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| ***Overview*** | |
| *Topic/Theme*  Please list a brief title for the task | Looping |
| *Lesson/Activity Goal* | Students will be able to… write a program that will require looping. |
| *Rationale and Unit Placement*  Please provide a few sentences that describe how this lesson or activity might fit within an existing unit. | Introduce computer science standards for looping. |

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| ***Standards Alignment***  Please list the standards aligned with this task (e.g. K-2PA.2) |
| 3-5.DI.1-4; 3-5.CD.1,4; 3-5.PA.1,3 |

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| ***Attributions*** | |
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| *Date:* | May 23, 2019 |

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| ***I. Introduction/Anticipatory Set***  How might you make connections to students’ own experiences/ideas or other content to set the stage for the lesson/activity? |
| Discussion: what are things you do every day that require repetitive steps? |

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| ***II. Summary Description***  Please describe the procedures or parts of the lesson/activity. If you are using an existing activity, you can include a link to the instructions. Feel free to provide any further instructions for how this lesson/activity might be adapted for be integrated with other parts of the unit. |
| **Day 1**  Task 1: (Unplugged) Robot Algorithm  One student is coder and gives verbal commands to another student (who is robot) to walk 5 steps forward.  Class discussion: Name the steps that are being repeated. How can we add that to our algorithm to shorten it (e.g., add command repeat 5 times). Introduce “looping” concept as a method for decreasing number of commands needed.  **Days 2-3:**  Task 2: (Plugged) Program a sprite to draw stairs  Introduce looping command to students. Group students in pairs, ask them to program sprite to draw 5 stairs of equal length going up.  Class discussion: What commands are being repeated in loop?  **Days 4-5:**  Task 3: (Plugged) Program a sprite to walk up and down the stairs drawn in days 2-3.  Instruct paired students (same as day 2) to program their sprite to walk up the 5 stairs drawn on days 2-3 and then down the 5 stairs to return to original position. |

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| ***III. Whole Group Discussion Central Questions***  What 1-2 central questions might be used with the whole class to solidify the main idea of the lesson/activity? |
| What programming structure was used to improve our program? |
| How does the looping structure improve efficiency of a program? |
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| ***Evidence of Proficiency***  Please list 3-5 categories and brief descriptions of what proficiency looks like for those categories (this can serve as the precursor to a rubric). You do not have to use all of the rows. | |
| Category | Description |
| 1. Looping | Students create a program that uses looping to have a sprite draw stairs and walk up and down the stairs. |
| 2. Collaboration | Students work together to create a program, sharing the responsibility of thinking and coding. |
| 3. Discussion | Class discussion on looping structure and how it improves programming. |
| 4. |  |
| 5. |  |