VIRTUAL FIELD TRIP

EDUCATOR GUIDE

AGE RANGE

10–13

OVERVIEW

Viewers will be brought on a dynamic and exciting journey through Abbott and the human heart as they learn about the heart's structure and discover its extraordinary abilities and purpose by thinking about the heart as a house. They will explore the circulatory system, investigate the vital role that water plays, and learn about the role of nutritious food choices and physical activity in heart health. US Olympian Lolo Jones and Abbott professionals will accompany viewers on this fascinating excursion.

OBJECTIVES

Students will:

- Understand the structure and function of the human heart.
- Investigate the role that the heart plays in the circulatory system.
- Explore the importance of water and signs of dehydration.
- Learn the role nutritious food choices and physical activity play in heart health.

MATERIALS

- Device with the ability to project, one per educator
- Device with access to the internet, one per student or group
- Pencil, one per student
- **WebQuest** student handout, one per student*
- **WebQuest** answer key, one per educator
- **Staying Heart Healthy** student handout, one per student*
- **Staying Heart Healthy** answer key, one per educator
- **Type 2 Diabetes and Heart Health** student handout, one per student*
- **Type 2 Diabetes and Heart Health** answer key, one per educator

Note: *See the facilitation options throughout for tips on remote learning.*

USING THIS GUIDE

This supplemental guide will provide you with three activities to optionally enhance your use of the Virtual Field Trip in your classroom. Use of the Virtual Field Trip is flexible—it can be watched as a stand-alone resource, or you can facilitate one or more of the included activities. The "Before the Field Trip" activity should be completed before watching, and it will provide an opportunity for you to engage your students in the topics they will learn about during the video. The "During the Field Trip" activity consists of a graphic organiser that students can use to keep track of their learning while they are watching the Virtual Field Trip. Finally, the "After the Field Trip" activity provides students with a way to apply their learning or challenges them to think about a topic in a new way after they have viewed the video.

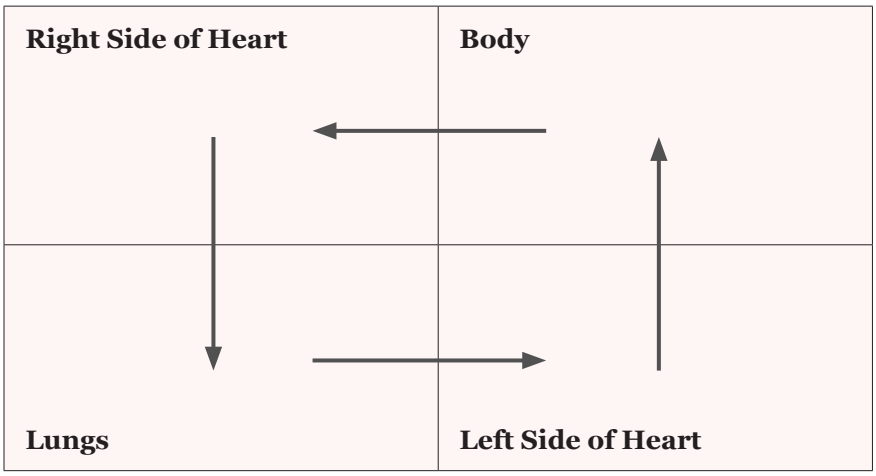
BEFORE THE FIELD TRIP
(30–45 MINUTES)

1. Engage students in the upcoming activities by asking one or more of the following open-ended questions:
    - What do you think the word "system" means in the term *body system?*
    - Think about what your body is doing right now. What body systems is your body using?
    - What role does your heart play in these systems working properly?
    - What are some examples of healthy lifestyle habits? How do they benefit the body
2. Explain that the heart is a muscle—an organ in the body's circulatory system that is about the size of a person's fist. The heart has four chambers responsible for pumping all the body's oxygen-poor blood into the lungs to pick up oxygen and then be pumped throughout the entire body.
    - Teachers may wish to have students model the movement of blood through the circulatory system by labelling stations around the room (Right Side of Heart, Lungs, Left Side of Heart, Body). Students can flow through the room as you narrate what happens at each station. See below for an example narrative and path students would take.
        - Right Side of Heart: Oxygen-poor blood pumps from the right side of the heart into the lungs.
        - Lungs: This is the stage in which blood gains the oxygen it needs and gets rid of excess carbon dioxide.
        - Left Side of Heart: Oxygenated blood is pumped back into the body.
        - Body: Oxygen-rich blood flows through the body until it returns to the right side of the heart to repeat the process.

EASTER SEALS:

- Utilize leading questions or fill in the blank statements to support students who require assistance to participate in discussions
- If a student has a difficult time responding, provide examples of how to answer or provide choice responses (i.e., Would you _____ or _____?")
- Allow more response time for students with alternative forms of communication (i.e., icon communication, communication device, sign language, etc.)
- Allow options for how answers are shared (i.e., written, verbal, etc.)

Invite other students to go first to model an appropriate answer to the question



3. Distribute one **WebQuest** handout to each student. Read through the instructions and each of the questions.
    - **Note:** *Students may need a refresher on the term "noncommunicable diseases." If that is the case, explain to them that an NCD is any disease that is not contagious and cannot be spread to others, like the flu. NCDs like heart disease and type 2 diabetes are often the result of lifestyle choices, like nutrition and exercise.*
4. Explain that in preparation for learning the intricacies of how the human heart works and how to keep it healthy during the virtual field trip, they will be investigating several of the concepts to draw their own conclusions in the end.
5. Give students time to explore and answer questions, either independently or in groups.
    - **Note:** *You may choose to allow students free choice in their internet research or to provide website suggestions or useful search terms. Examples might include:*
        - https://www.who.int/en/news-room/fact-sheets/detail/noncommunicable-diseases
        - https://data.unicef.org/topic/child-health/noncommunicable-diseases/
        - https://www.euro.who.int/en/health-topics/noncommunicable-diseases
        - https://www.scoilnet.ie/go-to-post-primary/science/organisations/heart/
        - "What is the circulatory system?"
        - "How does the circulatory system work?"
        - "How can I keep my heart healthy?"
6. Invite students to share their conclusions with the class.

FACILITATION OPTIONS

If your students are learning in a remote environment, consider the following:

- Introduce the **WebQuest** handout via screen share.
- Collect responses virtually via a learning management platform, live video, shared online document, photos, etc.

DURING THE FIELD TRIP (45–60 MINUTES, INCLUDING THE VIDEO)

1. Remind students that diseases of the heart account for the most deaths caused by NCDs,[1] so understanding how to keep their heart healthy now and into the future is vitally important.
2. Explain that during the virtual field trip, students will be recording instances and examples of risks to their heart health and ways to support a healthy heart.
3. Distribute the **Staying Heart Healthy** handout. Read through the instructions.
4. Play the ❤ YOUR HEART Virtual Field Trip (add running time), reminding students to record their thoughts on their charts throughout.
5. After the Virtual Field Trip, have students share a few of their ideas and reflect on their key takeaways.
6. *Optional:* Conduct a discussion on how many of the elements that students recorded are already common practice. Think of simple or attainable ways to increase heart health among their classroom and their families.

FACILITATION OPTIONS

If your students are learning in a remote environment, consider the following:

- Use screen share to play the virtual field trip.
- Have students watch asynchronously and share their thoughts using the tool of your choice (online document, photo, learning management system, etc.).
- Use live video conferencing or chat rooms to conduct a whole group discussion.

1 https://www.who.int/news-room/fact-sheets/detail/noncommunicable-diseases

AFTER THE FIELD TRIP (45–60 MINUTES)

1. Distribute the **Type 2 Diabetes and Heart Health** handout to each student. Read through each question.
2. Independently, or in small groups, have students research the effects that type 2 diabetes has on the body. Have them use their new understanding of the heart to explain how type 2 diabetes can increase the risk of heart disease.
    - **Note:** *You may choose to allow students free choice in their internet research or to provide website suggestions or useful search terms. Examples might include:*
        - https://www.diabetes.ie/about-us/diabetes-in-ireland/
        - https://www2.hse.ie/conditions/type-2-diabetes/overview.html
        - https://irishheart.ie/heart-and-stroke-conditions-a-z/cardiovascular-disease/
        - https://assets.gov.ie/14907/9fa9221a41374006a7fc2e1d4c4706fc.pdf
3. Based on what they have learned, challenge students to draw conclusions on how healthy lifestyle choices can help to reduce the risk of developing NCDs like type 2 diabetes and heart disease.
4. Instruct students to use their research to create a multimedia presentation in which they explain the importance of staying heart healthy and how positive lifestyle choices can help them reduce their risk of developing NCDs. They can use the chart on page 2 of the handout to organise their thoughts and research.
5. Provide an opportunity for each student/group to present their research and the result of their analysis to their peers.

FACILITATION OPTIONS

If your students are learning in a remote environment, consider the following:

- Facilitating this activity as a whole group discussion via web conferencing and completing the analysis together.
- If students work independently, direct them to submit multimedia presentations via a learning management system or shared online document.

POSSIBLE LEARNING EXTENSION

- Consider having students complete the two **Future Well Kids** self-paced modules, Exercise for Health and Nutritious Eating. Afterwards, students can apply what they learned in the module to what they learned in the Virtual Field Trip to create a personalised "Plan for Heart Health."
- Using cardboard, plywood, or other available materials, have students build a house following the "building plans" outlined in the Virtual Field Trip. They can use the model in a presentation explaining how the heart works or they can use clay, toothpicks, and index cards to post "signs" in each room explaining the role it plays. Alternatively, students can complete this on paper if 3D materials are not available.

NATIONAL CONTENT STANDARDS ALIGNMENT FOR SUPPLEMENTAL ACTIVITIES

Junior Cycle English, Statements of Learning

- SOL 1:
  The student communicates effectively using a variety of means in a range of contexts in L1.
- SOL 3:
  The student creates, appreciates and critically interprets a wide range of texts.
- SOL 6:
  The student appreciates and respects how diverse values, beliefs and traditions have contributed to the communities and culture in which she/he lives.
- SOL 16:
  The student describes, illustrates, interprets, predicts and explains patterns and relationships.
- SOL 24:
  The student uses technology and digital media tools to learn, communicate, work and think collaboratively and creatively in a responsible and ethical manner.

Junior Cycle SPHE, Aims

- To make the students aware of the elements of a balanced diet and the importance of healthy eating for physical and mental well-being.
- To develop awareness of the importance of rest and exercise for health and well-being.
- To help the students to identify possibilities for daily and weekly exercise in their own lives.

CONNECTIONS TO THE NEXT GENERATION SCIENCE STANDARDS (NGSS)

Junior Cycle Science, Statements of Learning

- SOL 13.
  The student understands the importance of food and diet in making healthy lifestyle choices.
- Students will collect and examine evidence to make judgements on how human health can be affected by inherited factors and environmental factors, including nutrition and lifestyle choices.
- Students will explore body systems and how they interact, and learn about human health. They will investigate living things and their interdependence and interactions with ecosystems.

WEBQUEST P 1/2

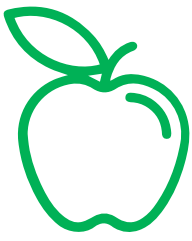
Directions:

1. Using the search engine of your choice, provide an answer for each item.
2. Respond to the "Draw Conclusions" question.

1. Define **circulatory system** in your own words:

2. Briefly explain in words or illustrations how the heart works within the circulatory system:

3. What role does nutrition play in keeping the heart healthy?



WEBQUEST P 2/2

4. What role does physical activity play in keeping the heart healthy?

5. What noncommunicable diseases (NCDs) can be avoided by making heart-healthy choices?

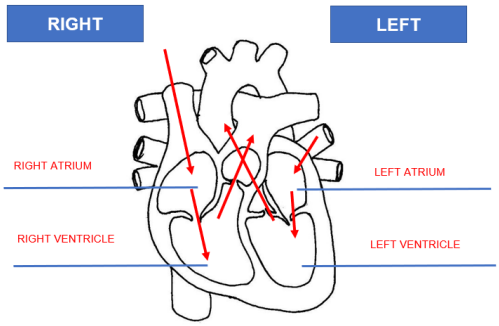
Draw conclusions. Based on your investigation, how important do you believe heart health is to reducing your risk of developing NCDs? Explain your response.

WEBQUEST P 1/2

Potential answers may include:

1. Define **circulatory system** in your own words:
   Answers will vary but should include that it is the system that transports blood throughout the body and that it includes the heart, lungs, blood, and blood vessels.

2. Briefly explain in words or illustrations how the heart works within the circulatory system:
   Answers will vary, but might look something like:



3. What role does nutrition play in keeping the heart healthy?
   Answers will vary but should include information on how a healthy diet is the best weapon against heart disease, and that they should aim to eat a balanced diet from all five food groups and less junk food.

WEBQUEST P 2/2

4. What role does physical activity play in keeping the heart healthy?
   Answers will vary but should include information like the more active or physically fit an individual is, the less likely they are to develop heart disease. Inactivity is one of the top 5 risk factors for heart disease.

5. What noncommunicable diseases (NCDs) can be avoided by making heart-healthy choices?
   Answers might vary, but will probably include diabetes, cancer, and stroke.

Draw conclusions. Based on your investigation, how important do you believe heart health is to reducing your risk of developing NCDs? Explain your response.

Answers will vary.

STAYING HEART HEALTHY

Directions: As you watch the virtual field trip, use the chart below to record instances or examples of risks to heart health and ways to support heart health.

Risks to Heart Health	Ways to Support Heart Health

STAYING HEART HEALTHY

Potential answers may include:

Risks to Heart Health	Ways to Support Heart Health

• Type 2 Diabetes
  ○ Damages blood vessels
  ○ Affects heart pumping
  ○ Slows heart rate
• Increased levels of blood glucose
• Increased blood pressure
• Too many sweet, salty, or fatty foods
• Stress
	• Staying hydrated
	• Nutritious food choices
	• Physical activity
	• Active lifestyle
	• Eating heart-healthy foods
	• Getting the right vitamins, minerals, and nutrients
	• Getting enough sleep

TYPE 2 DIABETES AND HEART HEALTH P 1/2

Directions:

1. Using the search engine of your choice, provide an answer for each item.
2. Respond to the "Draw Conclusions" question.

1. Define **type 2 diabetes** in your own words:

2. What effects does type 2 diabetes have on the body?

3. What effects does type 2 diabetes have on the heart?

4. Based on what you learned watching the Virtual Field Trip, how do you think having type 2 diabetes could contribute to having heart disease?

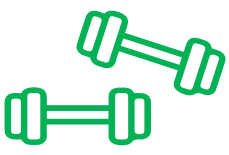
Draw conclusions: How can making healthy lifestyle choices, like getting enough physical activity and making the most nutritious food choices, possibly decrease your risk of developing NCDs like heart disease and type 2 diabetes

TYPE 2 DIABETES AND HEART HEALTH P 2/2

5. Use the chart below to organise your research and learning from the Virtual Field Trip:

How does a person keep their heart healthy?	
What are things that can put heart health at risk?	
How does a healthy heart reduce a person's risk of NCDs?	
What connection is there between type 2 diabetes and heart health?	

What's Your Analysis? Based on your research and what you learned during the Virtual Field Trip, what recommendations would you make to your friends and family to help them stay heart healthy?



TYPE 2 DIABETES AND HEART HEALTH P 1/2

Potential answers may include:

1. Define **type 2 diabetes** in your own words:
   A disease that affects how the body processes blood sugar/glucose.

2. What effects does type 2 diabetes have on the body?
   Heart disease; stroke; high blood pressure; nerve damage; increased thirst; hunger; fatigue; blurred vision.

3. What effects does type 2 diabetes have on the heart?
   High blood pressure; the heart works harder; damaged blood vessels; damaged artery walls.

4. Based on what you learned watching the Virtual Field Trip, how do you think having type 2 diabetes could contribute to having heart disease?
   High blood sugar can damage blood vessels or the nerves that control the heart; high blood pressure can force blood through arteries and damage artery walls.

Draw conclusions: How can making healthy lifestyle choices, like getting enough physical activity and making the most nutritious food choices, possibly decrease your risk of developing NCDs like heart disease and type 2 diabetes?
Answers will vary but should reflect information presented in the Virtual Field Trip

TYPE 2 DIABETES AND HEART HEALTH P 2/2

5. Use the chart below to organise your research and learning from the Virtual Field Trip:

How does a person keep their heart healthy?	Students should record the information from column two of their **Staying Heart Healthy** handout and information on nutrition and physical activity they found during their **WebQuest** research.
What are things that can put heart health at risk?	Students should record the information from column one of their **Staying Heart Healthy** handout.
How does a healthy heart reduce a person's risk of NCDs?	Students should record the information on NCDs they found during their **WebQuest** research.
What connection is there between type 2 diabetes and heart health?	Students should record the information on type 2 diabetes from the first page of this handout.

What's Your Analysis? Based on your research and what you learned during the Virtual Field Trip, what recommendations would you make to your friends and family to help them stay heart healthy?

Answers will vary but should reflect an understanding of the content.