|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **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?**AAB**A Light intensity****B Carbon dioxide****C Carbon dioxide or temperature****D Temperature** | **What is the limiting factor(s) at B?**BBAB**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** |  |  |

Tania.harding@hants.gov.uk