



HYGROMETER

Build your own hygrometer to measure atmospheric humidity (water in the air).

Materials

- Plastic box the size of a shoebox
- Long strand of hair
- Paperclip
- Ruler
- Tape
- Marker



Procedure

- Use the ruler to mark millimeters on the back of the box, descending from the top.
- Fasten one end of the hair securely to the paperclip with tape.
- Fasten the other end of the hair to the top of the plastic box on the inside.
- Set the box upright so the hair hangs down.
- Record the measurement every day to track how the length of the hair changes.

Results

The more moisture in the air, the more the hair will stretch out, reaching lower on the ruler. The less moisture in the air, the more the hair will shrink, reaching higher on the ruler. This will let you measure the atmospheric humidity.

Why?

Your hair is made up mostly of a protein called keratin, which forms hydrogen bonds with water. The more moisture there is in the air, the more hydrogen bonds the keratin will make, lengthening the strand of hair. When the hair dries and doesn't come into contact with as much moisture, the hydrogen bonds break down and the hair shrinks, making it shorter.