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| **Topic heading** | **Syllabus Ref** | **Idea cluster** | **Question 1** | **Question 2** | **Question 3** | **Question 4** |
| **Bioenergetics** | **BBi 1** | **Photosynthesis reaction** | **Where does the energy for photosynthesis come from?**  **A Sunlight**  **B The ground**  **C Sugars the plant makes**  **D Carbon dioxide in the air** | **What is the best definition of photosynthesis?**  **A Using light to make proteins**  **B Using light energy to make starch**  **C Using light energy to make glucose**  **D Using light energy to make food.** | **What gas is produced during photosynthesis?**  **A Oxygen**  **B Carbon dioxide**  **C Glucose**  **D Nitrogen** | **What is the equation for photosynthesis?**  **A Carbon dioxide + Water 🡪 Glucose + oxygen**  **B Carbon dioxide 🡪 water + glucose + oxygen**  **C Oxygen + glucose 🡪 water + carbon dioxide**  **D Glucose + water 🡪 Carbon dioxide + oxygen** |
|  |  |  | **A** | **C** | **A** | **A** |
|  |  |  | **Question 5** | **Question 6** | **Question 7** | **Question 8** |
|  |  |  | **What does the symbol C6H12O6 represent?**  **A Protein**  **B Starch**  **C Glucose**  **D Vitamin C** | **What type of reaction is photosynthesis?**  **A Bioluminescence**  **B Endothermic**  **C Decomposition**  **D Exothermic** | **What cellular organelle absorbs the light energy?**  **A Mitochondria**  **B Nucleus**  **C Cytoplasm**  **D Chloroplast** | **What has happened to the concentration of oxygen in the Earth’s atmosphere?**  **A Increased**  **B Decreased**  **C Remained the same**  **D There isn’t any** |
|  |  |  | **C** | **B** | **C** | **A** |
| **Topic heading** | **Syllabus Ref** | **Idea cluster** | **Question 1** | **Question 2** | **Question 3** | **Question 4** |
| **Bioenergetics** | **BBi 2** | **Rate of photosynthesis** | **What are the limiting factors of photosynthesis?**  **A Carbon dioxide, water and temperature**  **B Water, temperature, light intensity and carbon dioxide**  **C Light intensity, carbon dioxide and water**  **D Light intensity, carbon dioxide and temperature** | **The rate of photosynthesis can be determined by:**  **A measuring the volume of oxygen produced in 2 minutes**  **B measuring the volume of oxygen produced**  **C measuring the volume of oxygen used in 2 minutes**  **D measuring the volume of oxygen used.** | **Label the x axis.**    **A Temperature**  **B Light intensity**  **C Light intensity or carbon dioxide**  **D Carbon dioxide** | **Which statement best describes how changing the temperature affects the rate of photosynthesis?**  **A As temperature increases the rate increases**  **B As temperature increases the rate decreases then increases**  **C As the temperature increases the rate decreases**  **D As the temperature increases the rate increase then decreases.** |
|  |  |  | **D** | **A** | **C** | **D** |
|  |  |  | **Question 5** | **Question 6** |  |  |
|  |  |  | **What is the limiting factor at A?**  A  A  B  **A Light intensity**  **B Carbon dioxide**  **C Carbon dioxide or temperature**  **D Temperature** | **What is the limiting factor(s) at B?**  BB  A  B  **A Light intensity**  **B Carbon dioxide**  **C Carbon dioxide or temperature**  **D Temperature** |  |  |
|  |  |  | **A** | **C** |  |  |
| **Topic heading** | **Syllabus Ref** | **Idea cluster** | **Question 1** | **Question 2** | **Question 3** | **Question 4** |
| **Bioenergetics** | **BBi 3** | **Uses of glucose** | **Glucose can be used for 1) Respiration, 2) to make starch, 3) to make amino acids, 4) to make cellulose.**  **Which are the above are correct?**  **A 1,2 & 4**  **B 1, 2 & 3**  **C None of them**  **D All of them** | **Cellulose is made from glucose. What is its function?**  **A To be used to build cell membranes**  **B As a storage molecule**  **C To be used to make proteins**  **D To strengthen cell walls** | **Glucose is used to produce amino acids using what?**  **A Nitrogen**  **B Magnesium ions**  **C Nitride ions**  **D Nitrate ions** | **What are amino acids used for?**  **A To make proteins**  **B For an energy storage molecule**  **C To make fats**  **D To strengthen cell walls** |
|  |  |  | **D** | **D** | **D** | **A** |
| **Topic heading** | **Syllabus Ref** | **Idea cluster** | **Question 1** | **Question 2** | **Question 3** | **Question 4** |
| **Bioenergetics** | **BBi 4** | **Aerobic respiration** | **What type of reaction is respiration?**  **A Neutralisation**  **B Exothermic**  **C Endothermic**  **D Decomposition** | **Where does respiration occur?**  **A In the lungs**  **B In all cells of animals**  **C in all living cells**  **D in plants and animals** | **What is aerobic respiration?**  **A Respiration with oxygen**  **B Respiration without oxygen**  **C Respiration with carbon dioxide**  **D Respiration without carbon dioxide** | **Respiration…**  **A produces energy and oxygen**  **B produces oxygen and releases energy**  **C produces carbon dioxide and releases energy**  **D produces energy and releases carbon dioxide** |
|  |  |  | **B** | **C** | **A** | **C** |
|  |  |  | **Question 5** | **Question 6** |  |  |
|  |  |  | **What is the energy released from respiration used for?**  **A Building larger molecules**  **B Movement**  **C Keeping warm**  **D all of the above** | **What is the equation for respiration?**  **A Carbon dioxide + Water 🡪 Glucose + oxygen**  **B Carbon dioxide 🡪 water + glucose + oxygen**  **C Oxygen + glucose 🡪 water + carbon dioxide**  **D Glucose + water 🡪 Carbon dioxide + oxygen** |  |  |
|  |  |  | **D** | **C** |  |  |
| **Topic heading** | **Syllabus Ref** | **Idea cluster** | **Question 1** | **Question 2** | **Question 3** | **Question 4** |
| **Bioenergetics** | **BBi 4** | **Anaerobic respiration** | **What is anaerobic respiration?**  **A Respiration without any/much oxygen**  **B Respiration with oxygen**  **C Respiration using carbon dioxide**  **D Respiration without carbon dioxide** | **Which type of respiration produces the most energy?**  **A Aerobic**  **B Anaerobic**  **C They both produce the same**  **D Photosynthesis** | **What is the equation for anaerobic respiration?**  **A Glucose 🡪 lactic oxide**  **B Glucose 🡪 lartic acid**  **C Glucose 🡪 lactic acid**  **D Glucose 🡪 lastic acid** | **Which equation represents anaerobic respiration in plants and yeast cells?**  **A starch 🡪 glucose + ethanol**  **B glucose 🡪 ethanol + oxygen**  **C glucose 🡪 carbon dioxide + water**  **D Glucose 🡪 ethanol + carbon dioxide** |
|  |  |  | **A** | **A** | **C** | **D** |
|  |  |  | **Question 5** |  |  |  |
|  |  |  | **What is aerobic respiration in yeast called?**  **A Combustion**  **B Decomposition**  **C Fermentation**  **D Oxidisation** |  |  |  |
|  |  |  | **C** |  |  |  |
| **Topic heading** | **Syllabus Ref** | **Idea cluster** | **Question 1** | **Question 2** | **Question 3** | **Question 4** |
| **Bioenergetics** | **BBi 5** | **Exercise** | **During exercise, which bodily process increase?**  **A The heart rate & the breathing rate**  **B The rate of digestion, the heart rate & the breathing rate**  **C The heart rate only**  **D The breathing rate only** | **Why does the heart rate increase during exercise?**  **A To increase the oxygen supply to the muscles**  **B To increase glucose and oxygen supply to the muscles.**  **C To increase the supply of carbon dioxide to the cells**  **D To increase the supply of oxygen and urea to the cells.** | **What is the build up of carbon dioxide in the muscles known as?**  **A Breathing debt**  **B Respiration debt**  **C Carbon dioxide debt**  **D Oxygen debt** | **What is oxygen debt?**  **A The extra oxygen required to after exercise to react with the lactic acid.**  **B The extra oxygen required to before exercise to react with the lactic acid.**  **C The extra oxygen required to during exercise to react with the glucose.**  **D The extra oxygen required to after exercise to react with the glucose.** |
|  |  |  | **A** | **B** | **D** | **A** |
| **Topic heading** | **Syllabus Ref** | **Idea cluster** | **Question 1** | **Question 2** | **Question 3** | **Question 4** |
| **Bioenergetics** | **BBi 6** | **Metabolism** | **What are proteins synthesised from?**  **A Glucose**  **B Fatty acids and glycerol**  **C Enzymes**  **D Amino acids** | **What are fats broken down into?**  **A Glucose**  **B Fatty acids and glycerol**  **C Enzymes**  **D Amino acids** | **What is starch synthesised from?**  **A Glucose**  **B Fatty acids and glycerol**  **C Enzymes**  **D Amino acids** | **What is the best definition of metabolism?**  **A The rate at which chemical reactions occur in cells and the body**  **B The rate at which digestion occurs**  **C The speed at which toxins are broken down by the body**  **D The speed at which enzymes work in the digestive system** |
|  |  |  | **D** | **B** | **A** | **A** |
|  |  |  | **Question 5** | **Question 6** |  |  |
|  |  |  | **Which biological molecules control the rate of metabolism?**  **A Glucose**  **B Fatty acids and glycerol**  **C Enzymes**  **D Amino acids** | **Which of the following is an example of a metabolic reaction?**  **A The reabsorption of water in the large intestine**  **B The formation of amino acids from glucose and nitrate ions**  **C The absorption of glucose in the small intestine.**  **D The dilation of blood vessels when hot** |  |  |
|  |  |  | **C** | **B** |  |  |

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