuss the assignment sheets. Review with students the criteria for evaluation of these activities.
- Discuss the Interactive Student Review located on the student CD.

EVALUATION

- Add or modify Written Test items as needed using the Word® file included on the teacher edition CD. The Written Test serves as both a pretest and posttest to assist in measuring each student's competency gains.
- Give and evaluate pretest. Modify lesson plan to include additional instruction for those areas where students were deficient.
- Evaluate the assignment sheets. Rate the student using the criteria listed on each assignment sheet. See Answers to Assignment Sheets for correct answers where applicable. If the student's performance is unacceptable, have the student review the appropriate materials and complete the assignment again.
- Evaluate the crossword puzzles. See Answers to Crossword Puzzles for correct answers.
- Give and evaluate the posttest.
- Give and evaluate the Module Review. The Module Review reinforces the objectives presented in the Information Sheet through the use of multiple-choice questions.
- Compile the Written Test, assignment sheet, crossword puzzle and Module Review scores, and include any additional assignments or supplemental activities you have selected as part of your instructional plan.
- Meet individually with students to evaluate their progress through this module of instruction and indicate to them possible areas of improvement.
- Reteach and retest as required.

TEACHING SUGGESTIONS

✔ **Note:** This module has two primary purposes: to introduce students to the organization of the human body and to begin to build the students' anatomy and physiology vocabularies. Look for opportunities to reinforce both goals as you present the module and continue into the other modules in this course.

- Use crossword puzzles 1 through 4 to help reinforce the terms in the associated objectives.
- Play a game of "Instructor Says" in which the instructor tells the students to touch a body part relative to another one. For example, the instructor may say, "Instructor says to touch a part superior to the left elbow." If the teacher does not say "instructor says," then the students should not follow through with the command.
- Using the PowerPoint slides or other illustrations, ask the students to indicate planes and then name major organs that are intersected by the planes—for example: "a sagittal plane that divides the umbilical and left lumbar abdominal regions."
- Use a Visible Man/Visible Woman to have the students identify organs and structures in body regions and abdominal regions.
- Have a scavenger hunt in which the students have to find another example of the terms provided in Student Supplement 1, excluding those given in the student supplement. Medical dictionaries, periodicals, or other publications can be used.

- Provide the students with medical dictionaries and have them look up the examples given in Student Supplement 1.
- Play a game of "Twister" using the terms in Student Supplement 2.
- Using terms from Student Supplement 2 or other sources, provide the students with medical terms and ask them what organ system or systems are likely to be involved. For example, "renal failure" is most likely to involve the kidneys.
- Create flash-card sets as a learning aid for the information presented in Student Supplement 1 and Student Supplement 2.
- For Assignment Sheet 3, obtain materials for students to use in constructing their models of various body organs. Assign two students to work together to build the model and make presentation to class.

Resources Used in Developing This Module

- *Core Curriculum for Surgical Technology,* 5th ed. Englewood, CO: Association of Surgical Technologists, Inc., 2002.
- Gylys, Barbara A., and Regina M. Masters. *Medical Terminology Simplified*, 3rd ed. Philadelphia: F.A. Davis Company, 2005.
- Hilley, Robert. *Anatomy and Physiology.* Stillwater, OK: Multistate Academic and Vocational Curriculum Consortium, Inc., 2002.
- Kwon-Chung, K. J., and John E. Bennett. *Medical Mycology.* Philadelphia: Lea and Febiger, 1992.
- Saladin, Kenneth S. *Anatomy & Physiology: The Unity of Form and Function*, 4th ed. New York: McGraw-Hill, 2007.
- Scanlon, Valerie C., and Tina Sanders. *Essentials of Anatomy and Physiology,* 5th ed. Philadelphia: F.A. Davis Company, 2006.
- Seeley, Rod R., Trent D. Stephens, and Philip Tate. *Anatomy & Physiology*, 7th ed. New York: McGraw-Hill. 2006.
- Sherris, David A., and Eugene B. Kern. *Basic Surgical Skills.* Rochester, MN: Mayo Foundation for Medical Education and Research, 1999.
- Standring, Susan. *Gray's Anatomy*, 40th ed. London: Churchill Livingstone, 2008.
- Thibodeau, Gary A., and Kevin T. Patton. *Anatomy and Physiology,* 7th ed. St. Louis: Mosby, Inc., 2009.

Suggested Web Sites*

✔ **Note:** The following Web sites offer general information about anatomy and physiology and generally cover more than one body system. Later modules list sites specific to the systems and disorders presented in that module. These sites can be used in a general way with the first four modules included in Section A and for specific portions of the sites as they relate to the systems covered in later modules in Section B.

- http://opencourse.org/Collaboratories/harveyproject/

  The Harvey Project is an international collaboration of educators, researchers, physicians, students, programmers, instructional designers, and graphic artists working together to build interactive, dynamic human physiology course materials on the Web. Materials produced by the Harvey Project are available free to educational institutions. The site is constantly updated and should be checked often and browsed for overall content.

- http://www.hapsweb.org/

  The Human Anatomy and Physiology Society (HAPS) was founded to promote communications among teachers of human anatomy and physiology in colleges, universities, and related institutions; to present workshops and conferences where members can obtain information about the latest developments in the health and sciences fields; and to encourage educational research and publication by HAPS members. The site contains information about society resources, including a newsletter, publications, and resources on the Internet.

- http://www.nlm.nih.gov/research/visible/visible_human.html

  The Visible Human Project's objective is to create complete, anatomically detailed, three-dimensional representations of the normal male and female human bodies. The site contains CT, MR, and cryosection images of male and female cadavers. The male is sectioned at one-millimeter intervals, while the female is sectioned at one-third-of-a millimeter intervals.

- http://www.innerbody.com/htm/body.html

  This site provides a great deal of information on the human body in fun, interactive formats. There is a great deal of emphasis on terminology and body parts.

- http://www.orthop.washington.edu/

  Sponsored by the University of Washington, this site offers information on orthopedic-related subjects.

- http://tray.dermatology.uiowa.edu/DermImag.htm

  This site offers many images of the skin and underlying tissues.

- http://www.heartsite.com/index.html

  Although designed for patients with heart-related complaints, this site contains a great deal of information about the heart and its disorders.

- http://www.merck.com/health/

  This site provides a general guide to health that addresses many of the disorders covered in this curriculum.

- http://www.martindalecenter.com/

  This site provides a wealth of information and many useful graphics about human anatomy.

- http://www.uchsc.edu/sm/chs/gallery/gallery.htm

  This link goes directly to the gallery portion of the Visible Human Project at the University of Colorado.

- http://www.maui.net/~jms/brainuse.html

  This site deals primarily with the brain and offers many useful graphics.

- http://www.fi.edu/learn/heart/index.html

  This site allows students to explore the heart, its structure and development, the flow of blood, and its relationship to other body systems. It also presents information about heart health and the history of heart science.

- http://uwmsk.org/RadAnatomy.html

  This site features radiological images of the body and the skeletal system.

- http://www9.biostr.washington.edu/da.html

  This site provides images and information in four areas: the brain, neuroanatomy, thoracic viscera, and the knee.

- http://en.wikipedia.org/wiki/Integumentary_system

  This site provides great information on the various body systems that make up the human body. To move from one body system to another, simply change the system name in the Web address. For example, change "integumentary" to "muscular" to go to the section of this online encyclopedia that addresses that system.

- http://dir.yahoo.com/science/biology/anatomy

  By visiting this site, you will have access to a variety of Web addresses that cover the body systems in the human anatomy. Click on the body system you wish to explore to access Web sites that offer good information, as well as illustrations to further explore the human body.

- http://www.ama-assn.org/ama/pub/physician-resources/patient-education-materials/atlas-of-human-body.shtml

  This site provides a wealth of information and many useful graphics about human anatomy, as well as an atlas of the human body.

*Web-site addresses were accurate and all content on referenced Web sites was appropriate during development and production of this product. However, Web sites sometimes change; MAVCC takes no responsibility for a site's content. The inclusion of a Web site does not constitute an endorsement of that site's other pages, products, or owners. You are encouraged to verify all Web sites prior to use.

Written Test

Name _____

Date _____ Score _____

Objective 1

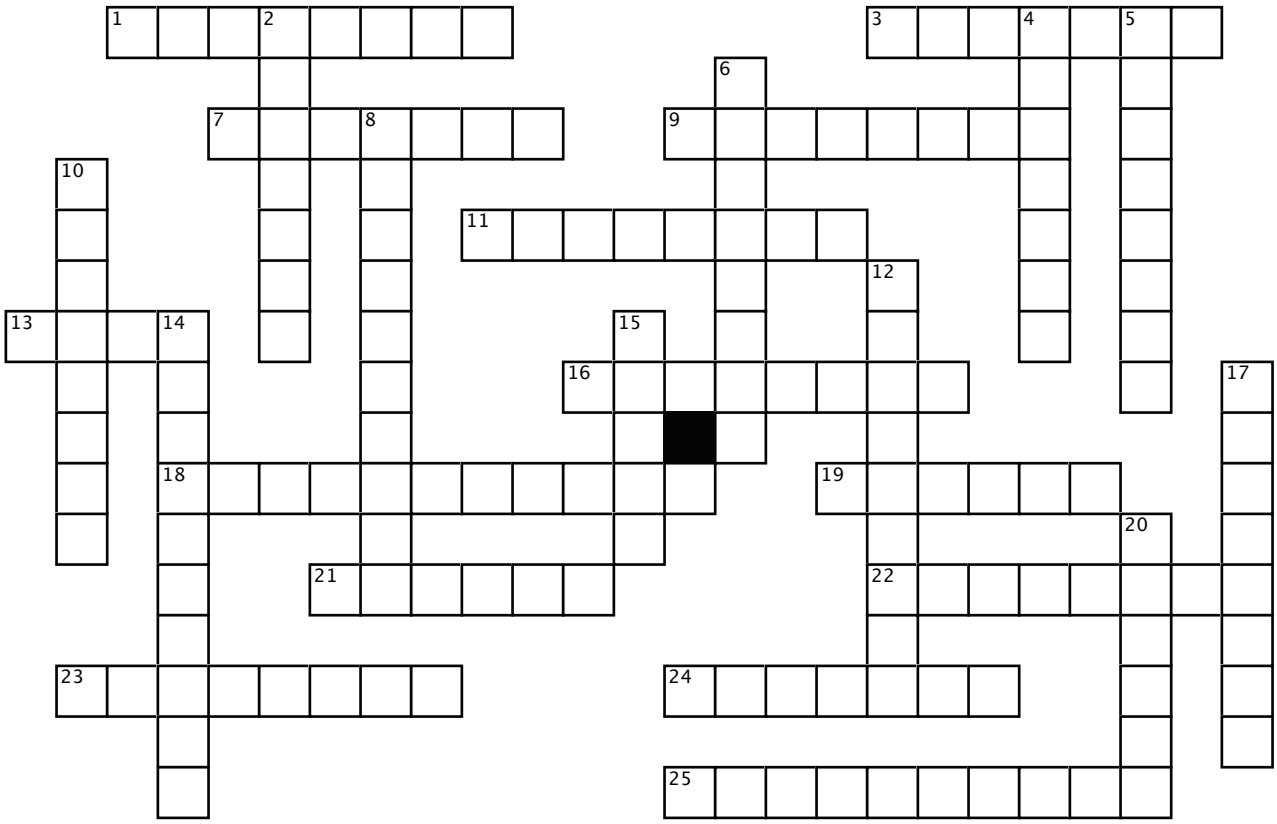
NOTE: The tests and answers have been removed from this free sample to prevent student access.

Objective 2

Objective 3

Crossword Puzzle 1—Terms from Objectives 1 Through 4

Name _____ Date _____



ACROSS

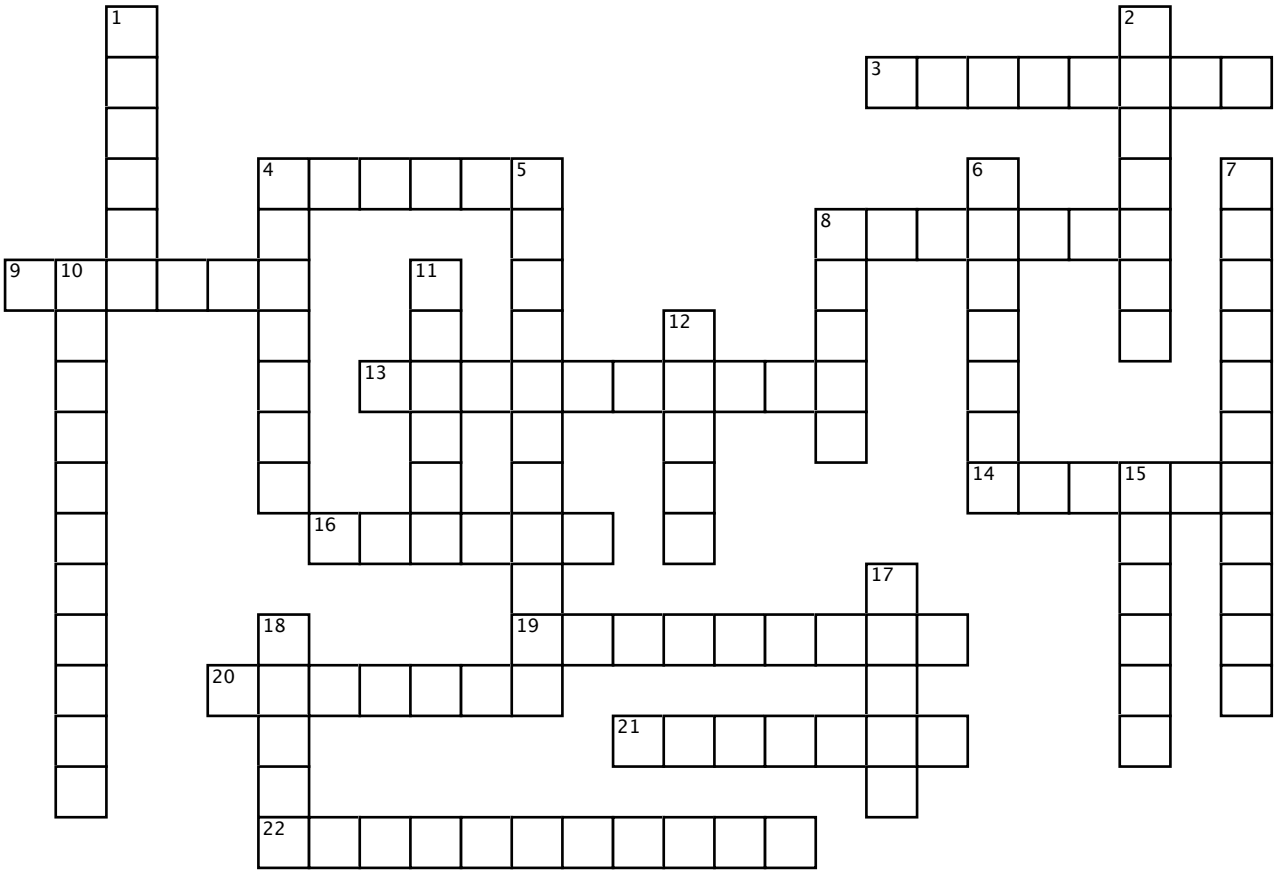
1. Within a body cavity
3. ____ plane is a lengthwise plane running from side to side and dividing the body into front and back parts
7. The scientific study of the structure of an organism that describes size, shape, construction, and relative positions of organs in the body
9. ____ plane is a lengthwise plane running parallel to the median plane but not through the midline and dividing the body into unequal left and right parts
11. More toward the head
13. Away from the surface
16. A living person, animal, or plant
18. Near the surface
19. Closer to the midline of the body
21. _____ plane is a lengthwise plane running through midline of the body from front to back and dividing body into equal right and left halves
22. Farther from the head
23. Nearer to a point of reference
24. Farther from the midline of the body
25. At or near the edge

DOWN

2. At or near the middle
4. ____ plane is a lengthwise plane passing through the body at a 45-degree angle to a sagittal plane or to the median plane
5. More toward the front of the body
6. At the wall of a body cavity
8. _____ plane is a horizontal plane passing through the body from front to back and dividing the body into equal upper and lower parts
10. On the surface
12. More toward the backside of the body
3. The scientific study of the functions of an organism that describes how the organs work independently and in relation to the whole organism
15. A special structure within the body that is arranged in an organized manner to perform a specific function
17. Below the surface
20. Farther from a point of reference

Crossword Puzzle 2—Terms from Objectives 5 Through 8

Name _____ Date _____



ACROSS

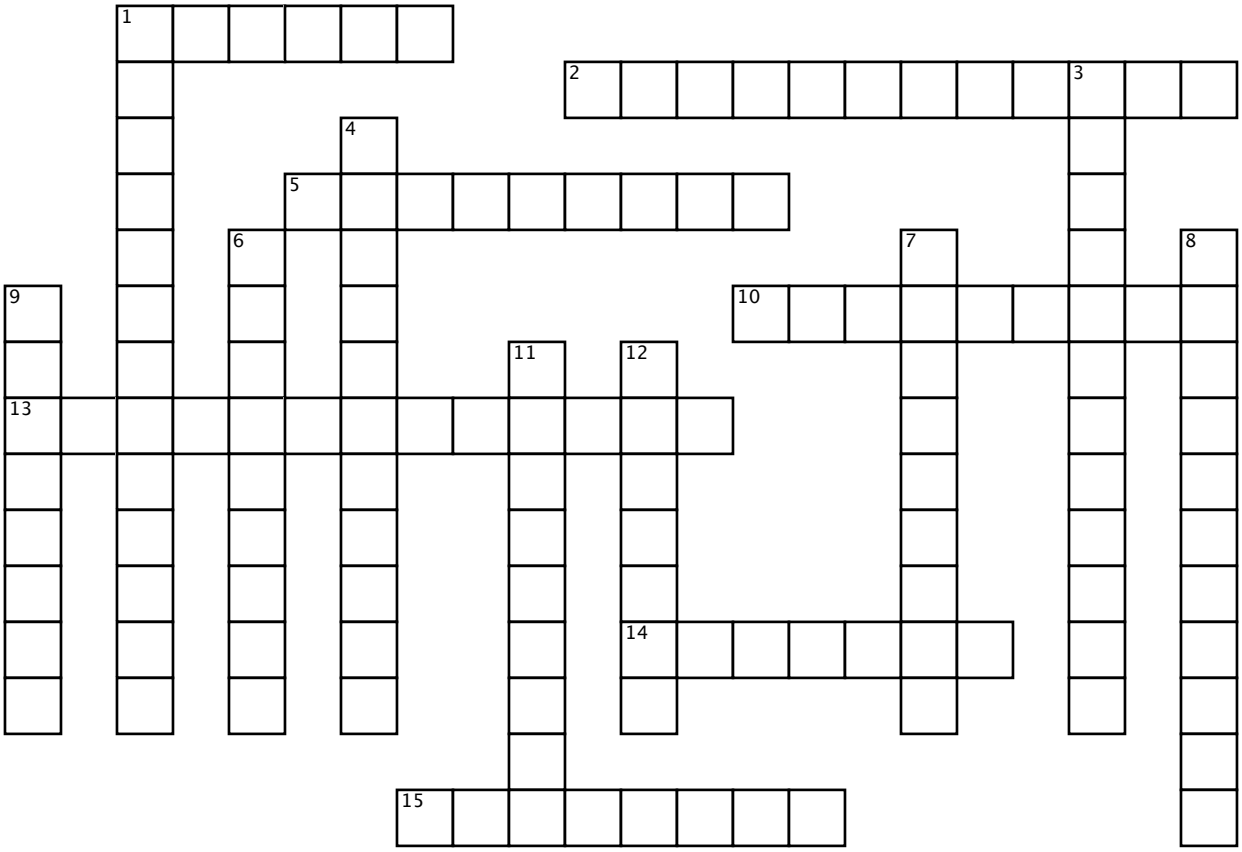
3. Referring to the head or to the head end of a structure
4. A group of organs and related structures that work together to perform a common function
8. Curvature that refers to the outer and longer portion of a curved structure
9. Referring to the palm of the hand
13. An organ that must function properly in order for the life of the organism to continue (2 words)
14. Curvature that refers to the inner and shorter portion of a curved structure
16. Cavity containing the urinary bladder, sex organs, part of the large intestine, including the cecum, appendix, and rectum
19. Cavity containing the stomach, liver, gallbladder, spleen, pancreas, most of the small and large intestines, kidneys
20. Cavity containing the brain and pituitary gland
21. Referring to the sole of the foot
22. An evaluation of a person's health based on appearance, the person's feelings and behavior, and the status of indicators of health such as temperature, blood pressure, and body chemistry

DOWN

1. Referring to the tail or tail end of a structure
2. Cavities containing one lung in each
4. A medical procedure intended to correct physical defects, repair injuries, or treat diseases, especially through the use of medical instruments
5. Space containing the thymus gland, trachea, esophagus, bronchi, ends of the vena cavae, beginning of the aorta
6. Lying on one side
7. Cavity containing the heart
8. Any of various structures within the body that produce specific chemicals to help with the functions of the body
10. To create in a patient a loss of sensation, with or without a loss of consciousness; to create a condition of anesthesia in a patient; to administer an anesthetic
11. Cavity containing the spinal cord
12. Standing or sitting upright
15. Lying down face up
17. Resulting in death
18. Lying down on the stomach

Crossword Puzzle 3—Terms from Objectives 9 Through 13

Name _____ Date _____



ACROSS

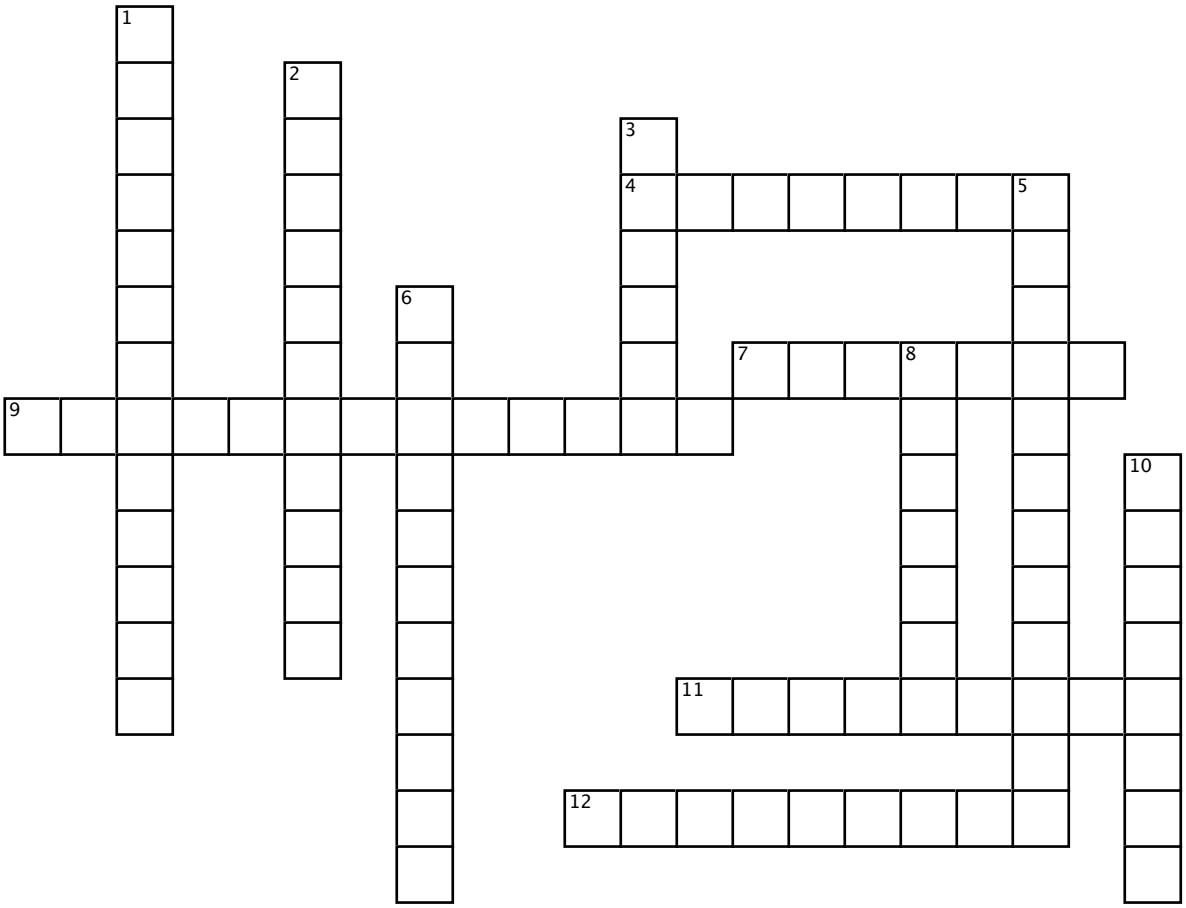
1. System that provides protection against disease and infection
2. System that is involved with reproduction and childbirth
5. System that receives, breaks down, and absorbs food substances and excretes waste products
10. A type of body tissue that forms the skeleton of the developing fetus, most of which is converted to bone after birth
13. Systems that function in receiving sensations such as sight, smell, hearing, and taste (2 words)
14. System that serves in removing waste products from the blood and in excreting wastes in the form of urine
15. System that provides the framework for the body and works to protect and support the body

DOWN

1. System that protects the organism from injury, disease, and infection; aids in the regulation of temperature, the excretion of wastes, and the reception of sensations
3. A group of reactions exhibited by tissue when exposed to irritants; the reactions may include swelling, heat, pain, and other signs of irritation
4. System that transports materials throughout the body by carrying oxygen and nutrients in the blood to all the cells of the body and carrying away the waste products of the cells
6. The point at which the umbilical cord joined the fetus to the mother's womb during pregnancy; commonly referred to as the *navel* or *belly button*
7. A part of the body, such as the heart, a bone, a gland, a cell, or a limb
8. System that takes in oxygen from the air and gives off carbon dioxide, which is produced by cell metabolism
9. System that provides for body movement and support
11. System that serves to regulate various body functions through glands that secrete hormones directly into the blood to slow down or increase the activity of the cells
12. System that coordinates body activities by receiving, interpreting, and conducting messages to all the other systems of the body

Crossword Puzzle 4—Terms from Objective 14

Name _____ Date _____



ACROSS

System that contains . . .

4. Skeletal, smooth, and cardiac muscles
7. Kidneys, ureter, bladder, urethra
9. Eyes, ears, nose, taste buds (2 words)
11. Mouth, pharynx, esophagus, stomach, large and small intestines, accessory organs such as the gallbladder and pancreas
12. Ductless glands

DOWN

System that contains . . .

1. Skin, hair, nails, duct glands
2. Heart, blood vessels, blood, lymphatic tissues
3. White blood cells, antibodies
5. Sex organs and ducts to the outside
6. Lungs, nose, pharynx, larynx, trachea
8. Brain, spinal cord, peripheral nerves
10. Bones, joints, cartilage, connective tissue