

Cell structure		
1	Cell	smallest living unit
2	Prokaryotic Cell	cell with no nucleus
3	Eukaryotic Cell	cell with DNA contained in a nucleus and membrane bound organelles
4	Diagram of eukaryotic cell	Animal cell
		Plant cell

All eukaryotic cells		
5	Nucleus	stores genetic information and controls the activities of the cell
6	Cytoplasm	jelly like substance that chemical reactions occur in
7	Cell membrane	controls what comes in and out of the cell and holds the cell together
8	Ribosome	site of protein synthesis
9	Mitochondria	site of aerobic respiration

Plant cells only		
10	Vacuole	contains cell sap
11	Cell wall	made of cellulose. strengthens and supports the cell
12	chloroplast	site of photosynthesis. contains chlorophyll
13	chlorophyll	green pigment which absorbs light energy

Bacterial cell		
14	DNA loop	single strand of DNA loose in the cytoplasm
15	Plasmid	small ring of DNA
16	Flagellum	tail like structure which helps bacteria move

Microscopes		
17	Light microscope	instrument that uses visible light to detect and magnify very small objects, and enlarges them
18	Eyepiece lens	look through this lens (usually x10)
19	Objective lens	lens closest to the specimen (Usually x4, x10 & x40)
20	Stage	where the slide is placed
21	Focus knob	turn to move stage closer or further away from lens to get a sharp image. use coarse first, then fine
22	Slide	glass rectangle on which specimen is placed
23	Cover slip	a thin square piece of glass placed over the specimen
24	Iodine	biological stain used to show up features of plant cell
25	Electron microscope	high magnification microscope used to view and study cells in much greater detail
26	Magnification calculation	magnification = $\frac{\text{size of image}}{\text{size of real object}}$

27 Required Practical: observe, draw and label plant and animal cells	
Method:	<ul style="list-style-type: none"> <li>place prepared slide on stage, using lowest objective lens</li> <li>use coarse and fine focus knobs to focus image</li> <li>increase magnification by using higher power objective lens and refocus</li> <li>draw image seen and label</li> </ul>

Converting units				
		unit	metres	Standard form
28	Metre	m	1	$1 \times 10^1$
29	Millimetre	mm	0.001	$1 \times 10^{-3}$
30	Micrometre	$\mu\text{m}$	0.000001	$1 \times 10^{-6}$
31	nanometre	nm	0.000000001	$1 \times 10^{-9}$

Cell cycle		
32	Chromosome	a strand of DNA. humans have 23 pairs
33	Mitosis	cell division which produces two genetically identical daughter cells
34	Mitosis purpose	produce cells for growth, repair, replacement
35	Differentiation	process of unspecialised cells becoming specialised to carry out a function
36	Specialised cell	cells that have developed certain characteristics to perform a particular function
37	Embryonic stem cell	an unspecialised cell that can become any cell. found in embryos
38	Adult stem cell	unspecialised cell that can become only a few types of cell. Found in organs of developed organisms

Cell transport		
39	Concentration gradient	difference between a high concentration and a low concentration
40	Diffusion	the movement of particles from a high concentration to a low concentration
41	Osmosis	the movement of water from a high concentration of water (low solute) to a low concentration of water (high solute) through a partially permeable membrane
42	Partially permeable membrane	membrane that is permeable to the small molecules of water and some solutes but not large molecules
43	Solute	dissolvable substance i.e. sugar or salt
44	Solution	mixture of solute and solvent
45	Solvent	a liquid in which a solute dissolves
46	Active transport	movement of substances through the cell membrane, from a low to high concentration. requires energy

Osmosis in plant cells		
<b>47</b>	<b>Required Practical: Osmosis in a cell</b>	
A	Independent Variable:	concentration of solution
B	Dependent Variable:	change in mass
C	Control Variables:	time of experiment, temperature, type of vegetable (e.g. potato)
D	Method: <ul style="list-style-type: none"> <li>• measure the mass of pieces of vegetable</li> <li>• place vegetables into different known concentrations of (sugar or salt) solution</li> <li>• leave for a given period of time and remove and dry them</li> <li>• re-measure mass and calculate percentage change in mass</li> <li>• plot percentage change in mass against concentration</li> </ul>	