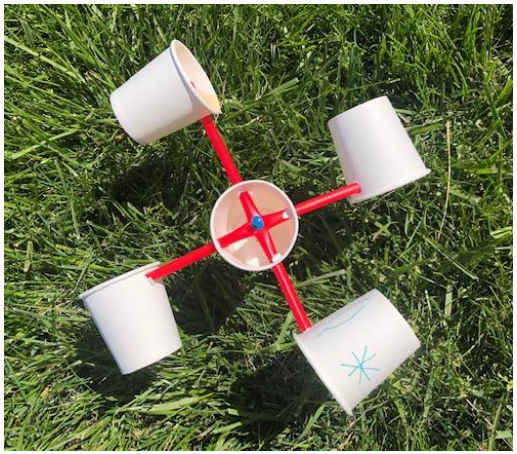
DIY Air Force Activities:

Windy Weather

Materials:

- 5 plastic, paper, or Styrofoam cups
- 2 straws
- pencil with eraser
- hole punch or scissors
- pin (straight pin or push pin/thumb tack)
- tape
- marker
- ruler

*** optional: cell phone to take video, journal, pen/pencil to record findings



Flying kites, playing with bubbles, floating small boats, and flying paper airplanes are all great ways to enjoy a windy day! Did you know that you can also make your own tool to see how fast the wind is blowing? Meteorologists use a tool called an **anemometer** to measure wind speed and air pressure. This is especially important to help them study weather patterns. Most anemometers have four cups attached to arms, which are secured to a middle rod. When the wind blows, the cups rotate, making the rod spin. The stronger the wind blows, the faster the cups will rotate!

Directions (see back for images):

1. Punch a single hole into one side of 4 of your cups approximately ½ inch below the rim.
2. Punch 4 equally spaced holes into the sides of the 5th cup about ¼ inch below the rim. Punch a hole in center of the bottom of this cup as well.
3. Take a single hole cup and slide a straw in about 1 inch. Bend the end and tape it to the inside.
4. Place the other end of the straw through the fifth cup. Then attach another cup as in step 3.
5. Repeat steps 3 & 4 with the remaining 2 cups. Make sure all 4 cups have their open end facing the same direction (clockwise). Your straws should make an X inside the fifth cup
6. Push the eraser end of the pencil through the hole on the bottom of the fifth cup. Wrap tape around pencil below the hole in the cup so it does not slide down as it spins.
7. Secure the middle of the straws (where they cross) to the pencil eraser using the pin.
8. Use your marker to put a star on one of the cups. Place a piece of tape on the ground in front of this cup, parallel with that cup's straw. This will be your starting point to count turns or rotations.
9. Count the number of times (rotations) per minute the marked cup passes the line. Taking a video with your phone and playing it back frame-by-frame can help with this if it is moving fast!

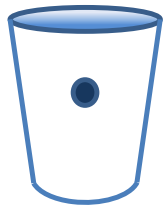
Wind speeds are not consistent; meteorologists use anemometers to calculate wind speeds by averaging the numbers they get over a period of time. Keep your own journal of wind speeds and look for patterns! Does the wind speed change from morning to afternoon or evening? What about in different kinds of weather?

Air Force Associations:

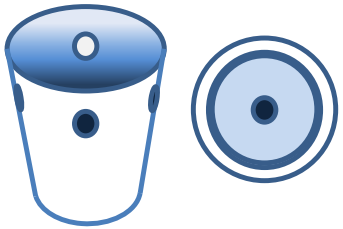
Monitoring the weather, especially the wind patterns, is very important to the Air Force. Without a "go" from an Air Force weather forecaster, no aircraft can fly, which can mean mission failure! Weather flight members use specific systems and toolkits, including anemometers, to track weather systems. Forecasters from countries gather data and compile it to make the best decisions possible for personnel and equipment.

Directions:

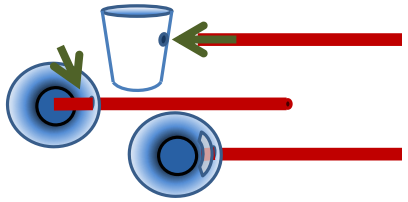
Step 1:



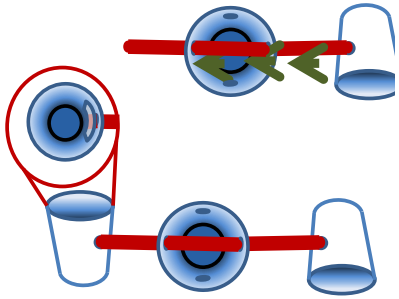
Step 2:



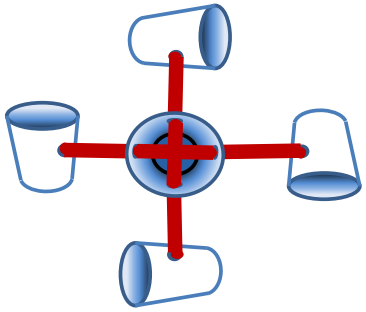
Step 3:



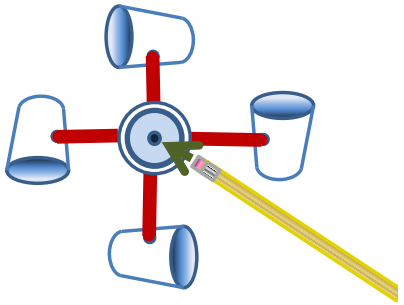
Step 4:



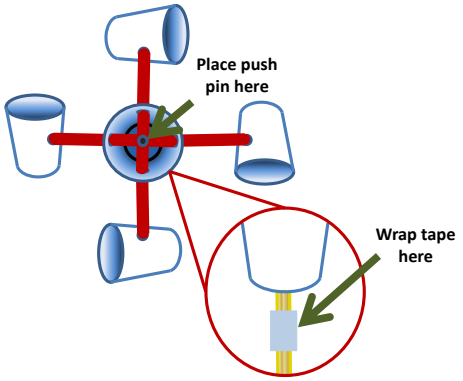
Step 5:



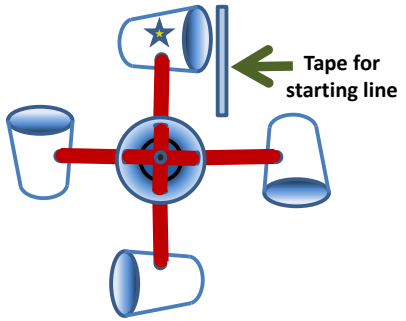
Step 6:



Step 7:



Step 8:



WIZARDS of WRIGHT

LEADERS IN STEM EDUCATION