Computer Science Principles '23-'24 Resources

Unit 1 - Digital Information ('23-'24)

Lesson 1: Welcome to CSP

Resources	Preparation
For the teachers • **CSP Unit 1 Slides** - Slides [▾ Make a Copy] • **How to Administer a Locked Assessment** • **How to videos** - Video • **Welcome to CSP** - Slides (**Download**) [▾ Make a Copy] For the students • **Computer Science is Changing Everything** - Video (**Download**) • **Personal Innovations** - Activity Guide [▾ Make a Copy] • **Personal Innovations** - Rubric [▾ Make a Copy]	• Procure poster paper for sharing innovations • Queue up CS is Changing Everything video • Setup section in Code Studio for this course • Have student sign-up link ready to share • Check the **"Teacher's Lounge"** forum for verified teachers to find additional strategies or resources shared by fellow teachers • If you are teaching virtually, consider checking our **Virtual Lesson Modifications**

Lesson 2: Representing Information

Resources	Preparation
For the teachers - **Representing Information** - Slides (**Download**) [▾ Make a Copy] **For the students** - **Unit 1 Journal (Digital)** - Resource [▾ Make a Copy] - **Unit 1 Journal (Interactive Notebook)** - Resource [▾ Make a Copy]	- Reusable and consumable supplies for the classroom, such as markers, small flashlights, noisemakers, bells, whistles, cups and string, straws, slinkies, blocks, or colored paper. - Check the **"Teacher's Lounge"** forum for verified teachers to find additional strategies or resources shared by fellow teachers - If you are teaching virtually, consider checking our **Virtual Lesson Modifications**

Lesson 3: Circle Square Patterns

Resources	Preparation
For the teachers - **Circle Square Patterns** - Slides (**Download**) [▾ Make a Copy] **For the students** - **Circle Square Patterns** - Activity Guide [▾ Make a Copy] - **Shape Cutouts** - Resource [▾ Make a Copy]	- Have scissors ready for groups to create **Shape Cutouts** or have these pre-cut and prepared before class - Check the **"Teacher's Lounge"** forum for verified teachers to find additional strategies or resources shared by fellow teachers - If you are teaching virtually, consider checking our **Virtual Lesson Modifications**

Lesson 4: Binary Numbers

Resources	Preparation
For the teachers • **Binary Numbers** - Slides (**Download**) ▾ Make a Copy • **U1 L4 How to Make a FlippyDo** - Teacher Guide ▾ Make a Copy **For the students** • **Flippy Do** • **U1 L4 Flippy Do Pt 1 - Activity Guide** - Activity Guide ▾ Make a Copy	• Scissors (many pairs) • Printed copies of **Flippy Do** • **KEY U1L4 Flippy Do Pt 1** • Check the **"Teacher's Lounge"** forum for verified teachers to find additional strategies or resources shared by fellow teachers • If you are teaching virtually, consider checking our **Virtual Lesson Modifications**

Lesson 5: Overflow and Rounding

Resources	Preparation
For the teachers • **Overflow and Rounding** - Slides (**Download**) ▾ Make a Copy	• Work through the Candy Shop exercise yourself so you can see where your students may get stuck or have questions. • Check the **"Teacher's Lounge"** forum for verified teachers to find additional strategies or resources shared by fellow teachers. • If you are teaching virtually, consider checking our **Virtual Lesson Modifications**

Lesson 6: Representing Text

Resources	Preparation
For the teachers • **Representing Text** - Slides (**Download**) ▾ Make a Copy **For the students** • **ASCII Reference Sheet** ▾ Make a Copy	• Decide how you will distribute challenge phrases to students • Access to journals, paper, or other places that students can write down systems for the main activity. • Optionally print copies of ASCII Reference Sheet or prepare to project it • Check the **"Teacher's Lounge"** forum for verified teachers to find additional strategies or resources shared by fellow teachers • If you are teaching virtually, consider checking our **Virtual Lesson Modifications**

Lesson 7: Black and White Images

Resources	Preparation
For the teachers • **Black and White Images** - Slides (**Download**) ▾ Make a Copy **For the students** • **Activity Guide - Black and White Images** - Activity Guide ▾ Make a Copy • **B&W Pixelation Tutorial** - Video (**Download**)	• Practice using the pixelation widget • Copies of **Activity Guide - Black and White Images** for each pair of students • **KEY U1L7 Black and White Images** • Check the **"Teacher's Lounge"** forum for verified teachers to find additional strategies or resources shared by fellow teachers • If you are teaching virtually, consider checking our **Virtual Lesson Modifications**

Lesson 8: Color Images

Resources	Preparation
For the teachers • **Color Images** - Slides (**Download**) ▾ Make a Copy **For the students** • **How Computers Work - Data and Binary** - Video (**Download**)	• Practice using the color pixelation widget • Review slides from **CSP Unit 1 - Digital Information** • Check the **"Teacher's Lounge"** forum for verified teachers to find additional strategies or resources shared by fellow teachers • If you are teaching virtually, consider checking our **Virtual Lesson Modifications**

Lesson 9: Lossless Compression

Resources	Preparation
For the teachers • **Lossless Compression** - Slides (**Download**) ▾ Make a Copy **For the students** • **Text Compression widget (tutorial)** - Video (**Download**)	• Familiarize yourself with the Text Compression Widget • Open Unit 1 Slideshow to current lesson • Plan for how you will display the initial Pitter Patter Message & it's Compressed Message during the warm-up • Check the **"Teacher's Lounge"** forum for verified teachers to find additional strategies or resources shared by fellow teachers • If you are teaching virtually, consider checking our **Virtual Lesson Modifications**

Lesson 10: Lossy Compression

Resources	Preparation
For the teachers • **Lossy Compression** - Slides (**Download**) ▼ Make a Copy	• Explore each of the widgets for this lesson • Decide how you will let students share their lossy compressions with each other or the whole class • Have **CSP Unit 1 - Digital Information** ready for the discussion towards the end of the lesson • Check the **"Teacher's Lounge"** forum for verified teachers to find additional strategies or resources shared by fellow teachers • If you are teaching virtually, consider checking our **Virtual Lesson Modifications**

Lesson 11: Intellectual Property

Resources	Preparation
For the teachers • **Intellectual Property** - Slides (**Download**) ▼ Make a Copy For the students • **Article - Fortnite Stealing Dance Moves** • **Copyright Overview** - Video • **Copyright in Practice** - Video • **Creative Commons Copyright** - Video	• Print out **Article - Fortnite Stealing Dance Moves** with highlighters ready to mark the text. If you are unable to print copies, see the Teaching Tip below. • Check the **"Teacher's Lounge"** forum for verified teachers to find additional strategies or resources shared by fellow teachers • If you are teaching virtually, consider checking our **Virtual Lesson Modifications**

Lesson 12: Project Digital Information Dilemmas

Resources	Preparation

For the teachers
 	
• **CSP Bingo Cards - Unit One** - Handout (**Download**)
• **CSP Bingo Generator** - Resource
• **Digital Dilemmas** - Slides (**Download**)
  ▼ Make a Copy
 	
For the students
 	
• **CSP Unit 1 Project Rubric** - Rubric
  ▼ Make a Copy
• **DNA Testing Kits & The Security Risks in Digitized DNA** - Article
• **Judge Rules in Favor of 'NBA 2K' Creators in Case Brought by Tattoo Artists** - Resource
• **The Ethics of Computer-Generated Actors**
	• Print copies of articles for students
	• Check the **"Teacher's Lounge"** forum for verified teachers to find additional strategies or resources shared by fellow teachers
	• If you are teaching virtually, consider checking our Virtual Lesson Modifications **Day 1 Day 2**

Lesson 13: Assessment Day

Resources	Preparation
For the teachers • **Assessment Day - Digital Information** - Slides ▼ Make a Copy	• Preview the assessment questions

Unit 2 - The Internet ('23-'24)

Lesson 1: Welcome to the Internet

Resources	Preparation
For the teachers • **CSP Unit 2 Slides** - Slides ⯆ Make a Copy • **Welcome to the Internet** - Slides ⯆ Make a Copy **For the students** • **Unit 2 Journal - Digital** - Resource ⯆ Make a Copy • **Unit 2 Journal - Interactive Notebook** - Resource ⯆ Make a Copy • **What is the Internet?** - Video (**Download**)	• Test out the Internet Simulator. If you open up the level on two different tabs, you can use it by yourself. • Prepare for the Teacher Demo. • Check the **"Teacher's Lounge"** forum for verified teachers to find additional strategies or resources shared by fellow teachers • If you are teaching virtually, consider checking our **Virtual Lesson Modifications**

Lesson 2: Building a Network

Resources	Preparation
For the teachers • **Building a Network** - Slides ⯆ Make a Copy	• Cut strings between 1.5 and 3 feet long. Each student will need 2 of these strings. A ball of yarn can work really well here. • Decide how you would like students to physically form their networks - standing, in seats, etc. • Check the **"Teacher's Lounge"** forum for verified teachers to find additional strategies or resources shared by fellow teachers • If you are teaching virtually, consider checking our **Virtual Lesson Modifications**

Lesson 3: The Need for Addressing

Resources	Preparation
For the teachers • **The Need for Addressing** - Slides ▾ Make a Copy **For the students** • **The Internet: IP Addresses and DNS** - Video (**Download**) • **U2L03 The Need for Addressing** - Activity Guide ▾ Make a Copy	• Preview the Internet Simulator (Broadcast version) • Preview the Wrap Up slides in **CSP Unit 2 - The Internet** • Preview the **The Internet: IP Addresses - Video** • Check the **"Teacher's Lounge"** forum for verified teachers to find additional strategies or resources shared by fellow teachers • If you are teaching virtually, consider checking our **Virtual Lesson Modifications**

Lesson 4: Routers and Redundancy

Resources	Preparation

For the teachers
 	
• **Routers and Redundancy** - Slides
    ▾ Make a Copy
• **Teacher Guide - Routers & Redundancy - Unit 2 Lesson 4** - Activity Guide
    ▾ Make a Copy
	• Read through **Teacher Guide - Routers & Redundancy - Unit 2 Lesson 4** in order to:
	    ○ Test the Internet Simulator to understand how the tool works
	    ○ Prepare routers ahead of time so they are available for students to join when the activity starts
	    ○ Decide how you will be proactive to avoid students sending inappropriate messages and prepare for how you will react should this happen anyway
	• Check the **"Teacher's Lounge"** forum for verified teachers to find additional strategies or resources shared by fellow teachers
	• If you are teaching virtually, consider checking our **Virtual Lesson Modifications**

Lesson 5: Packets

Resources	Preparation
For the teachers • **Packets** - Slides [▾ Make a Copy] **For the students** • **The Internet: Packets, Routing, and Reliability** - Video (**Download**) • **U2L05 Packets** - Activity Guide [▾ Make a Copy]	• You can test out versions of the Internet Simulator by opening it in two tabs and communicating with yourself. Briefly try out the activity in the activity guide, including sending the messages and reading the logs, to understand what students will see. • Preview **The Internet: Packets, Routing, and Reliability**. • The previous lesson's **Teacher Guide - Routers & Redundancy - Unit 2 Lesson 4** contains helpful tips on setting up routers and managing student conversations. • Check the **"Teacher's Lounge"** forum for verified teachers to find additional strategies or resources shared by fellow teachers • If you are teaching virtually, consider checking our **Virtual Lesson Modifications**

Lesson 6: HTTP and DNS

Resources	Preparation
For the teachers • **HTTP and DNS** - Slides [▾ Make a Copy] • **IP Address Labels** - Resource [▾ Make a Copy] **For the students** • **Layers of the Internet** - Activity Guide [▾ Make a Copy] • **The Internet: HTTP and HTML** - Video (**Download**) • **The Internet: IP Addresses and DNS** - Video (**Download**)	• Preview the version of the Internet Simulator used in this lesson. You can quickly practice using this version with a single browser window and no partner. • Preview **The Internet: IP Addresses and DNS**. Specifically the portion starting after 4:09 on DNS. • Preview **The Internet: HTTP and HTML** • Check the **"Teacher's Lounge"** forum for verified teachers to find additional strategies or resources shared by fellow teachers • If you are teaching virtually, consider checking our **Virtual Lesson Modifications**

Lesson 7: Project - Internet Dilemmas

Resources	Preparation

For the teachers
 	
• **CSP Bingo Cards - Unit Two** - Handout (**Download**)
• **CSP Bingo Generator** - Resource
• **Project - Internet Dilemmas** - Slides
   ▼ Make a Copy
 	
For the students
 	
• **Internet Dilemmas** - Project Guide
   ▼ Make a Copy
	• Review the poster from Lesson 1 and pick a few sticky notes to talk about it in the Warm Up.
	• Preview the articles in order to answer student questions.
	• Check the **"Teacher's Lounge"** forum for verified teachers to find additional strategies or resources shared by fellow teachers
	• If you are teaching virtually, consider checking our Virtual Lesson Modifications **Day 1** and **Day 2**

Lesson 8: Assessment Day

Resources	Preparation
For the teachers • **Assessment Day - The Internet** - Slides ▼ Make a Copy	• Preview the assessment questions

Unit 3 - Intro to App Design ('23-'24)

Lesson 1: Introduction to Apps

Resources	Preparation

For the teachers
 	
• **CSP Unit 3 Slides** - Slides ▾ Make a Copy
• **Introduction to Apps** - Slides
  ▾ Make a Copy
 	
For the students
 	
• **How Computers Work - What Makes a Computer, a Computer** - Video (**Download**)
• **Unit 3 Digital Journal** - Resource
  ▾ Make a Copy
• **Unit 3 Interactive Notebook Journal** - Resource ▾ Make a Copy
	• Preview the How Computers Work Video
	• Explore the apps used in this lesson
	• Check the **"Teacher's Lounge"** forum for verified teachers to find additional strategies or resources shared by fellow teachers
	• If you are teaching virtually, consider checking our **Virtual Lesson Modifications**

Lesson 2: Introduction to Design Mode

Resources	Preparation
For the teachers • **Introduction to Design Mode** - Slides ▾ Make a Copy	• Review the programming levels to ensure you understand the fundamentals of Design Mode in App Lab and how elements are created and their properties are modified. • Check the **"Teacher's Lounge"** forum for verified teachers to find additional strategies or resources shared by fellow teachers • If you are teaching virtually, consider checking our **Virtual Lesson Modifications**

Lesson 3: Project - Designing an App Part 1

Resources	Preparation
For the teachers • **Designing an App - Days 1-2** - Slides ▾ Make a Copy **For the students** • **App Development Planning Guide** - Activity Guide ▾ Make a Copy	• Read over the **App Development Planning Guide** • Check the **"Teacher's Lounge"** forum for verified teachers to find additional strategies or resources shared by fellow teachers • If you are teaching virtually, consider checking our Virtual Lesson Modifications **Day 1** and **Day 2**

Lesson 4: The Need for Programming Languages

Resources	Preparation
For the teachers • **The Need for Programming Languages** - Slides ▾ Make a Copy	• Prepare either a small set of LEGO blocks or paper cutouts for each pair of students • Check the **"Teacher's Lounge"** forum for verified teachers to find additional strategies or resources shared by fellow teachers • If you are teaching virtually, consider checking our **Virtual Lesson Modifications**

Lesson 5: Intro to Programming

Resources	Preparation
For the teachers • **Intro to Programming** - Slides ▾ Make a Copy	• Review the example apps and the prompts that students will be asked to respond to for each • Review the information covered in the slides at the conclusion of the lesson • Check the **"Teacher's Lounge"** forum for verified teachers to find additional strategies or resources shared by fellow teachers • If you are teaching virtually, consider checking our **Virtual Lesson Modifications**

Lesson 6: Debugging

Resources	Preparation
For the teachers - **Debugging** - Resource ⬇ Make a Copy - **Debugging** - Slides ⬇ Make a Copy **For the students** - **Class Chats: Olawale Oladehin** - Video (**Download**) - **How To Debug** - Video (**Download**)	- Review the steps of the debugging process - Review the **Debugging** one-pager - Review the levels students will need to complete on Code Studio - Check the **"Teacher's Lounge"** forum for verified teachers to find additional strategies or resources shared by fellow teachers - If you are teaching virtually, consider checking our **Virtual Lesson Modifications**

Lesson 7: Project - Designing an App Part 2

Resources	Preparation
For the teachers - **CSP Bingo Cards - Unit Three** - Handout (**Download**) - **CSP Bingo Generator** - Resource - **Designing an App - Days 3-5** - Slides ⬇ Make a Copy **For the students** - **App Development Planning Guide** - Activity Guide ⬇ Make a Copy - **Pair Programming** - Video (**Download**)	- Make sure students have access to their App Development Planning Guides - Check the **"Teacher's Lounge"** forum for verified teachers to find additional strategies or resources shared by fellow teachers - If you are teaching virtually, consider checking our Virtual Lesson Modifications for **Day 3**, **Day 4**, and **Day 5**.

Lesson 8: Assessment Day

Resources	Preparation
For the teachers - **Assessment Day - Intro to App Development** - Slides [▼ Make a Copy] For the students - **App Development Planning Guide** - Activity Guide [▼ Make a Copy]	- Preview the questions on the assessment. - If you are teaching this virtually, consider checking out the **Virtual Modifications**

Unit 4 - Variables, Conditionals, and Functions ('23-'24)

Lesson 1: Variables Explore	
Resources	**Preparation**

For the teachers
 	
- **CSP Debugging Guide** - Resource
  [▼ Make a Copy]
- **CSP Unit 4 -Variables, Conditionals, and Functions** - Slides [▼ Make a Copy]
- **CSP Unit 4 Lesson 1 - Variables Explore** - Slides [▼ Make a Copy]
- **EIPM: A Short Introduction** - Resource
  [▼ Make a Copy]
- **Guide to EIPM Lessons** - Video
 	
For the students
 	
- **CSP Variables Make - Photo Liker App** - Activity Guide [▼ Make a Copy]
- **Debugging Global vs Local Variables** - Video (**Download**)
- **Unit 4 Journal (Digital)** - Resource
  [▼ Make a Copy]
- **Unit 4 Journal (Interactive Notebook)** - Resource [▼ Make a Copy]
	For the entire EIPM Sequence:
	
	- Review the information covered in the slides.
	- Try completing the Make Task yourself.
	- Check the **"Teacher's Lounge"** forum for verified teachers to find additional strategies or resources shared by fellow teachers.
	- If you are teaching this virtually, consider checking our **Virtual Modifications**.
	
	▶ **Explore:**
	▶ **Investigate:**
	▶ **Practice:**
	▶ **Make:**

Lesson 2: Variables Investigate	

Resources	Preparation

For the teachers
 	
• **EIPM: A Short Introduction** - Resource
  ▾ Make a Copy
• **Guide to EIPM Lessons** - Video
• **Guide to Investigate Lessons** - Video
• **Variables Investigate** - Slides
  ▾ Make a Copy
	• Review the example apps and the prompts that students will be asked to respond to for each
	• Review the information covered in the slides
	• Check the **"Teacher's Lounge"** forum for verified teachers to find additional strategies or resources shared by fellow teachers

Lesson 3: Variables Practice

Resources	Preparation
For the teachers • **CSP Debugging Guide** ▾ Make a Copy • **EIPM: A Short Introduction** - Resource ▾ Make a Copy • **Guide to EIPM Lessons** - Video • **Guide to Practice Lessons** - Video • **Variables Practice** - Slides ▾ Make a Copy For the students • **Debugging Global vs Local Variables** - Video (**Download**)	• Review the video in the level progression that covers global vs. local variables. This is a tricky topic. • Review other programming levels to be better prepared to support students • Check the **"Teacher's Lounge"** forum for verified teachers to find additional strategies or resources shared by fellow teachers • If you are teaching virtually, consider checking our **Virtual Lesson Modifications**

Lesson 4: Variables Make

Resources	Preparation
For the teachers - **Guide to EIPM Lessons** - Video - **Guide to Make Lessons** - Video - **Variables Make** - Slides `▼ Make a Copy` **For the students** - **CSP Variables Make - Photo Liker App** - Activity Guide `▼ Make a Copy`	- Review the different steps students will be asked to complete as they build the app - Review the information covered in the slides - Check the **"Teacher's Lounge"** forum for verified teachers to find additional strategies or resources shared by fellow teachers - If you are teaching virtually, consider checking our **Virtual Lesson Modifications**

Lesson 5: Conditionals Explore

Resources	Preparation
For the teachers - **Conditionals Explore** - Slides `▼ Make a Copy` - **Guide to EIPM Lessons** - Video - **Guide to Explore Lessons** - Video **For the students** - **CS Principles: Conditionals - Part 1 Boolean Expressions** - Video (**Download**)	- 3 sandwich baggies per pair of students - packs of red, yellow, and blue stickies - pens / pencils - 1 dry erase marker per four students (pairs can share) - Review the slides and click through all animations - Check the **"Teacher's Lounge"** forum for verified teachers to find additional strategies or resources shared by fellow teachers - If you are teaching virtually, consider checking our **Virtual Lesson Modifications**

Lesson 6: Conditionals Investigate

Resources	Preparation
For the teachers • **Conditionals Investigate** - Slides [▾ Make a Copy] • **Guide to Investigate Lessons** - Video **For the students** • **Introduction to Conditionals - Part 2a** - Video (**Download**) • **Introduction to Conditionals - Part 2b** - Video (**Download**) • **Introduction to Conditionals - Part 2c** - Video (**Download**) • **Introduction to Conditionals - Part 3** - Video (**Download**)	• Review the example apps and the prompts that students will be asked to respond to for each • Review the information covered in the slides • Check the **"Teacher's Lounge"** forum for verified teachers to find additional strategies or resources shared by fellow teachers • If you are teaching virtually, consider checking our **Virtual Lesson Modifications**

Lesson 7: Conditionals Practice

Resources	Preparation

For the teachers
 	
• **CSP Debugging Guide** - Resource
   [▾ Make a Copy]
• **Conditionals Practice** - Slides
   [▾ Make a Copy]
• **Guide to Practice Lessons** - Video
 	
For the students
 	
• **Task List - CodeFeed Quiz** - Activity Guide
   [▾ Make a Copy]
• **Task List - Emoji Movie App** - Activity Guide
   [▾ Make a Copy]
• **Task List - Tic Tac Toe** - Activity Guide
   [▾ Make a Copy]
	• Review the programming challenges students will be completing
	• Review the Debugging Guide for ideas on how to support your students during the lesson
	• Check the **"Teacher's Lounge"** forum for verified teachers to find additional strategies or resources shared by fellow teachers
	• If you are teaching virtually, consider checking our **Virtual Lesson Modifications**

Lesson 8: Conditionals Make

Resources	Preparation
For the teachers - **Conditionals Make** - Slides [▼ Make a Copy] For the students - **CSP Conditionals Make - Museum Ticket Generator App** - Activity Guide [▼ Make a Copy]	- Review the different steps students will be asked to complete as they build the app - Review the information covered in the slides - Check the **"Teacher's Lounge"** forum for verified teachers to find additional strategies or resources shared by fellow teachers - If you are teaching virtually, consider checking our **Virtual Lesson Modifications**

Lesson 9: Functions Explore / Investigate

Resources	Preparation
For the teachers - **Functions Explore/Investigate** - Slides [▼ Make a Copy] - **Guide to EIPM Lessons** - Video - **Guide to Explore Lessons** - Video - **Guide to Investigate Lessons** - Video For the students - **Defining and Calling Functions** - Video (**Download**) - **Introduction to Functions** - Video (**Download**) - **Song Lyrics** - Activity Guide [▼ Make a Copy]	- Print copies of the activity guide of song lyrics used in the warm up or determine how you'll project it to the class. - Review the apps that students will investigate in the app - Check the **"Teacher's Lounge"** forum for verified teachers to find additional strategies or resources shared by fellow teachers - If you are teaching virtually, consider checking our **Virtual Lesson Modifications**

Lesson 10: Functions Practice

Resources	Preparation
For the teachers - **CSP Unit 4 - Slides** - Slides [▾ Make a Copy] - **Functions Practice** - Slides [▾ Make a Copy] - **Guide to Practice Lessons** - Video **For the students** - **Debugging Variable Scope: Functions** - Video (**Download**)	- Review the video in the level progression that covers the topic of global vs. local variables - Review the map level about "When to make a function?" - Review other programming levels to be better prepared to support students - Check the **"Teacher's Lounge"** forum for verified teachers to find additional strategies or resources shared by fellow teachers - If you are teaching virtually, consider checking our **Virtual Lesson Modifications**

Lesson 11: Functions Make

Resources	Preparation
For the teachers - **Functions Make** - Slides [▾ Make a Copy] - **Guide to Make Lessons** - Video **For the students** - **CSP Functions Make - Quote Maker App** - Activity Guide [▾ Make a Copy]	- Review the Activity Guide to decide if you will use it with your students - Check the **"Teacher's Lounge"** forum for verified teachers to find additional strategies or resources shared by fellow teachers - If you are teaching virtually, consider checking our **Virtual Lesson Modifications**

Lesson 12: Project - Decision Maker App

Resources	Preparation

For the teachers
 	
- **CSP Bingo Cards - Unit Four** - Handout (**Download**)
- **CSP Bingo Generator** - Resource
- **Project - Decision Maker App** - Slides
   [▾ Make a Copy]
 	
For the students
 	
- **CSP U4 Practice PT Planning Guide**
   [▾ Make a Copy]
- **CSP U4 Practice PT Rubric** - Rubric
   [▾ Make a Copy]
	- Review the project guide and make sure students have access to copies
	- Check the **"Teacher's Lounge"** forum for verified teachers to find additional strategies or resources shared by fellow teachers
	- If you're teaching virtual, consider checking out our Virtual Modifications for **Day 1**, **Day 2**, and **Day 3**

Lesson 13: Assessment Day

Resources	Preparation
For the teachers - **CSP Unit 4 - Slides** - Slides [▾ Make a Copy]	- Preview the assessment questions - If you are teaching virtually, check out the **Virtual Modifications**

Unit 5 - Data ('23-'24)

Lesson 1: Learning from Data

Resources	Preparation
For the teachers • **CSP Unit 5 - Data** - Slides `▼ Make a Copy` • **CSP Unit 5 - Lesson 1 - Learning from Data** - Slides (**Download**) `▼ Make a Copy` **For the students** • **Learning From Data** - Activity Guide `▼ Make a Copy` • **Unit 5 Journal (Digital)** - Resource `▼ Make a Copy` • **Unit 5 Journal (Interactive Notebook)** - Resource `▼ Make a Copy` • **What's Going On in This Graph?** - Resource	• Preview **"What's Going on in this Graph?"** and prepare for the demo • Check the **"Teacher's Lounge"** forum for verified teachers to find additional strategies or resources shared by fellow teachers • If you are teaching this virtually, consider checking our **Virtual Modifications**

Lesson 2: Exploring One Column

Resources	Preparation
For the teachers • **CSP Unit 5 - Lesson 2 - Exploring One Column** - Slides (**Download**) `▼ Make a Copy` **For the students** • **Data Analysis Process** - Video • **Data Visualizer in App Lab - Part 1** - Video • **Exploring One Column** - Activity Guide `▼ Make a Copy`	• Try using the Data Visualizer yourself to make some of the charts students will create as part of completing the lesson • Check the **"Teacher's Lounge"** forum for verified teachers to find additional strategies or resources shared by fellow teachers • If you are teaching virtually, consider checking our **Virtual Lesson Modifications**

Lesson 3: Filtering and Cleaning Data

Resources	Preparation

For the teachers
 	
• **CSP Unit 5 - Lesson 3 - Filtering and Cleaning Data** - Slides (**Download**)
  ▾ Make a Copy
 	
For the students
 	
• **Filtering Data** - Activity Guide
  ▾ Make a Copy
	• Preview the filter tool in the Data Visualizer
	• Prepare for the demo in the Activity
	• Check the **"Teacher's Lounge"** forum for verified teachers to find additional strategies or resources shared by fellow teachers
	• If you are teaching virtually, consider checking our **Virtual Lesson Modifications**

Lesson 4: Exploring Two Columns

Resources	Preparation

For the teachers
 	
• **CSP Unit 5 - Lesson 4 - Exploring Two Columns** - Slides (**Download**)
  ▾ Make a Copy
 	
For the students
 	
• **Data Visualizer in App Lab - Part 2** - Video
• **Exploring Two Columns** - Activity Guide
  ▾ Make a Copy
	• Review how to make crosstab and scatter charts in the Data Visualizer
	• Check the **"Teacher's Lounge"** forum for verified teachers to find additional strategies or resources shared by fellow teachers
	• If you are teaching virtually, consider checking our **Virtual Lesson Modifications**

Lesson 5: Big, Open, and Crowdsourced Data

Resources	Preparation
For the teachers • **CSP Unit 5 - Lesson 5 - Big, Open, and Crowdsourced Data** - Slides (**Download**) ▼ Make a Copy **For the students** • **Big, Open, and Crowdsourced Data** - Activity Guide ▼ Make a Copy	• Ensure students will be able to access all of the videos / articles linked in the lesson. • Review at least the key takeaways and ideally some of the content from each topic to ensure you understand how these topics relate to what students have studied in previous lessons. • Check the **"Teacher's Lounge"** forum for verified teachers to find additional strategies or resources shared by fellow teachers • If you are teaching virtually, consider checking our **Virtual Lesson Modifications**

Lesson 6: Machine Learning

Resources	Preparation
For the teachers • **CSP Unit 5 - Lesson 6 - Machine Learning** - Slides (**Download**) ▼ Make a Copy	• Review and complete the online tutorial yourself. If you are not going to use AI for Oceans, explore the other options listed below. • Check the **"Teacher's Lounge"** forum for verified teachers to find additional strategies or resources shared by fellow teachers • If you are teaching virtually, consider checking our **Virtual Lesson Modifications**

Lesson 7: Algorithmic Bias

Resources	Preparation
For the teachers • **CSP Unit 5 - Lesson 7 - Algorithmic Bias** - Slides (**Download**) ⌄ Make a Copy • **Sharing learnings about our image cropping algorithm (Twitter)** - Resource **For the students** • **Twitter says its image-cropping algorithm was biased, so it's ditching it (CNN)** - Resource (**Download**)	• Complete the cropping widget activity yourself so you can see what your students will experience with the widget will be and what questions or issues they may bring up. • Watch the parts of the video **"Are We Automating Racism?"** referenced in the lesson plan. • Read the two articles from the links section below. • Check the **"Teacher's Lounge"** forum for verified teachers to find additional strategies or resources shared by fellow teachers • If you are teaching virtually, consider checking our **Virtual Lesson Modifications**

Lesson 8: Project - Tell a Data Story

Resources	Preparation
For the teachers • **CSP Bingo Cards - Unit Five** - Handout (**Download**) • **CSP Bingo Generator** - Resource • **Project - Tell a Data Story** - Slides (**Download**) ⌄ Make a Copy **For the students** • **CSP Project Guide - Tell a Data Story** - Activity Guide ⌄ Make a Copy	• Preview the Project Guide • Review the example projects linked under the "Resources" section of this lesson plan • Check the **"Teacher's Lounge"** forum for verified teachers to find additional strategies or resources shared by fellow teachers • If you are teaching virtually, consider checking the Virtual Modifications for **Day 1** and **Day 2**

Lesson 9: Assessment Day

Resources	Preparation
For the teachers - **Assessment Day - Data** - Slides [▼ Make a Copy] - **Project - Tell a Data Story** - Slides (**Download**) [▼ Make a Copy]	- Preview the assessment questions - If you are teaching this virtually, consider checking out the **Virtual Modifications**

Lesson 10: CS Principles Post-Course Survey

Resources	Preparation
There are no resources for this lesson.	There is no prep for this lesson.

Unit 6 - Lists, Loops, and Traversals ('23-'24)

Lesson 1: Lists Explore

Resources	Preparation
For the teachers - **CSP Unit 6 - Lesson 1 - Lists Explore** - Slides (**Download**) [▼ Make a Copy] - **Lists, Loops, and Traversals** - Slides [▼ Make a Copy] **For the students** - **Introduction to Lists - Part 1** - Video (**Download**) - **Introduction to Lists - Part 2** - Video (**Download**) - **Unit 6 Journal (Digital)** - Resource [▼ Make a Copy] - **Unit 6 Journal (Interactive Notebook)** - Resource [▼ Make a Copy]	- 7+ sandwich baggies per pair of students - 1 gallon-sized baggy per pair of students - packs of red and orange stickies - pens / pencils - 1 dry erase marker per four students (pairs can share) - Review the slides and click through all animations - Check the **"Teacher's Lounge"** forum for verified teachers to find additional strategies or resources shared by fellow teachers - If you are teaching virtually, consider checking our **Virtual Lesson Modifications**

Lesson 2: Lists Investigate

Resources	Preparation
For the teachers • **CSP Unit 6 - Lesson 2 - Lists Investigate** - Slides (**Download**) ▾ Make a Copy **For the students** • **Introduction to Lists - Assigning and Updating** - Video (**Download**) • **Introduction to Lists - Getting Length** - Video (**Download**)	• Review the three apps that students will be investigating and the questions about them. Note that there are target responses to each of these questions on the levels. • Check the **"Teacher's Lounge"** forum for verified teachers to find additional strategies or resources shared by fellow teachers • If you are teaching virtually, consider checking our **Virtual Lesson Modifications**

Lesson 3: Lists Practice

Resources	Preparation
For the teachers • **CSP Unit 6 - Lesson 3 - Lists Practice** - Slides (**Download**) ▾ Make a Copy **For the students** • **Task List - Birds of a Feather** - Activity Guide ▾ Make a Copy • **Task List - Emojimaker** - Activity Guide ▾ Make a Copy • **Task List - Magic Nine Ball** - Activity Guide ▾ Make a Copy	• Review the slide on string indexes which you'll cover at the beginning of the lesson • Review the programming progression to understand what students will be asked to do. • Check the **"Teacher's Lounge"** forum for verified teachers to find additional strategies or resources shared by fellow teachers • If you are teaching virtually, consider checking our **Virtual Lesson Modifications**

Lesson 4: Lists Make

Resources	Preparation
For the teachers • **CSP Unit 6 - Lesson 4 - Lists Make** - Slides (**Download**) ⏷ Make a Copy **For the students** • **CSP Lists Make - Reminder App** - Activity Guide ⏷ Make a Copy	• Check the **"Teacher's Lounge"** forum for verified teachers to find additional strategies or resources shared by fellow teachers • If you are teaching virtually, consider checking our **Virtual Lesson Modifications**

Lesson 5: Loops Explore

Resources	Preparation
For the teachers • **CSP Unit 6 - Lesson 5 - Loops Explore** - Slides (**Download**) ⏷ Make a Copy • **Loops Game Board** ⏷ Make a Copy **For the students** • **Using Loops** - Video (**Download**)	• 1 game board per pair of students • 1 "robot" per pair of students • Game pieces, markers, or tokens that can be used to represent barriers • Review the Intro to Loops presentation and click through all animations • Check the **"Teacher's Lounge"** forum for verified teachers to find additional strategies or resources shared by fellow teachers • If you are teaching virtually, consider checking our **Virtual Lesson Modifications**

Lesson 6: Loops Investigate

Resources	Preparation
For the teachers • **CSP Unit 6 - Lesson 6 - Loops Investigate** - Slides (**Download**) ⏷ Make a Copy	• Review the two apps that students will be investigating and the questions about them. Note that there are target responses to each of these questions on the levels. • Check the **"Teacher's Lounge"** forum for verified teachers to find additional strategies or resources shared by fellow teachers • If you are teaching virtually, consider checking our **Virtual Lesson Modifications**

Lesson 7: Loops Practice

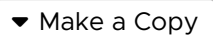| Resources	Preparation
For the teachers • **CSP Unit 6 - Lesson 7 - Loops Practice** - Slides (**Download**) ⏷ Make a Copy	• Review the programming progression to understand what students will be asked to do • Check the **"Teacher's Lounge"** forum for verified teachers to find additional strategies or resources shared by fellow teachers • If you are teaching virtually, consider checking our **Virtual Lesson Modifications**

Lesson 8: Loops Make

Resources	Preparation
For the teachers • **CSP Unit 6 - Lesson 8 - Loops Make** - Slides (**Download**) ⏷ Make a Copy **For the students** • **CSP Loops Make - Lock Screen Maker** - Activity Guide ⏷ Make a Copy	• Check the **"Teacher's Lounge"** forum for verified teachers to find additional strategies or resources shared by fellow teachers • If you are teaching virtually, consider checking our **Virtual Lesson Modifications**

Lesson 9: Traversals Explore

Resources	Preparation
For the teachers • **CSP Unit 6 - Lesson 9 - Traversals Explore** - Slides (**Download**) ▾ Make a Copy • **Traversal Machine** ▾ Make a Copy **For the students** • **Introduction to Traversal** - Video (**Download**)	Per pair of students: • 1 Traversal Machine ◦ The index sheet contains enough sections to divide between six students • Preview the Intro to Traversals slideshow. Click through all animations. • Check the **"Teacher's Lounge"** forum for verified teachers to find additional strategies or resources shared by fellow teachers • If you are teaching virtually, consider checking our **Virtual Lesson Modifications**

Lesson 10: Traversals Investigate

Resources	Preparation
For the teachers • **CSP Unit 6 - Lesson 10 - Traversals Investigate** - Slides (**Download**) ▾ Make a Copy **For the students** • **Data Tab in App Lab** - Video (**Download**)	• Check the **"Teacher's Lounge"** forum for verified teachers to find additional strategies or resources shared by fellow teachers • If you are teaching virtually, consider checking our **Virtual Lesson Modifications**

Lesson 11: Traversals Practice

Resources	Preparation
For the teachers • **CSP Unit 6 - Lesson 11 - Traversals Practice** - Slides (**Download**) ⏷ Make a Copy	• Review the levels that students will be completing with an eye for how you will encourage them to use the debugging practices emphasized in today's lesson. • Check the **"Teacher's Lounge"** forum for verified teachers to find additional strategies or resources shared by fellow teachers • If you are teaching virtually, consider checking our **Virtual Lesson Modifications**

Lesson 12: Traversals Make

Resources	Preparation
For the teachers • **CSP Unit 6 - Lesson 12 - Traversals Make** - Slides (**Download**) ⏷ Make a Copy **For the students** • **CSP Traversals Make - Random Forecaster App** - Activity Guide ⏷ Make a Copy	• If time allows, try to build all or part of the Random Forecaster app yourself to understand the challenges involved • Review the debugging practices you intend to reinforce and resources you'll direct students towards as they get stuck • Check the **"Teacher's Lounge"** forum for verified teachers to find additional strategies or resources shared by fellow teachers • If you are teaching virtually, consider checking our **Virtual Lesson Modifications**

Lesson 13: Project - Hackathon

Resources	Preparation
For the teachers - **CSP Hackathon Submission on AP Classroom** - Resource ▾ Make a Copy - **Project - Hackathon** - Slides (**Download**) ▾ Make a Copy **For the students** - **CSP Hackathon Project Planning Guide** - Activity Guide ▾ Make a Copy - **CSP Hackathon Project Written Response** - Handout ▾ Make a Copy	- Read through the Planning Guide, paying particular focus to the Scoring Guidelines - Review the Example Student Projects, Planning Guides, and Written Responses under the "Resources" section - Check the **"Teacher's Lounge"** forum for verified teachers to find additional strategies or resources shared by fellow teachers - If you are teaching virtually, consider checking out the Virtual Modifications for **Day 1**, **Day 2**, **Day 3**, **Day 4**, and **Day 5**.

Lesson 14: Assessment Day

Resources	Preparation
For the teachers - **Create PT Practice Written Response - Unit 6 Assessment** - Resource ▾ Make a Copy	- Preview the assessment questions - If you are teaching virtually, consider checking out the **Virtual Modifications**

Lesson 15: CS Principles Post-Course Survey

Resources	Preparation
There are no resources for this lesson.	There is no prep for this lesson.

Unit 7 - Parameters, Return, and Libraries ('23-'24)

Lesson 1: Parameters and Return Explore

Resources	Preparation

For the teachers
 	
- **CSP Unit 7 - Lesson 1 - Parameters and Return Explore** - Slides (**Download**)
  [▾ Make a Copy]
- **Parameters, Returns, and Libraries** - Slides
  [▾ Make a Copy]
 	
For the students
 	
- **Activity Guide - Function Houses**
  [▾ Make a Copy]
- **Functions with Parameters** - Video (**Download**)
- **Unit 7 Journal (Digital)** - Resource
  [▾ Make a Copy]
- **Unit 7 Journal (Interactive Notebook)** - Resource [▾ Make a Copy]
	- Collect various sizes of sticky notes. Small sticky notes are particularly useful for this activity.
	- Two envelopes per group
	- Pencils/pens
	- One baggy for a teacher demonstration (optional)
	- Print out copies of the Activity Guide for students
	- Review the Unit 7, Lesson 1 slides prior to the class
	- Check the **"Teacher's Lounge"** forum for verified teachers to find additional strategies or resources shared by fellow teachers
	- If you are teaching virtually, consider checking our **Virtual Lesson Modifications**

Lesson 2: Parameters and Return Investigate

Resources	Preparation
For the teachers - **CSP Unit 7 - Lesson 2 - Parameters and Return Investigate** - Slides (**Download**) [▾ Make a Copy]	- Review the two apps that students will investigate in the lesson and make sure you understand the goals of the discussion prompts - Check the **"Teacher's Lounge"** forum for verified teachers to find additional strategies or resources shared by fellow teachers - If you are teaching virtually, consider checking our **Virtual Lesson Modifications**

Lesson 3: Parameters and Return Practice

Resources	Preparation

For the teachers
 	
• **CSP Unit 7 - Lesson 3 - Parameters and Return Practice** - Slides (**Download**)
  ▼ Make a Copy
 	
For the students
 	
• **Task List - Netflix Navigator** - Activity Guide
  ▼ Make a Copy
• **Task List - Ramen Radar** - Activity Guide
  ▼ Make a Copy
	• Review the programming levels students will complete
	• Check the **"Teacher's Lounge"** forum for verified teachers to find additional strategies or resources shared by fellow teachers
	• If you are teaching virtually, consider checking our **Virtual Lesson Modifications**

Lesson 4: Parameters and Return Make

Resources	Preparation

For the teachers
 	
• **CSP Unit 7 - Lesson 4 - Parameters and Return Make** - Slides (**Download**)
  ▼ Make a Copy
 	
For the students
 	
• **CSP Parameters and Return Make - Rock Paper Scissors App** - Activity Guide
  ▼ Make a Copy
	• Review the app students will need to make and ideally spend some time working on the project yourself to anticipate the challenges students will encounter
	• Check the **"Teacher's Lounge"** forum for verified teachers to find additional strategies or resources shared by fellow teachers
	• If you are teaching virtually, consider checking our **Virtual Lesson Modifications**

Lesson 5: Libraries Explore

Resources	Preparation

For the teachers
 	
  • **CSP Unit 7 - Lesson 5 - Libraries Explore** - Slides (**Download**) ▾ Make a Copy
 	
For the students
 	
  • **Libraries in App Lab** - Video (**Download**)
	• Review the slides and click through all the animations
	• Watch the Libraries video which introduces the Libraries tool in App Lab
	• Check the **"Teacher's Lounge"** forum for verified teachers to find additional strategies or resources shared by fellow teachers
	• If you are teaching virtually, consider checking our **Virtual Lesson Modifications**

Lesson 6: Libraries Investigate

Resources	Preparation
For the teachers • **CSP Unit 7 - Lesson 6 - Libraries Investigate** - Slides (**Download**) ▾ Make a Copy	• Read the code for both sample apps and their associated libraries • Practice sharing and importing libraries yourself in order to understand the process • Check the **"Teacher's Lounge"** forum for verified teachers to find additional strategies or resources shared by fellow teachers • If you are teaching virtually, consider checking our **Virtual Lesson Modifications**

Lesson 7: Libraries Practice

Resources	Preparation
For the teachers • **CSP Unit 7 - Lesson 7 - Libraries Practice** - Slides (**Download**) ▾ Make a Copy	• Review the programming levels students will complete • Check the **"Teacher's Lounge"** forum for verified teachers to find additional strategies or resources shared by fellow teachers • If you are teaching virtually, consider checking our **Virtual Lesson Modifications**

Lesson 8: Project Make a Library Part 1

Resources	Preparation
For the teachers • **CSP Unit 7 - Lesson 8-11 - Project & Assessment** - Slides (**Download**) ▾ Make a Copy For the students • **Project Guide - Make a Library** - Project Guide ▾ Make a Copy	• Review the Project Guide to make sure you understand what students will be expected to do in the project • Review the Examples Submission for the Project found in the last lesson of this project • Check the **"Teacher's Lounge"** forum for verified teachers to find additional strategies or resources shared by fellow teachers

Lesson 9: Project Make a Library Part 2

Resources	Preparation
For the teachers • **CSP Unit 7 - Lesson 8-11 - Project & Assessment** - Slides (**Download**) ▾ Make a Copy For the students • **Project Guide - Make a Library** - Project Guide ▾ Make a Copy	• Ensure students have access to their project guides from last class. • Check the **"Teacher's Lounge"** forum for verified teachers to find additional strategies or resources shared by fellow teachers

Lesson 10: Project Make a Library Part 3

Resources	Preparation

For the teachers
 	
- **CSP Bingo Cards - Unit 6 & 7** - Handout
   ⌄ Make a Copy
- **CSP Bingo Generator** - Resource
- **CSP Unit 7 - Lesson 8-11 - Project & Assessment** - Slides (**Download**)
   ⌄ Make a Copy
 	
For the students
 	
- **Project Guide - Make a Library** - Project Guide ⌄ Make a Copy
	- Ensure students have access to their project guides
	- Review the Example Project Guide and Library in the "Resources" section of the lesson plan
	- Check the **"Teacher's Lounge"** forum for verified teachers to find additional strategies or resources shared by fellow teachers

Lesson 11: Assessment Day

Resources	Preparation
For the teachers - **CSP Unit 7 - Lesson 8-11 - Project & Assessment** - Slides (**Download**) ⌄ Make a Copy	Preview the assessment questions

Lesson 12: CS Principles Post-Course Survey

Resources	Preparation
There are no resources for this lesson.	There is no prep for this lesson.

Unit 8 - Cybersecurity and Global Impacts ('23-'24)

Lesson 1: Project - Innovation Simulation Part 1

Resources	Preparation
For the teachers - **CSP Innovation Simulation Badges** - Handout - **CSP Innovation Simulation Character Bios** - Handout [▾ Make a Copy] - **CSP Innovation Simulation Nameplates** - Handout - **CSP Innovation Simulation Project Overview** - Resource [▾ Make a Copy] - **CSP Unit 8 - Lesson 1 - Project: Innovation Simulation Part 1** - Slides (**Download**) [▾ Make a Copy] - **Cybersecurity and Global Impacts (Unit Slides)** - Slides [▾ Make a Copy] For the students - **CSP Innovation Simulation Project Guide** - Activity Guide [▾ Make a Copy] - **Computer Science is Changing Everything** - Video (**Download**) - **Unit 8 Journal (Digital)** - Resource [▾ Make a Copy] - **Unit 8 Journal (Interactive Notebook)** - Resource [▾ Make a Copy]	- Prepare the role badges - Review the Innovation Simulation Planning Guide - Check the **"Teacher's Lounge"** forum for verified teachers to find additional strategies or resources shared by fellow teachers - If you are teaching virtually, consider checking out the Virtual Modifications for **Day 1**) and **Day 2**

Lesson 2: Data Policies and Privacy

Resources	Preparation
For the teachers - **CSP Unit 8 - Lesson 2 - Data Policies and Privacy** - Slides (**Download**) [▾ Make a Copy] For the students - **Privacy, Security, and Innovation** - Activity Guide [▾ Make a Copy]	- Check a few popular websites with students in your school to make sure they'll be able to access those sites' data policies over your school network. - Check the **"Teacher's Lounge"** forum for verified teachers to find additional strategies or resources shared by fellow teachers - If you are teaching virtually, consider checking our **Virtual Lesson Modifications**

Lesson 3: The Value of Privacy

Resources	Preparation
For the teachers • **CSP Unit 8 - Lesson 3 - The Value of Privacy** - Slides (**Download**) `▼ Make a Copy` **For the students** • **Cops Need A Warrant To Search Your Cell Phone's Location History, Supreme Court Rules** - Video • **Is Facial Recognition Invading Your Privacy?** - Video • **Privacy, Security, and Innovation** - Activity Guide `▼ Make a Copy`	• Review the videos to make sure you are prepared to lead the subsequent discussions • Make sure you have access to the activity guides students completed in th previous lesson • Check the **"Teacher's Lounge"** forum for verified teachers to find additional strategies or resources shared by fellow teachers • If you are teaching virtually, consider checking our **Virtual Lesson Modifications**

Lesson 4: Project - Innovation Simulation Part 2

Resources	Preparation
For the teachers • **CSP Innovation Simulation Project Overview** - Resource `▼ Make a Copy` • **CSP Unit 8 - Lesson 4 - Project: Innovation Simulation Part 2** - Slides (**Download**) `▼ Make a Copy` **For the students** • **CSP Innovation Simulation Project Guide** - Activity Guide `▼ Make a Copy`	• Ensure students have access to their project guides. • Check the **"Teacher's Lounge"** forum for verified teachers to find additional strategies or resources shared by fellow teachers. • If you are teaching virtually, consider checking our **Virtual Lesson Modifications**

Lesson 5: Security Risks Part 1

Resources	Preparation
For the teachers • **CSP Unit 8 - Lesson 5 - Security Risks Part 1** - Slides (**Download**) ▾ Make a Copy	• Read through the levels on Code Studio to familiarize yourself with the topics. • Think through the logistics of running the jigsaw activity. • Check the **"Teacher's Lounge"** forum for verified teachers to find additional strategies or resources shared by fellow teachers • If you are teaching virtually, consider checking our **Virtual Lesson Modifications**

Lesson 6: Security Risks Part 2

Resources	Preparation
For the teachers • **CSP Unit 8 - Lesson 6 - Security Risks Part 2** - Slides (**Download**) ▾ Make a Copy For the students • **CSP U8L6 - Optional Podcast Transcripts** - Activity Guide ▾ Make a Copy • **Equifax Data Breach: What Went Wrong (Podcast)** - Resource • **Planet Money: Bad Credit Bureau (Podcast)** - Resource • **The Internet: Cybersecurity and Crime** - Video (**Download**)	• Listen to the podcast segments and practice starting and stopping at the marked places • Get the Kahoot quiz set up and ready to go for the Wrap Up • Check the **"Teacher's Lounge"** forum for verified teachers to find additional strategies or resources shared by fellow teachers • If you are teaching virtually, consider checking our **Virtual Lesson Modifications**

Lesson 7: Project - Innovation Simulation Part 3

Resources	Preparation
For the teachers - **CSP Innovation Simulation Project Overview** - Resource ▾ Make a Copy - **CSP Unit 8 - Lesson 7 - Project: Innovation Simulation Part 3** - Slides (**Download**) ▾ Make a Copy **For the students** - **CSP Innovation Simulation Project Guide** - Activity Guide ▾ Make a Copy	- Make sure students will have access to the 1-pagers they started in the last project lesson. - Check the **"Teacher's Lounge"** forum for verified teachers to find additional strategies or resources shared by fellow teachers - If you are teaching virtually, consider checking our **Virtual Lesson Modifications**

Lesson 8: Protecting Data Part 1

Resources	Preparation
For the teachers - **CSP Unit 8 - Lesson 8 - Protecting Data Part 1** - Slides (**Download**) ▾ Make a Copy **For the students** - **Encryption and Public Keys** - Video (**Download**)	- Explore the encryption widgets - Watch the video - Check the **"Teacher's Lounge"** forum for verified teachers to find additional strategies or resources shared by fellow teachers - If you are teaching virtually, consider checking our **Virtual Lesson Modifications**

Lesson 9: Protecting Data Part 2

Resources	Preparation
For the teachers - **CSP Unit 8 - Lesson 9 - Protecting Data Part 2** - Slides (**Download**) ▾ Make a Copy **For the students** - **Call Center - Reading Passage** - Resource ▾ Make a Copy	- Preview the slides - Read through the stimulus question - Check the **"Teacher's Lounge"** forum for verified teachers to find additional strategies or resources shared by fellow teachers - If you are teaching virtually, consider checking our **Virtual Lesson Modifications**

Lesson 10: Project - Innovation Simulation Part 4

Resources	Preparation
For the teachers • **CSP Bingo Cards - Unit Eight** - Handout (**Download**) • **CSP Bingo Generator** - Resource • **CSP Innovation Simulation Project Overview** - Resource ▾ Make a Copy • **CSP Unit 8 - Lesson 10 - Project: Innovation Simulation Part 4** - Slides (**Download**) ▾ Make a Copy **For the students** • **CSP Innovation Simulation Project Guide** - Activity Guide ▾ Make a Copy	• Make sure students have access to their project guides if you are collecting them between classes. • Check the **"Teacher's Lounge"** forum for verified teachers to find additional strategies or resources shared by fellow teachers • If you are teaching this lesson virtually, consider checking out the Virtual Modifications for **Day 5**, **Day 6**, and **Day 7**.

Lesson 11: Assessment Day

Resources	Preparation
For the teachers • **CSP Unit 8 - Lesson 11 - Assessment Day** - Slides (**Download**) ▾ Make a Copy	• Preview the assessment questions • If you are teaching virtually, consider checking out the **Virtual Modifications**

Lesson 12: CS Principles Post-Course Survey

Resources	Preparation
There are no resources for this lesson.	There is no prep for this lesson.

Unit 9 - Create PT Prep ('23-'24)

Lesson 1: Create PT Deep Dive

Resources	Preparation
For the teachers - **CSP Unit 9 - Lesson 1 - Deep Dive** - Slides (**Download**) `▼ Make a Copy` **For the students** - **AP Computer Science Principles: Student Handouts** - Resource (**Download**) - **Create PT Survival Guide 23-24** - Resource `▼ Make a Copy`	- Print or prepare to distribute digital copies of the Create PT - Survival Guide - Review pages 1-5 of the Create PT - Survival Guide - Check the **"Teacher's Lounge"** forum for verified teachers to find additional strategies or resources shared by fellow teachers - If you are teaching virtually, consider checking our **Virtual Lesson Modifications**

Lesson 2: Create PT Make a Plan

Resources	Preparation
For the teachers - **CSP Unit 9 - Lesson 2 - Make a Plan** - Slides (**Download**) `▼ Make a Copy` **For the students** - **Create PT Survival Guide 23-24** - Resource `▼ Make a Copy`	- Review pages 6-15 of the Create PT - Survival Guide - Check the **"Teacher's Lounge"** forum for verified teachers to find additional strategies or resources shared by fellow teachers - If you are teaching virtually, consider checking our **Virtual Lesson Modifications**

Lesson 3: Create PT - Complete the Task (9 hrs)

Resources	Preparation
For the teachers • **CSP Unit 9 - Lesson 3 - Complete the Task** - Slides (**Download**) ⏷ Make a Copy For the students • **Create Performance Task: Categories and Questions** - Video • **Create Performance Task: Guidelines** - Resource • **Create Performance Task: Overview** - Video • **Create Performance Task: Pacing Your Project** - Video	• Review pages 169-171 in the **Course and Exam Description** to understand the teacher's role on the Create PT • Review how to create a stand-alone App Lab project to assist students • Check the **"Teacher's Lounge"** forum for verified teachers to find additional strategies or resources shared by fellow teachers • If you are teaching virtually, consider checking our **Virtual Lesson Modifications**

Lesson 4: Create PT Written Response Mock Exam

Resources	Preparation

For the teachers
 	
• **AP CS Principles Course and Exam Description (CED)** - Resource
• **AP Classroom** - Resource
• **Unit 9 Lesson 4 - Create PT Mock Exam - Slides** - Slides ⏷ Make a Copy
 	
For the students
 	
• **Activity Guide (Version A) - Create PT Mock Exam** - Handout ⏷ Make a Copy
• **Activity Guide (Version B) - Create PT Mock Exam** - Handout ⏷ Make a Copy
• **Create PT Mock Exam Description** - Handout ⏷ Make a Copy
	• Print Personalized Project References
	• Choose one, or both
	  ○ Print copies of Activity Guide (Version A) - Create PT Mock Exam (one for each student)
	  ○ Print copies of Activity Guide (Version B) - Create PT Mock Exam (one for each student)
	• Print and cut Create PT Mock Exam Description
	• Set up a space for the "Want to Know" area that students can contribute to
	• Gather sticky notes for each student to use
	• Check the **"Teacher's Lounge"** forum for verified teachers to find additional strategies or resources shared by fellow teachers

Lesson 5: CS Principles Post-Course Survey

Resources	Preparation
There are no resources for this lesson.	There is no prep for this lesson.

Unit 10 - Algorithms ('23-'24)

Lesson 1: Algorithms Solve Problems

Resources	Preparation

For the teachers
 	
• **Algorithms (Unit Slides)** - Slides
  [▾ Make a Copy]
• **Algorithms Solve Problems** - Slides
  [▾ Make a Copy]
 	
For the students
 	
• **Unit 10 Journal (Digital)** - Resource
  [▾ Make a Copy]
• **Unit 10 Journal (Interactive Notebook)** - Resource [▾ Make a Copy]
	• Review the algorithms students will be comparing in the second activity to make sure you are prepared to support students in trying them out.
	• Check the **"Teacher's Lounge"** forum for verified teachers to find additional strategies or resources shared by fellow teachers
	• If you are teaching virtually, consider checking our **Virtual Lesson Modifications**

Lesson 2: Algorithm Efficiency

Resources	Preparation
For the teachers • **Algorithmic Efficiency** - Slides [▾ Make a Copy]	• Preview the slides and click through all animations • Practice running Binary Search yourself • Check the **"Teacher's Lounge"** forum for verified teachers to find additional strategies or resources shared by fellow teachers • If you are teaching virtually, consider checking our **Virtual Lesson Modifications**

Lesson 3: Unreasonable Time

Resources	Preparation
For the teachers - **Unreasonable Time** - Slides ▾ Make a Copy For the students - **Unreasonable Time** - Activity Guide ▾ Make a Copy	- Review the slides to make sure you are prepared to lead the different discussions in this lesson. - Check the **"Teacher's Lounge"** forum for verified teachers to find additional strategies or resources shared by fellow teachers. - If you are teaching virtually, consider checking our **Virtual Lesson Modifications**

Lesson 4: The Limits of Algorithms

Resources	Preparation
For the teachers - **CSP Unit 10 - Lesson 4 - The Limits of Algorithms** - Slides (**Download**) ▾ Make a Copy For the students - **The Halting Problem: The Unsolvable Problem** - Video	- Read through the slides - Preview the Traveling Salesman widgets - Check the **"Teacher's Lounge"** forum for verified teachers to find additional strategies or resources shared by fellow teachers - If you are teaching virtually, consider checking our **Virtual Lesson Modifications**

Lesson 5: Parallel and Distributed Algorithms

Resources	Preparation
For the teachers • **CSP Bingo Cards - Unit Ten** - Handout (**Download**) • **CSP Bingo Generator** - Resource • **CSP Unit 10 - Lesson 5 - Distributed Algorithms** - Slides (**Download**) [▾ Make a Copy] **For the students** • **Folding@home Supercomputing Project** - Video	• Collect the manipulatives you will use for the main activity. While decks of cards are suggested, other manipulatives are possible. See the teaching tip in the main activity for suggestions. • Check the **"Teacher's Lounge"** forum for verified teachers to find additional strategies or resources shared by fellow teachers • If you are teaching virtually, consider checking our **Virtual Lesson Modifications**

Lesson 6: Assessment Day

Resources	Preparation
For the teachers • **CSP Unit 10 - Lesson 6 - Assessment Day** - Slides (**Download**) [▾ Make a Copy]	• Preview the assessment questions • If you are teaching virtually, consider checking out the **Virtual Modifications**

Lesson 7: CS Principles Post-Course Survey

Resources	Preparation
There are no resources for this lesson.	There is no prep for this lesson.

Unit 11 - CS Principles Post-Course Survey