



# Problem Solver

## Design Brief

### Background

Ara was stumped in figuring out how to count all the stars in the sky, and even more upset when her robot, DeeDee broke. On her journey to solve her problem, Ara's expert engineering friends each gave her help. Ara learned that collaboration and teamwork solve problems and she can be an engineer just like the friends she made on her problem-solving journey.

Ara's best friend is a robot named DeeDee. Robots are machines that gather information about their environment and use that information to follow instructions to do work. Just like DeeDee had errors in the story, robots in real-life run into problems and need humans to help troubleshoot solutions. Your family recently won a robot from the local robotics club which is designed to help sort recycling. Unfortunately, the club forgot one important part. A place that the robot can put all the sorted recycled goods. Thankfully, you know how to think like an engineer! Don't forget the power of having a plan, brainstorming, communication, and collaboration, just like the engineers in Ara's story.

### Challenge

Work with your partner(s) to design and build a sorting station for your new robot to sort recycling in your home. Customize the station based on what you know are the main goods your local recycling facility collects AND what your family typically uses. Your robot sorts based on size and material, so be sure to consider this in your design.

### Criteria and Constraints

1. Your design process must be well documented in the engineers' notebook
2. Your station must:
  - Have at least 3 sorted areas
  - Be stable enough to hold 4 recycled pieces at a time
  - Keep recycling contained from weather and animals
  - Have an easy way to remove the recycled pieces
  - Use only the materials and tools provided
3. Use creativity when designing your station. Make it look appealing and reflect you!