HOW TO BUILD AN ANENOMETER

AN ANEMOMETER IS USED TO MEASURE WIND SPEED. WHILE THERE ARE MANY DIFFERENT TYPES , USED FOR DIFFERENT ENVIRONMENTS, SITUATIONS, AND MEASUREMENTS (LIKE LASER AND ULTRASONIC), TODAY WE WILL BE MAKING A FUN AND SIMPLE ANENOMETER., WHICH IS USUALLY CALLED A "ROBINSON ANENOMETER". IT WILL USE THE CUPS TO CATCH THE WIND, CAUSING THE DEVICE TO SPIN. THE AMOUNT OF TIMES IT SPINS IN A GIVEN AMOUNT OF TIME, WILL TELL YOU HOW FAST THE WIND IS MOVING. IN THIS EXPERIMENT, WE'LL LEARN HOW TO MAKE AND CALIBRATE IT.

MATERIALS:

- 5 SMALL PAPER CUPS
- HOLE PUNCH
- SCISSORS
- DUCT TAPE
- 3 THIN WOODEN DOWELS
- EMPTY WATER BOTTLE
- STOPWATCH

PROCEDURE:

1. MAKE A HOLE IN THE SIDE OF EACH OF THE 4 PAPER CUPS SING HOLE PUNCH.
2. MAKE 4 EVENLY SPACED HOLES AROUND THE RIM OF 1 CUP. THIS WILL BE THE CENTER OF THE ANEMOMETER.
3. SLIDE 2 OF THE WOODEN DOWELS THROUGH THE HOLES IN THE CENTER CUP (CROSSING IN AN "X").
4. WITH ALL CUPS FACING THE SAME DIRECTION, INSERT THE ENDS OF THE DOWELS INTO THE HOLES OF THE OTHER CUPS AND TAPE THEM INTO PLACE.
5. MAKE A HOLE IN THE BOTTOM OF THE CENTER CUP FOR THE LAST WOODEN DOWEL .
6. INSERT THE DOWEL UNTIL IT MEETS THE "X", & TAPE EVERYTHING TOGETHER. (THIS IS YOUR ROTATION AXIS)
8. INSERT THE NANOMETER INTO AN EMPTY WATER BOTTLE AND BEGIN TESTING!

TO CALIBRATE YOUR ANEMOMETER:

HAVE AN ADULT DRIVE YOU DOWN THE STREET AT 10 MILES PER HOUR ON A WINDLESS DAY,
HOLD THE ANEMOMETER OUT THE WINDOW AND COUNT THE NUMBER OF ROTATIONS IN 30 SECONDS.

D. THE AMOUNT OF SPINS IN 30 SECONDS WILL CORRESPOND + OR – TO WIND BLOWING AT 10 MILES PER HOUR.

WHY?

CALIBRATING YOUR ANEMOMETER GIVES YOU A COMPARISON POINT FOR YOUR COLLECTED DATA. FOR EXAMPLE, IF YOUR ANEMOMETER SPINS 10 TIMES IN 30 SECONDS DURING CALIBRATION, THEN YOU KNOW THAT 10 SPINS IN 30 SECONDS MEANS THE WIND IS GOING 10 MILES AN HOUR. FOR EVEN MORE ACCURATE RESULTS, YOU CAN CALIBRATE AT MANY DIFFERENT SPEEDS AND MAKE A CHART OF YOUR FINDINGS.