

# Puff Jumpers

Puffed cereal grains are great materials for science experiments since they are light in weight, they do not require much force to move. In addition, the puffs easily transfer electric charges.

Just try this next experiment.



Materials:

- Puffed cereal grains (We call them Rice Krispies)
- A balloon
- A piece of wool or fur

Procedure:

Stuff about a dozen grains of the cereal into a balloon.  
Inflate the balloon.  
Rub the balloon with a piece of wool or fur. If fabric isn't available, you can rub the balloon against your hair. Dogs work pretty well if they are clean. Cats might work, but they have sharp claws and are kind of moody.  
Hold the balloon by its knot, allowing it to hang.  
Observe the grains within the balloon. **Are they stationary or moving?**  
Touch the balloon with the fingertips of your other hand. **How do the grains behave?**  
If nothing happens, recharge the balloon by giving it twice as many strokes. Then touch it again.

The Science: As the balloon rubbed against the wool, it became negatively charged. Its negative field induced a positive charge in the nearby side of the puffed grains. This positive region was attracted to the balloon, causing the grains to cling to the balloon's negative skin. When you touched the balloon with your fingertips, things changed. The balloon's negative charges drained out through your fingers. This created a positive region in the balloon. The charges in the grains could not shift fast enough. Instead, the positive grain surface and the positive balloon skin repelled each other. The grains jumped away.

Check It Out!: Suppose a wooden pencil touched the charged balloon. How might this affect the behavior of the puffed cereal grains?