



You can make this marvelous magic bean in just a few minutes with easily accessible materials. Then use your bean to explore inclined planes, gravity, movement, Newton's First Law of Motion, or potential and kinetic energy. The possibilities are endless and it's so much fun!

MARBLE JUMPING BEAN!

What you need:

Small piece of aluminum foil or the foil wrapper from your candy, marble, ramp, plastic container

What to do:



1. Smooth out your foil wrapper or a piece of aluminum foil so that it forms a square about 7 cm by 12 cm.
2. With one of the short edges facing you, carefully roll the foil around your finger or a large pencil to form a tube that is a bit wider than your marble (Image 1).
3. Put the marble inside the tube and squish each end of the tube to seal the marble inside.



4. Place your foil tube into a plastic container and shake it from side to side. This allows the marble to bash against the ends of the foil and round them out (Image 2).
5. Once the ends of your tube are smooth, your bean is ready to use.
6. Hold your bean at the top of an inclined plane, marble end down, and let go (Image 3).



What's happening?

When you put your bean at the top of an inclined plane, gravity pulls the "empty" top of the bean down to meet the ramp. The marble inside starts to roll down the ramp, until it collides with the sealed end of the bean. This causes the bean to flip over, at which time, the marble starts to roll again.

Extensions:

1. Change the height of your ramp and see how the behaviour of your bean changes. Time its progress down the ramp at different heights.
2. Change the surface of your inclined plane. How does this affect the movement of the bean?
3. Research Mexican Jumping Beans and see what makes them work. Are there any similarities between them and your science bean?