

Under Pressure



Paper doesn't need to go to the gym to get stronger. All you need to do is change its shape. Today's challenge is to support a book using just one sheet of paper. Give your paper a workout and make it tougher!

What to Do

1 Get what you need.

- A few sheets of paper
- Heavy book (e.g., a phone book, textbook, or binder)
- Ruler
- Scissors
- Tape

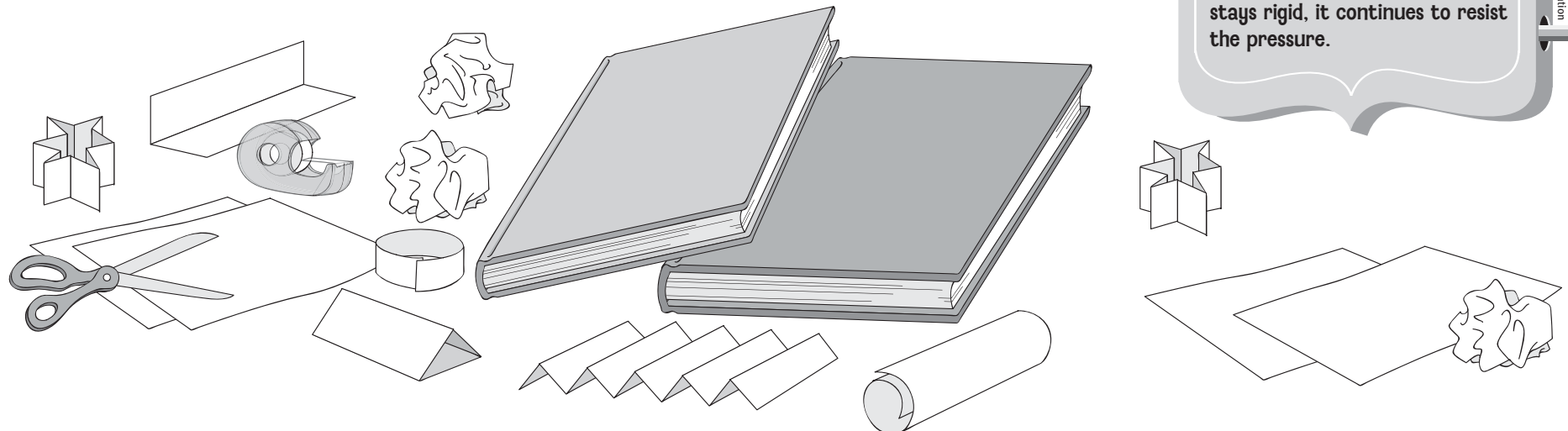
2 Brainstorm some ideas. How might you use one sheet of paper so that it supports a book at least two inches above a tabletop for ten seconds? You can cut it, roll it into tubes, or fold, bend, twist, rip, crinkle, or crumple your paper!

3 Make your supports. Choose one of your ideas. Follow your plan and use one sheet of paper to build a set of supports.

4 Test your design. Place the book on top of your supports. Count to ten. Did the paper support the book? It didn't? Get a new sheet of paper, and try, try again! It did? Congratulations, but don't stop. Keep going with the Dig Deeper challenges on the next page.

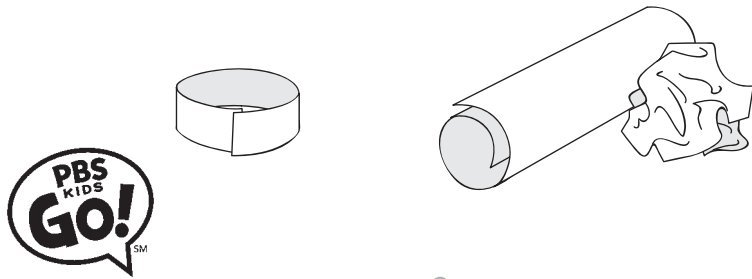
Chew on This

Paper is thin and weak. Or is it? You can stiffen paper by folding or rolling it into a column. But to support the most weight, you have to do one more thing. You have to turn the column so it's perpendicular to the pressure. Why? The more material (i.e., paper) you can move toward the column's ends and away from its middle, the more rigid it becomes. As long as the column stays rigid, it continues to resist the pressure.



Dig Deeper

- * Can you make your paper do double duty? Using only one sheet of paper, support a book four inches above a table for at least ten seconds.
- * Keep adding books until your supports collapse. Use a scale to weigh the books. Try to build a better support system to hold up this heavy stack of books.
- * Like building things? Get the Paper Bridge challenge from the ZOOM Web site at pbskids.org/zoom/activities.



Watch FETCH! on PBS KIDS GO! (check local listings) and visit the FETCH! Web site at pbskidsgo.org/fetch.

Flimsy to sturdy just by changing shape? This is great. I'm going to build myself a paper doghouse and bark-o-lounger starting right now!



greendog

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Fold

Fetch!

Under Pressure

Henry, my boss, keeps saying that one of these days, I may actually have to do some physical work. I guess I'd better get started and build up my muscles! I don't really have any weights lying around, so I think I'll start by lifting...uhh...paper! I'll start with one sheet and work my way up to 50! What's that you say?

Paper is stronger than I am?
That can't be right! Now you've got to prove it to me!

GOOO FETCH!

