Nifty Napkin Parachutes

Simple STEM Activities You Can Do at Home

Purpose:	The purpose of this activity is to investigate how a parachute can be used to maximize air resistance and counteract the force of gravity.
Standard:	**S4P3. Obtain, evaluate, and communicate information about the relationship between balanced and unbalanced forces.** a. Plan and carry out an investigation on the effects of balanced and unbalanced forces on an object and communicate the results. b. Construct an argument to support the claim that gravitational force affects the motion of an object. **S8P3. Obtain, evaluate, and communicate information about cause and effect relationships between force, mass, and the motion of objects.** b. Construct an explanation using Newton's Laws of Motion to describe the effects of balanced and unbalanced forces on the motion of an object.
Materials:	Paper, scotch tape, scissors, small cup, markers, ruler, action figure (optional).
Procedures:	1. Cut four 20 inch pieces of yarn or string per parachute. 2. Unfold your napkin and color the top your parachute (optional). 3. Tape each piece of yarn to each corner of the napkin. 4. Tape each piece of yarn to the four corners of your cup. Make sure that each piece is equal in length so that things balance. 5. Trim off the extra yarn. 6. Add your paratrooper action figure. 7. Test your parachute in your room and/or outside if possible. 8. Try to improve your parachute and then re-test.
Science Behind It:	Objects fall because they are pulled by the force of **gravity** towards the center of the earth. Gravity is the force of attraction between any two objects that have a mass (weight). Since the earth has the greatest mass of any objects around us, it exerts the strongest gravitational pull. **Parachutes** are designed to maximize air resistance due to their large surface area. This air resistance can counteract the force of gravity pulling down. The air resistance allows your **parachute** to drift toward the ground slowly and safely. Modern skydiving **parachutes** are **controlled** by pulling down on steering lines which change the shape of the wing, cause it to turn, or to increase or decrease its rate of descent. Modern skydiving **parachutes** are rectangular in shape – very different from the round **parachutes** of old. Can you make a simple parachute that will slow the descent of your object?
Questions to Ask:	1. Explain why gravity pulls objects toward the earth. 2. Explain how parachutes counteract gravity and slow the descent.