

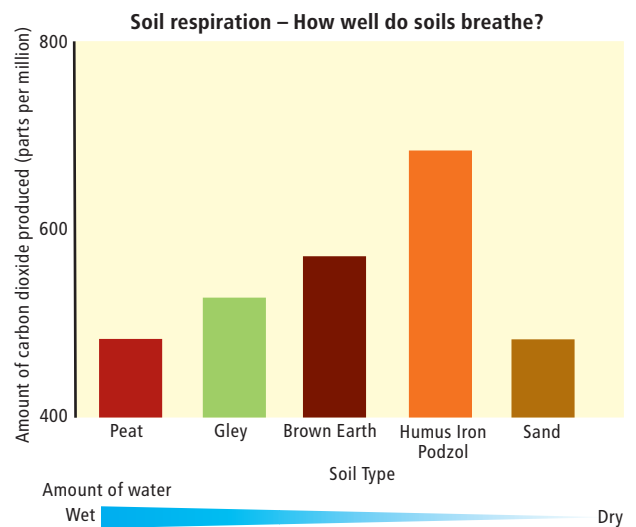
## Soil Breathing

When we breathe we release carbon dioxide from our lungs. The carbon dioxide comes from the food we eat. Respiration, the process of converting food to carbon dioxide, is very complex and is one of a number of processes (the cells 'metabolism') which takes place inside the cells in our bodies.

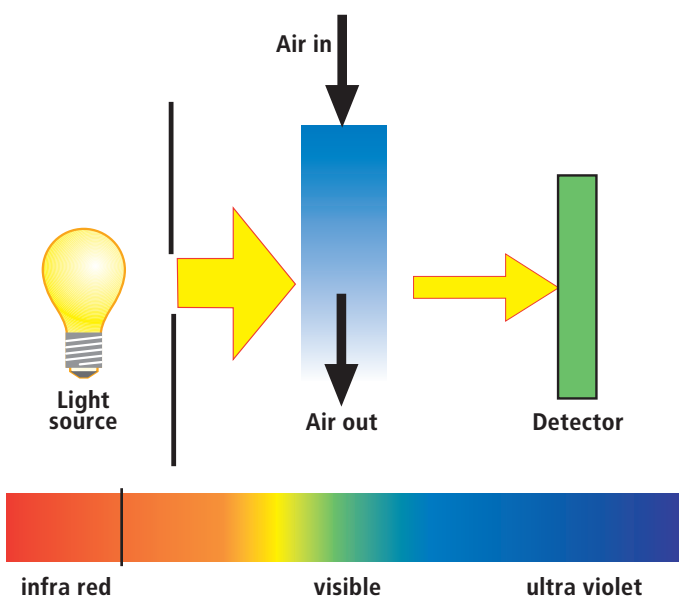
In much the same way, soil animals such as earthworms, insects and microbes such as fungi and bacteria, convert the food in soil into carbon dioxide and energy to enable them to grow. Their food comes mainly from living plants or plants which have died and become incorporated into the soil.

Different soils release carbon dioxide at different rates. Soils rich in organic matter have generally more soil animals and microbes and will produce more carbon dioxide than soils that are poorer in organic matter and have fewer soil animals. Soil pH (acid or alkali), temperature, the amount of water, soil type, ploughing and the action of chemicals such as pesticides will all affect biological activity and the amount of carbon produced from soil.

By studying how much carbon dioxide is released from soil we can get an overall picture of how healthy the soil is.



## How do you measure carbon dioxide? The Infra-Red Gas Analyser



### The IRGA

When light passes through a gas, such as carbon dioxide, some of the light is absorbed. By measuring how much light is absorbed at a specific wave length we can calculate the amount of gas present.

In the IRGA, air is passed through a beam of light and the amount of gas reaching the detector is then measured.