

## Teacher information: Wind and temperature

This material is about the influence of surface sealing and building on the local (micro-)climate. The data may be compared to other measurements on nearby grassland or under trees/inside forests to show the differences. Measurements of that kind can easily be made using low-priced temperature sensors like iButtons or DIY low-cost system based on Arduino microcontrollers. A building instruction for a radiation shield, which is required for the sensors to measure air temperature, can be found in material P35 of the PULCHRA Collection of Educational Materials.

The Wind measurements on material P16 suggest two methods, which can be applied in parallel. The first is a technical measurement using an anemometer. The second is the pure observational assessment of the wind. The method uses a scale defined by Frances Beaufort (1774-1857). With this method, the wind speed can be described based on phenomena caused by the wind. An explanation for students can for example be found at

<https://www.3dgeography.co.uk/beaufort-scale>.





## Wind and temperature

1. Measure the wind near the school building (max. two meters away) and in the schoolyard (ca. 20 meters away, about 20 great strides). Enter your measurements in the table below.

	Wind speed measured with	
	Anemometer	Observation (Beaufort method)
close to the school building		
on the schoolyard		
Date and time		

2. Measure the temperature of the ground and the air near the school building (max. two meters away) and in the schoolyard (ca. 20 meters away, about 20 great strides). Enter your measurements in the table below.

	ground temperature	air temperature
close to the school building		
on the schoolyard		
Date and time		

### What did you observe?

Where is the ground warmer than the air? \_\_\_\_\_

Where is the air warmer than the ground? \_\_\_\_\_

Where is the wind blowing more? \_\_\_\_\_

Imagine standing in the middle of the city. There are a lot of buildings around you. How do you think does that affect the temperature?

Imagine you are in the forest. There are a lot of trees around you. How do you think does that affect the temperature?

- ➔ Write a story to explain to your little sibling how buildings influence the temperature outside.

