INTRODUCING THE DESIGN PROCESS

When NASA engineers try to solve a problem, their initial ideas rarely work out perfectly. Like all engineers, they try different ideas, learn from mistakes, and try again. The series of steps engineers use to arrive at a solution is called the **design process**.

As kids work through a challenge, use questions such as the ones below to talk about their work and tie what they're doing to specific steps of the design process.

BRAINSTORMING

- At this stage, all ideas are welcome, and criticism is not allowed.
- What are some different ways to start tackling today's challenge?

DESIGNING

- Talk through the brainstormed ideas. What's really possible given your time, tools, and materials?
- What specific goal are you trying to achieve, and how will you know if you've been successful?
- What are some problems you'll need to solve as you build your project?

BUILDING, TESTING, EVALUATING, AND REDESIGNING

- Does your design meet the goal set out in the challenge?
- Why do you have to test something a few times before getting it to work the way you want?
- What can you learn from looking at other kids' projects and discussing them?

SHARING SOLUTIONS

- What were the different steps you had to do to get your project to work the way you wanted?
- What do you think is the best feature of your design? Why?
- What are some things everyone's designs have in common?
- If you had more time, how could you improve your design?

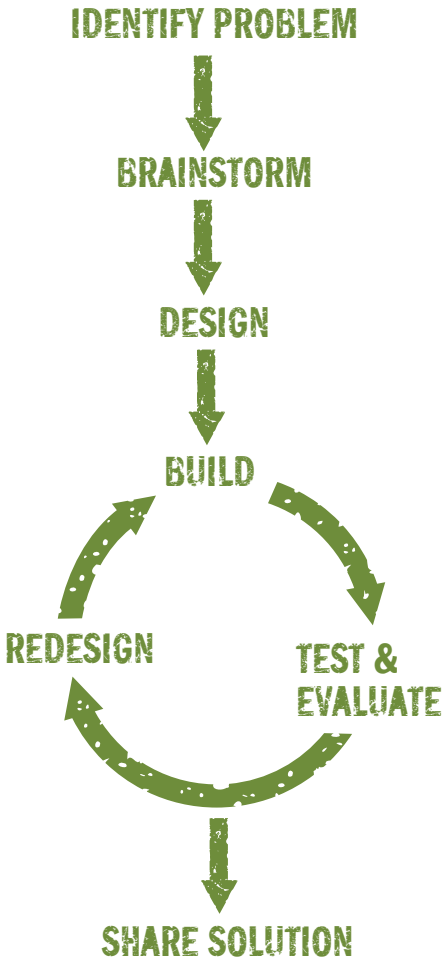


Photo: Lauren Feinberg

The design process is built into each challenge. Over the course of doing a challenge, kids see that the steps of the design process let them think creatively about a problem and produce a successful result.