

Cybersecurity



Facilitator Guide: How to Prepare for This Lesson



Lesson 4 – Introduction to Cybersecurity

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About this Facilitator Guide

This facilitator guide provides the details to help you enable students to complete the lesson on **Introduction to Cybersecurity – What is cybersecurity? What careers can you find in cybersecurity?**

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, login to your educator account and select the blue Share button to access your Join Link and 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 a student username, or a 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's 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, click on 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 a 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 a student username or a 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, click the red Record a Response button or the Flipgrid logo for the camera to start.

When you're using 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, students will 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 to.
- 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, interviews also provide the following benefits:

- 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 per 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 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 time available:

- Best Practice: All 12 lessons in order
- Mini unit: Lessons 1 through 4 (5 is an optional addition)

- Standalone lessons: 1, 2, 3, 4, 5, 6, 7, 8, 9, and 12
- Trios: Lesson 9, 10 and 11

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 Cybersecurity unit are:

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

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

The Arizona Computer Science Standards can be found at this [link](#).

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

CLOs	Lesson Learning Outcomes	PLOs	CLSSs	CSSs
1	Define cybersecurity.	D	2.0, 5.0	IC.C.1
1	Evaluate how the Internet of things impacts cybersecurity.	D	2.0, 5.0	IC.C.1
1	Evaluate the importance of cybersecurity in their lives.	D	2.0, 5.0, 7.0	IC.C.1
2, 4, 5	Explore the trade-offs associated with using computer technology in various career fields.	A, B, E	1.0, 2.0, 5.0	IC.C.1
2, 5	Identify the different careers in Cybersecurity.	A, B, E	1.0, 2.0, 5.0	IC.C.1

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 completion of lessons by students.

Lesson 4 Components

Guiding Question

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

- **What is cybersecurity? What careers can you find in Cybersecurity?**

Lesson Overview

In this lesson, the students are introduced to the topics of cybersecurity and the Internet of Things. First, the students view some videos to learn about cybersecurity and the Internet of Things. Next, they read an article about the Internet of Things and identify how it relates to cybersecurity. Then the students are introduced to different careers in cybersecurity. They find out what kinds of careers interest them by doing an activity that shows the various career paths in cybersecurity. Lastly, the students find out if cybersecurity is the right field for them by "taking a stand" to show how they feel about each question regarding cybersecurity and if it sounds like a career they would enjoy.

Learning Targets

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

- Define cybersecurity.
- Evaluate how the Internet of things impacts cybersecurity.
- Evaluate the importance of cybersecurity in their lives.
- Explore the trade-offs associated with using computer technology in various career fields.
- Identify the different careers in Cybersecurity.
- Evaluate the trade-offs associated with using computer technology in various career fields.

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.

- **Cybersecurity:** The protection of internet and computer devices in both the physical and digital worlds.
- **Internet of things:** How all of our devices are connected together and interact over the internet.
- **Industry:** Relates to an overarching job field or interest that has many opportunities.
- **Coding:** Writing programs for applications or web browsers.
- **Career:** A lifelong job that fulfills your interest and excitement.
- **Sectors:** Different categories of jobs.

What is Cybersecurity? – Video

In this section, students learn about the significance of cybersecurity. They learn that cybersecurity is about defending computers, mobile devices, programs, networks, and data or information of persons or organizations from unauthorized access, theft, and criminal use. The students are then asked to watch a [Cybersecurity and Crime video](#) to learn about the most common types of cybercrime.

In-person Learning Adaptation: For in-person learning, the facilitator can show the video via a projector or a Smart board and ask students to discuss any queries or observations on the video.

The facilitator can also do the following:

- Divide the class into 4 groups.

 - Group 1 represents digital activities/footprints.

 - Group 2 represents the cyber threats to yourself and others.

 - Group 3 represents threat prevention strategies.

 - Group 4 represents cybersecurity.

- Divide the board or smart board into 4 sections (an alternative can be using posters).

- Direct all groups to brainstorm how they participate in online activities and how that impacts their digital footprint.

- Invite Group 1 to the board and have them list online activities they participate in.

- Ask groups 2, 3, and 4 to share additional ideas that group 1 might have overlooked.

- Invite Group 2 to the board and have them list and explain the potential cyber threats associated with the responses from Group 1.

- Ask groups 1, 3, and 4 to share additional ideas that group 2 might have overlooked.

- Invite Group 3 to the board and have them list example threat prevention strategies to mitigate the potential cyber threats associated with the responses from Groups 1 and 2.

- Ask groups 1, 2, and 4 to share additional ideas that group 3 might have overlooked.

- Invite Group 4 to the board and have them list and explain how they believe cybersecurity impacts and relates to the responses from Groups 1, 2, and 3.

- Ask groups 1, 2, and 3 to share additional ideas that group 4 might have overlooked.

The Internet of Things and Cybersecurity

In this section, students learn what the Internet of Things means, the growing threats as an increasing number of devices connect to the internet, and its impact on cybersecurity. The students are asked to watch a [What is the Internet of Things video](#) to learn more about the internet of things through images and examples.

The students are then asked to review one of the following articles to learn about the Internet of Things in detail. Both articles explain the Internet of Things with examples and other aspects associated with it in depth.

<https://www.zdnet.com/article/what-is-the-internet-of-things-everything-you-need-to-know-about-the-iot-right-now/>

or

<https://www.kidscodecs.com/what-is-internet-of-things/>

After watching the video and reviewing the link, the students are prompted to summarize what they have learned about the Internet of Things by completing the **Internet of Things and Cybersecurity** section in this lesson's editable PDF.

In-person Learning Adaptation: For in-person learning, the facilitator can do the following:

Instruct the class to form two circles: an inner circle and an outer circle, facing each other.

Have the students facing each other discuss the following questions:

What devices do you own or are familiar with that you think are considered part of the internet of things?

How are your devices vulnerable to cyber threats?

How do you protect your devices?

Why do you think cybersecurity is important?

Direct students to change positions after answering the first question.

Example: Have the outer circle move 3 positions to the left and the inner circle move to the right.

Continue to have them rotate after each question, varying directions each time. Questions may be repeated since you will be asking different students and getting different answers. Add additional questions as needed.

The facilitator can also do the following:

Give students a sticky note and ask them to write down an example of an Internet of Things device.

Invite students to add their sticky notes to the board and identify several Internet of Things devices that can be focused on (for example, cell phone, laptop, smart TV, smart Fridge, smart Light bulb, tablet, etc.).

Divide students into groups and assign each group a different Internet of Things devices.

Provide each group with a poster paper and ask them to create a T-chart on the poster.

As a group, have them brainstorm the benefits of using the Internet of Things device they were assigned.

Bring the students back together and ask them to share their benefits for their Internet of Things device.

Ask students to discuss in their groups what they know about privacy, targeted ads, and other negatives that come from using the devices and have them add the negative impacts of using their IoT device to their T-chart.

Invite groups to share the negative impacts of their Internet of Things device. Listen for answers like:

Devices use my location to share information about my habits.

Microphone access allows for apps to share and record conversations.

Bad actors can hijack my tech through vulnerabilities.

Advertisers access data from devices to sell me targeted ads.

Ask students to discuss if the benefits of technology outweigh the negative impacts. Are the trade-offs worth it? What are the alternatives?

Introduction to Cybersecurity Careers – Video

In this section, students learn about several careers in cybersecurity and the role of dedicated professionals who handle cybersecurity. The students then watch [An Introduction to Cybersecurity Careers video](#) to learn more about the kinds of careers that exist in cybersecurity. The students are encouraged to pursue a career in this field, and they will also learn some tips on how to prepare for a career in this field.

In-person Learning Adaptation: For in-person learning, the facilitator can share the video via a projector or a Smart board and ask students to discuss their thoughts and opinion on a career in cybersecurity.

Career Pathways

In this section, students complete an activity where they create different career paths in cybersecurity. The students are prompted to visit the [Cyberseek website](#), which maps out a variety of cyber related career paths and answer the questions in the **Career Pathways** of this lesson's editable PDF.

In-person Learning Adaptation: For in-person learning, the facilitator can share the Cyberseek website link via a projector and ask the students to complete the PDF activity in the class.

Take a Stand

In this section, students first watch a [Cybersecurity at ASU video](#) to learn about degree programs offered by ASU and then they are asked to consider more closely whether or not this career field might appeal to them by completing the **Take a Stand: Cyber Security Careers** section in this lesson's editable PDF.

The PDF contains the following instructions:

“Read each statement below about system software development careers and then indicate on the continuum how important the statement is to you by selecting the preferable spot on the line.”

Students are asked to use a sliding scale to mark how much the statement is important to their values.

Thinking About Your Future

At the end of the lesson, students see the following statement in Rise: “In this lesson you learned about a variety of careers in cybersecurity.”

Before the next lesson, think about how you might respond to these questions:

- What excites you about the idea of working in cybersecurity?
- Did you know there were so many jobs available in cybersecurity?

Career Pathways

Share the following with your students: “It’s never too soon to start exploring future career options!”

Students can access the resources at this link, [PipelineAZ Information Technology](#).

Lesson Completion

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

In future lessons, you will learn more about networks, encryption, and hacking.