**Measuring your pulse rate**

Here is a list of facts about your body:

* The heart pumps blood around your body.
* The blood transports oxygen to the muscles.
* The harder your muscles work the more oxygen they need.
* Your heart beats faster when your body needs more oxygen.

Using this information place the following activities into a logical order:

Running a 400 m race <> Standing at a bus stop <> Taking your dog for a walk <> Sitting quietly

Explain why you have put them in this order ………………………………………………………………………………………………………..

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Your pulse is due to the heart beating and causing the blood to surge through the blood vessels called arteries. The pulse can be felt at key points just below the surface of the skin. The pulses can be counted so that the *heart / pulse rate* can be determined as “beats per minute”.

There are different ways of measuring your pulse. Your teacher will explain how you should do this.

You need to think about how you will obtain *reliable measurements*. How long will you measure your pulse for? Do you need to repeat measurements? If so, how many times? What will you do about “odd” measurements? How will you analyse the data?

**Activity**

By now, you will have been sitting quietly for several minutes. You will measure your pulse rate whilst continuing to do so. Then you will stand up, but remain still, and measure your pulse again. Finally, you will measure your pulse as you walk quietly around the room. [There may be time for you to obtain extra measurements whilst doing a more demanding activity]

Record your measurements in the outline table below. You will need to add information at the top of each column. You may prefer to record data in rough before attempting to complete this table.

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Describe any patterns in your own data :

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**Follow-up work**

Charlie and Bruce measure their pulse rates just before they run a 100m race and then for several minutes after the race. They then write down their pulse rates, in beats per minute, in the table below. Study the data carefully.

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Time (minutes) | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| Pulse rate – Charlie | 69 | 70 | 69 | 135 | 129 | 120 | 100 | 89 | 81 | 75 | 71 |
| Pulse rate – Bruce | 73 | 71 | 72 | 121 | 95 | 87 | 80 | 72 | 71 | 73 | 72 |

Plot these results as a *line graph*. Use the same axes for the two sets of data, which will make it easier for you to compare the heart rates of the two boys. [6]

**Questions**

**1.** What was the *resting heart rate* for each boy? …..………………………………………………….……………….……..……….

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**2.** Suggest the time when the race was run? ………………………..……………………………………………….……………………. [1]

**3.**  Whose heart rate increased the most? ……………………………………………………………………………..……………………. [1]

**4.** Which boy is the fittest? Explain how you can tell. …………………………………………………………………………………….

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**Total marks = / 15**