Team Members _____

INTRODUCE

Write the challenge in your own words. Record the constraints you should follow, the materials that can be used for the solution, and what the testing field will look like.

Challenge

Constraints

Materials and Field

BRAINSTORM

Create quick sketches and describe solutions to the challenge. Use additional pages as needed.

Description

Description

PLAN

Create a detailed sketch of your selected solution to the challenge. Label the materials you will use. A bill of materials and technical drawings could be substituted. Pictures and assembly instructions can also be added.

Detailed Sketch

PLAN

Write a detailed description of how your solution meets the challenge, constraints, and criteria.

Detailed Description

STEPS

Write a series of steps that your robot will perform when testing. Include the programming if applicable.

TEST

Note how testing was conducted. Create a table to document your results. Graph or analyze your data. Record your observations of how your robot performed.

Observations

REFINE

Document changes made to your robot and the steps it follows. Why were modifications made? How might further modifications be made to improve the robot's performance?

IMPROVE

Document how you could improve your robot. Sketch your proposed modifications and changes and write a description of how you think these changes will improve your robot.

Sketch

Description

EVALUATE

Evaluate your different solutions to the challenge. Consider these questions.

Questions

- Evaluate your design. Did it meet the challenge and criteria?
- What could you have done differently? What could you change to make it better?
- What were your reasons for the changes you made?
- Were these successful changes? Why or why not?

REFLECT

Look back at your solutions. Consider these questions.

Questions

- How have your designs changed?
- How does this challenge apply to the real world?
- What did you learn from trial and error?
- What skills did you learn in this challenge?

CHECKLIST

Use this checklist to make sure you've completed each step of the engineering process.

	Student
INTRODUCE • Challenge • Constraints • Materials and field	
BRAINSTORM • Sketches • Descriptions	
PLAN and CREATE • Detailed sketch • Detailed description	
STEPS	
TEST • Table • Data analysis • Observations	
REFINE	
IMPROVE • Sketch • Description	
EVALUATE	
REFLECT	