Stored Energy

In this activity, a metal "rod" can be made to roll back to you automatically when pushed away. What's at work behind the phenomenon?

Not only will this activity encourage critical thinking as your child tries to figure out what happened, but it will also serve to reinforce the physics concept of stored energy!

What You Need:

- Large metal coffee can with a lid that clips into the top
- Electric drill
- Long elastic rubber band
- String
- Small weight
- Clear plastic cylinder (optional)

What You Do:

1. Drill two holes in the lid of the tin, about 50 mm apart (or 2 inches), and two matching holes in the base of the can.
2. Cut the rubber band in half so that it's one long elastic line. *Tip:* Elastic gift wrap cord works too, and you can cut it to length.
3. Thread the elastic rubber band through the base holes and pull the ends through. Lay the can on its side.
4. Take the weight and tie string firmly around it; you'll use the ends of the string to tie the weight to the rubber band.
5. This part's tricky—it helps to have a second pair of hands! One person can hold the ends of the rubber band in place outside the mouth of the can while the other person ties the weight securely to the band.
6. Position the weight in the middle of the can and tie it tightly to the elastic band, tying together the two sides of the rubber band. Make sure to tie them together tight!
7. Now take the two ends of the elastic rubber band up through the lid holes, put the lid on the can and tie off the two ends.
8. Roll the can away from you: this should "wind up" the elastic bands, causing the can to roll back again!

The rolling can stores energy in the elastic rubber band because the weight always hangs down as the can rolls in one direction. Have your child try making a second one in a clear plastic container to see how it works!

Don't have a drill handy? Try following the directions using a cardboard oatmeal canister, and carefully use a pen to poke holes in the bottom and the lid.