BRIDGE BALANCE

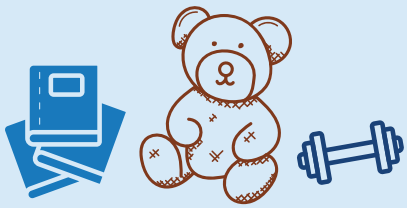
Welcome, engineers! To complete your badge, use both reading and STEM skills to learn how to build a bridge that can hold the weight of an object you choose.

1. Use your reading skills to draw or write your bridge plans.
2. Imagine and plan your bridge using simple household items.
3. Create your bridge and improve it by testing and making it stronger if it bends or falls.
4. When you are done, be sure to put everything back where you found it and visit **RIF.org/Summer** for more reading fun.

STEP 1: ASK

Middle School Camper

Your challenge is to design a bridge that can span a gap and support the weight of a chosen object. What problem are you solving, and what limits do you need to keep in mind (materials, distance, or weight)?



STEP 2: IMAGINE

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Brainstorm several possible bridge designs before building. What shapes or structures—like arches, triangles, or folded supports—might help spread the weight and make the bridge stronger?

STEP 3: PLAN

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Sketch your design and decide how you will use your materials. Where will your bridge need the most support, and how will your design keep the structure stable?

STEP 4: CREATE

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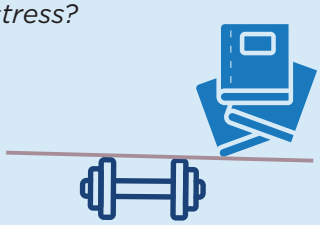
Build your bridge and begin testing it by placing the object or adding weight. Observe carefully—where does the bridge stay strong, and where do you notice bending, shifting, or stress?



STEP 5: IMPROVE

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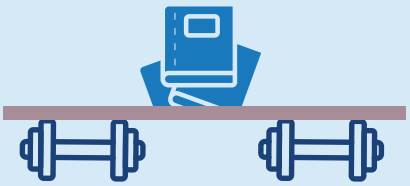
Use what you learned from testing to redesign your bridge. What changes could help distribute the weight better or strengthen weak points in your structure?



THE RIF ENGINEERING DESIGN PROCESS