

Possible Futures



Facilitator Guide: How to Prepare for This Lesson



STEMPLORATION

Health Sciences – Lesson 5

Blood and the Human Body

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About This Facilitator Guide

This facilitator guide provides the details to help you enable students to complete the lesson on **Blood and the Human Body – How Do You Say Phlebotomist?**

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.

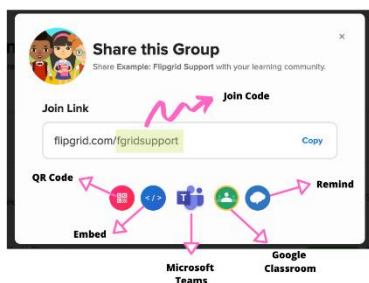
Educator Step-by-Step Guide

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

In this unit, students will follow the case of a young skateboarder from accident to recovery. Students will be introduced to the skateboarder in Lesson 1 and then meet up with him in other lessons throughout the unit as he receives care from different kinds of allied health professionals. 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 aide 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
2, 4	Explain the role of a phlebotomist.	A, B, E	1.0
1	Explain blood typing and its importance.	C, D	2.0
1	Define the different human blood types.	C, D	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 5 Components

Guiding Question

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

- **How Do You Say Phlebotomist?**

Lesson Overview

Discuss a phlebotomist's role with the students. A phlebotomist is a health professional responsible for collecting blood samples from patients. In this lesson, students will learn some basics about blood and explore the career of a phlebotomist and their role in the day-to-day operations of a doctor's office or medical lab.

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.

- **Phlebotomist:** A person who is trained to take blood from a patient
- **Platelets:** A small, round, thin blood cell that helps blood to stop flowing from a cut by becoming thick and sticky
- **Agglutination:** The clumping of particles
- **Antigen:** A harmful substance that causes the body to produce antibodies
- **Antibody:** A substance produced by the body to fight disease
- **Function:** The special purpose or activity for which a thing exists or is used
- **Universal Receiver:** A person who can receive any blood type (Type AB blood)
- **Universal Donor:** A person who can give to any blood type (Type O blood)

Learning Targets

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

- Explain the role of a phlebotomist.
- Explain blood typing and its importance.
- Define the different human blood types.

Now back to our skateboarder!

In this section, students will begin by revisiting a familiar skateboarding scenario and move on to understand the role of a phlebotomist and their role in the hospital. Students will review

a series of cards known as the process cards on Rise. They will navigate through this by using the arrows on either side of the cards.

In-Person Learning Adaptation: For in-person learning, teachers can show the role description of a phlebotomist in class and discuss relevant student experiences.

Phlebotomist as a Career

In this section, students will review the importance of a phlebotomist's role in the health care setting and how one can become a phlebotomist. They will be asked to watch the [video](#) to get a real-life perspective of the phlebotomist career.

Before they begin this activity, students are asked to download the editable PDF document for this lesson titled "Lesson 5 - Blood and the Human Body - Editable PDF." They will respond as instructed in the "**Phlebotomist as a Career!**" section of the PDF after watching the video. They will see the following information in the PDF:

"After watching the Phlebotomist as a Career video, do you think phlebotomist is a career you would be interested in? Explain why or why not. You can write complete sentences and/or create a list with key words or phrases."

In-Person Learning Adaptation: For in-person learning, teachers can show the video in class and discuss student observations.

Flipgrid Activity – Let's Talk About It

In this section, students will use Flipgrid to share their experience with blood.

The students will see the following instructions on Rise:

"Use the Flipgrid to discuss the following question prompts.

1. Why do hospitals and doctors test people's blood?
2. Have you or anyone you know had blood drawn before? If so, why?

-
3. What was your (or your friend/family member's) experience? Were you afraid? Did the phlebotomist make you feel comfortable?"

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

Blood!

Phlebotomists deal with blood as a regular part of their job. They need to be able to handle the sight of blood and needles—and to interact positively with the people they are sticking needles into! Blood is a fascinating substance.

Think about these two questions and respond to them in your editable PDF that you opened earlier in the lesson by looking for this section:

- What do you know about blood?
- What do you want to know about blood?

If you accidentally closed your PDF, re-open the editable PDF file that you saved to your device. To avoid any information loss, don't forget to save your PDF to your device after you have recorded your responses.

Next, watch the video about 10 little known facts about blood in the next section. Look for this section in your editable PDF and write down the most interesting things that you have learned about blood.

Again, to avoid any information loss, don't forget to save your PDF to your device after you have recorded your responses.

In-Person Learning Adaptation: For in-person learning, teachers can ask students to discuss their experiences with blood.

10 Little Known Facts About Blood

In this section, students will watch this [video](#) to learn some facts about blood. They will be asked to respond as instructed in the “**10 Little Known Facts About Blood Video**” section of the editable PDF. They will see the following instructions on Rise:

“After watching the video about the 10 little known facts about blood, what are the most interesting things you have learned about blood? You can write complete sentences and/or create a list with key words or phrases.”

In-Person Learning Adaptation: For in-person learning, teachers can show the video in class and discuss student observations.

Blood Quiz

Students will respond to the following questions on Rise:

1. Which blood type is most attractive to mosquitos?
 - a. Type A
 - b. Type B
 - c. Type AB
 - d. Type O
2. Which blood type can be donated to anybody?
 - a. Type A
 - b. Type B
 - c. Type AB
 - d. Type O

Components of Blood

In this section, students will learn about the parts of blood and their functions. They will be asked to watch the [video](#) to understand the components of blood.

Students are then asked to respond to the following knowledge check question on Rise:

Blood is a mixture of plasma, red blood cells, and white blood cells.

- a. *True*
- b. *False*

Feel the Blood Flow

In this section, students will learn about how blood flows in the body through an experiment that requires them to feel their pulse before and after doing 10 to 20 jumping jacks.

They will see the following instruction on Rise:
“We’ve been learning a lot about our blood and its irreplaceable nature. We’ve learned that it is alive and is flowing through our veins. Can you feel it right now?”

- Take a moment to get up from your seat and feel your pulse.
- Now do 10 to 20 jumping jacks, then feel your pulse again.”

What Is a Blood Transfusion?

In this section, students will understand the concept of blood transfusion by revisiting the skateboarding scenario. Students will be asked to watch the [video](#). They will be asked to respond as instructed in the “**What Is a Blood Transfusion?**” section of the editable PDF. They will see the following instructions in the PDF:

“Now that you have watched agglutination, the possible danger of blood transfusion, write down the most interesting thing that you learned from this video. You can write complete sentences and/or create a list with key words or phrases.”

In-Person Learning Adaptation: For in-person learning, teachers can show the video in class and discuss student observations.

What Is a Blood Type?

In this section, students will learn about 8 different blood types by watching this [video](#).

In-Person Learning Adaptation: For in-person learning, teachers can show the video in class and discuss student observations.

Who Can Receive Blood?

In this section, students will review a recap of who can receive which type of blood. The information they see is classified by blood type. They will see the following information on Rise by expanding and collapsing the accordion tabs using “+” or “-” buttons in each tab:

Patient With Type O Blood

Type O can receive only O blood. Type O blood is the universal donor – it can be given to any blood type.

Patient With Type A Blood

Type A can receive both A and O blood.

Patient With Type B Blood

Type B can receive both B and O blood.

Patient With Type AB Blood

Type AB can receive all blood types and is the universal receiver.

Blood Transfusion Game

In this game, students will play the role of a phlebotomist and ensure the right type of blood is going to the right patient. Students will see the following instructions on Rise:

“You will now do the work of a **phlebotomist** and be sure that the blood is going to the correct patient. Match the blood types in the top row with the patient that can receive them in the bottom row.”

The students will play the game through a drag and drop activity. The students will see a blood type on a card, and they must match it with the right patient type by dragging the card to the corresponding drop target. There will be four items in this activity.

Thinking About Your Future

At the end of the lesson, students will see the following statement on Rise: “In this lesson, you explored the phlebotomy career and blood.”

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

- Did you find phlebotomy to be interesting?
- How did you enjoy learning about blood?

Career Pathways

At the end of each lesson, students will be reminded that it is 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 skin, mental health and healing, and the operating room and disease risk.”

Extended Activity – Trials Before Transfusion

Materials Required:

- 4 clear plastic cups labelled: O, A, B, and AB
- Water
- Red food coloring
- Blue food coloring

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

1. “Set out four clear plastic cups labeled: O, A, B, and AB. Ensure the labels are high on the cups so they can be seen through the liquid. Mix the blood type cups in advance:
 - a. Fill each cup about halfway with water.
 - b. Leave one cup filled with clear water – this will be the ‘O’ cup.
 - c. Put several drops of red food coloring in the ‘A’ cup and stir.
 - d. Put several drops of blue food coloring in the ‘B’ cup and stir.
 - e. Put equal amounts of red and blue in the ‘AB’ cup and stir (purple).
 - f. There will now be a cup of clear water (Type O), a red water (Type A), a blue water (Type B), and a purple water (Type AB).
2. *You will take on the role of a phlebotomist preparing a trauma patient for a blood transfusion. We do not want you to harm your patient! This demonstration should help clarify the complex topic of blood type compatibility (making sure blood types are the same) and prepare you for the lab.*
3. *If you can pour one type into another and not change the color of the receiver, then the receiver can accept the donation—the transfusion will be successful!”*