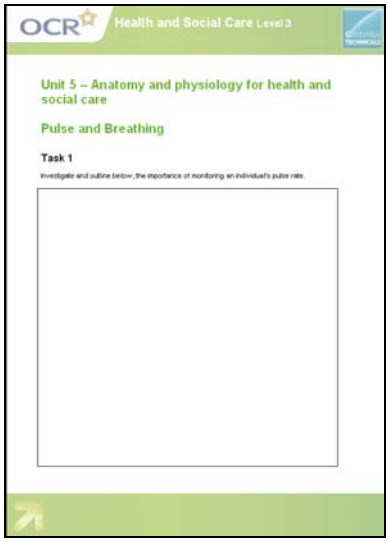
Unit 5 – Anatomy and physiology for health and social care

Pulse and Breathing

Instructions and answers for Teachers

These instructions should accompany the OCR resource 'Pulse and Breathing', which supports the Cambridge Technicals in Health and Social Care Level 3 Unit 5 – Anatomy and physiology for health and social care.



Associated Files:
Pulse and Breathing

Expected Duration:
Task 1 – approx 30minutes
Task 2 – approx 30 minutes
Task 3 – approx one hour
Task 4 – approx one hour

Task 1

1 Investigate and outline below, the importance of monitoring an individual's pulse rate.

Your pulse rate is the rate at which your heart beats. Often your pulse rate is referred to as your heart rate. This is measured by counting your heart beats per minute (bpm). In addition, medical professionals will also monitor the rhythm, strength of the heart beat and whether the blood vessel feels hard or soft. Changes in your heart rate or rhythm, a weak pulse, or a hard blood vessel may be caused by heart disease or another problem. Counting your pulse rate is a simple way to find out how fast your heart is beating.

Pulse rates are taken to:

- See how well the heart is working. In an emergency situation, your pulse rate can help find out if the heart is pumping enough blood.
- Help find the cause of symptoms, such as an irregular or rapid heartbeat (palpitations), dizziness, fainting, chest pain, or shortness of breath.
- Check for blood flow after an injury or when a blood vessel may be blocked.
- Check on medicines or diseases that cause a slow heart rate. Your doctor may ask you to check your pulse every day if you have heart disease or if you are taking certain medicines that can slow your heart rate, such as digoxin or beta-blockers (like propranolol or atenolol).
- Check your general health and fitness level. Checking your pulse rate at rest, during exercise, or immediately after vigorous exercise can give you important information about your overall fitness level.

http://www.webmd.com/heart-disease/pulse-measurement

Task 2

2 Investigate and outline below, the importance of monitoring an individual's breathing (respiratory) rate.

This refers to the measurement of breaths taken within a given set of time, usually 60 seconds.

Respiration rates and changes in respiration rates have quite often been linked to major physiological instability and can be used as an indicator of ill-health. Regular documentation of respiratory rates may assist practitioners to identify changes in a patient's health that may lead to cardiac arrest. For example, a respiratory rate of greater than 24 breaths per minute is able to identify approximately 50% of patients at risk of serious adverse events with 95% specificity.

Although the main function of the respiratory system is gas exchange, a broad range of factors can affect ventilation. As, the respiratory systems function can be influenced by changes that may occur in a variety of organs such as the nervous system, the cardiovascular system, the respiratory system, and the excretory system. Therefore making the respiratory rate a broad indicator of imbalance in these systems.

http://www.kaimedical.com/en/irrm.php?kmp=co

Task 3

3 Working in groups, follow the instructions below to measure the breathing rate of at least three other people (volunteers) in your group.

You will need a stop-watch or a watch that can act like a stop-watch.

- Tell the volunteers that you are going to count the number of times they breathe on six different occasions as outlined in the table below
- Tell them that you will say 'GO' when test starts.
- At the same time you say 'GO' start the stop-watch. Count the number of times they breathe in.
- Say 'STOP' after the period outlined in the table below.
- This will be their breathing rate.
- Record your findings in the table below.

http://wiki.answers.com/Q/How_do_you_measure_your_breathing_rate#ixzz1jF1k4wMK

	Person 1	**Person 2**	**Person 3**
Breathing rate while resting for one minute			
Breathing rate after one minute of exercise			
Breathing rate after 2 minutes of exercise			
Breathing rate after 3 minutes of exercise			
Breathing rate 2 minutes after exercise			
Breathing rate 5 minutes after exercise			

4 Plot the data you have recorded in the table above, into a graph. Use a different colour for each person.

5 Write a report in which you explain any differences between the three people's breathing rates.

Task 4

6 Taking a pulse

Many illnesses can make a person's heart rate increase. A pulse can be taken on your wrist, neck or upper arm. Working in groups, follow the instructions below to measure the pulse rate of at least three other people (volunteers) in your group.

- Your volunteer should sit still and rest quietly for five to 10 minutes.
- Place two fingers gently against their wrist below the palm of their hand. If a pulse is hard to feel in their wrist, find their carotid artery in the neck, which is located to either side of the windpipe. Press gently.
- Count the beats for 30 seconds and then double it to determine beats per minute.

A normal resting pulse for:

- Infant to one year old is 100 to 160 BPM.
- One to six year olds is 65 to 140 BPM.
- Seven to 10 years old is 60 to 110 BPM.
- Eleven to adult age is 50 and 100 BPM.

http://www.ehow.com/how_5049189_persons-pulse.html#ixzz1jF46Ijh9

	Person 1	Person 2	Person 3
Pulse rate while resting			
Pulse rate after 1 minute of exercise			
Pulse rate after 2 minutes of exercise			
Pulse rate after 3 minutes of exercise			
Pulse rate 2 minutes after exercise			
Pulse rate 5 minutes after exercise			

7 Plot the data you have recorded in the table above, into a graph. Use a different colour for each person.

8 Write a report in which you explain any differences between the three people's pulse rates.

These activities offer an opportunity for English and Maths skills development.