

HELPING HANDS



YOUR CHALLENGE

Design and build a device that lets you grab different objects and drop them into a container that's at least two feet away from you. You will have 2 minutes to pick up as many objects as possible. Your invention cannot touch the bucket or testing pool.

BRAINSTORM & DESIGN

Look at your materials and think about the questions below.

1. Using these materials, what can you build to grab objects that are two feet away from you?
2. How will your grabbing device open and close so it can grip an object and let it go?
3. How will you attach your grabber to the end of the stick?
4. How will you control your grabber when it's at the end of the stick?



Sketch three ideas below that could solve the given problem.

IDEA #1	IDEA #2	IDEA #3

ORTHOGRAPHIC PROJECTION

Pick your best design- the one you want to construct- below. Label your materials!

TOP VIEW	ISOMETRIC 3D VIEW
FRONT VIEW	SIDE VIEW

As built on TV
pbs.org/designsquad

Related Episode:
Season 2: Water Dancing

MATERIALS

- 4 brass fasteners
- corrugated cardboard
- 2 rubber bands
- 20in masking tape
- 12in string
- 4 craft sticks
- 1 long paint stirrer for 5 gallon bucket
- Sandpaper
- Elmers Glue
- objects to pick up (ex-tennis balls, plastic soda bottles, paper cups)
- hole punch/drill
- Scissors
- Miter box (to cut your paint stirrer if needed)



BUILD, TEST, & REDESIGN

Using the materials provided, build your device. As you construct- make sure to test and make changes along the way. Remember: you only get materials once so use these wisely!

EVALUATE YOUR DESIGN

Answer the questions below after you have tested your design with the class.

1. Explain the results of your design. What happened when you tested your device?

2. Did your design work as planned? Did you have to make any changes in your original design? Explain.

3. What could you have changed to make your design work better?