



Classroom Teacher Preparation

Anatomy/Physiology 15: Heart Dissection

Please use the following to prepare for the next SfS lesson.

Description:

Students prepare for the dissection by sketching and asking questions about the heart. After an orientation to the heart's surface features and identification of external structures and vessels, students work in small groups to complete a dissection of a preserved sheep heart to identify key internal structures. Afterwards, the class will review the basic pathways of blood flow and the physiology of heart function.

Lesson Objectives – SWBAT (“Students Will Be Able To...”):

6th-8th

- Describe the basic structural organization of the heart
- Explain the functions of the valves, chambers, arteries, and veins

Disciplinary Core Idea (DCI)

LS1 From Molecules to Organisms: Structures and Processes – LS1.A Structure and Function

- (6th-8th) All living things are made up of cells. In organisms, cells work together to form tissues and organs that are specialized for particular body functions.

Science & Engineering Practice (SEP)

Asking Questions

- (6th-8th) Ask questions that arise from careful observation of phenomena, models, or unexpected results, to clarify and/or seek additional information.

Crosscutting Concept (CCC)

Structure and Function

- (6th-8th) Complex and microscopic structures and systems can be visualized, modeled, and used to describe how their function depends on the shapes, composition, and relationships among its parts; therefore, complex natural and designed structures/systems can be analyzed to determine how they function.

Preparation:

We have prepared a Dissection Letter for Parents that can be distributed upon request. Please let your instructor know if you are interested.

This lesson is a general introduction to the anatomy and physiology of the mammalian heart. Although helpful, students do not need background knowledge of the subject matter to complete the lesson. Please remind students that the dissection can be a bit messy and they may want to dress appropriately on dissection day.

Note: For students not wishing to participate in the dissection, there is a virtual online tour of the heart available. (http://biologycorner.com/anatomy/circulatory/heart/heart_dissection.html) Students should also watch a Video Tour of the Sheep Heart (<https://www.youtube.com/watch?v=-JerRPgnVGs>).



Room Set Up for Activities:

Students will work in groups of three at their desks during the dissection. All materials should be cleared from their work area before beginning the lesson. Desks should be wiped down with cleaner following the dissection.

Safety:

Safety glasses and gloves are required. We use powder-free latex gloves by default, however substitute gloves of another material are available upon request. Please inform the instructor of a latex allergy before the lesson begins.

Related Modules:

This lesson may be taught as part of a sequence or group of related modules on **Function & Dissection**. Other modules in this sequence include:

Anatomy/Physiology 10: Frog Dissection - After reviewing lab safety and introducing the dissection procedure, students dissect a preserved frog in order to observe the external and internal structures of frog anatomy.

Anatomy/Physiology 13: How the Eye Works - This lesson's multiple short activities will walk students through their eyes from front to back, experimenting with and experiencing how different parts affect image formation.

Anatomy/Physiology 14: Eye Dissection - Students explore the anatomy of a preserved sheep eye with a review of mammalian eye anatomy and the basic mechanics of vision.

Anatomy/Physiology 18: The Mammalian Brain - Students examine and ask questions about preserved sheep brains. Students identify which questions can be answered by observation alone, and learn about the major substructures of the brain.

Anatomy/Physiology 19: Neurons - Students explore the structure and function of neurons. Students will model nerve impulses and discuss how neurons send signals between the sensory and motor systems.

For other module sequences and groups, look here: www.sciencefromscientists.org/sequences

Standards Covered:

Please click the following link to our website to review the standards covered by this lesson, listed by state:

www.sciencefromscientists.org/standards/

Lessons are matched to both national NGSS and local state standards.

After Our Visit:

Extend this lesson inviting students to build their own stethoscopes.

Access this Extension activity by visiting the Classroom Post found on our website at sciencefromscientists.org/cohorts. Use the name of your school/cohort and password to log in.

To help Evaluate, check out our Open Response questions online at sciencefromscientists.org/open-response-questions. They are freely available for all of our lessons for current teachers. Use the password supplied by your instructor to log in.

Additional Resources:

- Introduction to the heart, for students (4:48): <https://www.pbs.org/video/the-heart-heart-basics-ytcv5j/>
- Heart Dissection video for teachers (two parts, link here is to Part I): <http://mass.pbslearningmedia.org/resource/d5201c57-3edf-436f-81f7-ba884b2e0e66/detailed-sheep-heart-dissection-video-part-i>

