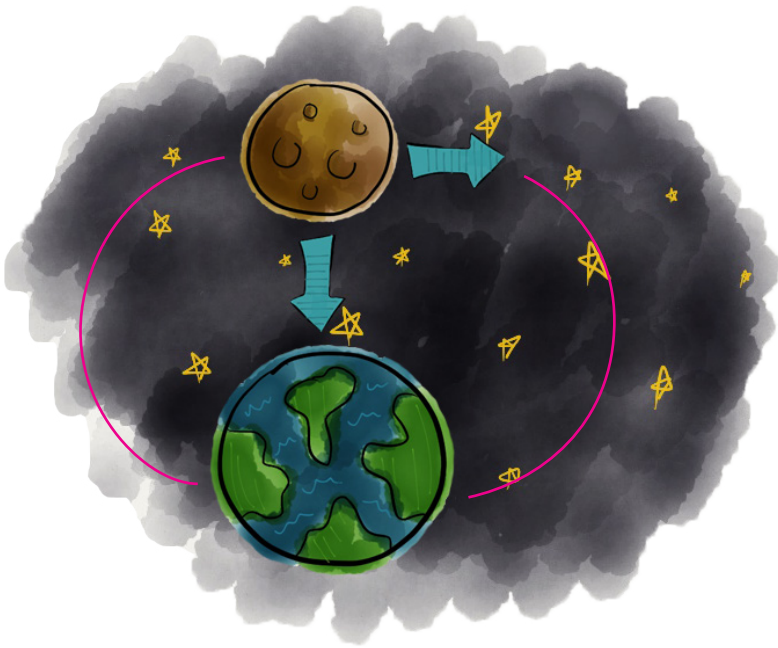


# WHAT KEEPS THE MOON IN ORBIT?

It may not look like it but the moon is moving forward through space. If there were no Earth near it the moon would just keep moving forward at the same speed.



But Earth's gravity pulls at the moon; not only does this slow it down a bit it keeps the moon falling toward earth.

The next time you hit a tetherball think about this. You are putting it in motion by hitting it straight ahead. What makes it orbit the pole? The pull of the string, that's what. Without the string the ball would go straight ahead and it would be like playing volleyball not tetherball.



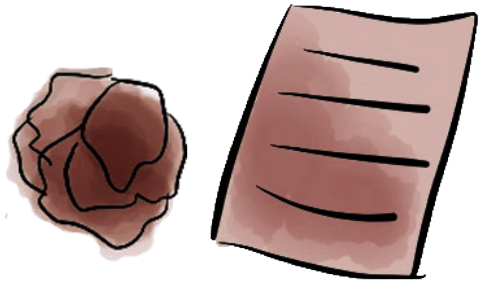
# BUT WHY DOESN'T THE MOON SLOW DOWN LIKE A TETHERBALL?

## THE ANSWER IS INERTIA!

Inertia is the tendency of things that are moving to keep moving and things that are still to stay still. There is only one reason things stop on Earth and they don't stop in space. Resistance. Even the air has some resistance.

### ★ HERE IS A SMALL EXPERIMENT WITH GRAVITY:

Take two pieces of paper. Crumple one up in a ball. Don't do anything to the other one. You are going to drop each one from as high up as you can hold it and then observe what happens. First, predict.



.....  
What will happen when you drop the crumpled up paper? Write down your prediction here: \_\_\_\_\_  
\_\_\_\_\_

What will happen when you drop the flat sheet of paper? Write your prediction here: \_\_\_\_\_  
\_\_\_\_\_

Now drop each of them and describe what you saw below:

The crumpled paper \_\_\_\_\_  
\_\_\_\_\_

The flat sheet of paper \_\_\_\_\_  
\_\_\_\_\_

### ★ THE GRAVITY ON EARTH AFFECTS OBJECTS THE SAME WAY, BUT WIND RESISTANCE CAN CHANGE THIS. IF YOU FOLD A THIRD PAPER INTO AN AIRPLANE AND DROP IT NOSE FIRST DOES IT FALL ANY FASTER THAN THE OTHER TWO SHAPES?