


LESSON: Create Performance Task - Practice Extra		Time: 45 minutes
<p><b>Overview:</b></p> <p>This lesson isn't required for the Create Performance Task, but it teaches students a useful technique: using a Boolean variable to control a while loop. The value of the Boolean variable can be used to continue the play of a game without restarting, or to end the program.</p> <p>Students will use the <b>Mission 10 Reaction Time, Create PT Practice #3,</b> and <b>Create PT Practice #4</b> programs.</p>		<p><b>Objectives:</b></p> <ul style="list-style-type: none"> <li>I can create and use a Boolean variable in a while loop</li> <li>I can change the value of a global Boolean variable in a function</li> <li>I can use a loop to continue game play or end game play without manually restarting or stopping the code</li> </ul>
<p><b>Standards:</b></p> <p><b>2-AP-12</b> Design and iteratively develop programs that combine control structures, including nested loops and compound conditionals.</p> <p><b>3A-AP-14</b> Use lists to simplify solutions, generalizing computational problems instead of repeatedly using simple variables.</p>	<p><b>CSP Framework:</b></p> <p>Computational Thinking Practices:</p> <p>4.C Identify and correct errors in algorithms and programs, including error discovery through testing.</p> <p>6.A Collaborate in the development of solutions.</p>	<p><b>Create PT Requirements:</b></p> <ul style="list-style-type: none"> <li>Create a list</li> <li>Use the list in a meaningful way</li> <li>Create a function with at least one parameter</li> <li>The function must have sequence, selection and iteration</li> <li>Values of the parameter must affect the section of code that is executed (used in an if statement)</li> <li>Call the function with argument</li> </ul>
<p><b>Preparation:</b></p> <p><b>Make a copy</b> of the assignment or put it in the LMS.</p> <p><b>Prepare</b> any formative assessments you want to use in the wrap-up</p>	<p><b>Links:</b></p> <ul style="list-style-type: none"> <li><a href="#">Assignment</a> (optional)</li> <li><a href="#">Instructions slide deck</a></li> <li><a href="#">Folder that has all starter code and solutions</a></li> <li>Daily reflection form</li> </ul>	<p><b>Agenda:</b></p> <ul style="list-style-type: none"> <li>Warm-up (5 minutes)</li> <li>Coding (35 minutes)</li> <li>Wrap-up (5 minutes)</li> </ul>
<p><b>Vocabulary:</b></p> <ul style="list-style-type: none"> <li>No new vocabulary during this lesson</li> <li>You can review vocabulary: <b>Boolean (Mission 4)</b></li> </ul>		
<p><b>Assessment:</b></p> <ul style="list-style-type: none"> <li>Daily reflection journal or Google form</li> <li>Rubric (check-list) / program completion</li> <li>Wrap-up completion</li> <li>Gallery Walk (if step 4 is completed)</li> </ul>		

## Teaching Guide


This lesson is optional. It is not a requirement for the Create PT. If you don't have time, you can skip this lesson completely. However, if you have time for the lesson, it does teach important concepts students can use in their coding.

### 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 Mission 10 program - Reaction Time (game doesn't end without manually stopping)

### Coding (35 minutes)

 Students can work individually, or with a random partner.

**IMPORTANT!:** Students will use code from three previous lessons. Starter code is available in the folder if students didn't finish the projects or if their code is unusable or inaccessible.

#### Teaching tip – Step 1: Slides 6-11


Students open their code for Mission 10-Reaction Time and follow the instructions on the slides to make modifications. The slides take them step by step in adding a Boolean variable and while loop in the main program, adding a function to ask the user if they want to play again, and using buttons to get their response. The Boolean variable will be global, so students need to remember to make a global declaration in the function.

#### Teaching tip – Step 2: Slides 12-15

Students will repeat the same process with a different program – Create PT Practice #3.


#### Teaching tip – Step 3: Slides 16-19


Students will repeat the same process with a different program – Create PT Practice #4. This is the same game as #3, but with a global count variable.

 Sometimes `buttons.was_pressed` doesn't work the way you want it to. There is another function: `buttons.is_pressed` that can be used. This particular program needs the `is_pressed` instead of `was_pressed`. It is always an option to try when the code looks right but isn't working as expected.

#### Teaching tip – Step 4 (Optional): Slides 20

Students try the same process with a program of their own choosing. Some suggestions are given. This step can be skipped if time is short, or students aren't sure what to do.

 The assignment document is optional for this lesson. There isn't a warm up provided. If you choose to have the students complete the document, you can create warm-up questions that are appropriate for your students. All of the work for this lesson really is in CodeSpace modifying the programs. So you may want to just focus on that and not have the assignment.

 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.

#### **IMPORTANT!!**

Students should clear their CodeX by running their "Clear" program.



## Wrap-Up (5 minutes – optional)

Review questions are provided, but you can also change them if you want your students to review or practice something else or in addition to the review questions. All of the work for this lesson really is in CodeSpace modifying the programs. So you may want to just focus on that and not have the assignment.

Formative Assessment:

- Daily reflection journal or Google form
- Review questions
- Completed programs
- Completed Step 4 - program of their choosing, and a gallery walk
- Exit ticket

## SUCCESS CRITERIA:

- Add a Boolean variable, while loop and function to Mission 10 code so the user can stop playing the game
- Add a Boolean variable, while loop and function to Create PT Practice 3 code so the user can continue playing the game
- Add a Boolean variable, while loop and function to Create PT Practice 4 code so the user can continue playing the game
- Add a Boolean variable, while loop and function to another program so the user can continue playing the game