

Possible Futures



Facilitator Guide: How to Prepare for This Lesson



STEMPLORATION **Health Sciences – Lesson 2** **Respiration**

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About This Facilitator Guide

This facilitator guide provides the details to help you enable students to complete the lesson on **Respiration - Who Is Coming to the Rescue?**

Instructions for using the SCORM files in Blackboard and Canvas can be found at this [link](#). Instructions for using Flipgrid can be found in this guide.

While this lesson is designed for online learning, you will find information in this guide about In-Person Learning Adaptations to help you facilitate your students who may be completing this lesson in the classroom instead of online. Call-outs will provide guidance on how to adapt various activities for in-person learning.

Before You Get Started

Before you get started with this lesson, please be sure to:

- Read through the facilitator guide.
- Download SCORM. (You will only need to add SCORM once. After that, you will be set to use SCORM for any remaining lessons.)
- Review the Rise lesson.
- Prepare any resources needed for the lesson.
- Set up Flipgrid.

Flipgrid Instructions – Setting up Flipgrid

Both educators and students will need to set up Flipgrid for use.

Educator Step-by-Step Guide

Set up your free educator account at [Flipgrid.com](https://flipgrid.com) and create a **Topic** for the class. Please copy and paste the heading from the facilitator guide that pairs with the Flipgrid so that the topic aligns with student expectations. A Topic is a discussion prompt for students. Students respond to the Topic with a short video using our fun, social-media-style camera. Students can watch and comment on videos from peers, with the educator in complete control.

1. Create a Topic

Topics start the conversation in Flipgrid. Just write a prompt and include anything for students to review before responding, such as videos and links.

When you create a new Topic or Group, a Join Code is automatically created for it. To share the Join Code to your Topic or Group, log in to your educator account and select the blue Share button to access your Join Link and Join Code, as well as other ways to share your discussion.



The Join Code also creates a link. Copy/paste the link in emails, texts, social media, Google Classroom, or other websites to invite your students to join. You can download/print QR codes for students to scan on the Flipgrid app. The Flipgrid app and flipgrid.com offer a QR scanner on the homepage.

The student receives the Join Code in the form of a link, a code, a QR code, or a guest username and password. The student can then enter the student username or password.

2. Set Access and Share

After creating the Topic, choose how students will access it. If they have email addresses, add the domain (everything after the @ symbol in their email address). If students do not have email addresses, create usernames for each student. Invite families and guests by adding a guest password.

Share the Topic by using one of the Share buttons or copy and paste the unique Join Code wherever you connect with your community.

3. [Students Respond](#)

After entering the Join Code, students gain access by logging in via email or username.

Students can share their voices by recording a short video with Flipgrid's fun, simple, and powerful camera. It is packed with everything they need to tell their story, including text, emoji, inking, boards, screen recording, and the ability to upload clips.

References:

[Educator Step-by-Step Guide](#)

[Educators: A Teacher's Guide to Flipgrid \[YouTube\]](#)

[Educator Guide to Flipgrid](#)

Student Step-by-Step Guide

A student can create a video to submit to the educator in a few easy steps!

1. Locate the Join Information From Your Educator

Your educator would have given you one of these ways to join the discussion:

- A Join Code (e.g., FGrid3567, a591dc5d) or a QR code
 - A Join Link (e.g., <https://flipgrid.com/FGrid3567>, <https://flipgrid.com/a591dc5d>)
 - If you don't have a school-provided email, then a unique username or guest password
- Flipgrid works on most web browsers and mobile devices. Microsoft Edge or Google Chrome is recommended for the best web experience. For easy access to Flipgrid, download the Flipgrid extension. On mobile devices, download the free Flipgrid app for iOS and Android devices.

2. Join the Discussion

Get the educator's discussion by using the link or code provided by your educator in Step 1.

- If you have a Join Link, select that link.
- If you have a Join Code,
 - Go to your web browser and enter <https://flipgrid.com>. You'll see an area to enter a Join Code. Type the Join Code and press Enter on your keyboard.
 - On the Flipgrid mobile app, enter the code.
- If you have a QR code, scan the QR code with your device camera or the Flipgrid mobile app.

You'll see a prompt to log in. Enter the student username or password. If your student username or password is not working, be sure to double-check the case and space sensitivity.

Tip: If you're prompted to log in, choose Google if your school uses Google Classroom, Docs, and Drive. Choose Microsoft if your school uses Word, OneDrive, or Microsoft Teams.

3. Record and Submit

Once you've joined, you'll see your educator's Topic or discussion prompt. Follow the instructions and when you're ready to record, select the red Record a Response button or the Flipgrid logo for the camera to start.

When you're in the Flipgrid camera, you can record a video in these three easy steps:

- Tap to record: Tap the record button on the bottom to start. Add fun stickers, filters, text, and more. Tap the arrow on the bottom-right to advance.



Review your video: Trim, split, rearrange, or add more. Tap the arrow on the bottom-right to advance.



Submit your video: Edit your cover image and name, add a title, or attach a link. Then submit!

The Flipgrid camera offers a lot of fun and creative ways for you to share your ideas and voice! [Check out all the camera features here](#). Learn [how to import a custom video](#) or [how to include a screen recording](#).

References:

[Getting Started: Students](#)

[Getting Started with Flipgrid - Students \[YouTube\]](#)

Using Editable PDFs

Most lessons include the use of an editable PDF for students to capture responses to questions and other activities.

Guiding language is included in the lesson to help students access and use the editable PDFs where they appear.

For students who will be using Chromebooks, they need to use the Print to PDF function to save their editable PDFs to their device. Here's how to do this:

1. Open the editable PDF and select CTRL + P.
2. Open the file destination where the file will be saved.
3. Select Save as PDF.
4. Select Print. Your document is now "printed" as a PDF file which will save your work.

PDFs cannot be submitted via the Rise activities. If you plan to collect these documents for career planning portfolios or grading, you will need to coordinate that with your students.

To view a video on using Flipgrid and editable PDFs in the lessons, select [this link](#).

Ask an Expert Interviews (Optional)

You may choose to include an "Ask an Expert" interview in this lesson.

An interview provides an opportunity for students to talk with and ask questions of experts who work in various professions to learn about their career journeys, current job roles and responsibilities, and glean valuable insights.

Additionally, an interview also provides the following benefits to the students:

- Real-world information about careers
- An awareness of the workplace habits and interpersonal skills needed to succeed in any job

- Further encouragement to go to college or post-secondary training, apprenticeship, etc., and get ready for the career of their choice
- An understanding of the fact that each person's career journey is unique and that most people encounter obstacles and challenges that they must overcome to reach their goals

When selecting experts to participate in the small group interviews, look for “down to earth” people who you think are good speakers and who would be comfortable talking to young students, ages 12 to 14. An ideal ratio is one expert for every five students.

There are two options that can be used if you choose to use an Ask an Expert interview:

- Schedule a Zoom/Skype call with an expert in the field.
- Find an existing YouTube video of an expert to share with the students.

In-Person Learning Adaptation: For in-person learning, project/share the Zoom/Skype call with an expert with your class. YouTube videos may also be projected/shared in-person. You can consider facilitating further discussions on the key takeaways from the session and/or a specific topic discussed in the session.

Review the following resource for additional information:

[Career and College Exploration Experiences: Planning for Success](#)

How to Implement This Unit

For students to get the most value from this unit, please plan on implementing all lessons in this unit in sequential order.

When it may not be possible to implement the entire unit, we recommend implementing the following lessons to support optimum student learning based on the time available:

- Mini Unit: Lessons 1 through 5 in sequential order
- Standalone Lessons: Lessons 1 through 11 can each be used as standalone lessons.
- Pairs: Lessons 8 and 9; Lessons 3 and 11; Lessons 7 and 11; Lessons 1 and 8
- Trios: Lessons 4 through 6; Lessons 2 through 4

Alignment of Learning Outcomes

The program learning outcomes for Possible Futures 2.0 are:

- A. Gain awareness of and exposure to a wide array of careers.
- B. Increase self-awareness and begin to form their potential occupational identity.
- C. Develop employability skills.

- D. Develop foundational technical skills as appropriate.
- E. Be positioned to make more informed educational choices.
- F. Transition to high school with an actionable plan for next steps.

The curriculum learning outcomes for the Health Sciences unit are:

1. Students learn the basics of first aid and health sciences.
2. Students explore career options within the health sciences industry.
3. Students identify their strengths and interests in the field of health sciences.
4. Students connect their strengths and interests in the field of health sciences to potential careers.
5. Students explore the local labor-market data and education opportunities for careers in the field of health sciences.

The Arizona Career Literacy Standards for grades 5 through 8 can be found at [this link](#).

This lesson's learning outcomes align with the program learning outcomes (PLOs), curriculum learning outcomes (CLOs), and Arizona Career Literacy Standards (CLSs) as follows:

CLOs	Lesson Learning Outcomes	PLOs	CLSs
1	Explain the body as a system of interacting subsystems.	C, D	2.0
1	Understand how respiratory distress affects heart rate.	C, D	2.0
1, 3, 5	Analyze data to summarize results and report conclusions.	C, D, E	1.0, 2.0

Tracking Completion of Lessons

If you are using SCORM Cloud or Canvas with the lessons in this unit, completion tracking options are available. If you are not using either platform, please determine if and/or how you plan to track the completion of lessons by the students.

Lesson 2 Components

Guiding Question

The guiding question is intended to provide a focal point for each lesson. This lesson's guiding question is:

- **Who Is Coming to the Rescue?**

Lesson Overview

In this lesson, the skateboard accident patient is transported to the Emergency Room. Students take the role of a young allied health professional and complete a lab on respiratory distress that connects body systems and illustrates how laboured breathing can impact heart rate. You will also consider whether you might be interested in becoming an EMT.

Vocabulary in This Lesson – Flip Card Activity

Students should use the flip card activity to familiarize themselves with key vocabulary terms and definitions for this lesson.

- **Respiration:** The act or process of breathing
- **Respiratory Rate:** The number of breaths someone takes per minute
- **Airway:** The area in the throat through which air passes to and from the lungs
- **Circulation:** The movement of blood through the body that is caused by the pumping action of the heart
- **Oxygen:** A chemical that is found in the air, that has no color, taste, or smell, and that is necessary for life
- **Diaphragm:** A large flat muscle that separates the lungs from the stomach area and that is used in breathing
- **Bronchus:** Any of the major air passages of the lungs which diverge from the windpipe
- **Trachea:** A long tube in your neck and chest that carries air into and out of your lungs
- **Lungs:** Either one of the two organs that people and animals use to breathe air
- **System:** A group of related parts that move or work together
- **Variable:** Able or likely to change or be changed: not always the same
- **Analyze:** To study (something) closely and carefully: to learn the nature and relationship of the parts of (something) by a close and careful examination
- **Results:** Something that is caused by something else that happened or was done before
- **Conclusion:** A final decision or judgment: an opinion or decision that is formed after a period of thought or research

Learning Targets

By the end of this lesson, students will be able to:

- Explain the body as a system of interacting subsystems.
- Understand how respiratory distress affects heart rate.
- Analyze data to summarize results and report conclusions.

Emergency Ambulance Transport

In this section, the students will learn about Emergency Medical Technicians (EMT) and how they arrive at the scene of an emergency, and what they must assess at the scene.

Students are asked to download the editable PDF document for this lesson titled “Lesson 2 - Respiration - Editable PDF.” They will respond to the questions in the “Emergency Ambulance Transport” section of the PDF. They will see the following instructions in the PDF:

“Reflect on what you already know about Emergency Medical Technicians (EMTs). Answer at least one set of the following questions:

1. Have you ever been present at an emergency scene or ridden in an ambulance? What were some of the EMT’s interventions to help the patient?
2. What do you think EMTs have to be prepared for when they arrive at the scene of an emergency?”

In-Person Learning Adaptation: For in-person learning, teachers can give an example of their experience in an emergency scenario and ask the students to think about their experience before they begin responding to the questions in the editable PDF.

Review of the A-B-Cs

In this section, students are asked to recall the A-B-Cs from the last lesson – Airway, Breathing, and Circulation and are informed that it is important for the Emergency Medical Technicians to follow these steps to keep the patients alive.

The Respiratory System

This section provides an overview of the respiratory system and the functions it performs. The students will also learn about respiratory distress. To know more about these, the students are asked to watch the [Respiratory System - How The Respiratory System Works](#) video.

Once the students review the video, they are directed to look for **The Respiratory System** section in this lesson’s editable PDF and respond as instructed. The students will see the following instructions in the PDF:

“Name the five parts of the respiratory system and the functions they perform.”

In-Person Learning Adaptation: For in-person learning, teachers can show the video in class before the students begin their work in the PDF.

Respiratory Distress Lab

By now, the students are expected to know that distressed breathing is a top concern in emergency response work. In this section, the students will learn about how breathing affects circulation and the work of the heart. To complete the lab, students must find their own pulse at rest and after exercise. They will see instructions that tell them how to find their pulse and how they can calculate the number of beats per minute.

Students will be asked to locate the **Respiratory Distress Lab** section in this lesson's editable PDF and respond as per the instructions. They will be asked to record their pulse and number of beats in the PDF.

This activity is followed by a knowledge check question. Students will respond to this on Rise.

In-Person Learning Adaptation: For in-person learning, teachers can show the students how to locate a pulse.

An EMT & Me

This section summarizes the career paths of EMTs and paramedics.

Flipgrid Activity – Let's Talk About It

In this section, students will use Flipgrid to imagine sharing their experience as a first responder.

The students will see the following instructions on Rise:

“Use the Flipgrid to share your experience as a first responder. In your Flipgrid, answer the following questions:

- Describe an emergency situation. How would you have helped respond to the situation?
- What are the A-B-C's and why are they important?
- What are two to three things you may enjoy about the career of an EMT? What are a few things you may not like?”

Remind the students to **include your class hashtag in the title of the post.**

Thinking About Your Future

At the end of the lesson, students will see the following statement on Rise: “You’ve been exploring the Allied Health Sciences. In this lesson, you learned more about the respiratory system, who comes to help, and about graphing data.”

Before moving on to the next lesson, think about the following questions:

- What do you think about checking your pulse? Do you think you could do this for other people?
- Can you imagine yourself working as an EMT for a living?

Career Pathways

At the end of each lesson, students will be reminded that it’s never too soon to start exploring future career options! Encourage students to check out this resource to help them learn about:

- Various jobs in the Allied Health Sciences field
- Projected growth
- Potential earnings

Students can access the resources at this link: [Pipeline AZ Career Search](#).

Lesson Completion

At the end of the lesson, students will see the following message on Rise:

“In future lessons, you will learn more about different aspects of the Health Sciences field. Topics will include exploring the emergency room and blood and the human body.”

Extended Activity- Exploration of Respiration

Teachers can also consider conducting an additional activity in class by providing the following instructions:

“You are going to build a simplified model of our respiratory system that shows the interactions of the bronchi, lungs, and diaphragm as we breathe. Your two-liter bottle represents our chest cavity. The two small balloons represent the lungs. The straws represent our bronchi, or two large tubes that connect our lungs to the trachea, or windpipe (touch windpipe).

1. First, **connect** the lungs (balloons) to the bronchi (straws). **Attach** the balloons and secure them with the rubber bands.

2. **Seal** off the tops of the chest cavity (two-liter bottle) with the play dough (where the lid would normally go). **Insert** your bronchi through the play dough through the bottom of the chest cavity.
3. The larger balloon represents the diaphragm. Stretch this out over the bottom of the bottle.
4. Now, let's make the respiratory system work. **Pull down** on the diaphragm. What do you notice?
 - Now, gently **push** the balloon in. What do you notice? (The balloon lungs contract as the volume of the chest cavity gets smaller and pressure increases)."