



Curiosity Guide #209

Friction

Accompanies Curious Crew, Season 2, Episode 9 (#209)

Phonebook Force

Investigation #9

Description

Surprise your friend and demonstrate the power of friction!

Materials

- Four phonebooks or soft-cover books of similar size
- A friend

Procedure 1, ahead of time

- 1) Prepare two of the phonebooks so that they are woven together every other page.
- 2) Practice Procedure 2 a few times before you do it with your friend.

Procedure 2, with a friend

- 1) Quickly shuffle the other two phonebooks, not trying to be very precise.
- 2) Demonstrate how easily these books can be pulled apart.
- 3) Shuffle the two books together again.
- 4) Have your friend hold the spines of the phonebooks and pull the books apart.
- 5) Can your friend do it?
- 6) Now show your friend the phonebooks you prepared ahead of time.
- 7) Ask him or her to pull the prepared ones apart.
- 8) Can your friend do it?

My Results

Explanation

Each page that comes in contact with another page creates additional **frictional resistance**. So having many interwoven pages accumulates to a significant **force**!

Keep experimenting: Cluster or interweave different numbers of pages together to see if the phonebooks can be taken apart or not.

Here's a fun question. How is the tummy of a snake like the sole of your shoe? They both have tread for traction. You've noticed the interesting patterns on the bottom of your shoe. Well, the underside of a snake is similar. Snakes have scales that go across their bodies. These tread-like scales look different from the rest of their scales. The special scales help to grip and push off the ground as the snakes slither along. That's s-s-s-s-s-sweet!

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