

Red sky - for Teachers

Can the colour of the sky be used to predict the weather?

Discussing red sky

Learners should appreciate that weather predictions have long been important for activities such as farming and fishing, and that people are likely to have made careful observations long before scientific instruments were developed. Learners might know of other weather sayings.

Researching red sky

The Wikipedia entry (see below) gives a concise summary of the causes of red sky.

You could demonstrate how a suspension of small particles scatters light. Add a few drops of milk to a large glass tank of water. Shine a bright torch or projector beam through the slightly cloudy water. Looking directly along the beam, the light source appears slightly reddened as some blue light is scattered out of the beam. Similarly, the rising or setting sun appears red as light is scattered by dust particles and water droplets in the atmosphere. Learners should be able to appreciate (with the aid of a diagram) that sunlight travels through a greater depth of atmosphere when the sun is close to the horizon.

Level 1

Learners at Level 1 could record observations of the morning and evening sky colour every day for a month, and note the subsequent weather. If they photograph the sky there is scope to make some impressive displays for the classroom or laboratory. They could record the number of occasions on which the sky colour did, or did not, correctly predict the weather. On the basis of their observations they should be able to say whether the 'red sky' saying is a reliable means of weather prediction.

Ensure that all practical work is carried out safely.

Level 2

At this level, learners should be asked to design their own observation schedule and decide what observations to make and how to analyse them. They might also be expected to record other parameters, such as temperature, cloud cover or wind direction, to see whether they have any bearing on the success, or otherwise, of the predictions based on sky colour.

Level 2 learners could keep a note of Met Office or BBC forecasts, and compare their success rate with that of the 'red sky' method. They should be able to give some theoretical explanation for the success, or otherwise, of the red sky predictions.

Other Projects

Weather and weather sayings can be a fruitful area for observational Projects. Other examples include:

Are towns warmer than the countryside?

Does it rain more at weekends than during the week?

An old saying is 'Rain before seven, fine before eleven'. Is this true?

Resources

Explanations of red sky

http://en.wikipedia.org/wiki/Weather_lore#Red_sky_at_night

www.bbc.co.uk/northyorkshire/weather/2003/02/11/hudson_roundup.shtml

Forecasts

www.metoffice.gov.uk/weather/uk/uk_forecast_weather.html

<http://news.bbc.co.uk/weather/>

Weather sayings

www.phrases.org.uk/meanings/red-sky-at-night.html

Red sky - for Students

Can the colour of the sky be used to predict the weather?

Activity **Discussing red sky**

Questions for discussion:

Why do you think people are interested in predicting the weather?
Try to think of situations where knowing the next day's weather might be particularly important.

How do you think people predicted the weather before scientific instruments and measurements were developed?

What other old sayings do you know that relate to weather forecasting?

There is an old saying:

'Red sky at night, shepherd's delight.

Red sky in the morning, shepherd's warning.'

In other words, a red evening sky is a sign that the next day's weather will be fine, but a red morning sky means that day's weather will be wet. But is there any truth in this saying?

Do you, or other people you know, use simple observations (such as the colour of the sky) when trying to predict the next day's weather?

Activity **Researching red sky**

Find out what causes the red colour in the sky that is sometimes seen around sunrise and sunset. Set up a demonstration using simple apparatus to show how the red colour is produced from sunlight.

Find out about conditions in the atmosphere that give rise to red skies. How might these be linked to the forthcoming weather?

Project

What observations and tests could you make to explore the 'red sky' saying?

You could keep a record of sky colours and weather conditions then analyse your results to see if there is a link. You will need to decide what data to collect and what apparatus to use. Then you will need to decide how to analyse and display your data. How many observations do you think you will need? (Just one day? Every day for a month?)

If you do find a link between 'red sky' and the weather, try to explain why it works.

It might also be interesting to note the Met Office forecasts for the same days. Compare them with the 'red sky' saying and see which was better at predicting the weather.

Think about the outcome of your Project. As well as a written report, perhaps you could make a visual display of your findings.