

Biology Paper 1 Tick List				
B1 Cell Biology				
Cells				
T1	Identify and compare prokaryotic and eukaryotic cells			
T2	Identify plant, animal, bacterial and algal cells. Describe the functions of parts of these cells.			
T3	Describe the functions of parts of cells relate their functions in a tissue, an organ, an organ system or the whole organism.			
T4	Calculate orders of magnitude, including standard form.			
T5	Describe the adaptations of specialised plant and animal cells and link to their function.			
T6	Draw scientific drawing of a root hair cell and measure a root hair cell using a light microscope.			
T7	Explain the importance of cell differentiation.			
T8	Understand how microscopy techniques have developed over time.			
T9	Describe the advantages and disadvantages of using a light and an electron microscope			
T10	Calculate magnification and convert units. (I AM)			
Genes, Chromosomes, Mitosis, and Stem Cells				
T11	Define gene and gametes.			
T12	Describe what a chromosome is and where they are found.			
T13	Describe the stages of mitosis and what it is needed for.			
T14	Define growth and differentiation.			
T15	Compare differentiation in plants and animals.			
T16	Describe what a stem cell is describe ways in which they can be used.			
T17	Describe the function of stem cells in embryos, in adult animals and in the meristems in plants			
T18	Explain how plant clones are used			
T19	Describe how stem cells can be used to treat medical conditions, including diabetes and paralysis.			
T20	Describe what therapeutic cloning can be used for.			
T21	Explain the reasons for ethical and religious objections to the use of stem cells.			
Transport				
T22	Describe diffusion and explain how different factors affect the rate of diffusion			
T23	Describe osmosis.			
T24	Use osmosis to describe the effect of placing plant tissue in different conditions.			
T25	Calculate percentage gain and loss of mass of plant tissue.			
T26	Describe active transport and explain its importance.			
T27	Describe how surfaces and organ systems are specialised for exchanging materials.			
T28	Explain the differences between diffusion, osmosis and active transport.			
B2 Organisation				
T29	Define tissues, organ and organ systems and give examples of each			
T30	Name and describe the function of all the organs of the digestive system			
T31	Describe what an enzyme is			

T32	Use the lock and key theory to explain how enzymes function			
T33	Describe how temperature and pH affect how well an enzyme works			
T34	Calculate the rate of a reaction			
T35	Describe what carbohydrase, protease and lipase do and where they are produced.			
T36	Describe the role of hydrochloric acid in the stomach.			
T37	Describe how the products of digestion are used			
T38	Describe what bile does and where it is produced and stored			
Organisation in Animals- Heart, blood, vessels and gas exchange				
T39	Describe the components of blood and their functions			
T40	Describe the structure of arteries, veins and capillaries relates to their function			
T41	Describe the function and structure of the heart			
T42	Describe problems that can develop in the heart, including coronary heart disease, faulty heart valves and heart failure and how they can be treated			
T43	Describe how resting heart rate is controlled and why an artificial pacemaker or artificial hearts may be needed			
T44	Give advantages and disadvantages of different treatments for heart problems			
T45	Use simple compound measures such as rate and carry out rate calculations for blood flow.			
T46	Describe the function and structure of the lungs and how they are adapted for gaseous exchange			
Non-Communicable Diseases				
T47	Describe the difference between communicable and non-communicable diseases			
T48	Describe how different types of diseases can interact			
T49	Construct and interpret bar charts, frequency tables, frequency diagrams and histograms			
T50	Understand the principles of sampling as applied to scientific data, including epidemiological data			
T51	List risk factors linked to increased rate of disease and draw conclusions from data on risk factors			
T52	Describe what a causal mechanism is			
T53	Describe the effects of risk factors such as smoking, diet, exercise, alcohol and carcinogens on health			
T54	Understand the principles of sampling as applied to scientific data in terms of risk factors.			
T55	Define tumour and describe the difference between benign and malignant tumours			
T56	Describe risk factors that increase the risk of tumours forming			
Organisation in Plants				
T57	Explain how the structures of plant tissues are related to their functions			
T58	Explain how the structure of root hair cells, xylem and phloem are adapted to their functions			
T59	Describe the process of transpiration and translocation, including the structure and function of the stomata			
T60	Describe how temperature, light intensity, humidity and air flow that can affect the rate of transpiration			
T61	Calculate the mean number of stomata on a given area of leaf and use sampling to estimate the number of stomata			

B3 Infection and Response				
T62	Define communicable disease and describe the difference between communicable and non-communicable diseases			
T63	Explain how diseases caused by viruses, bacteria, protists and fungi are spread in animals and plants			
T64	Describe what a pathogen is and how it can be spread and how this can be prevented.			
T65	Describe how bacteria and viruses cause diseases.			
T66	Describe how measles, HIV and tobacco mosaic virus are spread and their affect.			
T67	Describe how salmonella and gonorrhoea are spread and describe similarities and differences between them.			
T68	Describe how rose black spot is caused by fungi and how it affects plants.			
T69	Describe the life cycle of the malaria protists and how it can be controlled.			
T70	Describe the role of the white blood cells in defending the body by phagocytosis, antibody production and antitoxin production.			
T71	Explain how vaccinations work.			
T72	Explain the use of antibiotics and other medicines in treating disease.			
T73	Explain how antibiotic resistance develops.			
T74	Describe how new medicines are discovered and developed.			
T75	Describe how new drugs are trialled before being used.			
B4 Bioenergetics				
Photosynthesis				
T81	Describe what photosynthesis is how a leaf is adapted for photosynthesis.			
T82	Write a word and recognise a symbol equation for photosynthesis.			
T83	Explain the effect of limiting factors on the rate of photosynthesis.			
T84	Interpret and explain graphs of limiting factors of photosynthesis.			
T85	Explain how the limiting factors interact.			
T86	Understand and use the inverse square law and light intensity.			
T87	Describe how greenhouses and hydroponics can be used to increase plant growth, and discuss their cost effectiveness.			
T88	Describe how glucose from photosynthesis is used by plants.			
Respiration				
T90	Describe aerobic respiration and write a word and balanced symbol equation.			
T94	Describe anaerobic respiration and write a word equation for anaerobic respiration in muscles and plant and yeast cells and recognise symbol equations.			
T95	Give uses of fermentation.			
T96	Compare aerobic and anaerobic respiration.			
T98	Describe what organisms use energy for.			
T99	Describe how and why the heart rate, breathing rate and breath volume change with exercise.			
T102	Describe the effect of anaerobic respiration on muscles.			
T103	Describe what the oxygen debt is, how it is repaid & describe the role of the liver			
T104	Define metabolism			