** A level Year 1** Eduqas Component 3

**Adaptations for Transport**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  |  | R | A | G |
| 1 | the similarities and differences in the vascular systems of animal groups:  ·Earthworm vascularisation, closed circulatory system and pumps, carriage of respiratory gases in blood  · Insects open circulatory system, dorsal tube-shaped heart, lack of respiratory gases in blood  · Fish single circulatory system  · Mammal double circulatory system |  |  |  |
| 2 | the mammalian circulatory system including the structure and function of heart and blood vessels and the names of the main blood vessels associated with the human heart |  |  |  |
| 3 | the cardiac cycle and the maintenance of circulation to include graphical analysis of pressure changes, the role of sino-atrial node and Purkyne/ Purkinje fibres and the analysis of electrocardiogram traces to show electrical activity |  |  |  |
| 4 | the function of red blood cells and plasma in relation to transport of respiratory gases, dissociation curves of haemoglobin of mammal (adult and foetus), including examination of microscope slides of erythrocytes |  |  |  |
| 5 | the dissociation curves of some animals adapted to low oxygen level habitats e.g. llama, lugworm |  |  |  |
| 6 | the Bohr effect and chloride shift |  |  |  |
| 7 | the transport of nutrients, hormones, excretory products and heat in the blood |  |  |  |
| 8 | the formation of tissue fluid and its importance as a link between blood and cells |  |  |  |
| 9 | the structure of the dicotyledon root, including examination of microscope slides of T.S. dicotyledon root |  |  |  |
| 10 | -the absorption of water by the root  - the movement of water through the root: apoplast, symplast and vacuolar pathways  - the structure and the role of the endodermis |  |  |  |
| 11 | the detailed structure of xylem as seen by the light and electron microscope, including examination of microscope slides of T.S. dicotyledon primary stem |  |  |  |
| 12 | the movement of water from root to leaf including the transpiration stream and cohesion-tension theory |  |  |  |
| 13 | the effect of environmental factors affecting transpiration |  |  |  |
| 14 | the adaptations shown by some angiosperms: hydrophytes, xerophytes, including examination of microscope slides of T.S. leaves of marram grass and water lily |  |  |  |
| 15 | the detailed structure of phloem as seen by the light and electron microscope |  |  |  |
| 16 | the translocation of organic materials from source to sink, including the ideas surrounding phloem transport:  - diffusion;  - cytoplasmic strands;  - mass flow models;  - experimental evidence that solutes e.g. sucrose, are carried in the phloem;  - use of aphids and autoradiographs |  |  |  |

**SPECIFIED PRACTICAL WORK**

· Investigation into transpiration using a simple potometer

· Scientific drawing of a low power plan of a prepared slide of T.S artery and vein, including calculation of actual size and magnification of drawing

· Dissection of mammalian heart