

Welcome to Barnes & Noble Story Design!

In this fun hands-on project, you'll design, build, and test a way to solve a problem from a story. You'll use skills from many different subjects and topics to develop your own new creation.



How does Story Design work?

You'll start by reading a book or part of a book. Next, you'll figure out what problem or problems the characters in the book face. Then, it's your job to help the characters solve those problems using engineering, science, math, research, and design. You'll use the engineering design cycle to build the best possible solution. Your teacher will give you the materials, time, and space you need to work and let you know how to share your ideas with others.

What problems will I solve?

In Story Design, you'll solve problems in the lives of story characters.

Characters are the people, animals, or others who do the action in a story. Stories usually tell what happens when characters run into a problem and try to solve it. The characters might have one big problem or a bunch of smaller problems.

Your first step in Story Design is to figure out the problems in the story. Follow these steps to figure out the characters' problems:

- 1. Who are the characters?** Look for the most important person or people in the story, including the person telling the story.
- 2. What do they want?** What do the main characters want, or what are they trying to do?
- 3. What's stopping them?** What prevents the characters from getting what they want? What is working against the characters?

The thing stopping the characters from reaching their goals is the story's problem. Once you've found a problem, write it in a sentence using your own words.

Next, think about the limits of the problem. Identify the materials, the technology, the time, and the other people the characters have to work with.

- 1. When and where does the story take place?** What technology, tools, and materials are available? Does the story have special rules that characters have to follow?
- 2. Is there a time limit?** How much time do the characters have? Does anything else need to happen before they can take action?
- 3. Who or what can help?** Who is working with the characters?

Use the **Identify the Problems Worksheet** to guide you through these steps.

After you figure out the problem in the story, you'll use engineering to help the characters solve it.

THE MOST MAGNIFICENT THING	
Identify the Problems in The Most Magnificent Thing	
Main characters: .	Other characters: .
Main characters' goal: .	
What is stopping the main characters? .	
Other characters' goal: .	
What is stopping the other characters? .	
Main story problems: .	
Other story problems: .	

▲ Identify the Problems

What is engineering?

Engineering is a way of combining science and technology with knowledge and imagination to solve problems. Engineering helps people do everything from building skyscrapers to making a better pencil eraser. Engineering uses a process, or a series of steps, called the engineering design cycle.

The Engineering Design Cycle

The engineering design cycle is a way of coming up with, testing, and improving a solution to a problem. It has five main steps.

- 1. Ask:** *What problem can I help solve?* Engineering can solve physical problems, such as how to escape from a cage, but it is not meant for personal problems, like how to get along with your brother. Remember that problems have limits, such as materials, time, money, technology, and teammates.
- 2. Imagine:** *What are some possible solutions?* Next, brainstorm ideas about how to solve the problem. There are no wrong answers. Write down every idea, even ones that seem silly.
- 3. Plan:** *Which idea is most likely to work?* Think about which ideas are best. Cross out ideas that don't fit in the story or the limits of the problem. Narrow it down to your two or three best ideas. Choose one favorite, but don't throw the others away. You may need them if your first idea doesn't work.
- 4. Create:** *What does my idea look like in real life?* Build a prototype, or a sample, of your best idea. Choose the materials you think will work best. Put them together to show how your idea works.
- 5. Improve:** *How well does my idea work?* Test your idea by using your prototype to try to solve the problem. Make the test as realistic as possible. Your idea might not work. Your prototype might break. That's okay! The test helps make your idea better.

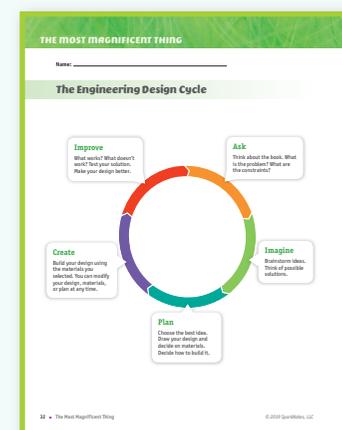
Look at what went wrong. Improve your prototype or, if you need to, start over with another one of your good ideas.

These steps are called a cycle because you can do them over and over as you work. Once you have tested your prototype, use the same steps to make it better.

- 1. Ask:** *What went wrong with my first idea?*
- 2. Imagine:** *What are some ideas that will make my prototype better?*
- 3. Plan:** *Which ideas should I add to the prototype?*
- 4. Create:** *How is my new prototype better?*
- 5. Improve:** *How well did my prototype work this time?*

Use the **Engineering Design Cycle Worksheet** to help you through the steps as you work.

The steps in this document are guidelines to help you as you work. In Story Design, you come up with ideas, figure out tests, and show how your solution works. You become a reader, inventor, and a real engineer!



▲ Engineering Design Cycle