**Breathing rate and exercise – Validation Test**

**Marks Available: /34**

1. What variable were you measuring (dependent variable)? Include the unit you used. (2 marks)

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1. Give two variables that you kept the same during this experiment. (1 mark)

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1. Describe two safety risks that you identified in your investigation. In your response, describe how you overcame this issue. (4 marks)

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| --- | --- |
| Safety issue | Minimised by: |
|  |  |
|  |  |

A student conducted a similar investigation. They looked at their heart rates (beats per minute, bpm) after exercising. Unfortunately, they did not understand the value of a good data table, and so they recorded their data below.

*Just before going for a run, two students measured their resting heart rate. Student A recorded a heart rate of 57 bpm while Student B recorded a heart rate of 58 bpm.*

*After the run, for the 1st reading, Subject A was at 100bpm, Student B was recorded 95 bpm.*

*The next time they checked their heart rate, both students recorded 82 bpm.*

*They recorded their heart rate every minute for 10 minutes after going for a run.*

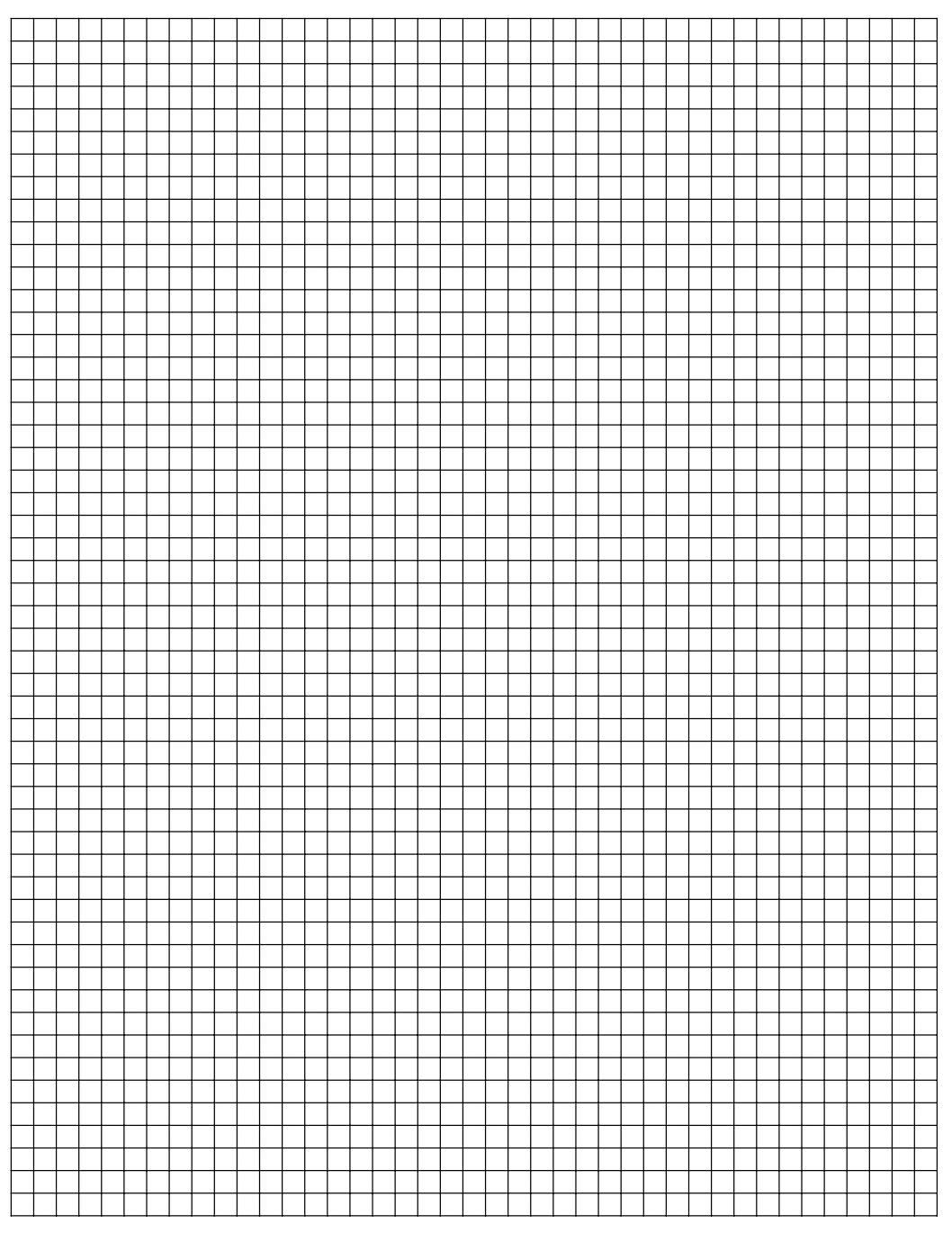
*At 5 minutes, they both had a heart rate of 60 bpm.*

*Their heart rate did not change after 5 minutes.*

*Minute 4 = Student A was 64, B = 65*

*Student A = 68, Student B = 70 @ 3 minutes*

1. Construct a table below to display this information. (7 marks)
2. On the grid below, draw a **line** graph using Student A’s data from the table. (6 marks)



1. Referring to your graph, describe what happened to the heart rate after exercise for Student A. Use two pieces of evidence from your graph to support your answer. (3 marks)

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1. During your experiment, you would have been asked to calculate an average heart rate. Find the average of the numbers given below. Show your working. (2 marks)

17 15 18 15 13 15 18 17

1. Explain how the circulatory and respiratory systems work together to supply the cells of the body with oxygen during exercise. (6 marks)

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1. Predict what would happen to your breathing rate after 3 minutes of exercise. Explain your answer. (3 marks)

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