DIY Air Force Activities:

Parachute Planning

Materials:

- string
- plastic shopping bags
- paper clips
- clay (any weight that can be attached to the paper clip may be substituted)
- stop watch
- paper and pencil
- tape
- scissors

Bonus: have an adult get a ladder or select a higher area for your drop!

Have you ever seen a parachute in action? A thin piece of cloth manages to break one's fall from incredible heights. They can allow people to coast through the air like a bird. How does the science behind parachutes work? The Earth pulls everything to the ground using the force of gravity. You can easily test this by throwing a ball in the air and watching it fall. Yet if you drop a feather and the ball at the same time, the ball will hit the ground first. This is not, however, because the ball is heavier. The feather is slowed down by air resistance. Air resistance is a force that opposes gravity. The amount of air resistance an object experiences depends on its speed, surface area, shape, and the density of the air it is travelling through. Increasing surface area decreases the speed at which an object will fall.

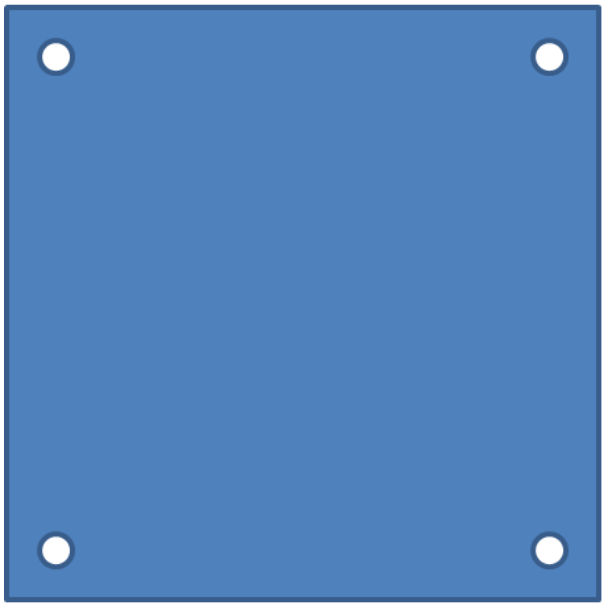
Directions:

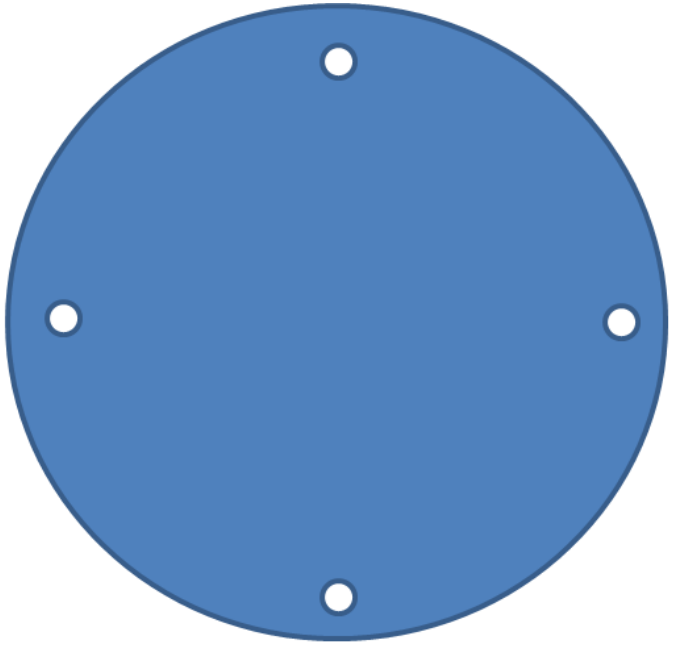
1. Use the templates on the back to cut out a variety of parachute shapes from your plastic bag.
2. Place tape over the places that are marked for holes to reinforce them. Carefully punch holes in the designated areas using your scissors (**ask an adult for assistance,** a single hole puncher works too)
3. Measure out equal lengths of string (about 6 inches to start) and attach them to the parachute by putting the end through your hole and tying a knot. Then secure it with another small piece of tape.
4. Open one end of the paper clip, the open end will be the bottom. Tie your parachute strings to the top of the paper clip. Do this for each parachute.
5. Create balls of clay about 1 inch in diameter. Push the bottom of your paper clip through the ball.
6. Hold your clay ball up above your head and drop it (make sure the parachute strings aren't tangled).

You can also try to toss your parachute in the air or have an adult help you drop it from a taller height! Have a friend record how long it takes each parachute to hit the ground. Record your observations! Which shape made the best parachute? How does method of launch or the height it falls affect your results? Try to repeat the experiment with longer or shorter strings. Test different sized clay balls. Does folding your parachute help? Create your own parachute shapes! Make the parachute bigger! Try different parachute materials! Just remember to only change one component of your experiment at a time!

Air Force Associations:

The parachutist badge, commonly referred to as "jump wings," is a military badge of the United States Armed Forces. Many Air Force officers and enlisted specialists are required to earn the badge, while others seek it as a source of accomplishment and pride. These badges are awarded at three levels, Basic, Senior, and Master. Will you earn yours someday?





Try different shapes and different numbers of holes for the strings! Try different parachute materials! Try adding a hole to the center! Experiment and record your observations until you come up with the ideal parachute!