TABLE 3: Computational Thinking (CT) Practices in the Baltimore Floods Unit

CT Practice	Precipitation Strand (Lessons 1–2)	Surface Runoff Strand (Lessons 3–4)	Runoff Combined With Infiltration and Evapotranspiration Strand (Lessons 5–6)
Making a conceptual model of a system	Creating a conceptual diagram of the causes and consequences of flooding		
Using a physical model to explore system components and processes (i.e., to identify and make sense of variables/ parameters)	Raining on Tiny Town Model	Watersheds on a Tarp Model	Runoff in a Paint Tray Model
Using data from a physical model to quantify system behavior	Calculating averages and variability Creating a rainfall contour map (spatial interpolation and visualization)		Calculating runoff ratios
Representing a system in discrete time and space to identify relationships and define rules	Rasterizing rainfall contour map	Surface flow on Floorlandia Grid Model with gravity only (Figure 2a)	Floorlandia Grid Model with infiltration
Using data from a discrete model to quantify system behavior		Collecting and calculating runoff data from Floorlandia to create a hydrograph	Collecting and calculating runoff and infiltration data from Floorlandia to create a hydrograph
Validating models	Rainfall contouring – Netlogo Model	Netlogo Floorlandia Model, Netlogo Watershed Model 1	
Testing solutions and making predictions			Netlogo Watershed Model 2