I’ve got the power

What happens to my heart rate and blood pressure when I exercise?

What happens to the heart rate and blood pressure following exercise? Write a prediction and plan how you can collect data to test your prediction.

________________________________________________________________________
________________________________________________________________________
________________________________________________________________________

Obtaining the evidence

1 Practise using the blood pressure monitor. One person will have their blood pressure measured and another will need to operate the blood pressure monitor. The person having their blood pressure measured needs to be comfortably seated and relaxed. Their left arm should be resting on a table/lab bench and their shirt sleeve should be rolled up so the cuff can be fitted around the arm, fairly tightly, just above the elbow. The air hose should be positioned in the crook of their arm, slightly towards the body.

2 Connect the air pipe to the monitor and press the start button.

3 When the symbol starts to flash and you hear the buzzer start to inflate the cuff by squeezing the rubber bulb. The cuff will feel very tight. Do not overinflate the cuff.

4 When the symbol disappears from the screen, stop squeezing the bulb.

5 The cuff automatically deflates slowly while the measurement is in progress and the buzzer sounds and the heart symbol blinks with each pulse beat.

6 When the measurement is complete the buzzer sounds and your systolic blood pressure, diastolic blood pressure, and pulse rate will be displayed.

7 Record the measurements shown on the blood pressure monitor in the table on the next sheet. It is important not to measure your blood pressure more often than at five minute intervals, so wait three minutes between having your blood pressure measured and starting the star jumps.
8 Now do your star jumps, working as hard as you can, for exactly 2 minutes.

9 Immediately after you have stopped, sit down and your partner should use the monitor to measure your blood pressure and pulse rate. Record them in the table.

10 Use the pulse oximeter to measure your pulse rate every minute until it has returned to your resting level. Take the blood pressure measurement every 5 minutes and try to estimate how long it takes for this to return to your resting blood pressure.

11 Now do your press-up activity for 1 minute or as long as you can manage. Press-ups should be done on your knees making sure you bend your arms at the elbow. Get your partner to place their hand on the floor, edge on; your shoulder should touch their hand during each press-up.

12 Repeat stages 9 and 10.

13 Press the exhaust valve button to completely release the air from the cuff and switch off the monitor.

**Presenting your results**

Blood pressure should be written as the systolic pressure over the diastolic pressure, e.g. 140/90 mmHg.

My resting blood pressure is __________ mmHg.

My resting heart rate is _____________ beats per minute (bpm).

My first exercise was (e.g. star jumps) ________________________________ .

My second exercise was (e.g. press-ups) ________________________________ .
<table>
<thead>
<tr>
<th>Time after exercise (minutes)</th>
<th>First exercise</th>
<th>Second exercise</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Blood pressure (mmHg)</td>
<td>Pulse (heart) rate (bpm)</td>
</tr>
<tr>
<td>0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note, you will only be measuring blood pressure immediately after exercise and then every fifth minute. You may need to add extra rows for recording pulse rate, depending on the time taken for pulse rate to recover.