

Longer/Final Project Trajectory

Lesson Overview:

Longer projects in the book include an amusement park ride (robotics), a game for a younger student, an improvement for the classroom or school, and a miniature golf course where each group builds a different obstacle.

Suggested Time: Below is a seven-session trajectory for longer projects with sixty minutes per session. This is variable depending on the amount of time you have and what your goals are.

Learning Objectives:

- To manage working through the engineering design process
- To choose a problem
- To outline design constraints and criteria

Materials: (dependent on robotics or not)

- Robotics kits (optional)
- Craft, Recyclable, and Office Materials

Directions:

Day	Sub-Activity	Notes
1	Introduce Challenge & Problem Scoping	Students begin filling in their planning document as they scope the problem.
2	Research, Brainstorm, Planning	Students continue to fill in the planning worksheet, manipulating materials as needed.
3	Build	Students test as they build. These may be mini tests of components or tests to see how their designs work overall. They will iterate as they test. Students will document as they work.
4	Mid-Design Share-out & Building	Students continue to test, iterate, and document. Students can participate in a mid-design share-out.
5	Build	Students continue to build, test, iterate, and document.
6	Final Share-Out	Students share in or more ways.
7	Clean-up and Reflection	Reflection may be included as part of documentation and/or through class discussion. It can include personal reflections on the process and/or lessons learned about topics such as materials, collaboration, etc.