T1 cell and molecular biology for medicine	T1 ribosome	T1 mitochondrion
T1 nucleus	T1 cell	T1 rough endoplasmic reticulum
T1 Golgi	T1 lysosome	T1 lipid bilayer

T1 The organelle that makes most of the cell's ATP by aerobic respiration and starts apoptosis.	T1 A cellular structure that joins amino acids into a polypeptide using information from messenger RNA.	T1 The study of cell structure, genes and signalling as they explain health, disease and drug action.
T1 Ribosome-studded membranes where secreted and membrane proteins are made and folded.	T1 The smallest structural and functional unit of a living organism.	T1 A membrane-bound organelle in eukaryotic cells that contains most of the genetic material.
T1 Two sheets of phospholipids, tails inward, forming the barrier of every cell membrane.	T1 An acidic vesicle of hydrolytic enzymes that digests worn-out parts and taken-in material.	T1 Stacked membranes that modify, sort and package proteins from the endoplasmic reticulum.

T1 simple diffusion	T1 facilitated diffusion	T1 primary active transport
T1 secondary active transport	T1 Nernst equation	T1 resting potential
T1 replication fork	T1 leading strand	T1 lagging strand

T1 Pumping a solute against its gradient using ATP directly, as the Na^+/K^+-ATPase does.	T1 Passive movement down a concentration or electrochemical gradient through a membrane channel or carrier protein.	T1 Passive movement of small or lipid-soluble molecules down their gradient straight through the bilayer.
T1 The steady membrane voltage of an unstimulated cell, about -70 mV in neurons, set mainly by K^+.	T1 An equation relating an electrode or cell potential to its standard potential, temperature and reaction quotient.	T1 Moving a solute uphill using the energy of another ion (usually Na^+) flowing down its gradient.
T1 The new DNA strand synthesised discontinuously in short fragments as a replication fork opens.	T1 The new DNA strand synthesised continuously in the same overall direction as a replication fork opens.	T1 The Y-shaped region where the DNA double helix is unwound and both strands are copied.

T1 Okazaki fragment	T1 proofreading	T1 mismatch repair
T1 nucleotide excision repair	T1 central dogma	T1 pre-mRNA
T1 transcription	T1 splicing	T1 translation

T1 Repair after replication that finds wrongly paired bases in the new strand and replaces them.	T1 The 3'→5' exonuclease activity by which DNA polymerase removes a wrongly added nucleotide.	T1 A short DNA piece made discontinuously on the lagging strand, later joined by ligase.
T1 The first RNA transcript of a gene, still containing introns, before processing into mRNA.	T1 The flow of genetic information from DNA to RNA to protein.	T1 Repair that cuts out a bulky lesion, such as a UV dimer, with nearby nucleotides and refills the gap.
T1 Expressing the meaning of a message or text in another language.	T1 Removing introns from pre-mRNA and joining the exons together.	T1 The production of an RNA molecule using a DNA sequence as its template.

T1 codon	T1 transcription factor	T1 enhancer
T1 chromatin	T1 methylation	T1 epigenetics
T1 epigenetic	T1 GPCR	T1 RTK

T1 A DNA sequence, possibly far from the gene, that binds activators to raise transcription.	T1 A protein that binds specific DNA sequences or interacts with transcription machinery to regulate gene expression.	T1 A sequence of three nucleotides in mRNA that specifies an amino acid or a translation stop signal.
T1 The heritable part of that access without changing sequence.	T1 Adding methyl groups, for example to cytosine in DNA, usually silencing a gene.	T1 DNA wound around histone proteins: the packaged form of the genome in the nucleus.
T1 A growth-factor receptor that pairs up and phosphorylates tyrosines to start signalling.	T1 A seven-pass membrane receptor that signals inside the cell by activating a G protein.	T1 Describing heritable changes in gene activity that do not change the DNA sequence.

T1 second messenger	T1 cell cycle	T1 checkpoint
T1 apoptosis	T1 tumour suppressor gene	T2 medical biochemistry
T2 primary structure	T2 secondary structure	T2 tertiary structure

T1 A control point in the cell cycle that halts division until DNA and chromosomes are ready.	T1 The ordered phases G1, S, G2 and M by which a cell copies its DNA and divides.	T1 An intracellular molecule or ion that carries a signal onward after a receptor is activated.
T2 The chemistry of proteins, enzymes and metabolism as it applies to health and disease.	T1 A gene, such as TP53, whose protein restrains growth; losing both copies helps cancer arise.	T1 Programmed, tidy cell death driven by caspases, without inflammation.
T2 The overall 3-D shape of one polypeptide, held by side-chain interactions.	T2 Local folding such as α-helices and β-sheets held by backbone hydrogen bonds.	T2 The sequence of amino acids in a polypeptide chain.

T2 quaternary structure	T2 haemoglobin	T2 sigmoid
T2 cooperativity	T2 Michaelis-Menten kinetics	T2 Km
T2 competitive inhibition	T2 glycolysis	T2 PFK-1

T2 S-shaped, like haemoglobin's oxygen dissociation curve, a sign of cooperative binding.	T2 The iron-containing protein in red blood cells that binds and transports oxygen.	T2 The arrangement of several polypeptide subunits in one protein, as in haemoglobin.
T2 The substrate concentration giving half the maximum rate; a low Km means high affinity.	T2 The hyperbolic model of enzyme rate: $v = V_{max}[S]/(K_m + [S])$.	T2 Binding at one site changing the affinity of the other sites, as in haemoglobin.
T2 Phosphofructokinase-1, the enzyme of the main committed, rate-limiting step of glycolysis.	T2 The cytosolic breakdown of glucose to two pyruvate, with a net gain of 2 ATP and 2 NADH.	T2 An inhibitor competing for the active site: Km rises while Vmax is unchanged.

T2 lactate dehydrogenase	T2 TCA cycle	T2 electron transport chain
T2 ATP synthase	T2 glycogen	T2 gluconeogenesis
T2 glucagon	T2 insulin	T2 beta-oxidation

T2 A series of electron carriers that transfer electrons through redox reactions and can establish a proton gradient for ATP production.	T2 The mitochondrial cycle that oxidises acetyl-CoA to CO_2, making NADH, $FADH_2$ and GTP.	T2 Pyruvate + NADH → lactate.
T2 Making new glucose from lactate, glycerol or amino acids, mainly in the liver during fasting.	T2 A highly branched glucose polysaccharide used for energy storage in animals and fungi.	T2 An enzyme complex that uses the movement of protons down their electrochemical gradient to synthesise ATP.
T2 The mitochondrial breakdown of fatty acids two carbons at a time into acetyl-CoA.	T2 A hormone produced by pancreatic beta cells that helps lower blood glucose concentration.	T2 A hormone from pancreatic alpha cells that helps raise blood glucose concentration.

T2 lipoprotein	T2 ketone bodies	T2 glutamate
T2 transamination	T2 urea cycle	T2 glutamine
T2 alanine	T2 fed state	T2 fasting state

T2 An amino acid that collects amino groups by transamination and feeds them to urea synthesis.	T2 Acetoacetate and β-hydroxybutyrate, made by the liver from fat in fasting as brain fuel.	T2 A particle of lipid wrapped in protein and phospholipid that carries fats in the blood.
T2 The amino acid that carries ammonia safely in the blood from tissues.	T2 The liver pathway that converts toxic ammonia into urea for excretion.	T2 Transferring an amino group from an amino acid to a keto acid, using vitamin B6.
T2 The period without food when glucagon is high and the body draws on glycogen, then fat.	T2 The hours after a meal when insulin is high and the body stores glucose, fat and protein.	T2 The amino acid that carries nitrogen from muscle to liver in the glucose–alanine cycle.

T3 human anatomy	T3 superior/inferior	T3 anterior/posterior
T3 proximal/distal	T3 sagittal plane	T3 coronal plane
T3 transverse plane	T3 musculocutaneous nerve	T3 axillary nerve

T3 Toward the front / toward the back of the body.	T3 Toward the head / toward the feet, in the anatomical position.	T3 The study of the structure of the human body and how its parts are arranged.
T3 A vertical plane dividing the body into front and back parts.	T3 A vertical plane dividing the body into left and right parts.	T3 Nearer to / farther from the attachment of a limb to the trunk.
T3 The nerve to deltoid and teres minor, at risk in surgical-neck fractures of the humerus.	T3 The brachial plexus nerve to the front arm flexors, including biceps.	T3 A horizontal plane dividing the body into upper and lower parts.

T3 radial nerve	T3 median nerve	T3 ulnar nerve
T3 dermatome	T3 femoral nerve	T3 obturator nerve
T3 sciatic nerve	T3 compartment syndrome	T3 mediastinum

T3 The nerve behind the medial epicondyle to most intrinsic hand muscles; injury causes a claw hand.	T3 The nerve through the carpal tunnel to most forearm flexors and the thenar muscles.	T3 The nerve to the arm and forearm extensors; injury causes wrist drop.
T3 The nerve to the medial thigh muscles that pull the leg inward (adductors).	T3 The nerve to the front thigh muscles, including quadriceps, which extend the knee.	T3 The area of skin supplied by one spinal nerve root.
T3 The central chest space between the lungs, holding the heart, great vessels and oesophagus.	T3 Dangerous pressure rise inside a closed fascial compartment that cuts off blood supply.	T3 The largest nerve, supplying the back of the thigh and everything below the knee.

T3 pericardium	T3 phrenic nerve	T3 vagus nerve
T3 referred pain	T3 coeliac trunk	T3 superior mesenteric artery
T3 inferior mesenteric artery	T3 pectinate line	T3 pelvic floor

T3 Cranial nerve X, the main parasympathetic supply to the heart, lungs and gut.	T3 The C3–C5 nerve that drives the diaphragm.	T3 The two-layered sac enclosing the heart.
T3 The aortic branch supplying the midgut, from mid-duodenum to two-thirds along the transverse colon.	T3 The aortic branch supplying the foregut: stomach, liver, spleen and upper duodenum.	T3 Pain from an organ felt at a skin area sharing its spinal segments.
T3 The sheet of muscle closing the bottom of the pelvis and supporting the pelvic organs.	T3 Above it visceral (painless), below it.	T3 The aortic branch supplying the hindgut, from distal transverse colon to upper rectum.

T3 levator ani	T3 pudendal nerve	T3 cranial nerve
T3 cauda equina	T3 conus medullaris	T4 histology and embryology
T4 fixation	T4 dehydration	T4 embedding

T3 One of the twelve pairs of nerves arising directly from the brain.	T3 The nerve to the perineum and the external sphincters.	T3 The main pelvic-floor muscle, supporting the pelvic organs and helping continence.
T4 The study of tissues under the microscope and of how the body develops before birth.	T3 The tapered lower end of the spinal cord, near L1–L2 in adults.	T3 The bundle of lumbar and sacral nerve roots below the end of the spinal cord.
T4 Setting fixed tissue in paraffin wax so it can be cut thinly.	T4 The removal or loss of water from a substance or organism.	T4 Preserving tissue, usually with formalin, so its structure stops changing.

T4 sectioning	T4 staining	T4 H&E
T4 epithelium	T4 simple	T4 stratified
T4 squamous	T4 cuboidal	T4 columnar

T4 Haematoxylin and eosin, the standard stain: nuclei blue-purple, cytoplasm pink.	T4 Colouring tissue sections with dyes so structures can be told apart.	T4 Cutting embedded tissue into very thin slices with a microtome.
T4 Of an epithelium: several cell layers thick.	T4 Of an epithelium: one cell layer thick.	T4 Tissue of tightly joined cells that covers surfaces and lines cavities and glands.
T4 Of epithelial cells: taller than they are wide.	T4 Of epithelial cells: about as tall as they are wide.	T4 Of epithelial cells: flat and thin.

T4 connective tissue	T4 extracellular matrix	T4 collagen
T4 muscle	T4 intercalated disc	T4 nervous tissue
T4 glia	T4 sarcomere	T4 tunica intima

T4 The strong fibrous protein that gives tissues tensile strength.	T4 The fibres and ground substance outside cells that hold tissues together.	T4 Tissue of scattered cells in an extracellular matrix that supports and joins other tissues.
T4 Tissue of neurons and glial cells that carries and processes signals.	T4 The junction between cardiac muscle cells, with gap junctions that spread excitation.	T4 Tissue of contractile cells: skeletal, cardiac or smooth.
T4 The innermost layer of a vessel wall: endothelium on a thin connective layer.	T4 A repeating contractile unit of striated muscle between two neighbouring Z lines.	T4 Supporting cells of the nervous system, such as astrocytes, oligodendrocytes and microglia.

T4 media	T4 adventitia	T4 alveolus
T4 mucosa	T4 submucosa	T4 muscularis externa
T4 serosa	T4 nephron	T4 fenestrated capillaries

T4 A tiny air sac in the lung where gas exchange takes place.	T4 The outer connective-tissue layer of a vessel wall or gut tube.	T4 The middle, smooth-muscle layer of a vessel wall (tunica media).
T4 The gut's outer muscle coat, inner circular and outer longitudinal, that drives peristalsis.	T4 The connective-tissue layer beneath the mucosa, carrying vessels and nerves.	T4 The innermost gut layer: epithelium, lamina propria and a thin muscle layer.
T4 Capillaries with pores in their endothelium, as in the kidney and endocrine glands.	T4 A microscopic kidney unit that filters blood plasma and modifies the resulting fluid through reabsorption and secretion.	T4 The smooth outer covering of an organ inside a body cavity.

T4 stratified squamous keratinised	T4 fertilisation	T4 cleavage
T4 morula	T4 blastocyst	T4 gastrulation
T4 neurulation	T4 germ layers	T4 ectoderm

T4 The rapid cell divisions of the zygote without growth.	T4 The fusion of the nuclei of two gametes to form a zygote.	T4 Many-layered epithelium with a tough dead keratin surface, as in the skin.
T4 The stage that forms the three germ layers in week 3.	T4 The hollow early embryo with an inner cell mass that implants in the uterus.	T4 A solid ball of about 16 cells formed by cleavage.
T4 The outer germ layer: skin epidermis and the nervous system.	T4 Ectoderm, mesoderm and endoderm, from which all tissues develop.	T4 The folding of ectoderm into the neural tube, the future brain and spinal cord.

T4 mesoderm	T4 endoderm	T4 septation
T4 foramen ovale	T5 human physiology	T5 homeostasis
T5 intracellular fluid	T5 extracellular fluid	T5 negative feedback

T4 The growth of walls that divides the primitive heart into four chambers.	T4 The inner germ layer: the gut lining, liver, pancreas and lung epithelium.	T4 The middle germ layer: muscle, bone, heart, blood and kidneys.
T5 Keeping the internal environment stable by feedback control.	T5 The study of how the body's cells, organs and systems work.	T4 The fetal opening between the atria that lets blood bypass the lungs.
T5 A control process in which a change triggers responses that oppose that change.	T5 The fluid outside cells, plasma and interstitial fluid, rich in Na^+.	T5 The fluid inside cells, about two-thirds of body water, rich in K^+.

T5 action potential	T5 absolute refractory period	T5 saltatory conduction
T5 tetanus	T5 cardiac output	T5 systemic vascular resistance
T5 pressure–volume loop	T5 stroke volume	T5 Starling's law

T5 Fast conduction in myelinated axons as the impulse jumps between nodes of Ranvier.	T5 The time after an action potential when no stimulus can trigger another.	T5 The sentence.
T5 The resistance of the systemic circulation to flow, set mainly by arteriole diameter.	T5 The volume pumped by one ventricle per minute: heart rate $\times$ stroke volume.	T5 A sustained muscle contraction from stimuli too frequent for relaxation between them.
T5 A stretched ventricle contracts harder: more filling gives a bigger stroke volume.	T5 The volume of blood pumped by one ventricle in a single heartbeat.	T5 A plot of ventricular pressure against volume over one beat; its area is stroke work.

T5 alveolar gas equation	T5 oxygen dissociation curve	T5 A–a gradient
T5 filtration	T5 glomerular filtration rate	T5 aldosterone
T5 ADH	T5 clearance	T5 Henderson–Hasselbalch equation

T5 The difference between alveolar and arterial oxygen pressure; it widens with gas-exchange disease.	T5 A graph showing how haemoglobin's percentage saturation with oxygen varies with oxygen partial pressure.	T5 The formula $PAO_2 = FiO_2(Patm - PH_2O) - PaCO_2/R$ for alveolar oxygen pressure.
T5 The adrenal hormone that makes the kidney reabsorb Na^+ and secrete K^+.	T5 The volume of plasma filtered by both kidneys per minute, about 125 mL/min.	T5 Pressure-driven passage of plasma through the glomerular barrier into the nephron.
T5 pH = pKa + log([base]/[acid]); for blood, pH from bicarbonate and $PaCO_2$.	T5 The plasma volume completely cleared of a substance per minute by the kidneys.	T5 Antidiuretic hormone: it inserts water channels in the collecting duct to concentrate urine.

T5 enteric nervous system	T5 hypothalamus	T5 pituitary
T5 target gland	T5 menstrual cycle	T6 medical genetics
T6 karyotype	T6 meiosis	T6 nondisjunction

T5 The gland below the hypothalamus that releases hormones controlling other glands.	T5 A brain region that helps regulate homeostasis and links nervous control with hormonal signalling.	T5 The network of neurons in the gut wall that controls motility and secretion.
T6 The study of inherited variation and its role in disease, diagnosis and counselling.	T5 The roughly 28-day hormonal cycle of follicle growth, ovulation and endometrial change.	T5 A gland, such as the thyroid or adrenal, driven by a pituitary hormone.
T6 Failure of chromosomes to separate at cell division, giving gametes with an extra or missing copy.	T6 A type of nuclear division that produces haploid nuclei with half the original chromosome number and creates genetic variation.	T6 The number and appearance of a person's chromosomes.

T6 germline mosaicism	T6 pedigree	T6 autosomal dominant
T6 autosomal recessive	T6 X-linked recessive	T6 X-linked dominant
T6 carrier	T6 mitochondrial inheritance	T6 genomic imprinting

T6 Affected parent (Aa) × unaffected (aa) → each child.	T6 A family-tree diagram that shows which relatives have a trait, used to work out how it is inherited.	T6 A mutation present in some of a parent's eggs or sperm but not their body cells.
T6 Inheritance where one altered X copy causes disease; affected fathers pass it to all daughters.	T6 Inheritance through the X chromosome that mostly affects males, passed on by carrier mothers.	T6 Inheritance needing two altered copies of a non-sex-chromosome gene for the disease.
T6 Expression of a gene from only one parent's copy, set by methylation.	T6 Inheritance of mitochondrial DNA from the mother only.	T6 A person with one copy of a recessive variant who is usually unaffected.

T6 trinucleotide repeat expansion	T6 anticipation	T6 synonymous
T6 missense	T6 nonsense	T6 frameshift
T6 splice	T6 copy number variant	T6 variant of uncertain significance

T6 Of a DNA change: altering a codon without changing the amino acid.	T6 Earlier onset or greater severity in later generations, typical of repeat expansions.	T6 A run of three-base repeats that grows between generations, as in Huntington disease.
T6 A change in how codons are grouped after insertion or deletion of a nucleotide number that is not a multiple of three in a coding sequence.	T6 Of a DNA change: creating a premature stop codon.	T6 Of a DNA change: replacing one amino acid with another.
T6 A DNA change whose link to disease is not yet known.	T6 A deletion or duplication of a stretch of DNA, changing how many copies there are.	T6 Of a variant: altering the signals that mark intron–exon boundaries.

T6 haploinsufficiency	T6 Hardy–Weinberg equilibrium	T6 karyotyping
T6 microarray	T6 FISH	T6 sequencing
T6 liability threshold model	T6 Carter effect	T6 pharmacogenomics

T6 Photographing and arranging a cell's chromosomes to count them and spot large changes.	T6 Stable allele and genotype frequencies ($p^2 + 2pq + q^2 = 1$) in an ideal population.	T6 When one working copy of a gene is not enough for normal function.
T6 Reading the order of bases in DNA.	T6 Fluorescence in situ hybridisation: glowing probes that find specific DNA sequences on chromosomes.	T6 A surface carrying many known molecular probes used to test numerous sample targets in parallel.
T6 The study of how a person's genes change their response to drugs.	T6 In a sex-biased multifactorial trait, relatives of an affected person of the less-often-affected sex are at higher risk.	T6 The idea that many genes and environment add up to a liability, with disease above a threshold.

T7 medical immunology	T7 complement	T7 phagocyte
T7 neutrophil	T7 macrophage	T7 natural killer cell
T7 dendritic cell	T7 diapedesis	T7 antibody

T7 Immune cells that engulf and digest pathogens or other particles.	T7 A cascade of blood proteins that tags microbes, attracts phagocytes and punches holes in membranes.	T7 The study of the immune system in defence, vaccination, allergy, autoimmunity and immune failure.
T7 An innate lymphocyte that kills virus-infected or tumour cells lacking normal MHC class I.	T7 An immune cell that engulfs material such as microbes and dead cells and helps coordinate immune responses.	T7 A type of white blood cell that engulfs and destroys microorganisms and other foreign material.
T7 A protein produced by immune cells that binds to a particular antigen and helps the immune system respond to it.	T7 The squeezing of white blood cells between endothelial cells out of a blood vessel.	T7 The main antigen-presenting cell that carries antigen to lymph nodes to activate naive T cells.

T7 T-cell receptor	T7 major histocompatibility complex	T7 clonal selection
T7 affinity maturation	T7 co-stimulation	T7 regulatory T cell
T7 immune memory	T7 herd immunity	T7 hypersensitivity

T7 Antigen picking out the few lymphocytes whose receptors fit it, which then multiply.	T7 The cell-surface molecules (HLA in humans) that display peptides to T cells.	T7 The antigen receptor on a T cell that recognises a peptide held by MHC.
T7 A FOXP3^{+} CD4 T cell that suppresses other immune responses to keep tolerance.	T7 The second signal, such as B7 binding CD28, that a naive T cell needs to be activated.	T7 B cells in germinal centres mutating their antibody genes, the best binders being selected.
T7 A harmful, excessive immune reaction, grouped into types I to IV.	T7 Protection of unimmunised people when enough of the population is immune to stop spread.	T7 Long-lived memory cells that make the response to a second exposure faster and stronger.

T7 central tolerance	T7 peripheral tolerance	T7 molecular mimicry
T7 immunodeficiency	T8 medical microbiology and infection	T8 incubation period
T8 Gram stain	T8 peptidoglycan	T8 teichoic acid

T7 A microbial antigen resembling a self protein, so the response to it attacks the body.	T7 Controlling self-reactive lymphocytes that escaped, by anergy, deletion or regulatory T cells.	T7 Deleting self-reactive lymphocytes as they develop in the thymus or bone marrow.
T8 The time from infection to the first symptoms.	T8 The study of disease-causing microbes, how they spread and how infections are diagnosed and treated.	T7 A failure of part of the immune system, inherited or acquired, raising infection risk.
T8 A polymer in the thick wall of Gram-positive bacteria.	T8 A material made of sugar chains cross-linked by short peptides that gives most bacterial cell walls their strength.	T8 A stain that splits bacteria into Gram-positive (purple, thick wall) and Gram-negative (pink).

T8 PCR	T8 lipopolysaccharide	T8 capsule
T8 exotoxin	T8 generation time	T8 capsid
T8 envelope	T8 antigenic drift	T8 antigenic shift

T8 A slimy polysaccharide coat around some bacteria that resists phagocytosis.	T8 The endotoxin in the outer membrane of Gram-negative bacteria that can trigger septic shock.	T8 Polymerase chain reaction: copying a chosen DNA sequence millions of times to detect it.
T8 The protein coat surrounding a virus's genetic material.	T8 The time a bacterial population takes to double.	T8 A protein toxin secreted by a bacterium.
T8 A sudden swap of influenza gene segments between strains, which can cause a pandemic.	T8 Small, gradual changes in influenza surface antigens from point mutations, causing seasonal outbreaks.	T8 The host-derived lipid membrane around some viruses.

T8 dimorphic fungus	T8 sporozoites	T8 merozoites
T8 gametocytes	T8 chain of infection	T8 basic reproduction number
T8 attack rate	T8 selective toxicity	T8 horizontal gene transfer

T8 The malaria stage released from liver cells or red cells that invades red blood cells.	T8 The malaria stage injected by the mosquito that infects the liver.	T8 A fungus growing as a mould at room temperature and as a yeast at body temperature.
T8 R_0: the average number of new cases one case causes in a fully susceptible population.	T8 Agent, reservoir, exit, transmission, entry and susceptible host: breaking any link stops spread.	T8 The sexual malaria stage in blood that is taken up by a mosquito.
T8 Bacteria passing genes, such as resistance genes, to other bacteria, not to offspring.	T8 A drug harming the microbe while sparing the host, by hitting a target only the microbe has.	T8 The proportion of an exposed group that becomes ill during an outbreak.

T8 standard precautions	T8 sterilisation	T9 neuroscience
T9 synapse	T9 voltage-gated Ca^{2+} channels	T9 reuptake
T9 ionotropic receptor	T9 metabotropic receptor	T9 dorsal column

T9 The study of the nervous system, from neurons and synapses to behaviour.	T8 Killing all microbes, including spores, on an item.	T8 Infection-control measures, such as hand hygiene and gloves, used with every patient.
T9 The return of released neurotransmitter from the synaptic space into a cell through transporter proteins.	T9 Channels in the nerve terminal that let Ca^{2+} in when it depolarises, triggering transmitter release.	T9 A junction through which a neuron communicates with another cell, usually using a chemical transmitter.
T9 The spinal pathway for fine touch, vibration and position sense, crossing in the medulla.	T9 A receptor acting through G proteins and second messengers, giving slower, longer responses.	T9 A receptor that is itself an ion channel, giving fast synaptic responses.

T9 spinothalamic tract	T9 gate control	T9 referred pain
T9 upper motor neuron	T9 lower motor neuron	T9 corticospinal tract
T9 pyramidal decussation	T9 Babinski sign	T9 intention tremor

T9 Pain from an organ felt at a skin area sharing its spinal segments.	T9 The theory that touch input in the dorsal horn can damp pain signals.	T9 The spinal pathway for pain and temperature, crossing near where it enters the cord.
T9 The main pathway from motor cortex to spinal cord for voluntary movement.	T9 A brainstem or cord motor neuron that supplies muscle; lesions give weakness, wasting and lost reflexes.	T9 A motor neuron in the brain whose axon runs down to the cord; lesions give spasticity and brisk reflexes.
T9 A tremor that worsens as the hand nears a target, a sign of cerebellar disease.	T9 The big toe extending upward when the sole is stroked, a sign of an upper motor neuron lesion.	T9 The crossing of most corticospinal fibres in the lower medulla.

T9 optic nerve	T9 optic chiasm	T9 hemianopia
T9 Rinne test	T9 tonotopy	T9 sympathetic nervous system
T9 parasympathetic nervous system	T9 Horner syndrome	T9 slow-wave sleep

T9 Loss of half of the visual field.	T9 Where the nasal fibres of each optic nerve cross, above the pituitary.	T9 The bundle of nerve fibres that carries visual signals from the retina toward the brain.
T9 The autonomic division for ”fight or flight”, leaving the cord from T1 to L2.	T9 The orderly mapping of sound frequency along the cochlea and auditory cortex.	T9 A tuning-fork test comparing air with bone conduction to tell conductive from sensorineural hearing loss.
T9 Deep non-REM sleep with large, slow EEG waves.	T9 Ptosis, miosis, anhidrosis – on one side: a sympathetic.	T9 The autonomic division for ”rest and digest”, from cranial nerves and sacral cord.

T9 Broca's area	T9 Wernicke's area	T9 arcuate fasciculus
T9 conduction aphasia	T10 pathology	T10 neoplasia
T10 necrosis	T10 apoptosis	T10 metaplasia

T9 The fibre bundle linking Wernicke's and Broca's areas.	T9 The temporal area for language comprehension; damage gives fluent speech with little meaning.	T9 The frontal area for speech production; damage gives slow, effortful speech.
T10 New, uncontrolled growth of cells that forms a tumour.	T10 The study of the causes and tissue changes of disease.	T9 An aphasia with poor repetition but fair comprehension, from arcuate fasciculus damage.
T10 One mature cell type being replaced by another, such as in Barrett oesophagus.	T10 Programmed, tidy cell death driven by caspases, without inflammation.	T10 Uncontrolled cell death from injury, with swelling and inflammation.

T10 caseous necrosis	T10 granulomas	T10 granulation tissue
T10 oedema	T10 embolism	T10 infarction
T10 oncotic pressure	T10 Virchow's triad	T10 nephrotic syndrome

T10 New capillaries and fibroblasts that fill a healing wound.	T10 Clusters of activated macrophages walling off a persistent agent, as in tuberculosis.	T10 Cheese-like necrosis typical of tuberculosis.
T10 Death of tissue because its blood supply has been cut off.	T10 Blockage of a vessel by material carried in the blood, such as a clot.	T10 Excess fluid in the interstitial spaces.
T10 Albumin lost ($\geq$3.5 g/day) $\rightarrow$ oncotic falls $\rightarrow$.	T10 The three causes of thrombosis: stasis, endothelial injury and hypercoagulability.	T10 The osmotic pressure from plasma proteins that holds fluid in capillaries.

T10 metastasis	T10 atherosclerosis	T10 fatty streak
T10 troponin	T10 cirrhosis	T10 portal hypertension
T10 reference interval	T10 haemolysis	T11 pharmacology

T10 The earliest atherosclerotic lesion: lipid-filled foam cells under the intima.	T10 Build-up of fatty, fibrous plaques in artery walls.	T10 The defining property ✓. Invasion in steps:.
T10 Raised pressure in the portal vein, often from cirrhosis, causing varices and ascites.	T10 Scarring and nodules that replace normal liver structure after long injury.	T10 A regulatory protein complex on thin muscle filaments that binds calcium and helps expose myosin-binding sites on actin.
T11 The study of how drugs act on the body and how the body handles drugs.	T10 The rupture of red blood cells, releasing their contents into the surrounding fluid.	T10 The range of a test result containing the central 95% of healthy people.

T11 half-life	T11 volume of distribution	T11 clearance
T11 bioavailability	T11 first-pass metabolism	T11 steady state
T11 loading dose	T11 potency	T11 efficacy

T11 The plasma volume completely cleared of a substance per minute by the kidneys.	T11 The apparent volume a dose spreads into: dose divided by plasma concentration.	T11 The time for the number of undecayed nuclei in a radioactive sample to halve.
T11 When drug intake equals elimination, reached after about four to five half-lives.	T11 Breakdown of an oral drug in the gut wall and liver before it reaches the circulation.	T11 The fraction of a dose that reaches the systemic circulation unchanged.
T11 The ceiling).	T11 The amount of drug needed for a given effect; a more potent drug needs less.	T11 A larger first dose that reaches the target concentration quickly.

T11 partial agonists	T11 therapeutic index	T11 toxidromes
T11 diuretic	T11 ACE inhibitors	T11 warfarin
T11 anticoagulants	T11 selective toxicity	T11 cell-cycle-specific

T11 The map upside down).	T11 The ratio of toxic to effective dose; a small index means a narrow safety margin.	T11 Drugs that activate a receptor but cannot give the full maximum effect.
T11 An oral anticoagulant that blocks vitamin K-dependent clotting factors, monitored by INR.	T11 Drugs that block angiotensin II production, lowering blood pressure.	T11 A drug that increases urine output by reducing Na^+ reabsorption in the kidney.
T11 Of an anticancer drug: acting at one phase of the cell cycle.	T11 A drug harming the microbe while sparing the host, by hitting a target only the microbe has.	T11 Drugs that reduce blood clotting.

T11 tolerance	T11 dependence	T11 opioids
T11 adverse drug reactions	T11 enzyme induction	T11 enzyme inhibition
T12 epidemiology	T12 biostatistics	T12 evidence-based medicine

T11 Drugs, such as morphine, that act on opioid receptors to relieve pain.	T11 The learning the synapse does.	T11 A reduced response to a drug after repeated doses.
T11 A drug blocking liver enzymes, raising levels of other drugs.	T11 A drug increasing liver enzyme levels, lowering levels of other drugs.	T11 Harmful, unintended responses to a drug at normal doses.
T12 Combining the best research evidence with clinical skill and patient values.	T12 Statistics applied to medical and health data.	T12 The study of how disease is distributed in populations and what causes it.

T12 incidence	T12 prevalence	T12 case fatality
T12 relative risk	T12 odds ratio	T12 bias
T12 selection bias	T12 confounding	T12 stratification

T12 The proportion of people with a disease who die of it.	T12 The proportion of a population with a disease at one time.	T12 The number of new cases in a population over a period.
T12 A systematic error that pushes results away from the truth.	T12 The odds of exposure in cases divided by the odds in controls.	T12 The risk in the exposed group divided by the risk in the unexposed.
T12 Analysing subgroups separately to remove the effect of a confounder.	T12 Distortion of an exposure–outcome link by a third factor related to both.	T12 Bias from how participants were chosen or kept in a study.

T12 predictive values	T12 sensitivity	T12 specificity
T12 likelihood ratios	T12 confidence interval	T12 p-value
T12 Kaplan–Meier curve	T12 intention to treat	T12 forest plot

T12 The proportion of people without the disease whom the test correctly finds negative.	T12 The proportion of people with the disease whom the test correctly finds positive.	T12 The chances that a positive (or negative) result is truly right; they depend on prevalence.
T12 The probability, assuming the null model, of a test statistic at least as extreme as the observed one in the direction or directions tested.	T12 An interval calculated from sample data using a method with a stated long-run probability of containing the population parameter.	T12 How much a test result changes the odds of disease.
T12 A chart of each study's result and the pooled result in a meta-analysis.	T12 Analysing patients in the groups they were randomised to, whatever they received.	T12 A step graph of the proportion surviving over time.

T12 heterogeneity	T12 NNT	T12 GRADE
T13 clinical foundations	T13 presenting complaint	T13 history of presenting complaint
T13 systems review	T13 red flag	T13 inspection

T12 A system that rates the certainty of evidence and the strength of recommendations.	T12 The clinical size of an effect).	T12 Variation in results between studies beyond chance.
T13 The detailed story of the main problem: onset, course and features.	T13 The main problem that brought the patient, in their own words.	T13 The core skills of history-taking, examination, reasoning, communication and ethics.
T13 Examining by looking.	T13 A symptom or sign that suggests serious disease needing urgent action.	T13 A checklist of questions about each body system to catch missed symptoms.

T13 palpation	T13 percussion	T13 auscultation
T13 differential diagnosis	T13 premature closure	T13 teach-back
T13 shared decision-making	T13 confidentiality	T13 autonomy

T13 Listening to body sounds, usually with a stethoscope.	T13 Tapping the body surface to judge what lies beneath from the sound.	T13 Examining by feeling with the hands.
T13 Asking patients to explain in their own words what they have been told.	T13 Accepting a diagnosis too early, before it is fully checked.	T13 The list of possible conditions that could explain the findings.
T13 The patient's right to make their own informed choices.	T13 Keeping patient information private unless there is consent or a lawful reason.	T13 Doctor and patient choosing together using evidence and the patient's values.

T13 beneficence	T13 capacity	T13 Swiss cheese model
T13 near-miss	T13 SBAR handover	T13 screening
T13 over-diagnosis		

T13 The idea that harm happens when gaps in several layers of defence line up.	T13 The ability to understand, retain, weigh and communicate a decision.	T13 The duty to act in the patient's best interest.
T13 Testing people without symptoms to find disease early.	T13 A structured handover: Situation, Background, Assessment, Recommendation.	T13 An error caught before it reached or harmed the patient.
		T13 Diagnosing a condition that would never have caused harm in the person's lifetime.