Year 12 Biology

artefacts objects or structures seen through a microscope that have been created during the processing of the specimen

chloroplasts organelles that are responsible for photosynthesis in plant cells. Contain chlorophyll pigments, which are the site of the light reactions of photosynthesis

compound light microscope a light microscope which uses two lenses to magnify an object; the objective lens, which is placed near to the specimen and an eyepiece lens, through which the specimen is viewed

contrast staining treating specific cell components so they are visible compared to untreated components.

counterstain application of second stain with a contrasting colour to sample for microscopy.

cytoplasm internal fluid of cells, composed of cytosol (water, salts and organic molecules), organelles and cytoskeleton.

cytoskeleton a network of fibres in the cytoplasm of a eukaryotic cell.

differential staining using specific stains to distinguish different types of cell.

differentiation the process of a cell becoming differentiated. Involves the selective expression of genes in a cell's genome.

electron microscopy microscopy using a microscope that employs a beam of electrons to illuminate the specimen. As electrons have a much smaller wavelength than light they produce images with higher resolutions than light microscopes.

endocytosis the bulk transport of materials into cells via invagination of the cell-surface membrane forming a vesicle.

endosymbiosis the widely-accepted theoretical process by which eukaryotic cells evolved from prokaryotic cells.

eukaryotes multicellular eukaryotic organisms like animals, plants and fungi and single-celled protoctista.

eukaryotic cells cells with a nucleus and other membrane-bound organelles.

Golgi apparatus organelle in most eukaryotic cells formed from an interconnected network of flattened, membrane-enclosed sacs, or cisternae. Play a role in modifying and packaging proteins into vesicles.

Gram negative bacteria bacteria with cell walls that stain red with Gram stain.

Gram positive bacteria bacteria with cell walls that stain purple-blue with Gram stain.

granum (plural grana) a structure inside chloroplasts composed of a stack of several thylakoids. Contains chlorophyll pigments, where light reactions occur during photosynthesis. guard cells cells that can open and close the stomatal pores, controlling gaseous exchange and water loss in plants. H habitat biodiversity the number of different habitats found within an area.

histones proteins that form a complex with DNA called chromatin.

laser scanning confocal microscope a microscope that employs a beam of fluorescence and a pin-hole aperture to produce an image with a very high resolution.

light microscope an instrument that uses visible light and glass lenses to enable the user to see objects magnified many times.

mitochondrial DNA DNA present within the matrix of mitochondria.

organelle membrane-bound compartments with varying functions inside eukaryotic cells.

prokaryotes single-celled prokaryotic organisms from the kingdom Prokaryotae.

prokaryotic cells cells with no membrane-bound nucleus or organelles.

resolution the shortest distance between two objects that are still seen as separate objects.

scanning electron microscopy an electron microscope in which a beam of electrons is sent across the surface of a specimen and the reflected electrons are focused to produce a three dimensional image of the specimen surface.

smooth endoplasmic reticulum endoplasmic reticulum lacking ribosomes; the site of lipid and carbohydrate synthesis, and storage.

stage graticule a slide with a scale in micrometres (μm) etched into it. Used to measure the size of a sample under a light microscope.

stains (staining) dyes used in microscopy sample preparation to increase contrast or identify specific components.

stroma fluid interior of chloroplasts.

tonoplast membrane forming a vacuole in a plant cell.

transmission electron microscopy (TEM) an electron microscope in which a beam of electrons is transmitted through a specimen and focused to produce an image.

ultrastructure those features of a cell which can be seen by using an electron microscope.

vesicle membranous sacs used to transport materials in the cell.