

Foundation Separate version — Higher Tier (★) questions removed.

**Q1. Explain why heart rate and breathing rate increase during exercise.**

[3 marks]

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**Q2. A sprinter finishes a 100m race and continues breathing heavily for several minutes. Explain this using the term oxygen debt.**

[3 marks]

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**Total: 6 marks**

**Q1 (3 marks)**

*Explain why heart rate and breathing rate increase during exercise.*

- Muscles need more O<sub>2</sub> for increased aerobic respiration [1]
- More CO<sub>2</sub> is produced as a waste product of respiration — must be removed [1]
- Increased heart rate and breathing rate deliver more O<sub>2</sub> and remove CO<sub>2</sub> more quickly [1]

**Q2 (3 marks)**

*A sprinter finishes a 100m race and continues breathing heavily for several minutes. Expla...*

- During sprint, muscles switched to anaerobic respiration — lactic acid accumulated [1]
- Extra oxygen needed after the race to break down lactic acid (convert to glucose in liver) [1]
- This extra O<sub>2</sub> requirement = oxygen debt; continued heavy breathing supplies the extra O<sub>2</sub> [1]