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| Table 3: Teaching Tips and Scaffolding Strategies |
|  | Students with growing knowledge and skills | Students with advanced knowledge and skills | Both groups |
| Obtaining information from reading and video | * Pause the video more often at the critical moments
* Ask students to make notes on what they don’t understand
 | * Pause the video less often at the critical moments
* Ask students to summarize the main points
 | * Provide briefs and guiding questions before using the reading and videos
* Hold class discussions after using reading and videos
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| Exploring agent-based computer simulation | * Provide more explicit instruction to assist exploration
* Allow more time
* Pair with the students with more advanced knowledge and skills
 | * Leave exploration more open
 | * Work in pairs or groups of three
* Let some students share their explorations with the whole class
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| Constructing the epidemic simulation  | * Focus on grasp the conceptual meaning of the codes, less on the programming language
* Allow more time
* Pair with the students with more advanced knowledge and skills
 | * Focus on both conceptual meaning of the codes and the programming language
 | * Monitor students closely
* Provide help to debug code
* Thoroughly explain the conceptual ideas contained in the code
* Connect to real-world scenarios
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| Collecting data | * Let students collect fewer data points
* Let students collect data on one factor each time
* Allow more time
* Pair with the students with more advanced knowledge and skills
 | * Let students collect more data points
* Let students collect data on multiple factors
 | * Ensure students’ simulation are identical
* Demonstrate how to collect data from the simulation
* Demonstrate how to input data into the Google sheet
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| Use mathematical thinking | * Plots the data for students
* Allow more time
* Pair with the students with more advanced knowledge and skills
* Let students discuss one factor each time
* Allow more time
* Pair with the students with more advanced knowledge and skills
 | * Demonstrate data plotting at first, and then let students plot the rest data
* Let students convert raw data to percentages.
* Encourage students to connect more than one factors
 | * Facilitate students to identify the patterns in the data.
* Hold class discussions
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