Cell Functions

Most cells function best within a narrow range of temperatures and acidity. At very low temperatures, reaction rates are too slow. High temperatures and/or extremes of acidity can irreversibly change the structures of most protein molecules. Even small changes in acidity can alter the molecules and how they react.

Some protein molecules assist in replicating genetic information, repairing cell structures, helping other molecules get in or out of the cell and generally catalysing and regulating molecular interactions.

In all but quite primitive cells, a complex network of proteins provides organisation and shape and, for animal cells, movement.

Complex interactions among the different kinds of molecules in the cell cause distinct cycles of activities, such as growth and division. Cell behaviour can also be affected by molecules from other parts of the organism or even other organisms.
ⓘ *Body system communication*
🌐 Cells & Organs

The rate of reactions among atoms and molecules depends on how often they encounter one another, which is affected by the concentration, pressure and temperature of the reacting materials.

Some atoms and molecules are highly effective in encouraging the interaction of others.
🌐 Chemical Reactions

The work of the cell is carried out by the many different types of molecules it assembles, mostly proteins. Protein molecules are long, usually folded chains made from 20 different kinds of amino-acid molecules. The function of each protein molecule depends on its specific sequence of amino acids and its shape. The shape of the chain is a consequence of attractions between its parts.

The configuration of atoms in a molecule determines the molecule's properties. Shapes are particularly important in how large molecules interact with others.
🌐 Chemical Reactions
🌐 Atoms & Molecules

Within the cells are specialised parts for the transport of materials, energy capture and release, protein building, waste disposal, passing information and even movement.

Every cell is covered by a membrane that controls what can enter and leave the cell.
🌐 Cells & Organs

The genetic information encoded in DNA molecules provides instructions for assembling protein molecules.
ⓘ *Genetic information*

Within cells, many of the basic functions of organisms—such as extracting energy from food and getting rid of waste—are carried out. The way in which cells function is similar in all living organisms.

Different body tissues and organs are made up of different kinds of cells.
🌐 Cells & Organs

Various organs and tissues function to serve the needs of all cells for food, air and waste removal.
ⓘ *Internal body organs*
ⓘ *Digestion*
ⓘ *Circulatory system*
🌐 Cells & Organs

Cells repeatedly divide to make more cells for growth and repair.
🌐 Cells & Organs
🌐 DNA
🌐 Variation

All living things are composed of cells, from just one to many millions, whose details are usually visible only through a microscope.
🌐 Cells & Organs

Some living things consist of a single cell. Like familiar organisms, they need food, water, and air: a way to dispose of waste and an environment they can live in.
ⓘ *Living things*

Microscopes make it possible to see that living things are made mostly of cells.
🌐 Cells & Organs

People need water, food, air, waste removal and a particular range of temperatures in their environment, just as other animals do.
ⓘ *Living things*

Most living things need water, food and air.
ⓘ *Living things*
🌐 Flow of Matter
🌐 Flow of Energy

Magnifiers help people see things they could not see without them.
🌐 Cells & Organs
🌐 Stars
🌐 Solar System
🌐 Atoms & Molecules

Most things are made of parts.
🌐 Cells & Organs
🌐 Atoms & Molecules
🌐 Conservation of Matter

basic needs　　　　*basic functions*　　　　*structures*

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