**Year 11**

**ATAR**

**Human Biology**

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| Name: |
| Teacher: |

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| **Task 1: Heart Rate Investigation Validation Test** | | | Weighting 5% |
|  | Marks Received | Marks Available | Percentage |
| Total |  | 30 |  |

Time Allocated:

Reading time: 5 minutes

Working time: 35 minutes

HEART RATE INVESTIGATION TEST

1. Write a hypothesis for your investigation. (2 marks)

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2. For your investigation give; (3 marks)

The independent variable\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

The dependent variable \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

3 controlled variables \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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3. What is a control? Why is it necessary? (2 marks) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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4. What is the control in your experiment? (1 mark)

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5. Describe two things in your investigation that you think might have made it invalid.

Explain how you could improve each of these. (4 marks)

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6. Do you think your experiment was reliable? Explain. (1 mark)

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7. List two ways you could make it more reliable? (2 marks)

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8. Name the title and authors of previous research on your topic? (4 mark)

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9. Describe your results and use correct scientific terminology to explain why you think these results occurred.

(5 marks)

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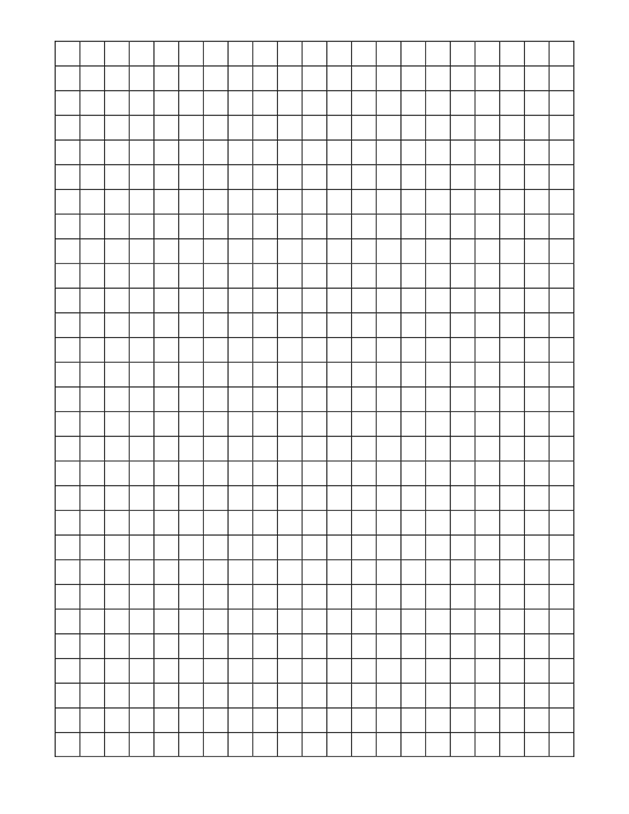
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Question 10 and 11 refer to the information in the table below.

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| Student | Heart Rate (BPM) | | | | |
| 1 min of Exercise | 2 min of Exercise | 3 min of Exercise | 4 min of Exercise | 5 min of Exercise |
| 1 | 88 | 98 | 103 | 110 | 125 |
| 2 | 92 | 96 | 105 | 115 | 123 |
| 3 | 87 | 100 | 109 | 112 | 123 |
| 4 | 93 | 109 | 114 | 120 | 130 |
| 5 | 90 | 101 | 111 | 119 | 122 |
| 6 | 93 | 108 | 116 | 124 | 135 |
| 7 | 87 | 99 | 104 | 109 | 120 |
| 8 | 91 | 106 | 110 | 116 | 127 |
| 9 | 91 | 107 | 112 | 119 | 128 |
| 10 | 88 | 94 | 102 | 110 | 114 |
| Average | 90 | 101.8 | 108.6 | 115.4 | 124.7 |

10. Draw a graph on the paper provided (on the next page) showing the relationship between the average heart rate and exercise duration. (5 marks)

11. What conclusion could you draw from the graph?

(1 mark)

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