

## **Project Summary: How can we design and program a robot to complete a specific task with accuracy and efficiency?**

**Grade Level:** High School (Grades 9 - 12)

### **Project Overview:**

This project guides students through the process of designing, building, and programming a robot to complete a specific task with a focus on accuracy and efficiency. The project is aligned with **Common Core State Standards** and **Next Generation Science Standards (NGSS)**, ensuring students develop critical skills in research, design, and problem-solving. Rubrics are included to provide detailed feedback and support student growth.

### **Project Sections:**

- **General Guidelines:** Provides step-by-step instructions for organizing the project, dividing roles, and ensuring teamwork.
- **Brainstorming:** Encourages students to generate ideas and collaborate effectively to plan their robot's design and programming.
- **Project Planning and Designing:** Guides students in setting goals, creating timelines, and developing detailed plans for their robot.
- **Project Execution:** Helps students follow their plans, test their robot, and iteratively improve their design and programming.
- **Experimenting:** Details the experiment process, teaching students how to measure and analyze the robot's performance.
- **Presentation:** Offers multiple presentation options (slide decks, videos, or live presentations) for students to showcase their project.

### **Why Use This Project?**

This project offers students a hands-on experience in STEM that builds essential 21st-century skills, including problem-solving, collaboration, and technical expertise. By working through the entire process from brainstorming to final presentation, students learn to manage complex tasks and iterate on their ideas. The structured rubrics ensure they receive meaningful feedback at each step, helping them improve their performance and reach their full potential. Teachers will find this lesson plan comprehensive and easy to implement, making it an ideal choice for any high school STEM class.