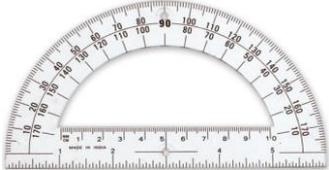


Wind indicator

Name of the object	Wind indicator
Recommended ages (from...)	7-14
Thematic areas combined (STEAM)	Technology Engineering Mathematics
Materials needed	<p>The materials we will need are the following:</p> <ol style="list-style-type: none"> 1. Some thick paper for crafts (Corrugated Cardboard). It could be from recycled paper boxes.  <ol style="list-style-type: none"> 2. A ruler  <ol style="list-style-type: none"> 3. A Compass  <ol style="list-style-type: none"> 4. A Protractor 



	<p>5. Scissors</p>  <p>6. A pin, some paper, a straw and a pencil</p>
<p>Instructions step by step</p>	<p>Step 1. Create two paper discs</p> <p>Step 2. Design the horizon points</p> <p>Step 3. Create the base</p> <p>Step 4. Create the pointing arrow</p> <p>Step 5. Putting it all together</p>

The wind indicator (anemoscope) of Timosthenes consisted of a disc with radius which indicated the direction of the winds.

Step by step: how to build a Wind Indicator

Step 1

Time needed: 20 minutes.

We measure 10 cm (or less, 5-10cm) with the compass (Fig 1) and we create two circles with a respective radius, similar to the one shown in Fig 2.

We then cut the 2 circles and we create 2 discs as the one shown in Fig. 3.



Fig. 1



Fig. 2



Fig. 3

Step 2

Time needed: 20 minutes.

By using a ruler, we draw two vertical lines (Fig 4 and 5) only on one paper disk. The second remains unchanged. Indicate the horizon points as in Fig. 6.

By using a protractor, we design extra diameters every 30° (Fig 7) on the disk and we end up with a disk like the one in Fig. 8.



Fig. 4



Fig. 5

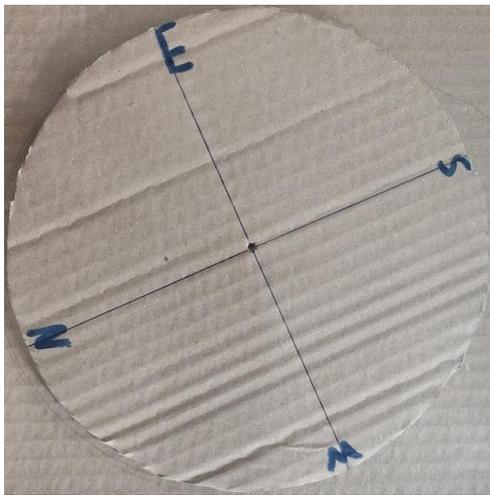


Fig. 6



Fig. 7



Fig. 8

Step 3

Time needed: 15 minutes.

Cut a paper strip like the one in Fig. 9. The length for a 10cm disc should be around 63cm. The circumference of the circle is $2\pi R$, so for a 10cm paper disk you need approx. 63 cm and for a 5cm paper disk it should be approx. 32cm.

Glue the second paper disk on the one side (Fig 10) and the paper disk with the horizon indicators on the top to create a base like in Fig. 11.



Fig. 9



Fig. 10



Fig. 11

Step 4

Time needed: 10 minutes.

Use a straw and attach a paper arrow in front of it (Fig. 12). Then use a pencil to pin the straw in the top of the rubber of the pencil (Fig. 13). Make sure that the straw can rotate freely around the pin.



Fig. 12

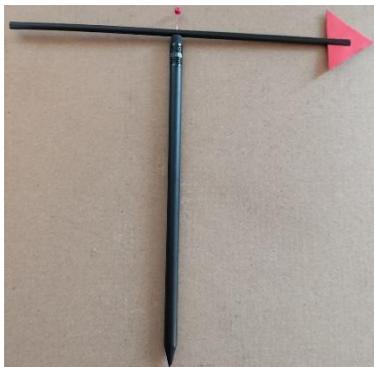


Fig. 13

Step 5

Time needed: 5 minutes.

Push and secure the cross arrow you created in Fig. 13 in the center of the base of Fig. 11 and you have completed the wind indicator (seen in Fig 14).

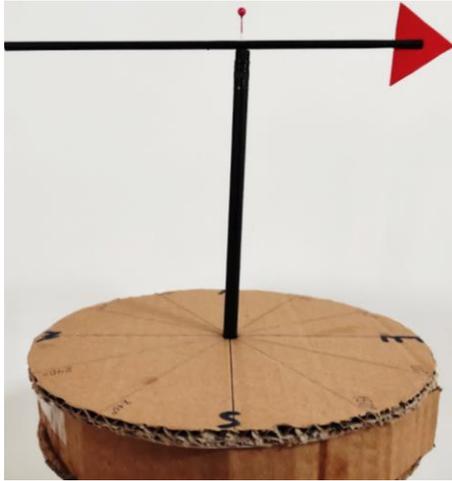


Fig 14

To use it, please find the North with a compass of the mobile and point the N mark towards this point of the horizon. Then, based on the wind, the arrow will rotate and will point in the correct wind direction.