FIRIA LABS

LESSON: Create Performance Task - practice #4

Time: 45 minutes

Overview:

Students have completed all the missions and several supplemental lessons. They are ready to prepare for the Create Performance Task. The program must meet a set of requirements to earn all the points. This practice will take a completed program and modify it to meet all of the requirements.

Students will use the **Display3** program from the Functions and Global Variables lesson.

Objectives:

- I can create a meaningful list
- I can use a list in code in a meaningful way
- I can create a function with a parameter
- I can use the parameter in an if statement
- I can create a function with iteration and selection

Standards:

2-AP-12 Design and iteratively develop programs that combine control structures, including nested loops and compound conditionals.

3A-AP-14 Use lists to simplify solutions, generalizing computational problems instead of repeatedly using simple variables.

CSP Framework:

Computational Thinking Practices:

4.C Identify and correct errors in algorithms and programs, including error discovery through testing.

6.A Collaborate in the development of solutions.

Create PT Requirements:

- Create a list
- Use the list in a meaningful way
- Create a function with at least one parameter
- The function must have sequence, selection and iteration
- Values of the parameter must affect the section of code that is executed (used in an if statement)
- Call the function with argument

Preparation:

Make a copy of the assignment or put it in the LMS.
Prepare any formative assessments you want to use in the wrap-up

Links:

- Assignment
- Instructions slide deck
- Starter code (if needed)
- Program code solution
- Daily reflection form

Agenda:

- Warm-up (5 minutes)
- Coding (30-40 minutes)
- Wrap-up (5 minutes)

Vocabulary:

- No new vocabulary during this lesson
- You can review Create PT vocabulary: **parameter, argument, function, sequential, selection, iteration**

Assessment:

- Daily reflection journal or Google form
- Rubric (check-list) / program completion
- Wrap-up completion
- Gallery Walk

Teaching Guide

Warm-up (5 minutes)

🧑‍🤝‍🧑 **Discuss** – Use a discussion strategy, like journaling, working at boards, selecting random students, or a form of think-pair-share.

- Slides 2-5
- Review the requirements for the Create Performance Task
- Review the Display3 code from “Functions and Global Variables”

Coding (30-40 minutes)

💻 Students can work individually, with the same partner as they had for the last lesson, or with a new random partner.

IMPORTANT!: Students will use their Display3 program from the last lesson and modify it. They need to have it completed and accessible. Alternatively, starter code is available in the folder if students didn’t finish or if their code is unusable or inaccessible.

💡 **Teaching tip – Coding (Required): Slides 6-23**
Step 1 - Step 5

Students open their code for Display3 and follow the instructions on the slides to make modifications. You will want to check in with the students regularly to see if they are having problems or don’t understand a step. Hopefully they will use each other to help with any trouble spots, but be prepared to go over the instructions in case the class is struggling.

🗝️ Remind students that they need to document their errors and how they fixed them. There is a table at the end of the document for this.

If time is short, you can end the lesson at step 5, and then go right to step 8 Test and Debug (Slide 32). Also, the wrap-up on the assignment document is optional if your students are out of time.

💡 **Teaching tip – Coding (Optional): Slides 24-31**
Step 6 - Step 7

Students use modulo division to light up different pixels. It is good for students to see an actual application of modulo division. The steps show a way to extend the game for more than four questions. Also, adding an effect of running pixel lights at the end.

💡 **Teaching tip – Test and Debug: Slides 32-34**
Step 8

End the coding lesson with slide 32, step 8, testing and debugging. If time permits, students can complete the wrap-up on the assignment document. You can also choose to go over their debug log.

✅ Review the success criteria for completeness. Assignment is ready to turn in. If working in pairs, both students should include their names on the document. Students can download their program file and submit through LMS, or any way you prefer for submission.

✅ **IMPORTANT!!**
Students should clear their CodeX by running their “Clear” program.

Wrap-Up (15 minutes)

The wrap-up will think about possible values of the parameter (count), and the effect of each value on the code.

For example, a possible value is 8 (all correct). The screen will display You Won! And the running lights will glow in green. Another possible value is 0 (none correct). The screen will display You Lost and the running lights will glow red.

Hopefully students won’t need help with this part, but be prepared in case the students don’t understand what is being asked and how to select the correct code snippets.

Formative Assessment:

- Daily reflection journal or Google form
- Wrap-up questions
- Completed program
- Exit ticket

Summative Assessment: Use the success criteria to evaluate the Create PT Practice

SUCCESS CRITERIA:

❏ Modify a program to meet the requirements for the Create PT
❏ Create two lists
❏ Create functions for intro and ending
❏ Modify a function with a parameter to use a loop
❏ Use (access information from) the two lists in the for loop
❏ Use the parameter in an if statement
❏ Test and debug the program so that it runs as expected
❏ Identify possible values for the parameter and their outcomes