### Workshop 4 - 1 Day

#### Agenda Walkthrough Video

We are now recording agenda walkthrough videos which you can watch at any time to help you prep. Before you start diving into the materials, we suggest watching the walkthrough to get a sense of the flow of the workshop and key things to prep for.

- Workshop 4 Agenda Walkthrough Videos
- Workshop 4 Agenda Walkthrough Slides

#### Printing Agendas

There are two ways to get a PDF of the whole detailed agenda. The second one takes a few more steps, but makes a more nicely formatted PDF.

1. **PDF of Detailed Agenda**
   When you get to that page right click. Click print from the menu that pops up. From there, you should be able to print the agenda or save it as a PDF.

For the high level agenda (like one on the right) that is printable and editable go to:

- **Google Sheet View of High Level Agenda**

#### Recommended Workshop Timing

- Ideally, this workshop should take place in **mid February** or, at the latest, in **early March** to give teachers enough time to prepare for completing performance tasks (PTs) in their classroom. The PTs are due the end of April and usually require at least 1 month of in class time.
- Teachers should attend this workshop before they start teaching Unit 5 or the Create PT Prep Unit

#### Goals

- Share strategies for classroom management
- Discuss open questions or issues with lessons that have already been taught
- Prepare for the upcoming lessons in unit 5 by doing activities from lessons
- Prepare for the Create PT by looking at student work and making a plan for completing the task in their classroom
• Explore classroom practices to use in upcoming lessons
• Build the community of teachers

Prepping for Sessions

Review Past Workshop(s)
Review how things went during your Previous Workshop

• Review your feedback from teachers in the Workshop Dashboard to see what needs you can address and how you can continue to improve your local workshops
• Talk about feedback with your co-lead to determine how you can better prepare for the workshop together, how you run certain sessions, and other ways you can grow as individuals and a team
• Make a plan with your co-lead for actions you are going to take during this workshop to improve

Supplies

<table>
<thead>
<tr>
<th>Provided By Regional Partner</th>
<th>Teachers Should Bring</th>
</tr>
</thead>
<tbody>
<tr>
<td>Room set up for table groups of 4-5 teachers</td>
<td>Printed Curriculum Guide</td>
</tr>
<tr>
<td>Room with reliable wifi</td>
<td>Printed Purple Book</td>
</tr>
<tr>
<td>Power Strips</td>
<td>Journal</td>
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<tr>
<td>Projector</td>
<td>Computers</td>
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<tr>
<td>Speaker System</td>
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<td>Pens</td>
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<tr>
<td>Easel Pads</td>
<td></td>
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<tr>
<td>Large 3x4 Post-it Notes</td>
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<tr>
<td>Medium 3x3 Post-it Notes</td>
<td></td>
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<tr>
<td>Small 1x2 Post-it Notes</td>
<td></td>
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<tr>
<td>Sets of 8-pack Markers</td>
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<tr>
<td>Blue Painter’s Tape</td>
<td></td>
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<tr>
<td>Scissors</td>
<td></td>
</tr>
<tr>
<td>Printed Materials (See Below)</td>
<td></td>
</tr>
</tbody>
</table>

Printing (Done by Regional Partner, but check in with them) - 1 copy of the Create Task Scoring Guidelines for each participant

Connect with your Regional Partner
Prior to the workshop find time to meet in person or virtually with both facilitators and the Regional Partner to discuss:

<table>
<thead>
<tr>
<th>Subject</th>
<th>Conversation Points</th>
</tr>
</thead>
</table>
| Supplies | • Go through the list of necessary supplies together  
• Make a plan for when different supplies will be set up/provided |

| Online Workshop Dashboard | • Look at the registration. Are teachers signed up? What do you need to do to make sure all the teachers are registered?  
• Make sure facilitators are added on the workshop so you will be able to take attendance |
<table>
<thead>
<tr>
<th>Subject</th>
<th>Conversation Points</th>
</tr>
</thead>
</table>
| **Venue**            | ✷ Discuss the set up of the space  
                        | ✷ What does the room look like?  
                        | ✷ What does the table set up look like?  
                        | ✷ Will the space have a projector? Do we need to bring certain type of hook ups?  
                        | ✷ Will the space have a sound system? If not how do you plan to play videos during the week?  
                        | ✷ Is the other course workshop co-located?  
                        | ✷ How do we get into the building?  
                        | ✷ Are there any directions about parking or locating the space?                                                                                     |
| **Workshop Timeframe** | ✷ What time are we scheduled to start with teachers?  
                        | ✷ What time are we scheduled to end with teacher?  
                        | ✷ What time can we come in to prep in the morning?  
                        | ✷ What time can we stay to debrief till in the afternoon?                                                                                       |
| **Food**             | ✷ What food will be provided for participants during the workshop?  
                        | ✷ What time will food be set up?  
                        | ✷ Is there a separate room for lunch?                                                                                                          |
| **Agenda**           | ✷ Is there any local material to cover during this workshop?  
                        | ✷ How long do you anticipate it taking to cover the material? (Check that the time suggested fits within the amount of Local Flex Time for this workshop) |
| **Staff**            | ✷ Will someone from your organization be on site for the day of the workshop?  
                        | ✷ If yes, who is the staff member and how should we contact them if needed?  
                        | ✷ If no, who should we contact in case something comes up during the workshop that we need your organizations support with?                      |

**Review Materials**

On your own, review the following materials so you are familiar with the details of each.

<table>
<thead>
<tr>
<th>Facilitator Materials</th>
<th>Teacher Materials</th>
</tr>
</thead>
<tbody>
<tr>
<td>✷ Detailed Agenda (You are doing this now!)</td>
<td>✷ CS Principles Curriculum Guide 2018</td>
</tr>
<tr>
<td>✷ Facilitator Handbook - 2018</td>
<td>✷ AP CS Principles Course and Exam Description</td>
</tr>
<tr>
<td>✷ CS Principles - Workshop 4 - Slides Template</td>
<td>✷ Create Task Scoring Guidelines</td>
</tr>
<tr>
<td>✷ CS Principles - Workshop 4 - Notes Template</td>
<td></td>
</tr>
</tbody>
</table>

**Make a plan**

You should go through every session to make a plan for how you and your co-facilitator will support each other in running the session.

Use the **Session Planning Template** to guide your planning.
Don't forget to check the pre-survey results to determine which lessons you will focus on during the TTL progression. The survey gets sent out to teachers automatically 10 days before the workshop. You can view the results on the Workshop Dashboard.

Create Materials For Region

- A copy of the CS Principles - Workshop 4 - Slides Template for the workshop, that you have updated according to your needs.
- A copy of the CS Principles - Workshop 4 - Notes Template to share with teachers

First Morning Of Workshop

Room Setup

Using the supplies provided by regional partner set up the room. In the agenda we will call this the "Normal Breakout Room Set Up".

- Tech
  - Reliable guest wifi - check this as early as possible
  - Projector (separate table for projector)
  - Speaker System
- 8 Teacher Tables (for 32 teachers) with:
  - 4 chairs at each table
  - Table angled toward projector screen
  - Surge protectors in middle of each table
  - 4-5 post-it note pads of different sizes
  - 3-4 Pens
- Facilitator Table:
  - Located in the back of the room
  - 2-3 chairs at table (need chairs for lead facilitators and apprentices)

Create Posters

- Posters up for people to add post-its to as they come in
- Question Parking Lot - For people to put up questions they have.
- “Where are we now?” - On a piece of chart paper or on the board, create a histogram for teachers to indicate where they are in the curriculum. Remind teachers to take out their Curriculum Guide as a guide to unit progressions.
- Create posters and put to the side for later:
  - 1 poster for each lesson you will TTL as a place to put questions
  - 2 Score Sharing Charts - 1 for each sample

Concerns?

If you need to raise concerns before or during the workshop about issues that require immediate attention (internet, health issues, etc.) you should contact your Regional Partner.
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Session 12: Workshop Opener

50 minutes

discussion-based | speed dating

Purpose

Kick off the workshop by reflecting on how things are going and generating a set of topics that participants need to talk about.

Objectives

- Misconceptions and existing questions have been asked and answered
- Teachers are thinking about how things are going and what they want to work on/get help with
- Teachers are thinking about the dynamic in their classroom and providing support
- Teachers are thinking about how they’re doing with pacing and have ideas for how to get back on track if they’ve fallen behind
- Teachers have communicated where they currently are in the curriculum. This information should hopefully match the information you received in the pre-workshop survey results.

Supplies & Prep

Room Setup (using the supplies provided by regional partner):

- See Workshop Room Setup on Workshop 4 Front Page
- Posters up for people to add post-its to as they come in
  - “Where are we now” - On a piece of chart paper or on the board create a histogram for teachers to add where they are in the curriculum. Reminder teachers to take out their teal books as a guide to unit progressions.
  - “Question Parking Lot” - For people to put up questions they have.

Facilitator Supplies:

- Your local copy of the CS Principles - Workshop 4 - Notes Template
- Your local copy of the CS Principles - Workshop 4 - Slides Template
- Facilitator Handbook - 2018
- Poster Paper (Regional Partner Provides)
- Workshop Dashboard - Tool

Teacher Materials:

- CS Principles Curriculum Guide 2018 (Should bring with them. If they have lost it direct them to the digital version: bit.ly/csp-teal-book-2018)
- Journal (Should bring with them.)
- Post-its

Agenda

As Participants Enter the Room
Workshop Opening Logistics (5 minutes)
  - (2 minutes) Attendance
  - (2 minutes) Review Norms
Warm Up (25 minutes)
  - (3 minutes) Personal Reflection
  - (10 minutes) Speed Date
  - (7 minutes) Share Concerns at Table
Share Out (25 minutes)
  - (24 minutes) Group Discussion
  - (1 minute) Pre-Break Reminders
Teaching Guide

As Participants Enter the Room

As participants enter the room, they should add post-its to the following posters:

- **“Where are we now?”** - On a piece of chart paper, or on the board, create a histogram for teachers to add where they are in the curriculum. Remind teachers to take out their Curriculum Guide (if teachers don’t have their book send them to bit.ly/csp-teal-book-2018) as a guide to unit progressions.
- **Question Parking Lot** - For people to put up questions they have.

Workshop Opening Logistics (5 minutes)

(2 minutes) Attendance

- Have everyone complete the attendance for the day
  - Find your workshop on the online workshop dashboard
  - Follow the instructions in the Facilitator Handbook - 2018 for how to take attendance

(2 minutes) Review Norms

Remind the group of the norms you set at Workshop 1.

Warm Up (25 minutes)

(3 minutes) Personal Reflection

**GOAL:** Refresh your participant’s memories, and encourage them to think concretely about the lessons they’ve done so far and what’s coming soon.

On your own, reflect on the following and be ready to share with someone else:

- What challenges did you run into teaching programming in Unit 3 that you would like to discuss before teaching Unit 5?
- What kind of AP prep (or execution) have you integrated into your classroom so far? Where do you feel like you need to add more AP prep?
- What questions do you have/what do you want to talk about?

(10 minutes) Speed Date

Have participants “speed date” their responses to the three prompts above, looking for advice, ideas questions or issues.

**NOTE:** While discussions are happening, one facilitator should circle the room while the other reads over the post-its on the wall from when teachers came in the room. (posters described in the section above)

As teachers share in their groups, facilitators should circulate to hear their thoughts and should think about the potential topics to discuss in the whole-group share out. Likely example topics are: assessments, facilitating discovery without telling students the “right” answer, learning material along with your students, etc.

Some teachers have expressed feeling uncomfortable because of the name speed dating. You are welcome to use a different term, such as speed networking, for this activity.
(7 minutes) Share Concerns at Table

Head back to tables and share your concerns and what you learned from others.

Facilitators should take the post-its and determine which issues folks are having that others in the room can help solve. Other post-it notes that may be appropriate to answer later in the day can be tabled on the question parking lot.

Share Out (25 minutes)

(24 minutes) Group Discussion

Facilitators prime the discussion with topics that came out in table discussions, and put them to the group for everyone to answer. The goal is to pull out widely-held questions and to check in with groups on the following:

- What challenges did you run into teaching programming in Unit 3 that you would like to discuss before teaching Unit 5?
- What kind of AP prep (or execution) have you integrated into your classroom so far?

(1 minute) Pre-Break Reminders

There is a 10 minutes break between this and the next session. Remind teachers how long they have for a break before they head out.

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Session 13: Break

10 minutes

Teaching Guide

Agenda

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Session 14: Intro to Unit 5

15 minutes

facilitator presentation

**Purpose**

Introduce teachers to Unit 5.

**Objectives**

- Teachers know the core content covered in Unit 5
- Teachers know the general pacing of Unit 5
- Teachers know what tools are used in Unit 5
- Teachers understand the intended way to approach content in Unit 5

**Supplies & Prep**

Room Setup:

- None

Facilitator Supplies:

- Your local copy of the CS Principles - Workshop 4 - Slides Template
- Facilitator Handbook - 2018

Teacher Materials:

- CS Principles Curriculum Guide 2018 (Should bring with them. If they have lost it direct them to the digital version: bit.ly/csp-teal-book-2018)

**Agenda**

Unit 5 Introduction (15 minutes)

(15 minutes) Unit 5

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**Teaching Guide**

Unit 5 Introduction (15 minutes)

(15 minutes) Unit 5

Introduce teachers to Unit 5 using the slides and information below.

**Teaching Tip**

As you prepare for leading sessions on Unit 5, consider the programming experience of the teachers in your room. Jargon terms such as variable, loops, arrays, etc. can be confusing and isolating to new teachers. As you introduce new topics, think about how you are going to keep the space safe and inclusive.
<table>
<thead>
<tr>
<th>Section</th>
<th>Important Points</th>
</tr>
</thead>
</table>
| Pacing, Organization   | ✷ 7 week unit                                                                                                                                  
|                        | ✷ Chapter 1 = 4 weeks                                                                                                                           
|                        | ✷ Chapter 2 = 3 weeks                                                                                                                          
|                        | ✷ Review “big questions” (created by Code.org) to give a sense of the types of things explored during the unit                                      
|                        | ✷ This unit transitions to a new programming paradigm where the app responds to user inputs.                                                    
|                        | ✷ Chapter 1: Design app that responds to clicks and key presses                                                                             
|                        | ✷ Chapter 2: Students build apps that use more complicated data structures such as lists/arrays and loop over them to process the information.                                          |
| Philosophy             | ✷ Introduce a new concept in an unplugged or discussion-based way                                                                              
|                        | ✷ Practice using the new concept in a series of short, structured levels                                                                       
|                        | ✷ Do a project that uses the concept                                                                                                           
|                        | ✷ Many resources to support students in learning during the unit: Map, Documentation, Videos, etc                                                   |
| AP Prep                | ✷ The Create task can be completed after Chapter 1 is finished.                                                                                 
|                        | ✷ Chapter 2 has content that will be assessed on the AP exam, but it is not necessary for the Create PT.                                            
|                        | ✷ Specifically, the concepts covered in Chapter 2 will be covered via multiple choice questions using the pseudocode language.                      
|                        | ✷ Practice AP style multiple choice questions are included throughout the unit for students to get used to the pseudocode used on the AP            |
| Connections to Earlier Units | ✷ Build on skills and concepts learned in Unit 3 (functions, loops, etc)                                                                          
|                        | ✷ Still using App Lab environment but now event based instead of turtle drawing                                                                  |
| Tools                  | ✷ More App Lab, in a similar format as we find in Unit 3 (with scoped toolbox)                                                                    
|                        | ✷ Design mode, which allows you to set up the design of your app with drag and drop before writing any code                                      
|                        | ✷ Event driven programming - use the blocks to respond to actions on the different elements added to the design of the app to bring it to life                          

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Session 15: Unit 5 Chapter 1 TTL

60 minutes

Purpose

Provide a brief overview of a handful of lessons that will be explored more deeply in a later session. Teachers have a chance to get familiar with the activity in lessons that are coming up.

Objectives

- Teachers have seen key activities from upcoming lessons
- Teachers have a better understanding of the core CS of the activities
- Teachers have seen what might be challenging about the activities
- Teachers have written down their thoughts on/questions about the activities

Supplies & Prep

Room Setup:

- One sheet of chart paper per lesson demo’d, hung around the room

Facilitator Supplies:

- Your local copy of the CS Principles - Workshop 4 - Slides Template
- Facilitator Handbook - 2018
- Decide which 3 lessons you are going to do for Teaching Tips Live (See Recommendations Below)
- Chart Paper
- Post-its

Teacher Materials:

- CS Principles Curriculum Guide 2018 (Should bring with them. If they have lost it direct them to the digital version: bit.ly/csp-teal-book-2018)
- Laptops
- Journals

Agenda

TTL Lesson Prep Guidelines (Before the Workshop)

Setup: Decide on Lessons

Unit 5, Lesson 1
Unit 5, Lesson 4
Unit 5, Lesson 7
Unit 5, Lesson 11
Unit 5, Lesson 13

TTL Process Reminder (1 minute)

Presentations (59 minutes)

Reminders and guidelines

Teaching Guide

TTL Lesson Prep Guidelines (Before the Workshop)

- Setup: Decide on Lessons

  Recommended lessons if workshop happens when most teachers are still working on or just finishing Unit 4:

  - Unit 5, Lesson 1
  - Unit 5, Lesson 4
  - Unit 5, Lesson 7

  If your participants are further along in the unit, consider Unit 5, Lessons 11 or 13
The following guidelines should be used in planning your Teaching Tips Live session. Note that these guidelines are designed to help you decide what to emphasize in your TTL, and should not be used as a strict script. As long as you touch on what’s listed here, feel free to add other elements to your TTL!

**Unit 5, Lesson 1**
- **Goal of TTL:** Teachers begin to understand the transition from Unit 3 turtle drawing to event based programming and creating layouts of apps using design mode in App Lab
- **Have people do:** Show teachers level 3 as a resource, then have them try level 4 while using level 3 as a reference. (If you have time for more levels, great!)
- **Cover in the Tour:**
  - Spend a couple of minutes having a discussion to capture the getting started on interactivity in current apps
  - Show the design mode video (start at 2:22 — 3:16)

**Unit 5, Lesson 4**
- **Goal of TTL:** Emphasize for teachers that this lesson takes students through multiple ways to assign values to variables
- **Have people do:** Levels 4 and 5. Include Level 6 if time allows
- **Cover in the Tour:**
  - Show part of the first variables video
  - Show the ‘mental model for variables’ (level 18) after doing some work in levels

**Unit 5, Lesson 7**
- **Goal of TTL:** Teachers gain familiarity with the AP pseudocode while gaining a deeper understanding of conditionals and how they are different from events
- **Have people do:** A few pieces from the ‘will it crash’ activity (linked in the lesson on code studio) — note, you almost definitely won’t finish
- **Cover in the Tour:**
  - Spend 3-5 minutes on the getting started activity (When vs If)

**Unit 5, Lesson 11**
- **Goal of TTL:** Teachers understand the connection and differences between while loops and if statements.
- **Have people do:** Levels 2 and 3. Include 4 if time allows.
- **Cover in the Tour:**
  - Spend 3-5 minutes on the getting started - following a flow chart
  - Consider the unplugged activity to help people understand loops, if necessary

**Unit 5, Lesson 13**
- **Goal of TTL:** Teachers understand the benefit of arrays as storage with one name and indexes
- **Have people do:** Levels 3, 4, and 6. Include 12 if time allows.
- **Cover in the Tour:**

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**Tips for Preparing for TTLs**
- Use the 10 day pre-survey in the Workshop Dashboard to learn where teachers are in the curriculum and select the set of lessons to cover (you can typically hit on the correct lessons based on the pacing guide)
- Divide up TTL lesson tours with your co-facilitator. It is recommended to alternate (so if the session calls for 3 lesson tours, you might do the first and third lessons and your co-facilitator might do the second)
- Complete the key activity for the lesson(s) you’re presenting
- Read the forum for the lesson(s) you’re presenting
- Develop a plan for the tour of your lesson(s). It is recommended to practice and time out how long it takes to present the TTL
Teaching Tip

Reminders and guidelines

Use Careful Language Be careful to use student-oriented language ("your students will discover," "you will guide your students," etc.) instead of participant-oriented language to reinforce that you're not modeling instruction of the lesson. Instead, you're giving a tour of it and as a peer pointing out key things of note in the lesson.

Be sure to show all important lesson resources
Your tour should include an overview of all key resources in the lesson

Goal: When a teacher sits down with this lesson plan later, it should look/feel familiar

Remarks

As a reminder: In this session, facilitators will run 15 minute "tours" of the core activities from 3 lessons. We aren't showing ALL of a given lesson—just a 15 minute look at the core activity. THIS IS NOT ABOUT "TEACHING" THE LESSON. It's about spending time getting into the activity and understanding it. The facilitators will be your tour guides through the activities that come from lessons.

WE DON'T EXPECT MASTERY IN 15 MINUTES! The focus right now is getting everyone familiar with some activities that might be tricky. You will probably still have questions. This is about seeing enough of the activities to ask the questions you need to ask to become comfortable.

TTL Process Reminder (1 minute)

Go in order of how the lessons appear in the curriculum.
For Each Lesson Tour (3 total) you will have:

- **(2 minutes) Give context or background**
  - Where is this lesson in the unit?
  - What other lessons in the unit have they seen before during workshops?
  - How are past lessons they have seen connected to this lesson?
  - What concepts does this lesson assume from previous lessons?

- **(15 minutes) Lesson tour**
  - Provide an overview of the full lesson (warm up, activity, wrap up)
  - Have participants actually DO whatever part of the lesson is most important or challenging

- **(2 minutes) Participants jot down any questions**
  - Thinking prompts include (post these on the projector as people are writing down their thoughts):
    - What surprised you about the activity?
    - What questions do you have about the activity and how it works?
    - What would you like to talk about more?

- **(1 minute) Transition to the next TTL**

Arrays are a type of list in JavaScript - the AP Test will talk about lists
Show part of the first lists videos
Spend 3-5 minutes on the getting started - what makes list useful in everyday life?
Consider the wrap up conversation to help teachers start thinking through variables vs arrays

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Session 16: Break

10 min

break

Agenda

Teaching Guide

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Session 17: Unit 5, Chapter 1 TTL Q&A

20 minutes

discussion-based

Purpose

Having just gone through 3 activities from upcoming lessons teachers have time to discuss the activities and the questions they have about them. There WILL NOT be time later in the day to focus on lesson planning for these lessons so make sure ALL questions about the lesson have been answered.

Objectives

- All open questions about the lessons have been discussed

Supplies & Prep

Room Setup:
- Keep up the one sheet of chart paper per lesson demoed, hung around the room

Facilitator Supplies:
- Your local copy of the CS Principles - Workshop 4 - Notes Template
- Your local copy of the CS Principles - Workshop 4 - Slides Template
- Facilitator Handbook - 2018

Teacher Materials:
- Notes from previous session
- CS Principles Curriculum Guide 2018 (Should bring with them. If they have lost it direct them to the digital version: bit.ly/csp-teal-book-2018)
- Laptops
- Journals
- Chart Paper
- Post-its

Agenda

Small Group Discussion (5 minutes)

(5 minutes) Small Group Discussion

Discuss Questions (15 minutes)

(15 minutes Total - 5 minutes per Lesson) Whole Group Conversation

Teaching Guide

Small Group Discussion (5 minutes)

(5 minutes) Small Group Discussion

As a table, participants talk about the questions and notes they wrote down during the Teaching Tips Live session. The table should:

- Make post-its for each lesson that they still have

Teaching Tip

Since there is no Lesson Planning Jigsaw Session during this workshop, you will want to prioritize answering the questions that seem most critical or blocking for teachers. Save questions about the Create PT for later in the day.
questions about and post those on the associated piece of chart paper (or the facilitator can collect the post-its).

As participants post their questions, prioritize which ones you are going to answer during this session and determine which ones you will save for later in the day, if you have time to come back to them.

**Discuss Questions (15 minutes)**

**(15 minutes Total - 5 minutes per Lesson) Whole Group Conversation**

Going in lesson order, have a brief whole-group discussion of each activity. The facilitator who ran the lesson will run the conversation about that lesson while the other facilitator is the scribe in the share notes doc. Prioritize the most blocking questions first. Note that there is no lesson planning jigsaw later in the day to answer implementation questions.

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Session 18: Unit 5, Chapter 1 Wrap Up

15 minutes

facilitator presentation

**Purpose**
Close out conversations about Unit 5 and begin thinking about how it connects to the Create PT.

**Objectives**
- Teachers have clarity on the Create practice PT in Unit 5, Chapter 1

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**Supplies & Prep**

<table>
<thead>
<tr>
<th>Room Setup:</th>
<th>None</th>
</tr>
</thead>
<tbody>
<tr>
<td>Facilitator Supplies:</td>
<td>Your local copy of the CS Principles - Workshop 4 - Slides Template</td>
</tr>
<tr>
<td></td>
<td>Facilitator Handbook - 2018</td>
</tr>
<tr>
<td></td>
<td>CS Principles Course and Exam Description (2017-2019) - Purple Book</td>
</tr>
</tbody>
</table>

**Agenda**

Unit 5 Wrap Up (15 minutes)

(2 minutes) Overview Unit 5, Chapter 1 Practice PT (Lesson 10)

Using the slides and the exemplars available in Lesson 10, Level 23 overview:
- What do students do in this activity?
- What concepts does it cover?

(8 minutes) Explore & Discuss Exemplar

Have teachers check out the exemplars for the Color Sleuth Project (Exemplars on Lesson 10, Level 23)

While teachers are looking at the exemplars, have them think about the following questions:
- What do you think will be most challenging for students in completing this project?
- What supports will your students need?

Once teachers have had some time to look at the exemplar, have groups share some of the things they noticed with the whole room.
(3 min) Overview of the rest Unit 5

Give an overview using the slides of what happens after the last lesson you TTL'ed in Unit 5.

Start by showing what lessons teachers saw during the workshop, then introduce the lessons that come later.

The key points about Chapter 2 are:

- Loops
- List/Arrays
- Functions with Return

(2 min) Connections to Create Task

Remarks

Once students have completed Chapter 1 in Unit 5, they’re ready for the Create task, which we’re going to transition to talking about after lunch.

Using the slides, overview the connections between the lessons in Unit 5, Chapter 1 and the Create Task.

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Day 1

[Day 1 Schedule]

Session 19: Lunch

60 min

break

Agenda

Teaching Guide
Session 20: Scoring Example Create PTs

70 minutes

Purpose
Score sample student work. After scoring look at the College Board commentary and discuss how the rubric is being applied to student work.

Objectives
- Teachers understand where there is ambiguity in applying the rubric
- Teachers understand how the rubric will be applied to the Create PT
- Teachers understand what is needed to successfully complete the tasks

Supplies & Prep
Room Setup:
- None
Facilitator Supplies:
- 2 Score Sharing Charts on chart paper - 1 for each sample
- Your local copy of the CS Principles - Workshop 4 - Notes Template
- Your local copy of the CS Principles - Workshop 4 - Slides Template
- College Board Commentary on Sample Create Tasks
  - Create PT Annotated Sample C 2017 (7/8)
  - Create PT Annotated Sample I 2018 (3/8)
Teacher Materials:
- 1 printed copy of the Create Task Scoring Guidelines for each teacher
- CS Principles Course and Exam Description (2017-2019) - Purple Book (Should bring with them. If they have lost it direct them to the digital version linked in the notes doc)
- CS Principles Curriculum Guide 2018 (Should bring with them. If they have lost it direct them to the digital version: bit.ly/csp-teal-book-2018)
- Create Examples - links found in the notes document

Agenda
Introduction to Create Task (10 minutes)
- (3 minutes) Popcorn: Create Task
- (2 minutes) Review Create Task
- (5 minutes) Generate Create Task Questions
Introduction to the Create PT Prep Unit (2 minutes)
- Introduce the Create PT Prep Unit
Scoring Sample Work (40 minutes)
- Table Scoring (30 minutes)
  - Whole group share out and discussion (10 minutes)
Looking At College Board Commentary (18 minutes)
- Review College Board Commentary (10 minutes)
  - Whole Group Discussion (8 minutes)

Teaching Guide
Introduction to Create Task (10 minutes)

(3 minutes) Popcorn: Create Task

Prompt: What do people remember about the Create Task?
Popcorn around the room to collect details.

(2 minutes) Review Create Task

Use slide to review the basics of the Create Task.

<table>
<thead>
<tr>
<th>Section</th>
<th>Important Points</th>
</tr>
</thead>
</table>
| Review Create Task | Goal:  
  - Create a program  
  - Identify purpose, process, algorithm and abstraction  

  Process:  
  - Students need 12 in class hours for the task  

  What to submit:  
  - Video of running program  
  - Written Responses to prompts 2a-d  
  - PDF of program code |

(5 minutes) Generate Create Task Questions

Have teachers turn to Page 113 in the CS Principles Course and Exam Description (2017-2019) - Purple Book to read the Create Task requirements. As you read, talk through any questions at your table.

Bubble up remaining questions that can’t be answered at the table to the group as post-its on the question parking lot.

Introduction to the Create PT Prep Unit (2 minutes)

Introduce the Create PT Prep Unit

Set the context for the afternoon by explaining that you will be doing modified versions of the Create PT Prep Activities together.

Remarks

This afternoon we are going to look at the Create PT prep unit by trying out some of the activities together today that you will do with your students during that unit. The Create PT Prep Unit comes in the curriculum after Unit 5 (you could start it after Unit 5 Chapter 1). The Create PT Prep Unit has 3 lessons. The first two focused on understanding the task and getting ready to start the task. The 3rd lesson is the 12 hours needed to complete the task.

The prep lessons contain activities to help students understand the Create PT better such as scoring sample student work or considering what the task means by algorithms or abstractions. We are going to do modified versions of some of these activities together this afternoon. We will start with scoring some sample work which is something you will do with your students in the Create PT Prep Unit - Lesson 1. We will come back to our questions we generated once we have looked at these activities to see if we can answer them during the activities.
Teaching Tip

Here are some key ideas to take from each of the samples.

Sample C (2017):
Understand from this example that the Scoring Guidelines are in many ways as important as the task description. The responses in this sample not only match the task description but address the particular “gotchas” of the scoring guidelines.

This response didn’t earn points for Row 6, even though they wrote a fairly complex set of algorithms.

Sample I (2018):
The response only focuses on two problems and how they were solved instead of explaining the process of creating the program step by step (incremental development) and how parts were improved through testing, reflection, or feedback (iterative development).

Row 3 is a little tricky. At first glance, it appears that two problems are defined and solutions given. However, one problem is not from the program development process, but instead a problem in the design process. For example, discussing how difficult it was to set up the layout of an app is not a good choice for this prompt because that’s a design challenge. Discussing the difficulties in debugging a score-setting function would be an appropriate choice.

For Rows 4 and 5 the response earns the points because the selected algorithm is an algorithm that uses math and logic and the response explains the purpose of the algorithm in the context of the program.

However the response failed for Row 6 because, to earn points, the selected algorithm must be clearly defined along with two included algorithms that can function independently. There must be at least three distinct algorithms defined and explained within the response.

For Rows 7 and 8, the code segment is not an example of an abstraction such as a function or a list. The student selected two lines of code and explained how they worked. The student did not explain how the abstraction managed complexity.

Why samples from two different years?
The college board releases a set of examples each year but they are spread across all the providers so a bunch of them use languages and environments other than App Lab that would not be familiar to students. All of the samples that used App Lab from 2018 were not high-scoring samples.
Teaching Tip
As you review different parts of the Create PT Guidelines, it may help clarify the scoring of different rows. If teachers are stuck on one particular row and wondering about scoring of that row, check out the teacher resources from the lesson that compile all the sample responses for one row and their scores into one handy doc! They are linked here but teachers can find them in the lesson plan if they want them.

- Create PT - Response 2b - All 2018 Samples
- Create PT - Response 2c - All 2018 Samples
- Create PT - Response 2d - All 2018 Samples

Review College Board Commentary (10 minutes)
As a table, review the commentary, focusing on the samples you scored. Compare your own notes with those notes provided by the College Board.

Whole Group Discussion (8 minutes)
- What insights do you have about how the rubric was applied?
- What questions do you have about how the rubric was applied by the College Board?

Remarks
The activity we just finished is from the Create PT Prep Unit - Lesson 1. You will go through scoring these samples and others with your students to help them prepare for the task during that lesson.

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Session 21: Break

10 min

Teaching Guide

Agenda

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Session 22: Dig into the Create PT

55 minutes
discussion-based

Purpose
Time to dig deeper into two important and tough components of the Create Task: deciding on a project and identifying an algorithm.

Objectives
- Teachers understand what makes a good choice of a computing innovation for the Create PT
- Teachers understand how to support students in picking a project and identifying an algorithm

Supplies & Prep
Room Setup:
- None
Facilitator Supplies:
- Your local copy of the CS Principles - Workshop 4 - Notes Template
- Your local copy of the CS Principles - Workshop 4 - Slides Template
Teacher Materials:
- CS Principles Course and Exam Description (2017-2019) - Purple Book
- CS Principles Curriculum Guide 2018 (Should bring with them. If they have lost it direct them to the digital version: bit.ly/csp-teal-book-2018)

Agenda
Deciding on a good algorithm (25 minutes)
- (5 minutes) Discussion: Is it a good algorithm?
- (3 minutes) Overview: Is it a good algorithm?
- (10 minutes) Activity: Does It Count? - Algorithm Edition
- (7 minutes) Discussion: Does It Count? - Algorithm Edition
Picking a Project (30 minutes)
- Discussion: How to pick a project (7 minutes)
- Overview: How to Pick a Project (3 minutes)
- (10 minutes) Practice Narrowing It Down
- (10 minutes) Discussion: Narrowing it Down

Teaching Guide

Deciding on a good algorithm (25 minutes)

Remarks
The activity we are about to do is from the Create PT Survival Guide and is done with students during Create PT Prep Unit - Lesson 2.

(5 minutes) Discussion: Is it a good algorithm?
Do a Think-Pair-Share using the following prompt.

Prompt: Based on what you noticed when you scored the samples, what are qualities of a good algorithm?
(3 minutes) Overview: Is it a good algorithm?

Using the slides, give an overview of the areas that are necessary for the algorithms students will need to identify for the Create PT.

<table>
<thead>
<tr>
<th>Section</th>
<th>Key Content</th>
</tr>
</thead>
</table>
| Algorithm | * Definition
            * Something That Student Wrote
            * Mathematical and/or Logical Concepts
            * A Parent and Two Children
            * Talking About Your Algorithm |

Teaching Tip

If teachers are not as familiar with the code students learn in Unit 5, this activity might be tricky. It uses code that has:

- onEvent
- Conditionals
- While
- Functions

If this is the case for your teachers, you may consider walking through some of the easier code examples together and skipping the more complex ones. If you take less time on this activity, you could use it for teachers to have more planning time later.

(10 minutes) Activity: Does It Count? - Algorithm Edition

Have everyone open their Create PT - Survival Guide 2018/2019 to Page 2. (The activity goes from page 2 to 4)

Prompt: Using the scoring guideline provided, and given what we just discussed about your algorithm choices, score the examples on pages 3 to 4. Determine whether each algorithm should earn the point and explain why.

(7 minutes) Discussion: Does It Count? - Algorithm Edition

Discuss and Review Have participants share and discuss responses with a peer. Afterward, lead a discussion based on the patterns you see. You’ll likely want to review the following points from the Survival Guide.

- The "parent and two children" model for a complex algorithm - (main + 2 sub-algorithms)
- What counts as mathematical and logical concepts

Picking a Project (30 minutes)

Remarks

The activity we are about to do is from the Create PT Survival Guide and is done with students during Create PT Prep Unit - Lesson 2.

Discussion: How to pick a project (7 minutes)

Do a Think-Pair-Share using the following prompt.

Prompt: Based on what you noticed when they were scoring sample, what are key things to keep in mind when picking a project?

Overview: How to Pick a Project (3 minutes)
Using the slides, give an overview of the areas which are necessary for Create PT.

<table>
<thead>
<tr>
<th>Section</th>
<th>Key Content</th>
</tr>
</thead>
<tbody>
<tr>
<td>Time:</td>
<td>❖ Students don't actually have that much time to work!</td>
</tr>
<tr>
<td></td>
<td>❖ Student shouldn't try to learn new programming skills during the PT - students should do something they know how to do now.</td>
</tr>
<tr>
<td></td>
<td>❖ Most ideas can and should be narrowed down before you start</td>
</tr>
<tr>
<td></td>
<td>❖ Students shouldn't be doing a lot of work in Design Mode.</td>
</tr>
<tr>
<td>Writing:</td>
<td>❖ The written responses are the most important part of the Create PT.</td>
</tr>
<tr>
<td></td>
<td>❖ Get to the written responses as quickly as you can.</td>
</tr>
<tr>
<td>Algorithm:</td>
<td>❖ When students start, they should have an idea about what the algorithm will be</td>
</tr>
<tr>
<td>Process:</td>
<td>❖ Start with a narrowly scoped project, start working right away on the core parts of it.</td>
</tr>
<tr>
<td></td>
<td>❖ It's OK to submit an incomplete project, so long as it has a working feature you can show in your video and contains an algorithm and an abstraction</td>
</tr>
<tr>
<td></td>
<td>❖ Students need to worry about the code that makes their program work, not about making their initial screens perfectly aligned or attractive.</td>
</tr>
</tbody>
</table>

(10 minutes) Practice Narrowing It Down


**Jigsaw:** Break participants into pairs. Assign each pair 1 of the 3 scenarios from the Survival Guide to focus on.

**Prompt:** With a partner go through the assigned example project proposals. Practice narrowing down the features of the project and identifying the core algorithm. If you finish yours, start working on another scenario.

(10 minutes) Discussion: Narrowing it Down

**Discuss:** Have participants share and compare their responses. Afterward, lead a discussion based on the patterns you see. You'll likely want to review the following points from the Survival Guide:

❖ Many projects have sub parts, each of which could stand on its own as a PT
❖ You should be able to easily see an algorithm opportunity within at least one of the sub parts - if you can't, it's not a good choice.
❖ For any project idea it **should** be relatively easy to scope it down to one or two things that will be totally acceptable for the Create PT

**Goal:** Teachers understand it doesn't have to be a big project; the Create PT is about demonstrating something you already know how to do.

The biggest thing we're trying to guard against is students' eyes being bigger than their stomachs. We want to encourage students to be creative and start building whatever they want, but temper that with the realities of the Create PT:

❖ It doesn't need to be a big project
❖ Your job is to demonstrate that you know how to program something and identify certain aspects of it.
❖ There are no points for coolness or prettiness.
❖ If you want to do something big, just get it started for the Create PT and come back to it afterward.
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Session 23: Make a Create PT Implementation Plan

25 minutes

discussion-based

Purpose

Make a plan for preparing for and doing the explore PT with your students

Objectives

- Get concrete dates on the calendar for Create PT prep and completion of the task
- Figure out what you will do with students work on the PT (what can you do and what would be helpful)
- Create a list of the prep needed to get students ready for the Create task.

Supplies & Prep

Room Setup:
- None

Facilitator Supplies:
- Your local copy of the CS Principles - Workshop 4 - Notes Template
- Your local copy of the CS Principles - Workshop 4 - Slides Template

Teacher Materials:
- CS Principles Course and Exam Description (2017-2019) - Purple Book
- CSP Curriculum Guide - Teal Book (Should bring with them. If they have lost it direct them to the digital version: bit.ly/csp-teal-book)

Agenda

Teacher roles before and during Create PT (10 minutes)
- (5 minutes) Investigating Teachers Role Guidelines
- (5 minutes) Share Out

Make Your Create PT Plan (15 minutes)
- (3 minutes) Review Create PT Prep Unit Materials
- (12 minutes) Create Plan

Teaching Guide

Teacher roles before and during Create PT (10 minutes)

(5 minutes) Investigating Teachers Role Guidelines

Have teachers open CS Principles Course and Exam Description (2017-2019) - Purple Book to Page 81 where there are guidelines about what they can and can't do while administering the assessment. Then read through the guidelines and make notes.

(5 minutes) Share Out

As a group share out what you noticed and make a list of things you can and can't do before and during the task. Also make a list of questions teachers have about what they can and can't do. Add the questions to the parking lot to review later.
Make Your Create PT Plan (15 minutes)

(3 minutes) Review Create PT Prep Unit Materials

Quickly overview the Create PT Prep Unit. Make sure to remind teachers that they just did many of the activities in the unit together during the workshop. Make sure all teachers know how to find the unit before they start planning.

(12 minutes) Create Plan

Have teachers open their CS Principles Curriculum Guide 2018. There are a few different sections that may be helpful as they plan:

- Create PT Prep Unit - Page 28
- Planning for the AP Exam and Performance Tasks - Page 45
- Pacing and Planning your Instructional Units - Page 51

Teachers can work with partners or tables as they make their plan.

Have teachers create a plan that includes:

- Creating Projects
  - How are you going to support students in creating their projects?
  - What do they actually need to create?

- Practice:
  - What concrete things do you want to practice?
  - When are you going to practice them? (When in the curriculum and when in the calendar year.)

- Administering the Task:
  - When do you plan to administer the Create PT? (When in the curriculum and when in the calendar year.)
  - What do you plan to do while students are working (based on our previous conversations)?

- Other parts of the AP:
  - How does this fit with prep for the multiple choice exam which we discussed in Workshop 2?

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Session 24: Wrap Up

20 minutes
discussion-based

Purpose
Answer any outstanding questions and wrap up the day.
In addition it should give time to do the survey in person so that teachers complete it before leaving.

Objectives
- Remaining parking lot or needs questions have been addressed
- Teachers have taken the survey

Supplies & Prep
Room Setup:
- None
Facilitator Supplies:
- Grab and organize the question parking lot
- Your local copy of the CS Principles - Workshop 4 - Notes Template
- Your local copy of the CS Principles - Workshop 4 - Slides Template
- For closing the workshop: Workshop Dashboard - Tool Facilitator Handbook - 2018
Teacher Materials:
- CS Principles Curriculum Guide 2018 (Should bring with them. If they have lost it direct them to the digital version: bit.ly/csp-teal-book-2018)
- Computers

Agenda
Clear the Parking Lot (9 minutes)
- Clear out Question Parking Lot
Wrap Up (11 minutes)
- (6 minutes) Complete Survey
- (5 minutes) Closing Thoughts

Teaching Guide

Clear the Parking Lot (9 minutes)

Clear out Question Parking Lot
Use this time to address outstanding question parking lot issues. Don't hesitate to pose questions from the parking lot to the group to answer or consider having them posted to the forum to see if the community can help.

- Review the list of questions:
  - Remove questions that have been answered
  - Add new questions
  - As a group try to come up with answers if you have them - if not seek out answers through the forum
Wrap Up (11 minutes)

(6 minutes) Complete Survey

- On the online workshop dashboard, find and close the workshop in order to send teachers the survey
- Follow the instructions in the Facilitator Handbook - 2018
- Make sure all the teachers in your workshop take the survey for the workshop before they leave

(5 minutes) Closing Thoughts

This is your last session as a cohort! Before breaking, be sure to take a moment to reflect on the year and write a thank you note on a post-it to give to another participant. Consider saying a few words of thanks to your teachers.

Before leaving, give teachers the opportunity to exchange personal information (if they haven’t already) and GET A PICTURE. It takes 5 minutes, and seems silly, but you will regret not having one. After you take your picture post in on the facilitator forum for others to see!

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Session 25: Debrief

40 minutes

facilitator debrief

Purpose

Facilitators take time to discuss the day, both good and bad. Then process surveys. Then take time to make a plan for future using the inputs from teacher feedback. You should try to include your regional partner if possible.

Objectives

- Reflect on the day
- Make a plan for how to address needs of teachers at some point during the rest of the week.

Supplies & Prep

Room Setup:
- None

Facilitator Supplies:
- Your local copy of the CS Principles - Workshop 4 - Notes Template
- Your local copy of the CS Principles - Workshop 4 - Slides Template
- Facilitator Handbook - 2018
- Looking at workshop survey results: Workshop Dashboard - Tool
- Directions for finding survey results: Facilitator Handbook - 2018

Teacher Materials:
- None

Agenda

Reflection (30 minutes)
- (15 minutes) Reflection on the Day
- (15 minutes) Review Survey Feedback
- Make a Plan (10 minutes)
- (10 minutes) Make a Plan

Teaching Guide

Reflection (30 minutes)

(15 minutes) Reflection on the Day

Meet with your co-facilitator(s) to debrief the day’s events. Have your Regional Partner join if possible.

Use page 31 in your Facilitator Handbook as your guide to check in on the rapport of your participants.

(15 minutes) Review Survey Feedback

- What are a few positive things that teachers pointed out on the survey?
- Are there any key learning objectives that scored low?
- What do you need to do to help teachers understand them?
- Are there any concerns brought up on the survey?
Make a Plan (10 minutes)

(10 minutes) Make a Plan

Decide on a few key takeaways for the next workshop.

- What new goals do you have for yourself?
- What new goals do you have in working with your co-facilitator?
- What do you need to address with teachers next workshop?
- Any other notes for you and your co-facilitator?