

Robotics

Projects may be constructed from kits or published drawings, modified from other devices to create new applications, or constructed from the student's own concepts and designs. All entries must be a working and functional piece of electro-mechanical hardware in which movement and intent is controlled through student created programming. Devices controlled through direct, real time remote control by the student are not appropriate (ie: remote controlled cars). Once started, the robotics project should operate as a standalone independent machine without human interaction (autonomous).

Area	Minimal	Partial	Mastery
Documentation - 10% Did student(s) include citations for sources and permissions for non-student produced materials?	None of the required documentation present.	Some or most required permissions present.	ALL required permissions present OR none needed.
Complete and Functional - 15% Did student(s) complete the entire project?	Robot does not work at all.	Robot is incomplete and still needs more work to be fully functional.	Robot is complete and functions certain tasks as designed through student created programming.
Creativity - 20% Did student(s) use a higher level of creativity throughout the design process and oral presentation? (Nervousness should NOT count against the student)	Minimal levels of creativity shown in the project design and oral presentation.	Students display lower levels of creativity in the design process and/or oral presentation.	Student displays a high level of creativity throughout the entire design process. The oral presentation is unique, well-planned, and creative. (Nervousness should NOT count against the student)
Understanding - 25% Did student(s) demonstrate a solid understanding of the software for project development?	Student displayed little to no understanding of the software used.	Pre-built scripts are used to control the robot. Student used a drag-and-drop interface to program the robot.	Mastery in the choice and use of software to program the robot. Student is able to answer specific questions about their project and the methods used to control the robot. Student displays mastery in understanding of the programming language used.
Intended Purpose - 30% Did all elements of the project work together to serve the intended purpose?	No elements of the design fit the intended purpose of the robot.	Robot requires some human interaction after the machine is started to accomplish its task. Some elements of the design are unnecessary or do not fit the intended purpose of the robot. Some elements of the design are missing.	Robot performs one or more tasks through student created programming with no human interaction or remote control input once the machine is started. Entire machine presented a focused and efficient solution for the stated task.