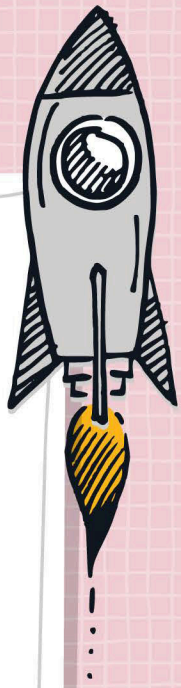
CAMP GoldieBlox

POM POM LAUNCHER



Dr. Ciara Sivels is a nuclear engineer who has worked on missiles and monitoring nuclear explosions.

What does a missile soaring into the atmosphere and a fluffy pom pom flying through your living room have in common? They're both in motion. Sir Issac Newton's three Laws of Motion explain how things move whether they are on Earth or in space, and whether they are as large as a rocket or as small as a pom pom.

Today, we'll focus on the first law, which says an object at rest will stay at rest unless acted upon by an unbalanced force. Basically, nothing will move on its own. It needs force, like a push or a pull. In this activity, we'll make a pom pom launcher. The pom pom is at rest when it sits in the bottom of the tube. But once you pull back the balloon then let go...pop! An unbalanced force has acted upon the pom pom. Watch the pom pom go!

FUN FACT:

When rockets are launched, they have to accelerate from 0 miles per hour to about 18,000 miles per hour in order to reach orbit. Talk about fast!

YOU WILL NEED:

- toilet paper tube
- duct tape
- balloon
- scissors
- pom poms

SAFETY FIRST!

Always ask an adult for permission and help.

STEP 1:

Decorate your toilet paper tube 3/4 of the way with duct tape.

STEP 2:

Knot the end of a deflated balloon. Cut off the top.

STEP 3:

Stretch the balloon over one end of the toilet paper tube.

STEP 4 :

Secure the balloon with duct tape.

STEP 5:

Test out your machine. Load a pom pom into the tube, pull the end of the balloon, aim, and fire!

THINK ABOUT IT!

How far can your pom pom travel? Launch a pom pom three times from the same spot. Measure how far it travels each time. Add up the three numbers then divide by three to get the average distance the pop pom has traveled. Do you think the size of the pom pom affects how far it flies? Try launching a smaller or larger pom pom--or a marshmallow! Compare the outcomes. Were your predictions correct?

LEARN MORE:

Rocketry
by Carla Mooney
Nomad Press, 2014

This Is Rocket Science
by Emma Vanstone
Page Street Kids, 2018

Junk Drawer Physics
by Bobby Mercer
Chicago Review Press, 2014