Find the direction of Winds

Respective blueprint	The wind indicator (anemoscope) of Timosthenes
Description	In this pedagogical sequence students will learn about winds, how they are created and how to understand the direction of winds
Learning Objectives	Students will: - develop a basic understanding of wind direction - judge the direction of the wind
Related curricular subject(s)	Geography, Physics

Prerequisites / preparatory actions for teachers	Teachers should gather the materials for the blueprint
Prerequisites / preparatory actions for students	Understand basic geometry (e.g. point, line and plane and measurements)
Age of students	7-14
Duration	2 hours
Level of difficulty	Medium

Step by step description of the tasks

Step 1: How winds are formed?

Winds depend directly on the temperature prevailing in different parts of the Earth's surface. Temperature differences cause lateral and vertical movements of the air, which we call winds. This is because the heated air tends to rise higher, while the colder air takes its place.

Activity 1: Ask your students to search about information on how winds are formed and to explain their findings to their classmates.

Activity 2: Show the following picture to your students and ask them to discuss some positive and some negatives aspects of the wind.

Fig. 1 Icons related to wind power

Step 2: Wind direction

Most of the time, wind direction is reported based on where it comes from. A north or northerly wind blows from the north to the south. Onshore winds (winds that come from the water) and offshore winds (winds that come from the sea) are the exceptions (blowing off the shore to the water). People usually talk about the direction of the wind in cardinal (or compass) directions or in degrees when they talk about it. Thus, a wind coming from the north has a wind direction called 0° (360°). A wind coming from the east has a wind direction called 90°, and so on.

Activity 3: Ask the students to search for images on the web which report the direction of the wind in degrees.

Activity 4: Ask the students to find information on the web or in their books on “Wind speed” and “Wind run”

Step 3: Build the wind indicator (anemoscope) of Timosthenes

Students should build in teams of 3-4 different anemoscopes and to present to the class. The materials could be provided by the teacher or they could be brought by the students.

Step 4: Use the wind indicator (anemoscope) of Timosthenes

Students should go to the school yard in different times to test the anemoscope and to compare the wind direction they measured with the wind directions reported in local weather services

Assessment activities

Assessment activity 1. Ask the students to search information about different types of winds and to create a small PowerPoint presentation which could upload in a shared google folder or in drobox.

Assessment activity 2. Ask the students to search information on how wind generators work and fill in a padlet or share the information on a blog.