Algorithms & Programming: Modularity (2) Grade: 3

Standard: 3.AP.M.02
Modify, **remix**, or incorporate portions of an existing **program** into one's own work, to develop or add more advanced features (grade-level appropriate).

Essential Skills
Select one or more features from an existing **computer program** with teacher guidance and add the feature(s) to an original program.

Essential Questions
Why would you **remix** a **computer program** written by someone else?
How could you use part of a computer program another person has written to make your program better?

Explanation
Students will examine examples of existing **computer programs** and select features that they want to incorporate into their own program. In order to be successful, students must demonstrate an understanding of the original **code**, of the impact of adding the code to their own program, and of the modifications to borrowed code that are necessary to produce the desired effect in their own program.

Think of this as similar to….
Reuse elements of a familiar story to create a fractured fairy tale or fan fiction.

Implementation Examples—What would this look like in the classroom?

Title	Description	Link	Content Connection & Notes
Introduce: Synchronization	**Grade 3**--Students will work in a small group to remix the program until the wait time is appropriate between the two sprites.	Introduce: Synchronization	This lesson also aligns with **CS** AP.PD.01.
Events in Bounce	**Grade 3**--Students use events when programming a game (making a hand move when arrow buttons are pressed.) Students customize their game with different speeds and sounds. Note that n this example, students are modifying an existing program not adding elements to a program of their own; it is a first step to achieving the standard.	Events in Bounce	
Build My City	**Grade 3**--Students will review key programming concepts in the Build My City project. A demo project is used to explain the design requirements and expectations. Students create their own program, modifying the demo code so that it reflects their plan. **Grade 4**--Students revise the demo program and incorporate it into a program that they create so it reflects their plan. **Grade 5**--Students explore what others have done and remix others' code into their project to add elements.	Build My City	This also aligns with **CS** AP.PD.01 and AP.PD.04. Similar skills and concepts can be used in an About Me or Superhero project.

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These annotations are a collaboration between Maryland Center for Computing Education and the Maryland State Department of Education.