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| B4.1 The blood | | I am targeting - |
| To get the grade I must - | |  |
| Targeting  GRADE 4 | * State the main components in blood, namely: plasma, red blood cells, white blood cells and platelets. * Recognise the components of blood from photomicrographs. * Describe the function of each component in blood. |
| Targeting  GRADE 6 | * Summarise the process of blood clotting. * View blood under a light microscope and recognise components. * Explain how red blood cells are adapted to their function. | To get the next grade I must - |
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| Targeting  GRADE 8 | * Suggest how white blood cells are adapted to their function. * Estimate the diameter of a red blood cell and comment on its uncertainty. * Evaluate in detail a model of the blood. |

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| B4.2 The blood vessels | | I am targeting - |
| To get the grade I must - | |  |
| Targeting  GRADE 4 | * State the three main types of blood vessel – arteries, veins, and capillaries. * Recognise types of blood vessel from diagrams. |
| Targeting  GRADE 6 | * Describe how blood flows around the body. * Explain how the structure relates to the functions of blood vessels. | To get the next grade I must - |
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| Targeting  GRADE 8 | * Explain in detail the importance of a double circulatory system. * Explain how to make estimates of heart rate more accurate in terms of precision of data |

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| Targeting  GRADE 6 | * Describe how blood flows around the body. * Explain how the structure relates to the functions of blood vessels. | To get the next grade I must - |
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| Targeting  GRADE 8 | * Explain in detail the importance of a double circulatory system. * Explain how to make estimates of heart rate more accurate in terms of precision of data |
| B4.3 The heart | | I am targeting - |
| To get the grade I must - | |  |
| Targeting  GRADE 4 | * State the function of the heart. * Label a diagram of the heart to show some of the main structures. * State examples of heart problems. |
| Targeting  GRADE 6 | * Label a diagram of the heart to show all the main structures. * Describe heart problems and their treatments. * Summarise the advantages and disadvantages of replacing faulty valves with mechanical or biological ones. | To get the next grade I must - |
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| Targeting  GRADE 8 | * Explain the structure of the heart in detail, and how it relates to its function. * Recognise the main structures of the heart when carrying out a heart dissection. * Evaluate treatments, including the use of stents and replacement heart valves. |

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| B4.3 The heart | | I am targeting - |
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| Targeting  GRADE 6 | * Label a diagram of the heart to show all the main structures. * Describe heart problems and their treatments. * Summarise the advantages and disadvantages of replacing faulty valves with mechanical or biological ones. | To get the next grade I must - |
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| Targeting  GRADE 8 | * Explain the structure of the heart in detail, and how it relates to its function. * Recognise the main structures of the heart when carrying out a heart dissection. * Evaluate treatments, including the use of stents and replacement heart valves. |

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| B4.4 Breathing and gas exchange | | I am targeting - |
| To get the grade I must - | |  |
| Targeting  GRADE 4 | * Label a diagram of the gas exchange system to show some of the main structures. * State that gas exchange happens in the alveoli. * Use data in the form of percentages to describe the differences in the composition of inhaled and exhaled air. |
| Targeting  GRADE 6 | * Label a diagram of the gas exchange system to show all the main structures. * Describe how alveoli are adapted. * Describe the processes of ventilation and gas exchange. | To get the next grade I must - |
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| Targeting  GRADE 8 | * Evaluate in detail a model of the lungs. * Explain in detail how adaptations of alveoli result in efficient gas exchange. * Explain the differences between the composition of inhaled and exhaled air. |

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| Targeting  GRADE 4 | * Label a diagram of the gas exchange system to show some of the main structures. * State that gas exchange happens in the alveoli. * Use data in the form of percentages to describe the differences in the composition of inhaled and exhaled air. |
| Targeting  GRADE 6 | * Label a diagram of the gas exchange system to show all the main structures. * Describe how alveoli are adapted. * Describe the processes of ventilation and gas exchange. | To get the next grade I must - |
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| Targeting  GRADE 8 | * Evaluate in detail a model of the lungs. * Explain in detail how adaptations of alveoli result in efficient gas exchange. * Explain the differences between the composition of inhaled and exhaled air. |

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| B4.5 Helping the heart | | I am targeting - |
| To get the grade I must - | |  |
| Targeting  GRADE 4 | * State that heartbeat is maintained by a group of cells that act as a pacemaker. * Describe why a person may need an artificial pacemaker or an artificial heart. |
| Targeting  GRADE 6 | * Explain why an irregular heartbeat is detrimental to health. * Describe why people may have objections to heart transplants. | To get the next grade I must - |
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| Targeting  GRADE 8 | * Explain how a natural pacemaker maintains the heartbeat. * Suggest how to regulate an irregular heartbeat. * Evaluate in detail the use of artificial and donor hearts. |

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| B4.5 Helping the heart | | I am targeting - |
| To get the grade I must - | |  |
| Targeting  GRADE 4 | * State that heartbeat is maintained by a group of cells that act as a pacemaker. * Describe why a person may need an artificial pacemaker or an artificial heart. |
| Targeting  GRADE 6 | * Explain why an irregular heartbeat is detrimental to health. * Describe why people may have objections to heart transplants. | To get the next grade I must - |
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| B4.6 Tissues and organs in plants | | I am targeting - |
| To get the grade I must - | |  |
| Targeting  GRADE 4 | * Recognise examples of plant organs and state their functions. * Use a light microscope to view a cross-section of a leaf. * State the functions of different plant tissues. |
| Targeting  GRADE 6 | * Describe how plant organs are involved in the transport system. * Label a diagram of a cross-section of a leaf to show the different tissues it contains. * Explain how the structures of tissues in the leaf are related to their functions. | To get the next grade I must - |
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| Targeting  GRADE 8 | * Suggest what type of plant organs unfamiliar structures are. * Suggest functions for unknown plant tissues. * Use a light microscope to draw labelled images of a leaf cross-section. |

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| B4.6 Tissues and organs in plants | | I am targeting - |
| To get the grade I must - | |  |
| Targeting  GRADE 4 | * Recognise examples of plant organs and state their functions. * Use a light microscope to view a cross-section of a leaf. * State the functions of different plant tissues. |
| Targeting  GRADE 6 | * Describe how plant organs are involved in the transport system. * Label a diagram of a cross-section of a leaf to show the different tissues it contains. * Explain how the structures of tissues in the leaf are related to their functions. | To get the next grade I must - |
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| Targeting  GRADE 8 | * Suggest what type of plant organs unfamiliar structures are. * Suggest functions for unknown plant tissues. * Use a light microscope to draw labelled images of a leaf cross-section. |

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| B4.7 Transport systems in plants | | I am targeting - |
| To get the grade I must - | |  |
| Targeting  GRADE 4 | * State the function of xylem and phloem tissue. * Collect evidence for movement of water through xylem. |
| Targeting  GRADE 6 | * Describe why transport in plants is important. * Explain how the structure of xylem and phloem are adapted to their functions. | To get the next grade I must - |
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| Targeting  GRADE 8 | * Apply knowledge of the plant transport system to explain how systemic pesticides work and evaluate their use. * Explain in detail how the rate of transport through a plant can be measured. |

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| B4.7 Transport systems in plants | | I am targeting - |
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| Targeting  GRADE 4 | * State the function of xylem and phloem tissue. * Collect evidence for movement of water through xylem. |
| Targeting  GRADE 6 | * Describe why transport in plants is important. * Explain how the structure of xylem and phloem are adapted to their functions. | To get the next grade I must - |
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| Targeting  GRADE 8 | * Apply knowledge of the plant transport system to explain how systemic pesticides work and evaluate their use. * Explain in detail how the rate of transport through a plant can be measured. |

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| B4.8 Evaporation and transpiration | | I am targeting - |
| To get the grade I must - | |  |
| Targeting  GRADE 4 | * State that transpiration is the evaporation of water vapour from the leaves. * State the function of stomata. * Calculate the mean number of stomata on a given area of leaf. |
| Targeting  GRADE 6 | * Describe how transpiration maintains the movement of water from roots to leaves. * Describe how the opening and closing of stomata is controlled by guard cells. * Use sampling to estimate the number of stomata on a leaf. | To get the next grade I must - |
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| Targeting  GRADE 8 | * Evaluate drinking from a straw as a model of transpiration. * Explain in detail how stomata control transpiration. * Suggest reasons for differences in the number and distribution of stomata, as well as their adaptations. |

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| Targeting  GRADE 4 | * State that transpiration is the evaporation of water vapour from the leaves. * State the function of stomata. * Calculate the mean number of stomata on a given area of leaf. |
| Targeting  GRADE 6 | * Describe how transpiration maintains the movement of water from roots to leaves. * Describe how the opening and closing of stomata is controlled by guard cells. * Use sampling to estimate the number of stomata on a leaf. | To get the next grade I must - |
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| B4.9 Factors affecting transpiration | | I am targeting - |
| To get the grade I must - | |  |
| Targeting  GRADE 4 | * Recognise the factors that affect transpiration. * Describe how a potometer can be used to estimate the volume of water lost by a plant. * Identify variables when investigating rate of transpiration. |
| Targeting  GRADE 6 | * Explain why temperature, humidity, light intensity and the amount of air flow affect the rate of transpiration. * Describe the differences between a moving bubble potometer and a mass potometer * Make a prediction using scientific knowledge when investigating rate of transpiration. | To get the next grade I must - |
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| Targeting  GRADE 8 | * Summarise adaptations to control water loss and explain how they work. * Evaluate in detail the use of a potometer to measure the rate of transpiration. * Apply the particle model to explain in detail why temperature, humidity, light intensity, and the amount of air flow affect the rate of transpiration. |

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| B4.9 Factors affecting transpiration | | I am targeting - |
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| Targeting  GRADE 4 | * Recognise the factors that affect transpiration. * Describe how a potometer can be used to estimate the volume of water lost by a plant. * Identify variables when investigating rate of transpiration. |
| Targeting  GRADE 6 | * Explain why temperature, humidity, light intensity and the amount of air flow affect the rate of transpiration. * Describe the differences between a moving bubble potometer and a mass potometer * Make a prediction using scientific knowledge when investigating rate of transpiration. | To get the next grade I must - |
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