1.1.c. Movement analysis

Learners will develop their knowledge of the three classes of lever and will be able to use examples from physical activities and sport to show where these levers might operate to produce movement. Learners will become aware of the mechanical advantage provided by levers in movement.

Learners will know the three planes of movement and be able to give examples of these levers from different physical activities and sports. Frontal, transverse and longitudinal axes of rotation will be recognised by learners who will be able to apply these to examples from physical activities and sports.

Topic area	Learners must:
Lever systems 	• know the three classes of lever and their use in physical activity and sport: ○ 1st class – neck ○ 2nd class – ankle ○ 3rd class – elbow • know the definition of mechanical advantage.
Planes of movement and axes of rotation 	• know the location of the planes of movement in the body and their application to physical activity and sport: ○ frontal ○ transverse ○ sagittal • know the location of the axes of rotation in the body and their application to physical activity and sport: ○ frontal ○ transverse ○ longitudinal.

1.1.d. The cardiovascular and respiratory systems

Learners will develop their knowledge and understanding of the structure and function of the cardiovascular system. Blood vessels and blood cells with their pathway through the heart will be understood along with definitions of key cardiac terms. Learners will understand the pathway of air through the respiratory system and know the role of the respiratory muscles and alveoli during breathing, along with an understanding of key definitions.

Learners will also be able to define aerobic and anaerobic exercise and be able to give practical examples of aerobic and anaerobic activities.

Topic area	Learners must:

Structure and function of the cardiovascular system	• know the double-circulatory system (systemic and pulmonary)
	• know the different types of blood vessel:
	  ○ arteries
	  ○ capillaries
	  ○ veins
	• understand the pathway of blood through the heart:
	  ○ atria
	  ○ ventricles
	  ○ bicuspid, tricuspid and semilunar valves
	  ○ septum and major blood vessels:
	  – aorta
	  – pulmonary artery
	  – vena cava
	  – pulmonary vein
	• know the definitions of:
	  ○ heart rate
	  ○ stroke volume
	  ○ cardiac output
	• know the role of red blood cells.

Structure and function of the respiratory system	• understand the pathway of air through the respiratory system:
	  ○ mouth
	  ○ nose
	  ○ trachea
	  ○ bronchi
	  ○ bronchiole
	  ○ alveoli
	• know the role of respiratory muscles in breathing:
	  ○ diaphragm
	  ○ intercostals
	• know the definitions of:
	  ○ breathing rate
	  ○ tidal volume
	  ○ minute ventilation
	• understand about alveoli as the site of gas exchange.

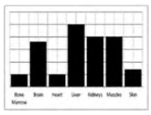
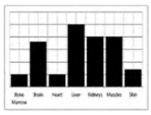
Aerobic and anaerobic exercise
 
	• know the definitions of:
	  ○ aerobic exercise
	  ○ anaerobic exercise
	• be able to apply practical examples of aerobic and anaerobic activities in relation to intensity and duration.

1.1.e. Effects of exercise on body systems

Learners will develop their knowledge and understanding of the short and long-term effects of exercise on muscles and bones, the heart and the respiratory system. They will be able to apply understanding of these effects to examples from a range of physical activities and sports.

Learners will be able to collect and use data in this section related to both short-term and long-term effects of exercise.

2

Topic area	Learners must:
Short-term effects of exercise  	• understand the short-term effects of exercise on: ○ muscle temperature ○ heart rate, stroke volume, cardiac output ○ redistribution of blood flow during exercise ○ respiratory rate, tidal volume, minute ventilation ○ oxygen to the working muscles ○ lactic acid production • be able to apply the effects to examples from physical activity/ sport • be able to collect and use data relating to short-term effects of exercise.
Long-term (training) effects of exercise  	• understand the long-term effects of exercise on: ○ bone density ○ hypertrophy of muscle ○ muscular strength ○ muscular endurance ○ resistance to fatigue ○ hypertrophy of the heart ○ resting heart rate and resting stroke volume ○ cardiac output ○ rate of recovery ○ aerobic capacity ○ respiratory muscles ○ tidal volume and minute volume during exercise ○ capilliarisation • be able to apply the effects to examples from physical activity/ sport • be able to collect and use data relating to long-term effects of exercise.

1.2 Physical training

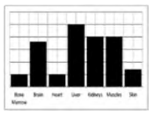
Learners will develop their knowledge and understanding of the components of fitness required for physical activities and sports and how each can be measured.

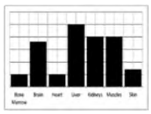
Learners will also be able to apply their knowledge of training principles to personal exercise/training programmes to improve fitness, along with the knowledge of how to optimise training and helping to prevent injury.

1.2.a. Components of fitness

Learners will develop their knowledge and understanding of the components of fitness, including cardiovascular endurance, muscular endurance, speed, strength, flexibility and agility. Learners will be able to define each component and be able to apply using a range of practical examples from physical activities and sports. Learners will also develop their knowledge of suitable tests for each component.

Learners will be able to collect and use data related to the identified components of fitness.

Topic area	Learners must
Components of fitness  	Know the following components of fitness: • cardiovascular endurance/stamina ○ know the definition of cardiovascular endurance/stamina ○ be able to apply practical examples where this component is particularly important in physical activity and sport ○ know suitable tests for this component, including: – Cooper 12 minute run/walk test – multi-stage fitness test • muscular endurance ○ know the definition of muscular endurance ○ be able to apply practical examples where this component is particularly important in physical activity and sport ○ know suitable tests for this component, including: – press-up test – sit-up test • speed ○ know the definition of speed ○ be able to apply practical examples where this component is particularly important in physical activity and sport ○ know suitable tests for this component, including: – 30m sprint test • strength ○ know the definition of strength ○ be able to apply practical examples of where this component is particularly important in physical activity and sport ○ know suitable tests for this component, including: – grip strength dynamometer test – 1 Repetition Maximum (RM)

Topic area	Learners must
Components of fitness cont.  	• power ○ know the definition of power ○ be able to apply practical examples of where this component is particularly important in physical activity and sport ○ know suitable tests for this component, including: – 'standing jump' or 'vertical jump' tests • flexibility ○ know the definition of flexibility ○ be able to apply practical examples of where this component is particularly important in physical activity and sport ○ know suitable tests for this component, including: – 'sit and reach' test • agility ○ know the definition of agility ○ be able to apply practical examples of where this component is particularly important in physical activity and sport ○ know suitable tests for this component, including: – Illinois agility test • balance ○ know the definition of balance ○ be able to apply practical examples of where this component is particularly important in physical activity and sport ○ know suitable tests for this component, including: – 'stork stand' test • co-ordination ○ know the definition of co-ordination ○ be able to apply practical examples of where this component is particularly important in physical activity and sport ○ know suitable tests for this component, including: – 'wall throw' test • reaction time ○ know the definition of reaction time ○ be able to apply practical examples of where this component is particularly important in physical activity and sport ○ know suitable tests for this component, including: – reaction time ruler test • be able to collect and use data relating to the components of fitness.

1.2.b. Applying the principles of training

Learners will develop their knowledge and understanding of the principles of training. They will be able to define each principle and be able to apply each to personal exercise/ training programmes. Learners will develop their knowledge and understanding of how to optimise training using the FITT principle and different types of training.

Learners will develop their knowledge and understanding of the key components and physical benefits of the warm up and cool down applied to physical activities and sports.

Topic area	Learners must:
Principles of training 	• know the following definitions of principles of training and be able to apply them to personal exercise/training programmes: ○ specificity ○ overload ○ progression ○ reversibility.
Optimising training 	• know the definition of the elements of FITT (Frequency, Intensity, Time, Type) and be able to apply these elements to personal exercise/training programmes • know different types of training, definitions and examples of: ○ continuous ○ fartlek ○ interval – circuit training – weight training – plyometrics – HIIT (High Intensity Interval Training). • understand the key components of a warm up and be able to apply examples: ○ pulse raising ○ mobility ○ stretching ○ dynamic movements ○ skill rehearsal • know the physical benefits of a warm up, including effects on: ○ warming up muscles/preparing the body for physical activity ○ body temperature ○ heart rate ○ flexibility of muscles and joints ○ pliability of ligaments and tendons ○ blood flow and oxygen to muscles ○ the speed of muscle contraction • understand the key components of a cool down and be able to apply examples: ○ low intensity exercise ○ stretching • know the physical benefits of a cool down, including: ○ helps the body's transition back to a resting state ○ gradually lowers heart rate ○ gradually lowers temperature ○ circulates blood and oxygen ○ gradually reduces breathing rate ○ increases removal of waste products such as lactic acid ○ reduces the risk of muscle soreness and stiffness ○ aids recovery by stretching muscles.

1.2.c. Preventing injury in physical activity and training

Learners will develop their knowledge and understanding of how to prevent injury when participating in physical activities and sport.
The potential hazards will be known in a range of physical activities and sports settings. Learners will know how risks can be minimised by using appropriate equipment, clothing, correct lifting techniques, using the warm up and cool down and an appropriate level of competition.

Topic area	Learners must:
Prevention of injury 	• understand how the risk of injury in physical activity and sport can be minimised and be able to apply examples, including: ○ personal protective equipment ○ correct clothing/footwear ○ appropriate level of competition ○ lifting and carrying equipment safely ○ use of warm up and cool down • know potential hazards in a range of physical activity and sport settings and be able to apply examples, including: ○ sports hall ○ fitness centre ○ playing field ○ artificial outdoor areas ○ swimming pool.

2c.2. Content of Socio-cultural issues and sports psychology (J587/02)

In Component 02, *Socio-cultural issues and sports psychology*, learners will develop their knowledge of socio-cultural influences that impact on participation and performance in physical activities and sports. Learners will also develop their knowledge and understanding of how sport impacts on society. Engagement patterns of different social groups will be understood by learners, along with strategies to promote participation with practical examples. The commercialisation of physical activities and sports will be understood, including the influences of sponsorship and the media. Learners will also develop their knowledge and understanding of ethical and socio-cultural issues in physical activities and sports.

Learners will develop their knowledge and understanding of sports psychology theories related to acquiring movement skills and optimising performance. Learners will be able to reflect on their own learning and performance of physical activities and sports skills to recognise the key psychological concepts affecting performance.

Learners will develop their knowledge and understanding of the benefits of participating in physical activities and sports to their

health, fitness and well-being. The physical, emotional and social aspects will be understood as well as the consequences of a sedentary lifestyle. Learners will also develop their knowledge and understanding of energy use along with diet, nutrition and hydration.

2.1 Socio-cultural influences

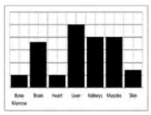
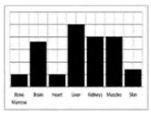
Physical activities and sports play an integral part of society in the UK. In this topic, learners will develop their knowledge and understanding of the factors that continue to impact on physical activities and sports in the UK today. Learners will be introduced to engagement patterns of different social groups in physical activities and sports. Learners will develop their understanding of the influences of commercialism and the media on physical activities and sports.

The ethical and socio-cultural issues in physical activities and sports will enable learners to develop their understanding of sportsmanship, gamesmanship and deviance in sport along with being able to apply theories to practical examples from physical activities and sports.

2.1.a. Engagement patterns of different social groups in physical activities and sports

Learners will develop their knowledge and understanding of current participation trends using a range of valid and respected sources. The factors affecting participation for a range of different groups in society will be understood, along with strategies to promote participation, using practical examples from physical activities and sports.

2

Topic area	Learners must:
Physical activity and sport in the UK  	• be familiar with current trends in participation in physical activity and sport: ○ using different sources (such as Sport England, National Governing Bodies (NGBs) and Department of Culture, Media and Sport (DCMS)) ○ of different social groups ○ in different physical activities and sports.
Participation in physical activity and sport  	• understand how different factors can affect participation, including: ○ age ○ gender ○ ethnicity ○ religion/culture ○ family ○ education ○ time/work commitments ○ cost/disposable income ○ disability ○ opportunity/access ○ discrimination ○ environment/climate ○ media coverage ○ role models • understand strategies which can be used to improve participation: ○ promotion ○ provision ○ access • be able to apply examples from physical activity/sport to participation issues.