

1/14/2019

Using Data and Simulations

- Students will identify and create real world examples of models and simulations.
- Students will use models and simulations to generate new knowledge, as well as, to formulate, refine, and test hypotheses.
- Students will use simulations to test hypotheses without the constraints of the real world.

Journal

Models and simulations are simplified representations of more complex objects or phenomena.

- Name some complex, everyday phenomena that is studied using models and simulations,
- Why might we use simulations for those?

Designing a simulation (rolling dice)

Groups develop an algorithm to simulate rolling a standard six-sided die.

- The program should ask for the number of rolls and display the results (number of each possible outcome that was rolled.) [use functions where appropriate]
- Write a plan (flow chart or pseudocode) on large paper or some other method to enable sharing with the class.
- Have a representative from each group describe their plan for the algorithm. (After the first group, subsequent groups could highlight similarities and differences).
- Next. have each group discuss and implement changes to their algorithm to simulate rolling two dice.
- Code it into Python

Expanding the Simulation

Would rolling 2 6-sided dice have the same results as one 12-sided die?

Design a simulation to test your hypothesis - your final python code along with a screenshot of output and reflection on hypothesis should be submitted on Google Classroom. (finish for homework if necessary)