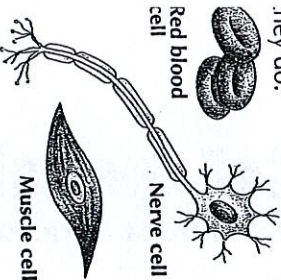


# Your bo

## Who am I?

All living things are made up of tiny units, called cells. Your body is made of about 50 million million cells. Some make up your skin, bones and other body parts. Some convert food and oxygen into energy to keep you going. Others carry messages around your body or fight off germs. Cells come in different shapes and sizes, depending on the job they do.



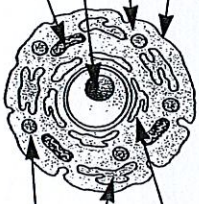
## DID YOU KNOW?

Most cells are too small to see except under a microscope. Female egg cells (ova) are the biggest cells. Each is about the size of the dot over this letter "i". The smallest cells are in your brain. They are 100 times smaller than ova.

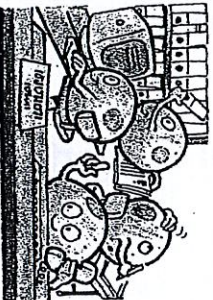


## The main parts of a cell

- 1. Cell membrane** The cell's very thin, outer "skin". It lets food and oxygen into the cell and lets waste products out of the cell.
- 2. Cytoplasm** A jelly-like substance which makes up most of the cell. Other parts of the cell float in it.
- 3. Nucleus** The cell's control unit. It carries instructions, called genes, which tell the cell how to work and keep it alive.
- 4. Mitochondria** The cell's power stations. They use oxygen to release energy from food.
- 5. Endoplasmic reticulum** The cell's proteins are made here. Proteins are used for growth and repair.
- 6. Golgi tubes** Storage areas for proteins until the cell needs them.
- 7. Lysosomes** Containers for chemicals which destroy old or diseased cell parts and keep out harmful substances.



## Tissue types



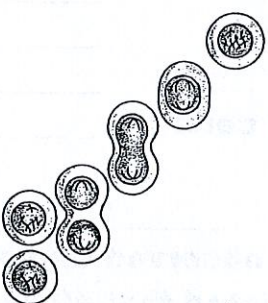
Your body tissues include skin, muscle, blood, nerve and bone tissue. Tissues are groups of cells working together. They may be cells of the same type or cells of different types. The tiny spaces between the cells are filled with a watery liquid which is called interstitial fluid.

## Cell lifespans

Some of your cells last a lifetime. Others are constantly being replaced and renewed. Here you can see how long some cells live.

Type of cell	Average lifespan
Cells lining small intestine	2-3 days
Taste bud cells	7 days
Skin cells	3 weeks
Red blood cells	4 months
Bone cells	25-30 years
Muscle cells	Most last a lifetime
Nerve and brain cells	Some last a lifetime

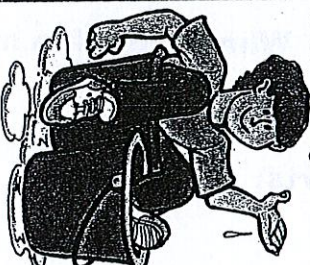
## Spitting up



Until you are 18-20 years old, new cells are constantly being made to make you grow. Most cells reproduce by splitting in two. A cell gets larger, then divides to form a pair of identical new cells. Cells also divide to replace dead or worn out cells.

## AMAZING BUT TRUE

By weight, your cells, and therefore your whole body, are almost two-thirds water. This means that you contain enough water to fill about 1½ large buckets.



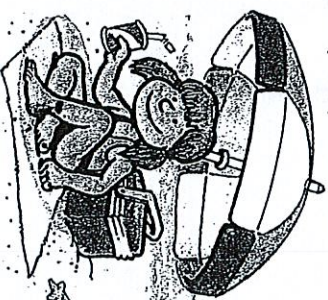
## Cell science



No one knew that cells existed until 1665. Then an English scientist, called Robert Hooke, discovered tiny units in a piece of cork he was examining under a home-made microscope. The idea that all living things are made of cells was first suggested in 1839.

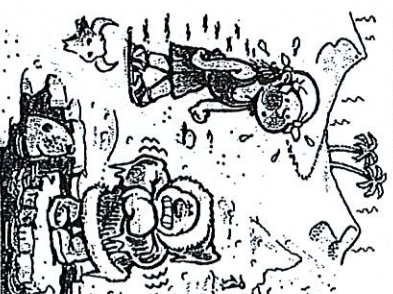
## Warm-blooded

Human beings are warm-blooded. This means that the temperature inside our bodies stays much the same all the time. Normal body temperature is 37°C (98.6°F). This is the temperature at which our cells work best. Warm clothes, cool drinks, sweating and shivering help keep it stable.



## Highs and lows

If your body temperature rises or falls by just a few degrees, it can be very dangerous. You can die if it falls below 25°C (77°F) or if it rises above 41°C (106°F).



# Cell Specialization

In multicellular organisms

1. How many cells make up the human body?
2. What determines the job that a cell will perform?
3. What are the largest human cells?
4. Tissues are groups of \_\_\_\_\_ working together.  
Organs are groups of \_\_\_\_\_ working together.  
Groups of organs working together make up \_\_\_\_\_.
4. At what age do most people stop growing?
5. What is the lifespan of the following cells?

Small intestine	_____
Skin cells	_____
Red blood cells	_____
Bone cells	_____
Nerve/ Brain cells	_____
6. Cell Theory- \_\_\_\_\_ first discovered cells in 1665. He observed these tiny units in \_\_\_\_\_. In \_\_\_\_\_ it was suggested that all living things are made of cells.
7. Humans are warm blooded. What does this mean?
8. Define the following cell parts:

Lysosome-

Cytoplasm-

Mitochondria-