

# Possible Futures



## Facilitator Guide: How to Prepare for This Lesson



## STEMPLORATION

### Information Technology

### Lesson 1—Introduction to Information Technology

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## About This Facilitator Guide

This facilitator guide provides the details to help you enable students to complete the lesson **Introduction to Information Technology: What Might Interest Me in Information Technology?**

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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 enable you to help your students who may be completing this lesson in the classroom instead of online. Callouts 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.

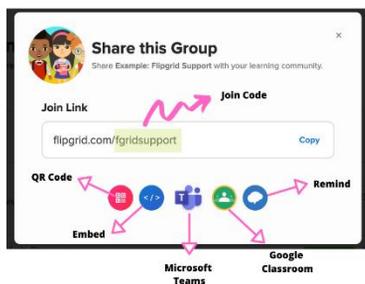
### *Educator Step-by-Step Guide*

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 Flipgrid's 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 Code, as well as other ways to share your discussion.



The Join Code also creates a link. Copy and 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 home page.

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.

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## 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](#)

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## 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 or a591dc5d) or a QR code
- A Join Link (e.g., <https://flipgrid.com/FGrid3567> or <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, do either of these:
  - 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, select the red Record a Response button or the Flipgrid logo for the camera to start.

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**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.

Students who will be using Chromebooks 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](#).

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## “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 and current job roles and responsibilities and to 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 postsecondary training or apprenticeship 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 students.

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**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](#)

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## 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:

- Recommended combinations: Choose any of the following:
  - Lesson 4 as a stand-alone lesson
  - Pairs: Lessons 2 and 3, Lessons 4 and 6, Lessons 3 and 4, and Lessons 4 and 5
  - Trios: Lessons 3 through 5 or Lessons 4 through 6
- Mini four-lesson unit: Lessons 1 and 2 and Lessons 4 and 5
- The Introduction to Information Technology unit: Lessons 1 through 3 in sequential order

## Alignment of Learning Outcomes

The program learning outcomes for Possible Futures 2.0 are as follows:

- A. Gain awareness of and exposure to a wide array of careers.
- B. Increase self-awareness and begin to form one's 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 Information Technology unit are as follows:

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

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

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

<b>CL Os</b>	<b>Lesson Learning Outcomes</b>	<b>PLOs</b>	<b>CLSs</b>
2, 3	Describe some of the careers in information technology.	A, B, E	1.0, 5.0
2, 4	Explain why it is important to make informed career choices.	E	1.0, 2.0
5	Use a digital medium to learn more about a specific career.	D, F	5.0, 7.0

### 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 completion of lessons by students.

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## Lesson 1 Components

### Guiding Question

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

- **What Might Interest Me in Information Technology?**

### Lesson Overview

This section provides an overview of the lesson. In this lesson, students look at the job descriptions of various roles in the Information Technology field. They will also look at the educational pathways available for building a career in each of these roles. Students will solve a data activity, and then discuss their observations with the class.

### 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.

- **Information Technology:** The study, design, development, implementation, support, or management of computer-based information systems
- **Self:** Your self is your sense of who you are, deep down—your identity
- **Security:** Freedom from potential harm and financial worry
- **Society:** The people around you, including your family, your community, and the world

### Learning Targets

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

- Describe most of the careers in information technology
- Explain why it is important to make informed career choices
- Use a digital medium to learn more about a specific career

### Process Block: Let's Solve a Mystery!

This activity contains an introduction and three steps that are presented in a Rise course component called a process block. By selecting the arrows on the left or the right of the process block, the student can view the steps or sections as needed.

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The introduction can be read out to students, and the function of the arrows will need to be explained to them for this activity.

**In-Person Learning Adaptation:** For in-person learning, the facilitator may provide the students facts about the various statistics present in the process block activity.

The process block can also be projected via Zoom/Skype or in person via a projector.

## Career Gallery Walk: Flip Card Activity

Students should use the flip card activity to familiarize themselves with different occupations related to information technology in this lesson.

Instead of keywords, there are a series of seven flip cards at the end of the introductory text for this activity.

The arrows to the left and the right cycle between the flip cards. The descriptions are listed as follows:

### 1. Systems Software Developers

- a. **Job Description:** Systems programmers build the operating systems that run the computers in everything we use from medical devices and cars to refrigerators and airplanes. Software engineering jobs can be found in computer and electronic manufacturers, aerospace, medical device manufacturers, telecommunications and so much more!  
They combine skills in computer science with a knowledge of engineering disciplines, science, and electronics.
- b. **Educational Pathway:** Most have bachelor's or advanced degrees in engineering, math, or computer science.
- c. **Average Salary:** The annual salary for systems software developers is an average of \$107,600.

### 2. Application Software Developers

- a. **Job Description:** Business application programmers create the programs we use on our computers, smartphones, and tablets. They design, create, code, and test all kinds of applications.

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- b. **Educational Pathway:** Successful developers combine their knowledge of programming, systems analysis, databases, and web technologies as well as business. Many have a bachelor's degree in computer science and, often, a minor in business.
  - c. **Average Salary:** The average salary for application software developers is \$101,790.

### 3. Graphic Designers

- a. **Job Description:** Graphic designers combine art and technology. They create the images and layout of websites, applications, and print items.
- b. **Educational Pathway:** Graphic designers have a bachelor's degree in graphic design or a related field.
- c. **Average Salary:** The median salary for graphic designers is \$52,110.

### 4. Software Quality Assurance Engineers and Testers

- a. **Job Description:** Software quality assurance engineers monitor and test software to ensure it meets company standards. They oversee the software development process and ensure that any problems are brought back to the development team. They help ensure that software production stays on time and within a budget.
- b. **Educational Pathway:** Jobs in this field usually require at least a bachelor's or master's degree in software design, engineering, or computer science.
- c. **Average Salary:** The median annual salary for software quality assurance engineers is \$88,510.

### 5. Marketing Researchers/Managers

- a. **Job Description:** Marketing researchers and managers generate sales by planning and managing marketing to customers. They test the level of interest in new products or services, plan social media and other marketing campaigns to get the word out, and manage budgets and advertising contracts.
- b. **Educational Pathway:** Fifty-six percent of marketing managers have a 4-year degree and another 24% have their master's degree.
- c. **Average Salary:** The median salary for marketing managers is \$132,230.

### 6. Computer Support Specialists

- a. **Job Description:** Computer support specialists provide help and advice to computer users and organizations.

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- b. **Educational Pathway:** Because of the wide range of skills used in different computer support jobs, there are many paths into the occupation. A bachelor's degree is required for most computer support specialist positions, but an associate's degree or postsecondary classes may be enough for others.
  - c. **Average Salary:** The annual median pay for computer support specialists is \$55,510.

## 7. Network and Computer Systems Administrators

- a. **Job Description:** Network and computer systems administrators oversee the day-to-day functioning of computer systems. They work with the physical computer networks in a variety of organizations and therefore are employed in many industries.
- b. **Educational Pathway:** Most employers require network and computer systems administrators to have a bachelor's degree in a field related to computer or information science. Others may require only a postsecondary certificate or an associate's degree.
- c. **Average Salary:** The median pay for network and computer systems administrators is \$84,810 per year.

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**In-Person Learning Adaptation:** For in-person learning, teachers can give out the information presented in the flip cards by using the information presented previously as a fillable table on-screen or on a whiteboard.

Students can discuss or estimate what each career's job description, educational pathway, or average salary is.

Teachers can help them along by providing useful facts and information, as necessary.

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## Flipgrid Discussion: Which IT Job Looks Most Interesting to You?

Students will be able to contribute feedback based on the previous flip card activity about careers in information technology via Flipgrid. As described earlier, Flipgrid is a tool that allows you and your students to contribute to a video discussion on this topic. Students do not need to create a log-in, but they will need to use their school email address and the unique Flip Code provided by their teacher to access the correct discussion space.

When students are getting ready to create and post their video, be sure to remind them to include the **hashtag** that you, as the teacher, has assigned to the class in the **title**. If students are working with other students and submitting one post for the group, be sure they include the names of all participants in the title too.

**In-Person Learning Adaptation:** For in-person learning, students can work in pairs. Teachers can facilitate a classroom discussion instead of using Flipgrid.

## Let's Talk About It

In this section, students use the following Flipgrid to answer the questions about which IT career looks most interesting to them. They will have a few minutes to answer the questions independently, then they will be able to discuss with their partner.

- Which information technology career grabbed your attention first?
- What is one thing you might like about the career you choose?
- What is one thing you would like to learn about working in information technology?

## Thinking About Your Future

**At the end of the lesson, students will see the following statement on Rise:** "You have examined the many career options available in information technology. In this lesson, you explored what many of those IT careers have to offer. Before the next lesson, think about how you might respond to these questions:"

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

- How did your experiences in this lesson change your views on information technology?
- Are you interested in a different branch of IT now than before you completed this lesson? Why or why not?

**Share the following with your students:** “It’s never too soon to start exploring future career options! Check out this resource to help you learn about

- various jobs in the information technology field,
- projected growth, and
- potential earnings.

## 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 engineering field,
- projected growth, and
- 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 have the opportunity to explore the many aspects of information technology in more depth and try out building an app of your own!”

After thinking about the information technology career you found most interesting, complete the Exit Ticket: Oh, the Places You’ll Go!”

## Editable PDF—Exit Ticket: Oh, the Places You’ll Go!

There is an editable PDF that allows students to answer and save questions about which information technology career they preferred.

The PDF asks students to answer the following:

- 
- What IT career they chose and why
  - Questions about their self
    - Of the skills, abilities, and personality traits listed, which do you think is your strongest?
    - Of the skills, abilities, and personality traits listed, which do you think is your strongest?
  - Questions about security
    - Do you think the salary range will allow you to live the lifestyle you desire? Explain.
  - Questions about society that ask
    - How do you think the career you chose fits into society? Does it have the potential to help people? To add something good to the world?

## Extension Activities

If students have completed the lesson, encourage them to either complete a different Hour of Code Tutorial or progress to the 20 hours of coding through Khan Academy and to continue their work at home through <https://studio.code.org/> or <https://studio.code.org/s/20-hour>.

If students have completed all 20 hours of code, encourage them to engage in more challenging Scratch Code tutorials: <https://scratch.mit.edu/hoc>.