



CLAREMONT HIGH SCHOOL ACADEMY

Physical Education

Year 9 Theory Curriculum 2015-16

This year students will be given a final end of year grade which will be based on 3 areas:

- Presentation of TWO pieces of written coursework throughout the year
- Practical abilities (their end of year level)
- Performance in an end of year written exam (1 hour paper)

	Practical Weighting	Theory Weighting	Coursework Weighting
Year 9	30%	50%	20%

End of year practical level converted to practical grade

Level	Year 9
9A	100%
9B	80%
9C	65%
9D	55%
9E	40%

This booklet will outline details of information to be delivered through practical lessons throughout the year. The end of year exam will be made up from the following content.

1. Benefits of PE

Pupils should be able to identify the following benefits of exercise/PE.

Benefits of Exercise / PE	
Increase fitness	PE and exercise can increase fitness. Muscles can be strengthened and we can lose weight.
Feel good	Exercise releases serotonin which makes us feel good
Relieve stress	PE and exercise can distract us from other problems and can relieve stress caused by school or home life.
Increase confidence	Overcoming physical challenges can make us feel good about ourselves. Also if we exercise we can lose weight and gain muscle and look good – this can also improve our self-confidence.
Improve health	The fitter we are the better we are at coping with illnesses.
Enjoyment	Most people who do physical education do so because they enjoy it and it's fun!

2. Components of fitness

'Fitness' is made up of 11 different components.

You do not need to be good in all components to be regarded as fit, it depends on the individual and the activity. *For example*, Usain Bolt has excellent **speed** and **muscular strength** but poor **cardiovascular endurance** and **agility**. This is because he only needs to run in a straight line for a short amount of time.



Pupils will need to be able to recognise that different components of fitness are required for different activities. They should also be familiar with the definitions of each component.

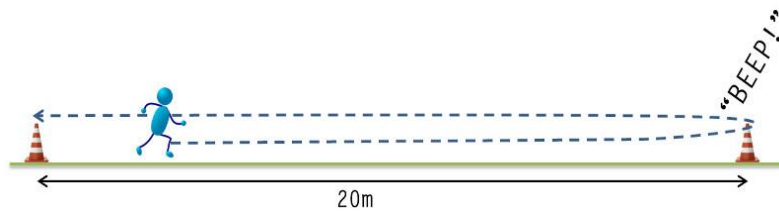
Components of fitness	
Cardiovascular fitness	The ability to exercise the whole body for a long period of time.
Muscular Endurance	The ability to use the muscles many times without getting tired.
Muscular Strength	The amount of force a muscle can exert against a resistance.
Flexibility	The range of movement possible at a joint.
Body Composition	The percentage of body weight which is fat, muscle and bone.
Agility	Changing direction quickly whilst maintaining control.
Balance	The ability to retain the centre of mass of the body above the base of support whilst either moving (dynamic balance) or stationary (static balance).
Coordination	The ability to use two or more body parts together.
Speed	How fast an action is completed.
Reaction time	The time between the presentation of a stimulus and the onset of movement.
Power	The ability to undertake strength performances quickly. Power = Strength x Speed

3. Fitness Testing

Pupils should be aware of various **fitness tests** which assess your ability in the following components of fitness.

Component: Cardiovascular Endurance	Test: Bleep Test / 12 Minute Run
--	---

- The 12 minute run involves participants running as far as possible in 12 minutes.
- The Bleep Test involves running a length of 20m in time with a series of beeps. The time between the beeps gets smaller as the levels increase, participants therefore have to continually increase their running speed.



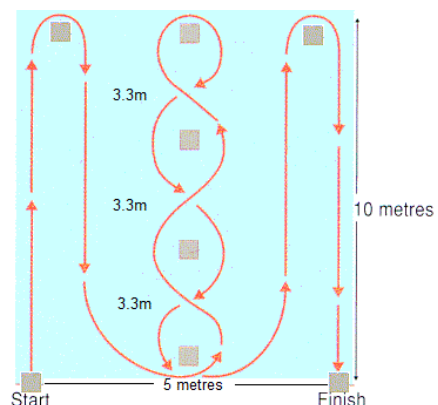
Component: Flexibility	Test: Sit and Reach Test
-------------------------------	---------------------------------

This test measures the flexibility of the hamstrings. The test is to see how far past your toes you can reach. Somebody who can't reach their toes scores a minus total. If you reach your toes you score zero, which is average.



Component: Agility	Test: Illinois Agility Run
---------------------------	-----------------------------------

A course is set up (see diagram) and participants are required to run around and change direction on numerous occasions. The run is timed and the aim is to complete the test as quickly as possible.



Component: **Power**

Test: **Standing Broad Jump**

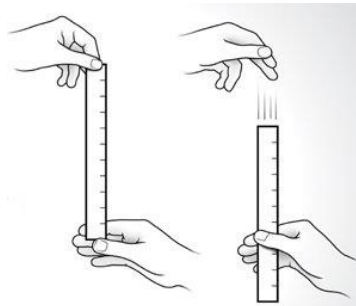
From a standing position, how far can you jump?



Component: **Reaction Time**

Test: **Ruler Drop Test**

Your partner holds a ruler. Place your thumb and forefinger of your preferred hand at the 0cm mark. Your partner decides when to release the ruler and you must catch the ruler between your thumb and forefinger as quickly as possible. Measure the distance it took to catch the ruler.



Component: **Speed**

Test: **30m Sprint**

Run as fast as you can over 30m. A partner needs to record your time.



4. Methods of Training

There are a number of training methods which can be used to improve fitness. Each is designed for a specific purpose, to improve a specific aspect of fitness, and therefore each suits different sports and activities.

<p>Continuous Training</p>	<ul style="list-style-type: none"> • Steady training with no rests • Lower intensity • Can improve Cardiovascular Fitness • Aerobic activity • Good for developing basic fitness levels, but not very appropriate for games/sports which involve short bursts of energy (football, netball etc)
<p>Circuit Training</p>	<ul style="list-style-type: none"> • Involves a number of exercises one after the other • Each exercise area is known as a 'station' • Can monitor the amount of repetitions completed • High intensity • Develops general fitness – works both muscles and cardiovascular system
<p>Interval Training</p>	<ul style="list-style-type: none"> • High intensity periods of work followed by periods of rest • Anaerobic activity • Very appropriate for games/sports which involve short bursts of energy (football, netball etc)
<p>Fartlek Training</p>	<ul style="list-style-type: none"> • Swedish for 'Speed Play' • Similar to interval training • Takes place over different types of ground, can include hills and varies speed • Very appropriate for games/sports which involve short bursts of energy (football, netball etc)
<p>Weight Training</p>	<ul style="list-style-type: none"> • Uses resistance to improve muscular strength and muscular endurance • Will increase the size of muscles • Lifting heavy weights with low repetitions will increase muscular strength • Lifting lighter weights with high repetitions will increase muscular endurance
<p>Cross Training</p>	<ul style="list-style-type: none"> • Cross training is a mixture of training • Somebody who trains 4 times a week could vary the types of training they do on each day • For example, weight training one day, continuous training the next etc. • The variety of training can make training programme more interesting
<p>Plyometrics</p>	<ul style="list-style-type: none"> • Plyometrics are exercises in which muscles exert maximum force in short intervals of time • The aim is to increase explosiveness – increasing strength and speed (power) • For example, a high jumper will want to improve the power in their legs to improve their jump. • Plyometric exercises include hopping and jumping

Year 9 Pupils should know the difference between aerobic and anaerobic activities

Aerobic activities

These are activities of **low intensity** and **long duration**. Because the demand for energy is not that great and is steady, the body is able to convert the oxygen it breathes into energy.

e.g. Jogging (12 minute run)



Anaerobic activities

These are activities of **high intensity** and **short duration**. Because the demand for energy is very large and instant, the body is unable to convert the oxygen it breathes into energy quickly enough. So it relies on energy already stored in the body. This stored energy comes from the carbohydrates we eat in food.

Anaerobic activities produce **lactic acid** – this is why muscles get sore and we get cramp.

e.g. Sprinting, throwing, kicking

A **cool down** (low intensity aerobic activity and stretching) can help flush out lactic acid so muscles are not as sore afterwards.



5. The Exercise Session

A warm up is essential before any physical activity. A warm up should be made up of **three** phases:

Phases of Warm Up	
Phase 1 – Pulse raiser	Any low intensity exercise (doesn't have to be running) which gets our heart rate up, leaves us a little out of breath with perhaps the onset of sweat.
Phase 2 – Stretching	Warm up stretches should be held for 8-12 seconds
Phase 3 – Specific Skills Practice	This should include practicing skills specific for your activity. Eg. Netballers practicing passing and cricketers practicing catching and throwing.

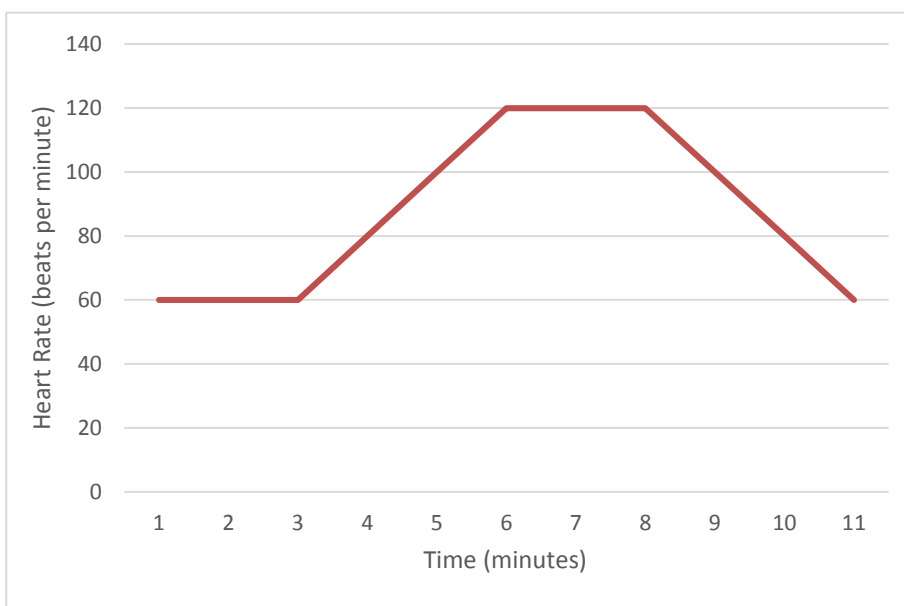
Year 9 pupils should be aware of the following three **reasons** for taking part in a warm up

1. Prevent injury
2. Practice skills before the event/game
3. Prepare mentally for the event/game

Heart Rate and Exercise

- Heart rate is the number of times the heart beats per minute (BPM)
- When we exercise our muscles need more oxygen/energy, so our heart rate increases to pump more blood (oxygen) to the muscles.

You will be asked to interpret a heart rate graph. For example:



- The subject's resting heart rate is 60bpm
- After 3 minutes they begin exercising. Their HR goes up to 120bpm
- HR remains steady for 2 minutes, suggesting that they are training at a constant intensity
- Their training session finishes after 8 minutes and HR begins to decrease. It takes 3 minutes for HR to return to resting levels.

Training Zone is the level of intensity required for improvements of fitness to occur. To get fitter you must be in your training zone.

Training Zone = 60-80% of maximum heart rate

Maximum Heart Rate = 220 - age

Therefore, a student in Year 9 who is 15 years old has a maximum heart rate of $220 - 15 = 205$ bpm

Their training zone is 60-80% of 205

The lower threshold of their training zone is **123bpm**

The upper threshold of their training zone is **164bpm**

So for a student in Year 9 to improve fitness, their working heart rate must go above 123 bpm, but stay below 164bpm.

6. The Cardiovascular System

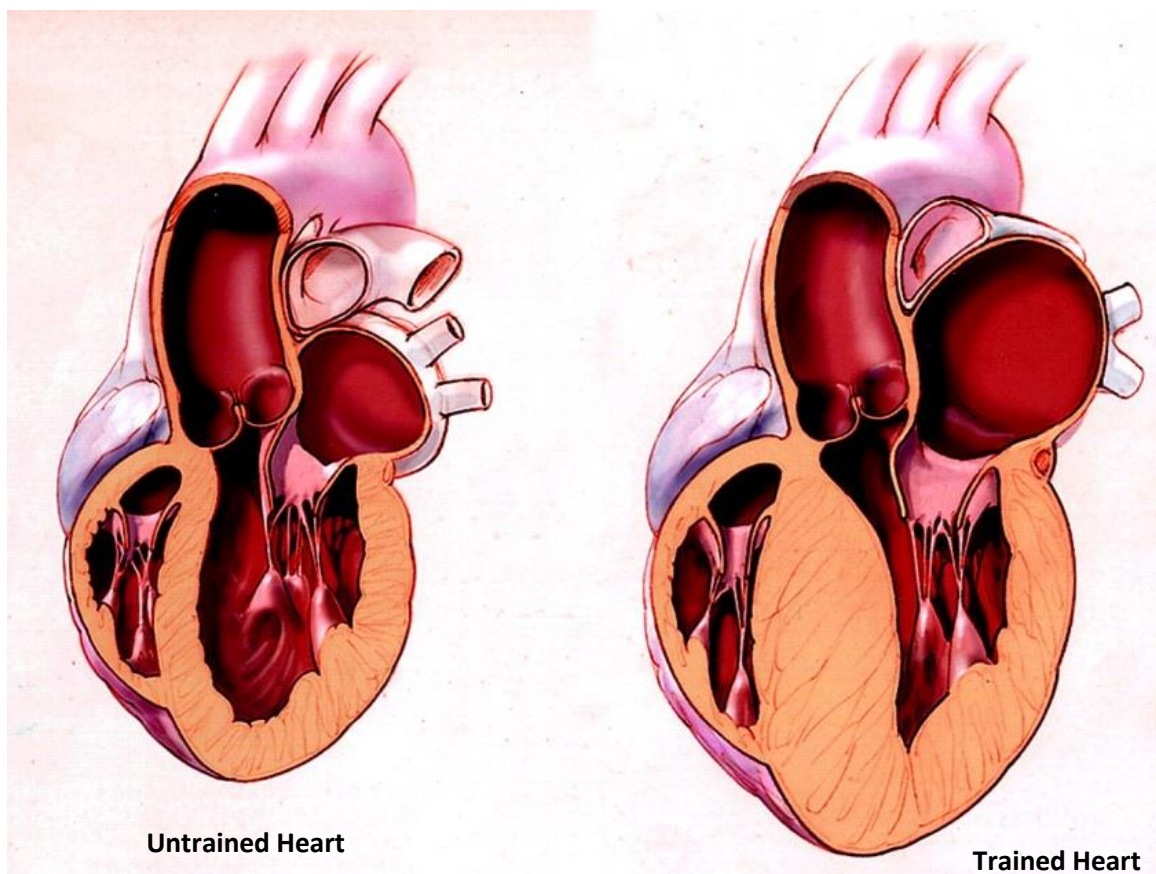
Effects of exercise

The heart is a muscle, which like all other muscles, gets bigger the more you use it (imagine going to the gym and doing bicep curls, after time your biceps get bigger). If your heart gets bigger it can pump more blood with every contraction. If the heart can pump more blood with every beat, then it doesn't need to beat as many times to pump the same amount of blood. Therefore resting heart rate decreases.

Elite athletes have much lower resting heart rates than us, because of this reason.

The average resting heart rate is 66 to 72 bpm. A well-trained endurance athlete has a resting heart rate of roughly 40 bpm.

Miguel Indurain, a five-time Tour de France winner and Olympic gold medalist in 1996, recorded a resting heart rate of 28 bpm!!

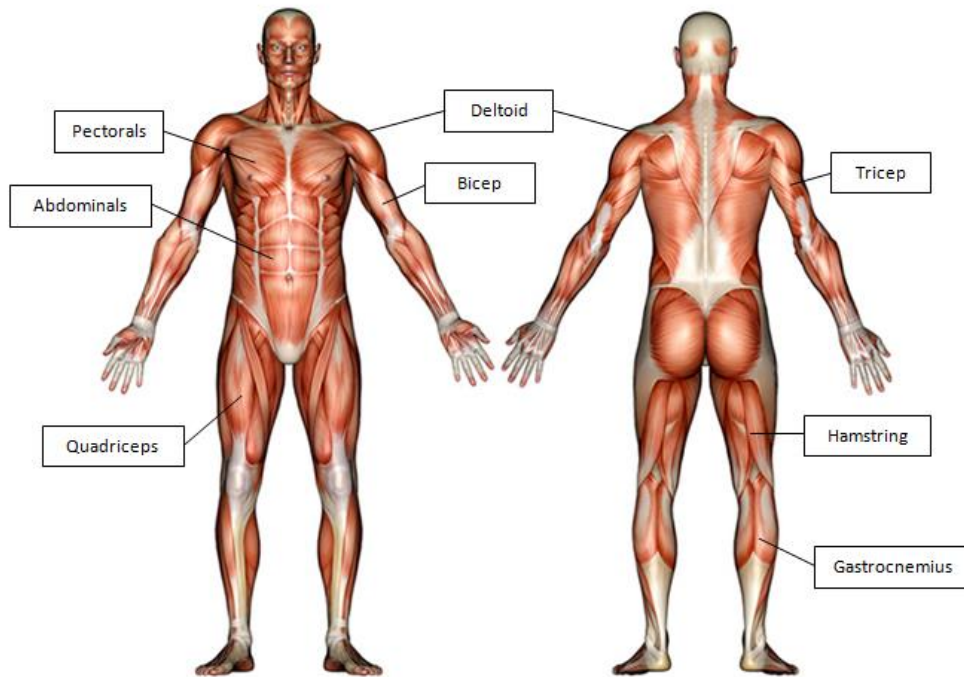


When the heart gets bigger and stronger as a result of regular exercise, it is called **Cardiac Hypertrophy**

7. Muscles

Year 9 pupils are required to know the name of all the major muscles labelled below.

Spelling is important!

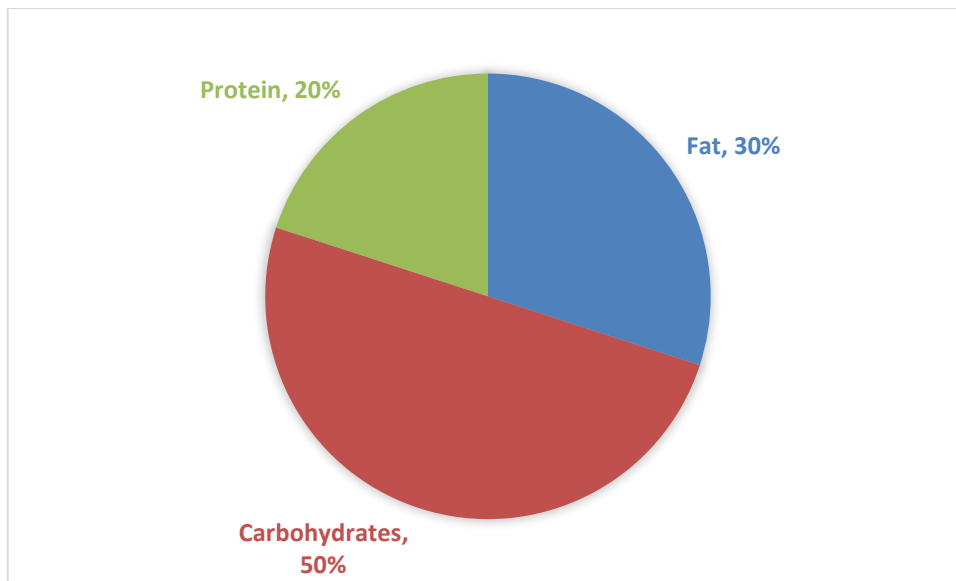


7. A Balanced Diet

A balanced diet is made up of **7 nutrients**. The 3 nutrients which make up most of your diet are called **Macronutrients**, the others are **Micronutrients**

Nutrient	Function
Carbohydrate	<p>A macronutrient which is important as it gives us energy. Carbohydrates are stored in the body as glycogen which is converted to energy when we need it.</p> <p>Examples: Pasta, Potatoes, Bread</p>
Fat	<p>A macronutrient which also gives us energy if our carbohydrate (glycogen) stores run out. Fat can also insulate our bodies and keep us warm.</p> <p>Examples: Butter, Cheese, Bacon, Cooking Oil</p>
Protein	<p>A macronutrient which is important to help build and repair muscles. It helps us to build bigger and stronger muscles and can also help us recover from injury.</p> <p>Examples: Meat, Poultry, Fish, Dairy Products</p>
Vitamins	<p>A micronutrient which is essential for general health. They are necessary for good skin, vision and healing.</p> <p>Examples: Vitamin C helps fight infections, found in fruit and vegetables.</p>
Minerals	<p>A micronutrient which is essential for general health.</p> <p>Examples: Calcium helps us grow and develop strong bones. Iron is essential for our blood to be able to carry oxygen.</p>
Fibre	<p>A micronutrient which helps us digest food.</p> <p>Examples: Wholegrain Cereal, Oats, fruit.</p>
Water	<p>A micronutrient essential for transporting nutrients and waste products. It prevents dehydration. Athletes need to drink more water because they lose a lot through sweat.</p>

Macronutrients make up the bulk of our diet, and should be eaten in the following proportion:



Athletes that need to be bigger and stronger for their sport will eat more protein. For example, sprinters and weight lifters.



Before a big event which will require lots of energy, such as a Marathon, athletes will often eat more carbohydrates. The body will then store more and energy will be available for longer.

This process is called **carbo-loading**.



8. Body Shapes (Somatotypes)

Bodies come in all shapes and sizes but can be grouped into three basic types, called somatotypes.

- Endomorph
- Mesomorph
- Ectomorph

Endomorph: an individual with wide hips and narrow shoulders. Characterised by having excess body fat.

Endomorphs are often grouped in sports that depend on power, for example forwards in rugby and sumo wrestlers. Their extra body fat means that they can literally get more weight behind themselves and their actions, producing more power.



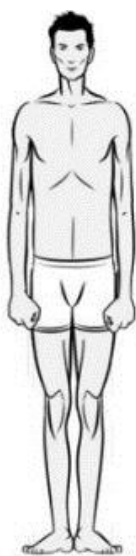
Mesomorph: an individual with wide shoulders and narrow hips. Characterised as having a lot of muscle.

Mesomorphs tend to be involved in sports which require strength and sudden bursts of energy, rather than sustained effort over long distances. Their muscular build often means they are stronger and better able to cope with anaerobic exercise, for example sprinting.

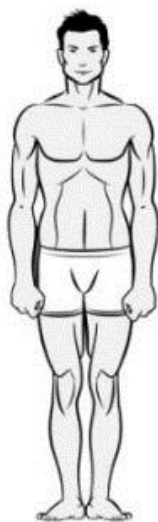


Ectomorph: an individual with narrow shoulders and narrow hips. Characterised by being tall and thin.

Ectomorphs tend to excel at long distance events, such as the marathon.



Ectomorph



Mesomorph



Endomorph