

DAY 23

TOPIC: THE HUMAN BODY

Respiration in cells

Aim:

- Write the equation for respiration
- Explain how respiration takes place in a cell.
- Identify the percentages of the different gases in inhaled and exhaled air.

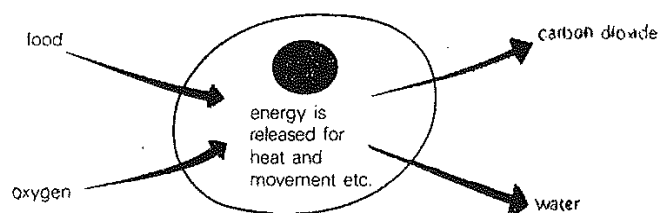
Activities :

- Study the notes below.
- Do the exercise that follows.

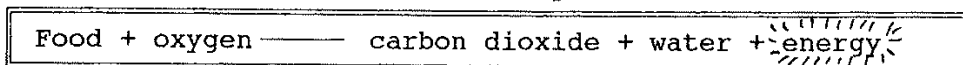
Respiration in Cells

Your body needs energy to be able to function-to walk, think and digest your food. In fact you use energy for everything that goes on in your body. Your body gets its energy from a chemical reaction which goes on in its living cells. The reaction is a bit like slow "burning up" of food - it is called respiration. All living things carry out respiration. During the reaction food and oxygen join up. Energy (mainly heat and movement) is produced. Carbon dioxide and water are made too. (See Fig. 19)

Figure 19. What goes on in a cell



We can write the equation for respiration as:



The carbon dioxide and water are waste products which the body gets rid of. The energy produced during respiration is used for many things:

- * keeping your body temperature constant
- * running the chemical processes of the body
- * movement of the body and the muscle cells
- * making the chemicals the body needs
- * making new cells for growth and to replace dead cells.

Respiration goes on in the living cells of every living thing, including you. This means that, when they are producing energy, your cells:

- * use up oxygen
- * produce carbon dioxide & water

And so to keep producing energy, your body must:

- * be supplied with oxygen
- * get rid of carbon dioxide
- * get rid of some of the water

This is where breathing comes in. You breathe in fresh air. It contains the oxygen you need. You breathe out stale air, with carbon dioxide and water vapour in it. Breathing is the movement of air in and out of the lungs and it is essential for respiration to take place.

Examine the following table which shows the changes in the composition of air in your lungs.

	Amount of the gas in inhaled air	Amount of the gas in exhaled air
oxygen	21%	16%
carbon dioxide	0.04%	4%
nitrogen	79%	79%
water vapour	a little	a lot

Excercise

Complete the following sentences using the words:
MORE or LESS.

Exhaled air contains _____ water vapour, _____
oxygen and _____ carbon dioxide than inhaled air.
Inhaled air contains _____ water vapour, _____
oxygen and _____ carbon dioxide than exhaled air.
The amount of nitrogen does not change.

The differences in the composition of inhaled and exhaled air
are one of the things that show respiration occurs.
(evidence)