

Michigan Computer Science Standards Alignment with Python with Robots Curriculum

| 2 (Grades 6-8) | 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. | | | | |