I’ve got the power

What does being fit mean?

**Prediction**
Discuss what is meant by fitness and how might we measure it.

Write a prediction about how exercise will affect pulse rate and arterial (blood) oxygen saturation level.

________________________________________________________________________
________________________________________________________________________
________________________________________________________________________

**Obtaining evidence using the step test**
In this experiment you will estimate your fitness level by measuring your heart rate and arterial oxygen saturation levels before and after aerobic exercise.

Using a stadiometer or tape measure, record your sitting and standing height.

**Measuring standing and sitting height.**

1. Sit down and relax. Place the pulse oximeter on your finger and switch it on. Wait for at least 10 seconds before taking any readings.
2. Measure your resting pulse rate (heart rate) and record it in beats per minute. Repeat twice more and find your mean resting pulse rate.
3. Record your resting arterial (blood) oxygen saturation level. Remove the pulse oximeter.
4. Step up onto the stool/box/stair as follows:
   - step up with one foot
   - place both feet on the stool
   - step down with the first foot
   - place both feet on the floor.

Performing the step-up exercise.

Each cycle begins and ends with both feet on the floor. Practise the pace so that you complete one cycle in about 2 seconds, i.e. 30 steps/minute. Establish the rhythm, then stop and rest for a minute. This was your warm-up.
5 Now step on and off the step at the pace you have practised for 5 minutes without stopping or until you are so fatigued you cannot maintain the pace of 30 steps per minute. Sit on a chair at the end of the task.

6 Immediately after you end the stepping task, place the pulse oximeter back on your finger and record the result for pulse rate and arterial (blood) oxygen saturation level.

7 After finishing the exercise, rest for 1 minute and then take your pulse rate. At the same time, record your arterial oxygen saturation level.

8 Repeat this 2 and 3 minutes after exercise.

9 Enter your results in the table below. You will use these in Lesson 3 to estimate your fitness level using your heart rate measurements and measurements of your cardiovascular system’s recovery from exercise, and to estimate your rate of oxygen consumption during exercise.

Presenting your results

Complete the table below to show your results. Also record your standing and sitting height.

Standing height ___________
Sitting height ___________

<table>
<thead>
<tr>
<th>Time after exercise (minutes)</th>
<th>Pulse rate (beats per minute)</th>
<th>Oxygen saturation level (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td></td>
<td></td>
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<tr>
<td>1</td>
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<tr>
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<td>3</td>
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