

Possible Futures



Facilitator Guide: How to Prepare for This Lesson



STEMPLORATION

Health Sciences – Lesson 7

The Operating Room and Disease Risk

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About This Facilitator Guide

This facilitator guide provides the details to help you enable students to complete the lesson on **The Operating Room and Disease Risk**.

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.

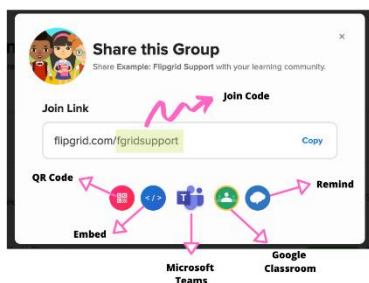
Educator Step-by-Step Guide

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 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 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 surgical technician and a sterilization technician.	A, B, E	1.0
1	Compare and contrast viruses and bacteria.	C, D	2.0
1	List the different types of PPE and when they should be used.	C, D	2.0
1	Describe how contamination occurs.	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 7 Components

Guiding Question

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

- **How Does Disease Spread?**

Lesson Overview

This lesson focuses on learning about infections and how they spread. Students will see the role of a healthcare professional in hospitals in protecting themselves and their patients from infection.

Students assume the role of sterilization technician, the behind the scenes person in the operating room who works to keep the equipment sterile. They also explore healthcare-associated infections and explore the differences between viruses and bacteria.

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.

- **Contamination:** To make (something) dangerous, dirty, or impure by adding something harmful or undesirable to it
- **Sterilization:** To clean (something) by destroying germs or bacteria
- **Infectious/infection:** The act or process of infecting someone or something: the state of being infected
- **Germ:** A very small living thing that causes disease
- **Bacteria:** Any one of a group of very small living things that often cause disease—usually plural
- **Virus:** An extremely small particle that causes a disease and that spreads from one person or animal to another
- **Personal Protective Equipment (PPE):** Clothing and equipment that is worn or used in order to provide protection against hazardous substances or environments

Learning Targets

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

- Explain the role of a surgical technician and a sterilization technician.
- Compare and contrast viruses and bacteria.

- List the different types of PPE and when they should be used.
- Describe how contamination occurs.

The Operating Room

This section provides an overview of an operating room. It provides an insight into the roles of the health care professionals that are present in an operating room like nurses, surgeons, surgical assistants, and anesthesiologists.

Then, students revisit the familiar skateboarding scenario and take on the role of a sterilization technician and their role in the hospital. Students review a series of cards known as process cards on Rise. They navigate through this by using the arrows on either side of the cards.

Students are asked to assume the role of a surgical technician specializing in sterilization, whose work is important in keeping patients safe from the microscopic dangers all around during surgery.

In-Person Learning Adaptation: For in-person learning, teachers can discuss the role description of a technician. Teachers can even consider doing a role-play of the operating room.

Bacteria and Viruses

In this section, students learn more about Healthcare Associated Infections (HAI) by reviewing the infographic titled 'Healthcare Associated Infections: The Unknown Killer'.

After reviewing the infographic, students are asked to download the editable PDF document for this lesson titled "Lesson 7 - The Operating Room and Disease Risk - Editable PDF." They will respond to the prompts in the "**Bacteria and Viruses**" section of the PDF. They will see the following information in the PDF:

"Now that you have reviewed the infographic, answer the following questions:

1. What is an HAI?
2. If you are admitted to a hospital, what is your chance of catching a healthcare associated infection?
3. How many people get an HAI a year?
4. How many people die annually, or every year, from HAIs?
5. How much do HAIs cost the system?"

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

Hidden Nasties

In this section, students will learn how viruses and bacteria cause infections by watching this Mythbusters - "Hidden Nasties" [video](#).

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

Bacteria vs. Virus

In this section, students learn how viruses and bacteria are different. Then they watch this Bacteria and viruses – What is the difference between bacteria and viruses? [video](#) which discusses the differences between bacteria and viruses.

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

After watching the video, they will answer a knowledge check question based on the video. The question is:

True or false: Viruses need a host to survive.

Answer: True. Viruses are non-living and need a host to survive.

After this, the students will learn about good bacteria that help to protect one from illnesses, called microbiome. The students watch the You Are Mainly Microbe! [video](#) to learn more about different types of bacteria.

Sources of Bacteria

This section presents a brief summary of sections covered previously.

Contamination!

In this section, students learn how infectious diseases spread and how it can be controlled.

The students watch a simulation in the How do infectious diseases spread? [video](#) to learn more about infections.

Next, students watch the Proper handwashing! What gets left on your hands when you don't wash properly? [video](#) to learn about some precautions that need to be taken as a Surgical Technician to prevent infections.

What Is PPE?

In this section, students learn about three ways in which infectious diseases spread. These are:

1. Contact methods of infection
2. Droplet methods of infection
3. Airborne methods of infection.

The students also learn about which personal protection equipment professionals wear depending on the environment and exposure. These personal protection devices are covered in the form of a Rise interactivity called the Accordion. Students will select each tab to expand it and see more information.

The Rewards of a Career

In this section, students learn the experiences of a Surgical Technician named Edward McKay Jr. by watching this More Than Medicine | Edward McKay, Jr. (Surgical Technician) [video](#).

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

Take a Stand: Surgical Technician

In this section, students are asked to consider whether or not a surgical technician's career appeals to them by taking a values self- assessment. They will be asked to respond as instructed in the **Take a Stand: Surgical Technician** section of the editable PDF. They will see the following instructions in the PDF:

"Edward shared his lenses on his career. Now it's your turn. Look at this career through your lenses. You are not making any decisions about what you want to be "when you grow up", but rather starting to think about your values and what is important to you as you look at ANY career or educational path.

Take a moment to consider more closely whether this career might appeal to you. If this career appeals to you, you would select a spot close to the Yes end of the line. Think of it as a 0-100 space where you can fill in all of the quantities in between."

In-Person Learning Adaptation: For in-person learning, teachers can discuss about what students think about a surgical technician's career.

Thinking About Your Future

At the end of the lesson, students will see the following statement on Rise: "In this lesson, you explored the surgical technician career and bacteria and viruses"

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

- Do you find the surgical technician career interesting?
- What new perspective do you have of bacteria and viruses?

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 Information Allied Health Sciences Careers](#).

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 physical and occupational therapy, mental health and healing, and physical therapy.”

Extension Activity: Contamination Simulation!

In this activity students participate in a Contamination Simulation.

Contamination Simulation: The Contamination Simulation is from Glo Germ Classroom Kit Lessons by Educational Innovations, Inc. The lesson plan and more information can be found here: https://s3.amazonaws.com/cdn.teachersource.com/downloads/lesson_pdf/GLO-210.pdf.

Students need the following materials for the exercise:

- UV LED light (black light)
- Glo Germ lotion 2 oz.: http://www.amazon.com/Glo-Germ-Gel-2-OZ/dp/B009R2HCJ4/ref=pd_sbs_194_3?ie=UTF8&refRID=1D128JWXBETAWS7WNSR6
- Hand lotion similar in color and consistency to Glo Germ lotion
- Self-adhesive, numbered name tags, or small, numbered squares of paper and tape
- Small plastic spoons (one per YP)
- 1/4 teaspoon measuring spoon
- Paper towels
- Contamination simulation record sheet (to project and then copy for teams)
- Contamination Claims-Evidence-Reasoning Note-catcher (one per team)
- Patient Classification cards (one per pair)
- Personal Protective Equipment Use (to project)