

## Recyclable Material Project

### Procedure

This problem will provide you with the opportunity to work together in teams of two or three. Your team will design a solution to the stated problem. Study the design brief located below. Using the steps in the design process, your team will create a solution to the design problem.

**Client Company:** National Recreation and Park Association (NRPA)

**Target Consumer:** Society

**Designer:** \_\_\_\_\_

**Problem Statement:** The National Recreation Park Association (NRPA) has asked your team to develop a solution to a growing problem in their parks. The association has placed dumpsters for recyclable material throughout the parks. They have a sorting facility; however, they need the device that will sort the recyclable material.

**Design Statement:** Design, model, and test a device that will separate recyclable materials.

**Constraints:**

1. Separation process must be fully automated.
2. Must successfully separate commingled recyclable materials into individual holding bins.
3. Recyclable materials include 3 different ½ in. material spheres totaling 15. Examples could include steel, aluminum, wood, opaque plastic, and clear plastic.
4. Must be efficient – 2 minute max for completion of sorting process.

## Deliverables / Portfolio report

1. **Title Page:** Include the title of the problem, names of team members, course title, school name, and date.
2. **Table of Contents:** Include all major headings below, in addition to any other necessary sections.
3. **Brainstorming Ideas:** Provide at least four of your team's brainstorming ideas for the design solution. This should include brainstorming sketches or electronic 3D models of your ideas. Each sketch should be signed, dated, and should include labels and descriptions for communication.
4. **Decision Matrix:** Evaluate the four solution ideas using a decision matrix. Determine the best solution to the problem.
5. **Final Design Solution:** Create a detailed pictorial sketch or use 3D modeling software to document the best solution, based upon your team's decision matrix. Your sketch or 3D model should include a rationale for the design selected as the final design solution. Each sketch should be signed, dated, and should include labels and descriptions for communication.
6. **Design Modifications:** If you change your final design solution, document the modifications. Explain the reason for the modifications and describe how the new design solution will solve the problem (refer to **Design Modifications Chart**).
7. **Final Design:** This section will include information pertinent to the design solution in the form of images (e.g., photographs of final solution, photographs of testing solution, orthographic and isometric drawings, assembly, schematics, exploded views, written programs, flow charts, calculations, and data tables).