

For Science you will complete a test in your Biology, Chemistry and Physics lesson. The facts you will be tested on are from your Year 9 learning. Please learn the facts for each subject as below.

For Biology Facts 1 to 68

For Chemistry Facts 1 to 71

For Physics Facts 64-98

For this test, only shared content between Triple and Combined content is being tested. Please use only the fact sheets attached to this post and learn the facts above for these recall tests. This information is also in your Google Classroom.

Biology Fact Sheet – Paper 1 – Combined

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<p>1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68</p>	<p>1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68</p>	<p>1. Eukaryotic cells have a nucleus, cell membrane and cytoplasm and include animal and plant cells. 2. Cell membrane controls the movement of substances into and out of a cell. 3. Cytoplasm is a jelly like substance where reactions take place inside a cell. 4. Respiration releases energy and takes place inside mitochondria in cells. 5. Proteins are made inside ribosomes in cells. 6. Cell walls are made of cellulose and give a cell structure. 7. A vacuole stores cell sap and gives a cell structure. 8. Chloroplasts contain chlorophyll used for photosynthesis. 9. Chlorophyll absorbs light for photosynthesis. 10. Genetic material is stored on chromosomes held in the nucleus of a cell. 11. Prokaryotic cells, bacteria cells, have a cell membrane and cytoplasm but no nucleus.</p>
<p>12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68</p>	<p>12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68</p>	<p>12. As a cell differentiates it develops different sub-cellular structures to enable it to carry out a particular function. It has become a specialised cell. 13. Sperm cells are specialised for energy production with a large number of mitochondria. 14. Mesophyll cells are specialised for photosynthesis with a large number of chloroplasts. 15. Animal cells differentiate at an early stage of life. 16. Plant cells can differentiate throughout their life.</p>
<p>17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68</p>	<p>17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68</p>	<p>17. Magnification = image size ÷ actual size 18. μm = Micrometre, nm = nanometre 19. 1mm = 1000 μm 20. Light microscopes were developed first. 21. Electron microscopes give greater magnification and resolution. 22. Electron microscopes can allow people to see more subcellular structures and develop our understanding of them.</p>
<p>23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68</p>	<p>23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68</p>	<p>23. Mitosis allows cells to divide for growth, repair and development of an embryo. 24. During the three stage cell cycle a) Stage 1 – DNA is copied & number of subcellular structures, mitochondria & ribosomes are increased b) Stage 2 – chromosomes are pulled to either end of the cell and nucleus divides c) Stage 3 – cytoplasm and cell membranes divide to form 2 genetically</p>

	<p>42. The digestive system is an organ system. Several organs work together to digest and absorb nutrients.</p> <p>43. Enzymes are specialised proteins used in the digestive system. Enzymes are biological catalysts.</p> <p>44. Enzyme function can be described as the 'lock and key model'.</p> <p>45. The substrate binds to the active site on the enzymes.</p> <p>46. An enzyme denatures when the active site changes shape and the substrate can no longer bind to the enzyme.</p> <p>47. High temperatures and the wrong pH denature enzymes.</p> <p>48. Carbohydrase enzymes break down carbohydrates into simple sugars.</p> <p>49. Amylase is a type of carbohydrase which breaks down starch into sugars</p> <p>50. Lipase enzymes break down fats into fatty acids and glycerol.</p> <p>51. Protease enzymes break down protein into amino acids.</p> <p>52. Bile is made in liver and stored in the gall bladder.</p> <p>53. Bile neutralises the substances from the stomach and helps to emulsify fats.</p> <p>54. Different chemicals test for different nutrient groups –</p> <ul style="list-style-type: none"> a) Iodine tests for starch – pale yellow to blue/black b) Benedicts tests for sugar – blue to brick red c) Biuret reagent tests for protein – blue to purple d) Ethanol tests for fats – clear to cloudy
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	<p>55. The circulatory system is made of arteries, veins, capillaries and the heart.</p> <p>56. Arteries are specialised with thick elastic walls and a small lumen.</p> <p>57. Capillary walls are only one cell thick, so there is a short distance for diffusion.</p> <p>58. Veins have valves, thinner and less elastic walls and a larger lumen.</p> <p>59. The main structure of the heart includes the aorta, vena cava, pulmonary artery, pulmonary vein, valves, atria and ventricles.</p> <p>60. Heart rate is controlled by a group of cells that act as a pacemaker.</p> <p>61. The pacemaker cells are located in the right atrium.</p> <p>62. Blood contains red blood cells, white blood cells, platelets and plasma.</p> <ul style="list-style-type: none"> i. Red blood cells carry oxygen. ii. White blood cells destroy pathogens. iii. Platelets clot the blood. iv. Plasma is the liquid part of the blood.
	<p>63. In coronary heart disease layers of fatty material build up blocking the coronary arteries, narrowing them. This reduces blood flow, resulting in a lack of oxygen for the heart so less respiration.</p> <p>64. Stents keep coronary arteries open.</p> <p>65. Statins reduce blood cholesterol level which slows down the rate of fatty material deposit.</p> <p>66. Heart valves may become faulty.</p> <p>67. Faulty heart valves can be replaced using biological or mechanical</p>

		valves. 68. Heart failure can be treated using artificial hearts or a heart transplant.
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	<div> <div></div> <div></div> <div></div> <div></div> <div></div> </div>	<p>74. Cancer is caused by changes in cells leading to uncontrolled growth and division. 75. Benign tumours are surrounded by a membrane and do not invade other parts of the body.</p> <p>76. Malignant tumour cells are cancers and can spread to different parts of the body forming secondary tumours.</p>
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		<p>96. Vaccines contain dead or weakened pathogens.</p> <p>97. Vaccination prevents illness by causing a more rapid immune response to pathogens.</p> <p>98. Transmission of pathogens can be reduced by immunising a large proportion of the population.</p> <p>99. Painkillers can be used to treat the symptoms of illness but do not kill pathogens.</p> <p>100. Antibiotics kill bacteria.</p> <p>101. Antibiotics do not kill viruses as the virus is inside the cell.</p>
		<p>102. New drugs have been extracted from plants and microorganisms.</p> <p>103. The heart drug 'Digitalis' comes from foxgloves.</p> <p>104. The pain killer 'Aspirin' comes from the willow tree.</p> <p>105. Penicillin comes from the penicillium mould.</p> <p>106. New medical drugs have to be tested in trials to check that they are safe, effective and of the correct dosage.</p> <p>107. Preclinical testing is done in the lab using cells, tissues and animals.</p> <p>108. Clinical trials are first done on healthy volunteers and then patients.</p> <p>109. To reduce bias, placebos and double blind trials are used in clinical trials.</p>
		<p>110. Photosynthesis transfers light energy into chemical energy inside plants.</p> <p>111. Photosynthesis is an endothermic reaction.</p> <p>112. The reactants in photosynthesis are carbon dioxide and water.</p> <p>113. The products of photosynthesis are glucose and oxygen.</p> <p>114. Substances associated with photosynthesis have the following chemical symbols:</p> <ul style="list-style-type: none"> i. Carbon dioxide - CO_2 ii. Water - H_2O iii. Oxygen - O_2 iv. Glucose - $\text{C}_6\text{H}_{12}\text{O}_6$. <p>115. Glucose made in photosynthesis is used for: production of cellulose cell walls, producing amino acids, producing fats and oils and can be stored as insoluble starch.</p> <p>116. The rate of photosynthesis can be affected by: carbon dioxide concentration, light intensity, temperature and the amount of chlorophyll.</p>

Biology Fact Sheet – Paper 1 – Combined

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