# *Weather Watch* **Teacher background notes**

**In this investigation, students investigate weather and how it affects them in the context of observing cloud formation, observing the effects of wind and describing changes in temperature.**

## [Australian Curriculum: Science links](http://assist.asta.edu.au/resource/3789/weather-watch-cle-foundation)

## Learning intentions

Students will be able to:

* explore and make observations about features of the weather (cloud and cloud formation, wind, temperature) using the senses
* respond to questions about familiar objects and events, such as different features of the weather
* engage in discussions about observations of weather features (cloud and cloud formation, wind, changes in temperature)
* use drawings and language to represent ideas about features of the weather (cloud and cloud formation, wind, temperature)
* use comparisons to describe the strength of wind or temperature of the air.

## Suggested time for this CLE

The time needed to complete the *Weather Watch CLE* will depend on the depth of the prior knowledge of students, the time to perform the three investigations—‘Cloud in the sky’, ‘Wind’, ‘Temperature’—and follow up with any further extension activities. Allow 3–4 hours.

## Prior conceptual knowledge

It is anticipated that students in their first year of schooling will have some understanding of weather phenomena based on their prior experiences. These experiences will largely be shaped and influenced by the climatic conditions of the places, locations and environments that any given student has visited or lived in and their recall of everyday observational weather experiences.

## New concepts to be introduced

The effects of the weather are sensed by students in their environment. The Introduction (see [Teaching and Learning Plan](http://assist.asta.edu.au/sites/assist.asta.edu.au/files/Weather%20Watch_YrF_Teaching%20and%20learning%20plan.docx)) outlines a range of simple tasks that can be implemented in an outdoor setting with minimal equipment. The tasks are designed to tune students into investigations of the features of weather and how we observe weather. It is intended that students gain knowledge of how weather changes and how we respond to changes in the weather. It is appropriate that students in the early years recognise that:

* weather conditions can be observed and may change
* the effects of wind can be observed using the senses
* cloud formations in the sky may indicate weather conditions, for example, forecasting rain
* temperature is a measure of how hot or cold something is. (To understand temperature, children need to compare things to observe the relative ‘hotness' or ‘coldness' of something. They need to see and talk about how temperature can affect things as well as the ways we can measure temperature.)
* a thermometer is a scientific tool that is used to measure temperature. (In this investigation the children are not expected to have temperature measuring skills, instead, they are expected to understand and use general temperature measurement words and concepts such as same/different, hotter/colder).

Students may raise questions and make statements about how clouds form in the sky. The science behind cloud formation is beyond the comprehension of Foundation students. This brief explanation details how clouds form and is intended as background information for teachers.

*Clouds form when warm moist air rises to where it is cooler.*

*As the warm moist air rises to where it is cooler, some of the water vapour in the atmosphere changes from a gaseous substance to a liquid substance and forms tiny water droplets.*

*Billions of these tiny water droplets form a mass. This mass is visible as a cloud.*

*Meteorologists describe the sky as having total cloud cover when clouds cover eight-eighths of the sky.*

Students may raise questions and make statements about what they think wind is. The science behind wind formation is beyond the comprehension of Foundation students. This brief explanation is intended as background information for teachers.

*Wind is the movement of air over the surface of the Earth.*

*Wind is caused by temperature differences in the atmosphere of the Earth.*

*As the Sun warms air, it rises and cool air rushes in to take its place. This movement of air produces wind and is felt as wind on the surface of the Earth.*

*Wind is described in terms of its speed or strength and the compass direction from which it is blowing.*

For further information, refer to ‘Beaufort Wind Scale’, Australian Government Bureau of Meteorology website, <http://www.bom.gov.au/lam/glossary/beaufort.shtml>

Students may raise questions and make statements about what they think temperature is. The scientific explanation of temperature is beyond the comprehension of Foundation students. This brief explanation is intended as background information for teachers.

*Temperature may be described as a measure of the intensity of heat rather than the amount of heat.*

*When meteorologists discuss temperature, they are specifically referring to air temperature. Australia uses the Celsius (sometimes called centigrade) scale. In this scale, zero degrees Celsius (0ºC) is the freezing point of water, and 100 degrees Celsius (100ºC) is the boiling point of water. Points below freezing are quoted and read as negative numbers.*

## Possible misconceptions

While conducting investigations into the weather, students may articulate alternative conceptions to our scientific understanding about weather events and how these events might affect us. Purposeful and effective teaching interventions will assist and support student understandings and skill development.

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| **STUDENTS MAY THINK…** | **INSTEAD OF THINKING…** |
| Cloud consists of fluffy material. | Cloud consists of a mass of liquid droplets or frozen crystals made of water and are suspended in the atmosphere of Earth. |
| Trees and clouds cause wind. | Wind is the movement of air over the surface of the Earth. |
| Clouds come from outer space. | Clouds form and are suspended in the atmosphere of Earth. |
| Objects that are used to keep things warm are sources of heat energy. | Objects that are used to keep things warm trap heat. |
| Weather is constant during any given day. | Weather conditions may change during the course of any given day. |

## Links to further information

* ‘Weather and where we live’, Global Education website, <http://www.globaleducation.edu.au/teaching-activity/weather-and-where-we-live-f-2.html> Five teaching activities.
* Australian Academy of Science. 2012. *Weather in my world*, PrimaryConnections, <https://primaryconnections.org.au/resources-and-pedagogies/curriculum-units/weather-my-world>. Unit of work.