

Did you enjoy this kit? We'd love to see how you used it! Tag us on social media and let us know! #APLstem

Twitter: @anchlibrary

Facebook & Instagram: @anchoragelibrary



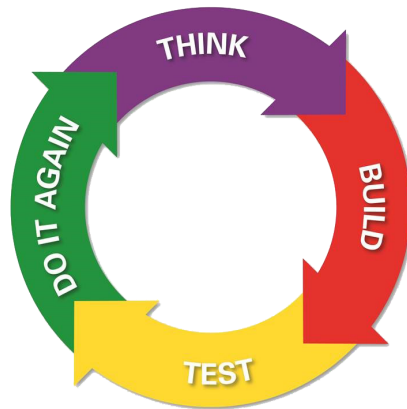
## Bridges

### Engineering Design Process

#### Think, Build, Test, Do It Again

That's the process engineers use when they tackle a problem. Engineers don't have official rules telling them to follow this set of steps. But, over time they've learned that **they get the best results this way**.

They **think** and brainstorm about a problem and factors they have to consider to solve it. They come up with an idea and **build** a prototype. They **test** the prototype. And, then they **repeat** the process to improve their results.



#### It Takes a Lot of Back and Forth

Engineers often **move back and forth within the loop**, repeating two steps over and over again before moving forward. It's a key to engineering success. Sometimes, engineers will focus on one specific step, and when complete, pass the project off to another team with a different skill set.

#### Engineers are creative problem solvers!

This kit generously sponsored by:



This material is based upon work supported by the National Science Foundation under Grant Number DRL-1657593. Any opinions, findings, and conclusions or recommendations expressed in this material are those of the authors and do not necessarily reflect the views of the National Science Foundation.

Scientific Concept: Physics, structures

Recommended Ages: 8 to 12

Scientific Practice: Engineering

### What to know about this kit:

With this kit you can build 13 replicas of real life bridges. You can modify these models or design your own bridge and test it to see how much weight it holds or how far you can make it stretch.

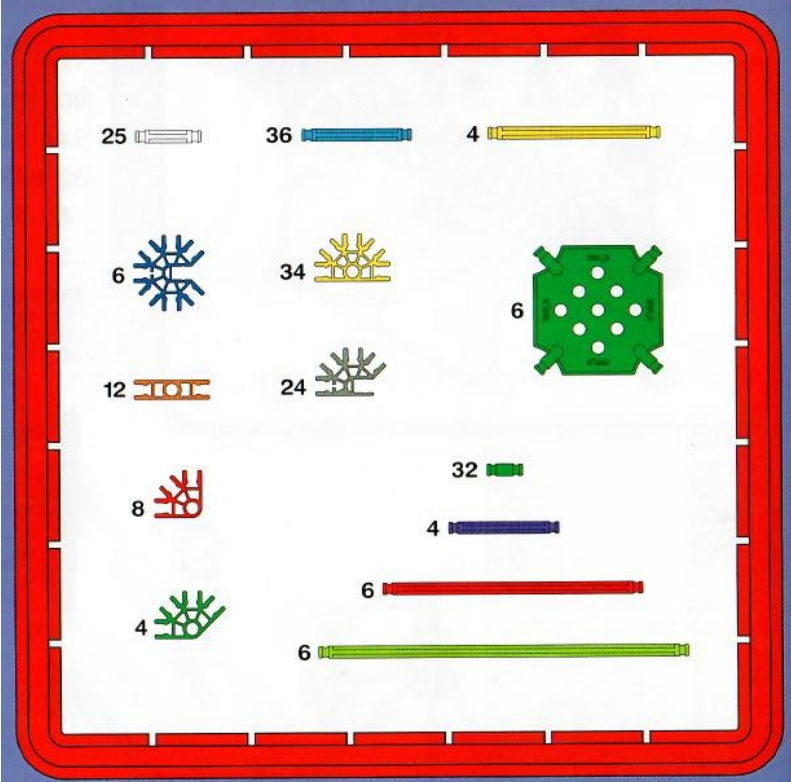
Can you make it stretch between two chairs? How far apart can you move the chairs?

Use your science and engineering skills to design, test, adjust designs, and test again!

*Please note: This kit must be returned to a **staff member** at an **Anchorage Public Library** location.*



| Kit Contents & Replacement Costs |  |       |
|----------------------------------|--|-------|
| Item Type                        | Description  | Cost  |
| Object                           | K'Nex Education Introduction to Structures: Bridges (207 pieces) | \$40  |
| Leaflet                          | K'Nex Education Teacher's Guide                                  | n/a   |
| Leaflet                          | K'Nex Education Building Instructions                            | n/a   |
| Object                           | Hexagram Weights (set of 54)                                     | \$12  |
| Book                             | <i>Bridges and Tunnels: Investigate Feats of Engineering</i>     | \$16  |
| Book                             | <i>Bridges! : Amazing Structures to Design, Build &amp; Test</i> | \$13  |
| Packaging & Processing Fee:      |  | \$25  |
| Total Kit Replacement Cost:      |  | \$106 |



Please verify all parts are present before returning.