

organism

is any living thing made of cells, needing energy, growing and developing, responding and adapting, and able to reproduce

metabolism

is the sum of all the life processes within an organism

response

a reaction to something that occurs

structure

is an organism's body part

variation

a distinct, but closely related, form of the original

tissue

cells with a similar structure working together to perform a specific function are organized into tissue

fine adjustment knob

the small dial which moves the stage up or down, sharpening the image

stage

supports the slide that holds the specimen

arm

the part of the microscope connecting the revolving nosepiece and eyepiece to the base

electron microscope

a powerful microscope that can magnify a specimen 1 million times

cell

is the basic unit of life – the smallest known functioning unit sustaining life

virus

organisms that depend on cells of other living organisms in order to reproduce

spontaneous generation

is the belief that living things can be produced from non-living material

function

a specific task performed by an organism's body part

organ

a specialized body part made of tissues performing a body function

eyepiece lens

contains the magnifying lens which you look through

revolving nosepiece

holds the objective lenses which can rotate as a lens is chosen

stage clips

holds the slide securely on the stage

base

is the foundation that supports the microscope

endoscope

a small microscope that look inside the body

nutrients

are substances that provide energy and materials that organisms need to sustain life

stimulus

anything that causes an organism to react or respond

adaptation

is a characteristic that allows an organism to be able to survive within a particular environment

spiracles

small holes on the sides of the abdomen of an insect used for breathing

organ system

a collection of organs all working together to perform a specific task or function

coarse adjustment knob

the large dial which moves the stage up or down, focusing the image

objective lenses

individual lenses which provide different powers of magnification

diaphragm

a metal wheel under the stage with different sized holes to allow varying amounts of light to illuminate the specimen

compound light microscope

a microscope that has two or more lenses with a light to illuminate the specimen

fibre optics

a technology that allows light to travel through a flexible tube

cell membrane ('gateway')

is the thin outer membrane that holds all the needed parts inside the cell and allows the waste to leave the cell

cell wall ('frame')

is a rigid, covering surrounding the cell membrane in a plant cell that provides protection and support

cytoplasm ('kitchen')

a jelly-like liquid inside the cell that is eighty percent water and usually clear in color

nucleus ('command center')

is a large dark sphere usually near the center of the cell which directs all the cellular activities

vacuoles ('storage rooms')

clear, liquid-filled spaces scattered throughout the cytoplasm stores nutrients and other substances

mitochondria ('powerhouse')

chemical reactions occur here, converting energy into useable forms

chloroplasts ('solar panels')

the green parts of a plant cell that convert sunlight (energy) into food, in the process of photosynthesis

organelles

are specialized structures in a plant or animal cell that carry out specific functions

mycoplasma

smallest organisms known to exist

multicellular

is an organism that is made up of more than one cell

unicellular

an organism made up of only one cell with all processes to sustain life occurring inside that cell

micro-organisms

single celled organisms that can only be seen using a microscope

amoeba

a irregularly shaped single celled organism that uses foot-like projections ('**pseudopods**') to move and engulf their food

paramecium

a tube shaped single celled organism that uses tiny hair-like structures ('**cilia**') to move and gather food

diffusion

is the movement of particles from an area of high concentration to an area of low concentration until particle concentration is equal everywhere

selectively permeable

allowing some substances to move through, while preventing others from moving through

osmosis

is the movement of water particles from an area of high concentration to an area of low concentration through a selectively permeable membrane

specialized cells

various kinds of cells each with a specific function that supports life

red blood cells

blood cells that carry oxygen

white blood cells

blood cells that attack foreign intruders

platelets

blood cells that clot together to prevent or block blood flow

marrow

the specialized connective bone tissue that produces red blood cells

connective tissue

supports and connects different parts of the body (blood, fat, cartilage, bones and tendons)

epithelial tissue

covers the surface of the body and internal organs (also lines the intestine)

nervous tissue

makes up the brain, spinal cord and nerves

muscular tissue

allows different parts of the body to move through contraction and expansion of the muscles (cardiac and smooth)

photosynthetic tissue (in plants)

use sunlight to produce sugars that the plant uses for energy

protective tissue (in plants)

provides a waterproofing and support for the plant

transport tissue (in plants)

tube-like cells with hollow centers connected together to move food (**phloem**) or water (**xylem**)

stoma

an opening between plant cells, allowing gas exchange to occur

react

respond to change

interact

working together with

mechanical digestion

physical breakdown of nutrients into smaller usable pieces

chemical digestion

breakdown of nutrients by enzymes

enzymes

are chemical compounds (proteins) produced in the body to speed up chemical reactions

peristalsis

the wave-like muscular contraction and expansion of the esophagus enabling food to move to the stomach

gastric juice

composed of mucus, hydrochloric acid and digestive enzymes

villi (micro-villi)

are small finger-like projections, often lining the interior of an organ

bronchi

tube-like passageways in the lungs, lined with tough connective tissue, allowing gas exchange

bronchioles

narrow bronchi that end with alveoli

alveoli

tiny air filled sacs, one layer thick, allowing diffusion of oxygen to the blood and carbon dioxide into the air because of concentration differences

atrium

top chambers of the heart, one on the left side and one on the right

ventricles

bottom chambers of the heart, one on the left side and one on the right

arteries

long thin tubes throughout the body that carry blood **away from the heart** to all parts of the body

veins

long thin tubes throughout the body that carry blood **back to the heart** from all parts of the body

capillary

specialized blood vessels that are only one cell thick - allowing the diffusion of gases and nutrients

excretion

is the removal of waste products from the organism

urea

a chemical waste produced from the highly toxic substance – ammonia, urea is less harmful than ammonia

nephrons

microscopic filtering units in the kidneys remove waste from the blood and produce urine

ureters

are long thin tubes connecting the kidneys to the bladder

kidney dialysis machine

a machine that functions as a kidney, cleaning blood and producing urine

neurons

the specialized cells that receive and send messages from the brain and sensory organs

dendrites

branch-like structure on one end of a neuron cell that receives the message

axon

is a long extension of the neuron cell that transports impulses it receives to its branches, then to the dendrites of other neurons

central nervous system

composed of the brain and spinal cord

peripheral nervous system

made up of the cranial and spinal nerves which travel to all parts of the body

sensory neurons

carry information from the body to the central nervous system

motor neurons

carry information from the central nervous system to the muscles and organs

somatic nervous system

controls voluntary responses to stimulus

autonomic nervous system

responds automatically to stimulus (cannot be controlled)

reflex

is an automatic response by the nervous system to a stimulus it receives

interneuron

connect one neuron to another

stimulus

an external action or stimulation causing a reaction or response

vaccine

a less active (or inactive) form of a disease that is injected and used to help build antibodies to fight the more deadly form

smallpox

is a disease that produces a rash filled with pus. Symptoms include chills, high fever, nausea, muscle aches and even death

pasteurization

the process of heating food to kill off microorganisms living on the food

tar

is a dark, sticky substance that forms when tobacco burns

carbon monoxide (CO)

is a colorless, odorless gas that is released when tobacco is burned

nicotine

is an addictive drug that speeds up the heart and raises blood pressure

bronchitis

the build-up of mucus in the bronchi causing them to become narrower, and making it more difficult to breathe

emphysema

damaged lung tissue caused by smoking, making breathing difficult

lung cancer

a tumor or irregular growth in the lung that interferes with the normal functioning of the lung

atherosclerosis

is a condition in which an artery wall thickens as the result of a build-up of cholesterol

hypertension

high blood pressure (often called 'the silent killer')

ulcers

painful sores on the interior lining of the stomach caused by bacteria which breakdown the mucus lining on the stomach wall