Pennsylvania SAS Alignment with Python with Robots Curriculum

2 (Grades 6-8 / Ages 11-14)	Unit 1	Unit 2	Unit 3	Unit 4
Computing Systems				
2.CS.01 Recommend improvements to the design of computing devices, based on an analysis of how users interact with the devices.				
2.CS.02 Design projects that combine hardware and software components to collect and exchange data.				
2.CS.03 Systematically identify and fix problems with computing devices and their components.				
Networks & the Internet				
2.NI.04 Model the role of protocols in transmitting data across networks and the Internet.				
2.NI.05 Explain how physical and digital security measures protect electronic information.				
2.NI.06 Apply multiple methods of encryption to model the secure transmission of information.				
Data and Analysis				
2.DA.07 Represent data using multiple encoding schemes.				
2.DA.08 Collect data using computational tools and transform the data to make it more useful and reliable.				
2.DA.09 Refine computational models based on the data they have generated.				
Algorithms and Programming				
2.AP.10 Use flowcharts and/or pseudocode to address complex problems as algorithms.				
2.AP.11 Create clearly named variables that represent different data types and perform operations on their values.				
2.AP.12 Design and iteratively develop programs that combine control structures, including nested loops and compound conditionals.				
2.AP.13 Decompose problems and subproblems into parts to facilitate the design, implementation, and review of programs.				
2.AP.14 Create procedures with parameters to organize code and make it easier to reuse.				
2.AP.15 Seek and incorporate feedback from team members and users to refine a solution that meets user needs.				
2.AP.16 Incorporate existing code, media, and libraries into original programs, and give attribution.				
2.AP.17 Systematically test and refine programs using a range of test cases.				
2.AP.18 Distribute tasks and maintain a project timeline when collaboratively developing computational artifacts.				
2.AP.19 Document programs in order to make them easier to follow, test, and debug.				
Impacts of Computing				
2.IC.20 Compare tradeoffs associated with computing technologies that affect people's everyday activities and career options.				
2.IC.21 Discuss issues of bias and accessibility in the design of existing technologies.				
2.IC.22 Collaborate with many contributors through strategies such as crowdsourcing or surveys when creating a computational artifact.				
2.IC.23 Describe tradeoffs between allowing information to be public and keeping information private and secure.				