

TABLE 3: Summary of Professional Development Sessions (Jackson and Cheng, forthcoming).

Table 3 will serve teachers well during the coding and computing aspects of the curriculum. We advise that teachers peruse this table and use it as a guide during lesson preparation and planning. This table can also be used during teacher professional development. Teachers with very little background in computing will particularly find the details very useful.

Week	Topic[s]	K12CS: Core Concepts (pp. 89–92)	NGSS: Using Mathematics and Computational Thinking (p. 59)
1	Introduction to BBC Micro:bit & Grove shield hardware; introduction to MakeCode software; how to transfer files; use of Micro:bit LEDs, Grove OLED screen, and Grove LED strip	Computing Systems: Devices; Hardware and Software; Troubleshooting	3–5: Decide if qualitative or quantitative data are best to determine whether a proposed object or tool meets criteria for success.
2	Introduction to (programming) functions; using a Grove temperature-and-humidity sensor	<same as Week 1> + Algorithms and Programming: Algorithms; Variables; Control; Modularity; Data and Analysis: Collection; Visualization and Transformation	6–8: Create algorithms (a series of ordered steps) to solve a problem. 9–12: Apply techniques of algebra and functions to represent and solve scientific and engineering problems.
3	Introduction to if-then(-else) loops; using a relay (switch) to activate or deactivate circulation or exhaust fans	<same as Week 2>	<same as week 2> + 6–8: Use digital tools and/or mathematical concepts and arguments to test and compare proposed solutions to an engineering design problem.
4	Using the Micro:bit's built-in light sensor to turn on or off an LED lamp; performing arithmetic in MakeCode	<same as Week 2>	<same as week 3> + 6–8: Apply mathematical concepts and/or processes (e.g., ratio, rate, percent, basic operations, simple algebra) to scientific and engineering questions and problems. 9–12: Apply ratios, rates, percentages, and unit conversions in the context of complicated measurement problems involving quantities with derived or compound units (such as mg/ml, kg/m ³ , acre-feet, etc.).

Week	Topic[s]	K12CS: Core Concepts (pp. 89–92)	NGSS: Using Mathematics and Computational Thinking (p. 59)
5	Calibrating and controlling a servo motor to open or close the greenhouse's windows	<same as Week 2>	<same as Week 4>
6	Communication between two or more Micro: bits; using a Grove gesture sensor and/or passive infrared sensor to control various outputs	<same as Week 2> + Networks and the Internet: Network Communication and Organization	<same as Week 4>
7	Demonstration of integration with Google Sheets; introduction to Micro:bit Classroom (learning management software); planning future sessions; time for focus-group and survey	<same as Week 6> + Networks and the Internet: Cybersecurity; Impacts of Computing: Social Interactions	6–8: Use digital tools (e.g., computers) to analyze very large data sets for patterns and trends.