

Topic	Respiration	Level	GCSE (or any other course for students aged 11-16)
Outcomes	<ol style="list-style-type: none"> 1. To write a chemical equation for respiration 2. To understand the differences between breathing and respiration 3. To explain why organisms respire 		

Do plants have a temperature when they get sick?

“Professor C. E. Yarwood from the University of California told how he put leaves of healthy plants in a well-insulated container and measured their temperature four hours later. He found that the respiration of the leaves (their "breathing" of oxygen) had raised their temperature by 1.5°C above the outside air temperature. He then put sick leaves, infected with a virus or fungus, into another chamber. After four hours the sick leaves had temperatures 3.5°C above the air temperature.”

Source: <http://content.time.com/time/magazine/article/0,9171,821722,00.html>

1. Read the paragraph above about the findings of Professor Yarwood.
2. Using your knowledge of respiration, explain why a plant would have a temperature higher than outside air temperature. Include the word and chemical equations for respiration in your answer.
3. Why would a leaf infected with a virus have a higher temperature than an uninfected leaf? Is the virus causing the temperature change directly or indirectly?
4. In the paragraph, respiration is said to be the “breathing of oxygen”. Why is it wrong to compare breathing to respiration?
5. All organisms respire, only some organisms breathe. In your own words describe the differences between respiration and breathing. Use the words below in your answer:

Gas exchange, lungs, leaf, surface area, cell, chemical reaction, respiration

Progress: further resources on respiration are available here:
<http://www.thescienceteacher.co.uk/respiration/>