



Metrology


in and around the Home




When our municipality invoices us for our monthly water consumption, they use a flow meter connected to a counter to determine the volume of water (in litres) we have used over the month. As in the case of electricity the charge depends on the magnitude of the water flow multiplied by the time over which the tap remained open.




A vast amount of information is transmitted with electromagnetic waves. We can distinguish between these signals through the use of extremely accurate frequency measurements, enabling us to receive many television and radio channels.



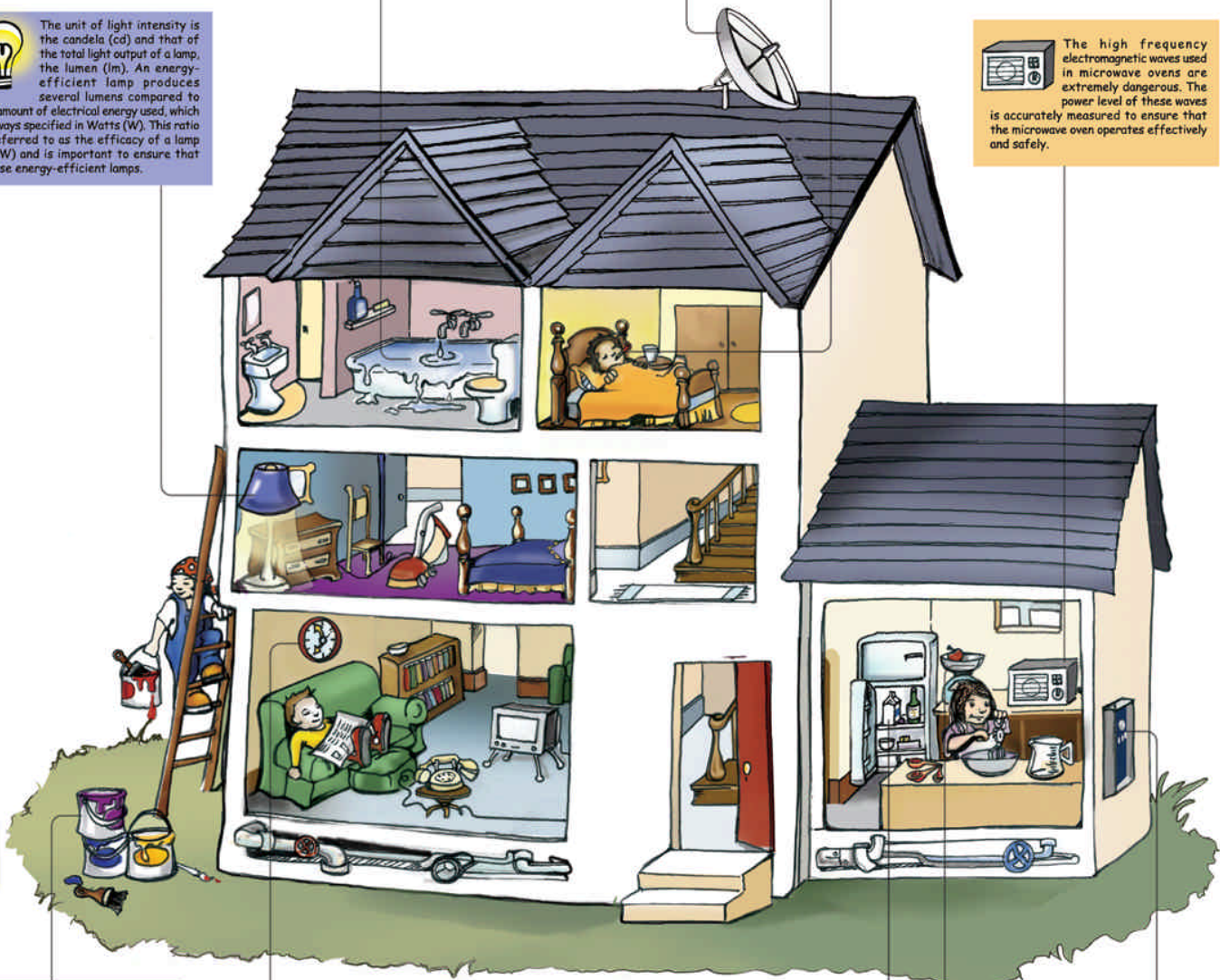
When we are sick, we often measure our body temperature (in degrees Celsius) with a fever thermometer, to determine how serious our condition is and whether we should call a doctor.




The unit of light intensity is the candela (cd) and that of the total light output of a lamp, the lumen (lm). An energy-efficient lamp produces several lumens compared to the amount of electrical energy used, which is always specified in Watts (W). This ratio is referred to as the efficacy of a lamp (lm/W) and is important to ensure that we use energy-efficient lamps.




The high frequency electromagnetic waves used in microwave ovens are extremely dangerous. The power level of these waves is accurately measured to ensure that the microwave oven operates effectively and safely.





The specification of the colour of paint is important to ensure that the colour can be reproduced exactly and enables us to communicate our requirements without confusion.




What would our hectic lives be like without our clocks and watches? We even pay our telephone bills in terms of call time.



We often buy food in terms of volume or weight. Accurate measurements guarantee that we are getting what we pay for and importantly, also help to verify that there are no harmful substances in the food.



When somebody bakes a cake for a family occasion, ingredients have to be either weighed on a kitchen balance or added by volume, as measured by the marks on a container. Many of the items we buy in shops are also sold by mass or volume.



Our household electricity bill depends on two measurements - the amount of electrical power our switched-on appliances consume and the length of time our electrical appliances remain switched on.