



## Classroom Teacher Preparation

### Anatomy/Physiology 15: Heart Dissection

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

#### Description:

After reviewing lab safety, the instructor will provide students with an orientation of the heart's surface features and identification of key structures and vessels. The basic pathways of blood flow will be outlined and the physiology of heart function will be introduced. Students will complete a dissection of a preserved sheep heart to identify key external and internal structures.

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

4<sup>th</sup>-8<sup>th</sup>

- Identify the major structures, vessels and chambers of the mammalian heart
- Trace the path of blood flow through the human heart, and describe the role that each part of the heart plays in this process
- Understand the function of the heart by studying its structure

#### Disciplinary Core Idea (DCI)

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

- (3<sup>rd</sup>-5<sup>th</sup>) Organisms have both internal and external macroscopic structures that allow for growth, survival, behavior, and reproduction.
- (6<sup>th</sup>-8<sup>th</sup>) 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)

Developing and Using Models

#### 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](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>. Please make every attempt to provide a suitable computer or tablet with internet access for these students during our class time.

It is recommended that this lesson is paired with AP16: Heart Health.

#### 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:

Gloves are required. We use powder-free latex gloves by default, however a box of one-size-fits all polyethylene gloves will also be available when latex is in use, and substitute gloves of another material are available for the whole class upon special request. Please inform the instructor of a latex allergy before the lesson begins.

The dissection procedure requires the use of sharp dissecting instruments; therefore, goggles must be worn at all times during this activity. Hands should be washed immediately following the lesson.

## Related Modules:

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

*Anatomy/Physiology 16: Heart Health* - Students will learn about the essential functions of the cardiovascular system and the importance of physical activity for heart health.

*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 19: What's in My Head* - This lesson is an introduction to the human nervous system (NS), and focuses on the human brain and its functional units, the neurons. Students explore the structure and function of the brain and neurons through the construction of models, as well as learn about nerve cell communication.

For other module sequences and groups, look here: [www.sciencefromscientists.org/sequences](http://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: <http://www.sciencefromscientists.org/standards/>

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

## After Our Visit:

*Extend this lesson by creating homemade stethoscopes.*

Access this Extension activity by visiting the Classroom Post found on our website at [sciencefromscientists.org/cohorts](http://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](http://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:

**WGBH Videos and Activities:** The PBS educational site is a great, **free** resource for educators but you must create an account to use the materials. The first time you log in to the [PBS Learning Media](http://www.pbslearningmedia.org) website you will be asked to create an account and provide an email and password. Once you have logged in, select "keep me logged in" to avoid having to repeat the process.

- Introductory Video of the Heart for Students: <http://mass.pbslearningmedia.org/resource/idptv11.sci.life.stru.d4khr/the-heart/>
- Heart Dissection Video for Classroom Teachers (Part 1): <http://mass.pbslearningmedia.org/resource/d5201c57-3edf-436f-81f7-ba884b2e0e66/detailed-sheep-heart-dissection-video-part-i/>
- Heart Dissection Video for Classroom Teachers (Part 2): <http://mass.pbslearningmedia.org/resource/9d6854af-12ef-4b20-bcac-0c769c6f9337/detailed-sheep-heart-dissection-video-part-ii/>

