

## Science Skills Year 8 booklet: 2

### Exercise and respiration

Task 1 deadline (self-assessed):

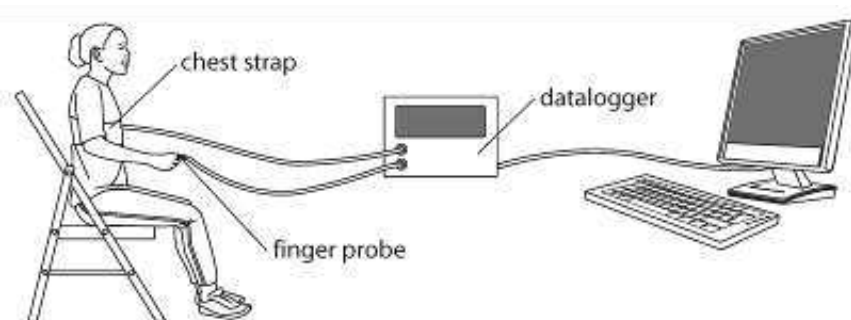
Task 2 deadline (peer-assessed):

Task 3 deadline (teacher-assessed):

The tasks in this booklet relate to the investigation below. Read the following information before attempting any of the tasks.

**How quickly do your pulse and breathing rates return to normal after exercise?**

How quickly your pulse and breathing rates return to normal after exercise gives a measure of how fit your heart and lungs are. The quicker the rates return to normal the more stamina you have.



#### Apparatus

- stopclock
- pulse sensor and finger probe (optional)

#### Method

- Sit still and measure your resting pulse rate (in beats per minute) and resting breathing rate (in breaths per minute). One breath is when you breathe in and out again. You can do this by counting. Write down these rates.
- Do star jumps continuously for 1 minute.
- As soon as you have finished your exercise measure your breathing rate for 30 seconds while your partner measures your pulse rate. Multiply each reading by 2 to get your results in beats or breaths per minute.
- Continue measuring your pulse and breathing rates every other minute for 6 minutes. Remember to record all your results.

## Task 1

*Everyone to do-* Match the key terms to the definitions:

Respiration	An electronic device that records data
Pulse rate	The ability to sustain prolonged physical or mental effort
Heart rate	The number of breaths per minute
Data logger	The number of contractions of the heart per minute
Stamina	A process in living organisms involving the production of energy, typically with the intake of oxygen and the release of carbon dioxide

**Green:** you will be tested on the spelling of the five key terms

**Amber:** you will be tested on the spelling and the definition of the key terms

**Red:** you will be tested on the spelling and definition of the key terms. You will also need to put each into a sentence

**Killer:** you will be asked for synonyms for the key terms (if there are any!)

## Task 2

Time after finishing exercise (min)	Pulse rate (beats per minute)	Breathing rate (breaths per minute)
0	125	26
2	118	23
4	104	20
6	89	17
8	60	14
10	60	14

### Green:

How many minutes did it take for your pulse and breathing rates to return to normal after exercise?

Pulse rate took \_\_\_\_\_ minutes.

Breathing rate took \_\_\_\_\_ minutes.

Peer assessment:

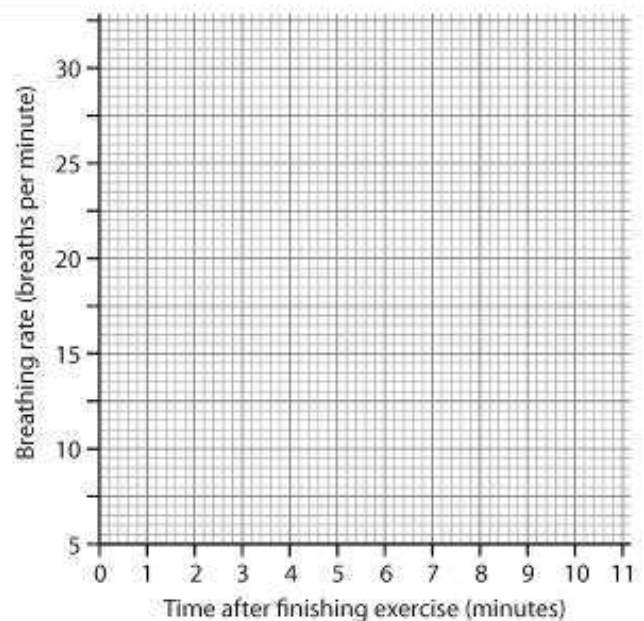
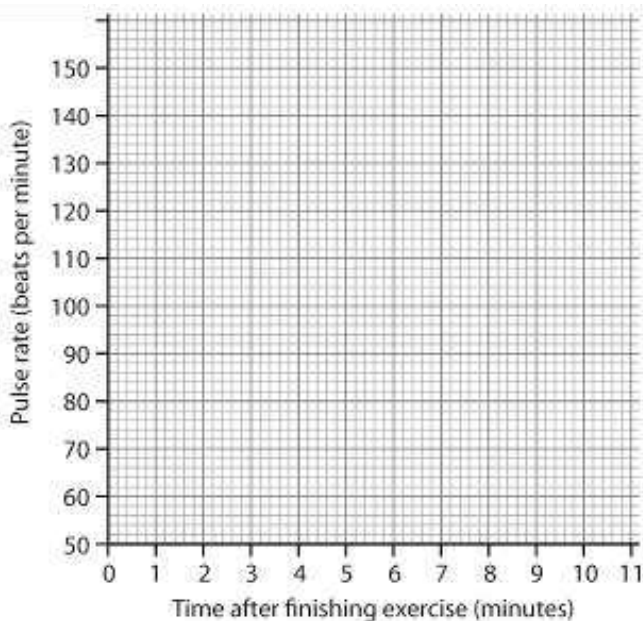
STAR:

STAR:

WISH:

### Amber:

Use the table above to plot a line graph for each set of results on these axes



Peer assessment:

STAR:

STAR:

WISH:

**Red:**

In more than 50 words evaluate the method used in this experiment, and suggest improvements and alterations in order to improve validity and reliability.

Peer assessment:

STAR:

STAR:

WISH:

### **Task 3: Complete on an A4 sheet**

The most damaging components of tobacco smoke are; Tar, Carbon Monoxide and Hydrogen cyanide.

**Green:**

Research what nicotine does to the body, and the affect it has on pulse rate and breathing rates.

**Amber:**

Suggest a way a person's fitness could be elevated and a method in which you could assess and determine if it had been successful.

**Red:**

Construct an argument against smoking. Your argument should include the health risks associated with smoking. Including the affect carbon monoxide has on the red bloods cell particularly during exercise.

Teacher assessment:

A2L = 1	Work is thorough, you have picked challenging tasks and have shown effort and understanding.
A2L = 2	Work has detail in most places, you have picked relevant tasks and have shown effort.
A2L = 3	Work lacks detail, there are some errors and shows some lack of preparation/understanding.
A2L = 4	Work is incomplete, there are errors throughout and a clear lack of preparation/understanding.

Teacher comment: