



The Sutton Academy

# Knowledge Rich Curriculum Plan

BTEC First Award in Sport (2018)

Unit 1 – Fitness for Sport and Exercise

Lesson/Learning Sequence	Intended Knowledge: <i>Students will know that...</i>	Tiered Vocabulary	Prior Knowledge: <i>In order to know this students, need to already know that...</i>	Assessment
<b>Topic A.1. Components of physical fitness:</b>	<p><b>Body composition</b> is the relative ratio of fat mass to fat-free mass in the body.</p> <ul style="list-style-type: none"> <li>- Endomorph (fat), mesomorph (muscle), ectomorph (light/thin)</li> </ul> <p><b>Aerobic endurance</b> is the cardiorespiratory system working efficiently</p> <ul style="list-style-type: none"> <li>- Oxygen and nutrients supplied to muscles</li> <li>- Sustained physical activity (long time)</li> </ul> <p><b>Strength</b> is the maximum force generated by a muscle or muscle group</p> <p><b>Speed</b> is <math>\text{Speed} = \frac{\text{distance (m)}}{\text{time (s)}}</math></p> <p><b>Flexibility</b> is having an adequate range of movement in all joints of the body</p> <p><b>Muscular endurance</b> is the muscular system working efficiently.</p> <ul style="list-style-type: none"> <li>- Muscles contracting for a long time</li> <li>- Against a light to moderate fixed resistance load</li> </ul>	Tier 3 <b>Body composition</b> <b>Aerobic endurance</b> <b>Strength</b> <b>Speed</b> <b>Flexibility</b> <b>Muscular endurance</b>	Students will have a basic knowledge of components of fitness from key stage 3 PE lessons.	
<b>Topic A.2 Components of skill-related fitness</b>	<p><b>Power</b> is <math>\text{strength} \times \text{speed}</math></p> <p><b>Coordination</b> is the smooth flow of movement needed to perform a motor task efficiently and accurately.</p> <ul style="list-style-type: none"> <li>- Moving two or more body parts</li> </ul> <p><b>Reaction time</b> is the time that it takes for a sports performer to respond to a stimulus and initiate their response.</p> <p><b>Agility</b> is changing direction quickly without losing balance or time.</p> <p><b>Balance</b> is maintaining a centre of mass over a base of support.</p> <ul style="list-style-type: none"> <li>- Static balance = performer is still.</li> <li>- Dynamic Balance = performer is moving.</li> </ul>	Tier 3 <b>Power</b> <b>Coordination</b> <b>Reaction time</b> <b>Agility</b> <b>Balance</b>	Students will have a basic knowledge of components of fitness from key stage 3 PE lessons.	
<b>Topic A.3 Why fitness components are important for successful participation in given sports</b>	<p>How a performer:</p> <ul style="list-style-type: none"> <li>• is successful in meeting the physical demands of a sport in order to reach optimal performance.</li> <li>• Is successful in meeting the skill-related demands of a sport in order to reach optimal performance</li> <li>• Is able to perform efficiently</li> </ul> <p>Relate the above points to different events and positions played.</p>	Tier 2 <b>Optimal</b> <b>Efficiently</b>	Components of physical and skill related fitness  Knowledge of different sports and their demands	
<b>Topic A.4 Exercise intensity and how it can be determined</b>	<p>Intensity is measured by heart rate(HR) and by able to apply HR intensities to fitness training methods.</p> <p>Training zones and training thresholds.</p> <p><math>\text{HR max} = 220 - \text{age (years)}</math></p> <p>The recommended training zone for cardiovascular health and fitness is 60 – 85% of HR Max</p> <p>How to calculate 60 – 85% HR Max.</p>	Tier 2 <b>Intensity</b>  Tier 3 <b>Training threshold</b> <b>HR Max</b>	What Heart rate is, how and where it is measured	
<b>Topic A.4 Exercise intensity and how it can be determined</b>	<p>The Borg (1970) (6-20) Rating of Perceived of Exertion (RPE) Scale can be used as a measure of exercise intensity.</p> <p>About the relationship between RPE and heart rate where: <math>\text{RPE} \times 10 = \text{HR (bpm)}</math></p>	Tier 2 <b>Perceived</b>  Tier 3 <b>Rating of Perceived Exertion (RPE)</b> <b>BPM</b>		

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<b>Topic A.5 The basic principles of training (FITT)</b>	<p><b>Frequency</b> is the number of training sessions completed over a period of time, usually per week.</p> <p><b>Intensity</b> is how hard an individual will train</p> <p><b>Time</b> is how long an individual will train for</p> <p><b>Type</b> is how an individual will train by selecting a training method to improve a specific component of fitness and/or their sports performance.</p>	Tier 3 Frequency Intensity Time Type		
<b>Topic A.6 Additional principles of training</b>	<p><b>Progressive overload</b> – in order to progress, training needs to be demanding enough to cause the body to adapt, improving performance.</p> <p><b>Specificity</b> is training should be specific to the individual's sport, activity or physical/skill-related fitness goals to be developed.</p> <p><b>Individual differences/needs</b> – the programme should be designed to meet individual training goals and needs.</p> <p><b>Adaptation</b> is how the body reacts to training loads by increasing it's ability to cope with those loads.</p> <p>Adaptation occurs during the recovery period after the training session is completed.</p> <p><b>Reversibility</b> – if training stops, or the intensity of training is not sufficient to cause adaptation, training effects are reversed.</p> <p><b>Variation</b> – it is important to vary the training regime to avoid boredom and maintain enjoyment.</p> <p><b>Rest and recovery</b> are required so that the body can recover from the training and to allow adaptation to occur.</p>	Tier 3 Progressive overload Specificity Individual differences/needs Adaptation Variation Rest and recovery		
<b>Topic B.1 Requirements for each of the fitness training methods</b>	Fitness tests require: <ul style="list-style-type: none"> <li>• Safe, correct use of equipment</li> <li>• Safe, correct use of training techniques</li> <li>• Should include a warm up and cool down</li> <li>• How to apply the basic principle of training (FITT) for each fitness training method</li> <li>• To be linked to the associated health-related/skill related components of fitness.</li> </ul>			
<b>Topic B.2 Additional requirements for each of the fitness training methods</b>	The following for each of the fitness training methods: <ul style="list-style-type: none"> <li>• Advantages/disadvantages</li> <li>• Application of exercise intensity to fitness training methods</li> <li>• Application of principles of training to fitness training methods</li> <li>• Appropriate application of fitness training method(s) for given situations(s)</li> <li>• Appropriate application of fitness training method(s) to given client needs/goals/aims/objectives</li> </ul>			

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<b>Topic B.3 Flexibility training methods</b>	<p>Flexibility training types</p> <p><b>Static</b> – there are two types of static flexibility training</p> <ul style="list-style-type: none"> <li>Active stretching – where the performer applies internal force to stretch and lengthen the muscle.</li> <li>Passive stretching – which requires the help of another person or object such as a wall.</li> </ul> <p><b>Ballistic</b> – this is where the performer makes fast, jerky movements through the complete range of motion, usually in the form of bobbing or bouncing.</p> <p><b>Proprioceptive Neuromuscular Facilitation (PNF) technique</b> – this is used to develop mobility, strength and flexibility. The technique may be performed with the help of a partner or alternatively by using an immovable object.</p>	<p>Tier 2</p> <p>Active</p> <p>Passive</p> <p>Tier 3</p> <p>Static</p> <p>Ballistic</p> <p>Proprioceptive</p> <p>Neuromuscular</p> <p>Facilitation (PNF)</p>		
<b>Topic B.3 Strength, muscular endurance and power training methods</b>	<p><b>Strength</b>, muscular endurance and power training types</p> <p><b>Circuit training</b> – where different stations/exercises are used to develop strength, muscular endurance and power. The stations/exercises use different muscle groups to avoid fatigue.</p> <p><b>Free Weights</b> – this is where barbells or dumb-bells are used to perform different types of dynamic exercises.</p> <p>When using to:</p> <ul style="list-style-type: none"> <li>Increase strength – low reps and high loads</li> <li>Increase endurance – high reps and low loads</li> </ul> <p><b>Plyometrics</b> – this is used to develop sport-specific explosive power and strength. Plyometric exercises need maximal force as the muscle lengthens (<b>eccentric</b>) before an immediate maximal force as the muscle shortens (<b>concentric</b>)</p>	<p>Tier 3</p> <p>Circuit training</p> <p>Free weights</p> <p>Plyometrics</p> <p>Concentric</p> <p>Eccentric</p>		
<b>Topic B.3 Aerobic endurance training methods</b>	<p><b>Continuous training</b> is training at a steady pace and moderate intensity for a minimum period of 30 minutes</p> <p><b>Fartlek training</b> is where the intensity of training is varied by running at different speeds or over different terrains. Intensity of training can also be increase with the use of equipment.</p> <p><b>Interval training</b> is where the individual performs a work period followed by a rest or recovery period. Typical work time can vary from training for 30 seconds to five minutes: recovery periods can be complete rest, walking or light jogging.</p> <p><b>Circuit training</b> is where different stations/exercise are used to develop aerobic endurance. the station order/order of exercises is important to ensure different muscle groups are used to avoid fatigue.</p>	<p>Tier 3</p> <p>Continuous training</p> <p>Fartlek training</p> <p>Interval training</p> <p>Circuit training</p>		
<b>Topic B.3 Speed training methods</b>	<p><b>Hollow sprints</b> are a series of sprints separated by a ‘hollow’ period of jogging or walking</p> <p><b>Acceleration sprints</b> are where the pace is gradually increased from a standing or rolling start to jogging, then to striding, and then to a maximum sprint. Different drills can be used, such as resistance drills and hill sprints.</p> <p>Rest intervals of jogging or walking are used in between each repetition.</p> <p><b>Interval training</b> is when the individual performs a work period followed by a rest or recovery period. For speed training, the work intervals will be shorter and more intense.</p>	<p>Tier 3</p> <p>Hollow sprints</p> <p>Acceleration sprints</p> <p>Interval training</p>		

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<b>Topic C.1 Fitness test methods for components of fitness</b>	<p>The following components of fitness are measured with these tests</p> <p>Flexibility – Sit and reach test</p> <p>Strength – Grip dynamometer test</p> <p>Aerobic endurance – Multi stage fitness test Forestry step test Definition of VO2 Max</p> <p>Speed – 35m Sprint</p> <p>Speed and Agility – Illinois agility run test</p> <p>Anaerobic power – Vertical jump test</p> <p>Muscular endurance – One minute press up test One minute sit up</p> <p>Body composition – Body Mass Index (BMI) Bioelectrical Impedance Analysis (BMI) Skinfold testing via the Jackson-Pollock nomogram method</p>			
<b>Topic C.2 Importance of fitness testing to sports performers and coaches</b>	<p>Fitness tests give baseline data for monitoring/improving performance.</p> <p>Training programmes can be designed based on test results and can be used to determine if training programmes are working.</p> <p>Results give a performer something to aim for.</p>			
<b>Topic C.3 Requirements for administration of each fitness test</b>	<p>Pretest procedures e.g. informed consent, calibration of equipment.</p> <p><b>Calibration</b> means to reset the equipment and make sure it is measuring correctly.</p> <p>Knowledge of published standard test methods and equipment/resources required.</p> <p>Purpose of each fitness test.</p> <p>Accurate measurement and recording of test results.</p> <p>Basic processing of test results for interpretation.</p> <p>Ability to safely select appropriate test(s) for given purposes, situations and/or participants.</p> <p><b>Reliability</b> means</p> <p><b>Validity</b> means</p> <p><b>Practicality</b> means</p> <p>Advantages and disadvantages of fitness test methods.</p>	<p><b>Tier 2</b> Calibration Interpretation</p> <p><b>Tier 3</b> Pretest procedures Reliability Validity Practicality</p>		
<b>Topic C.4 Interpretation of fitness test results</b>	<p>Compare fitness test results to normative published data and peers and draw conclusions through analysing and evaluation test results.</p> <p><b>Normative data</b> is information from a population that establishes a baseline distribution of results for that particular population.</p> <p>Be able to suggest and justify recommendations for improvements to fitness and fitness training methods that could for a given purpose/situation/participant</p>	<p><b>Tier 3</b> Normative data</p>		