Lakelands Academy

Physical Education Department

Knowledge Organiser BTEC PE- Component 3 LAA

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Physical Components of Fitness

Component	Explanation	Suitable Sport or PA
Aerobic Endurance	The ability to exercise at moderate intensity for extended periods of time.	Events/sports lasting more 30 minutes.
Muscular Endurance	The ability of a given muscle to exert force, consistently and repetitively, over a period of time	Events/sports lasting more 30 minutes.
Muscular Strength	The ability of a muscle to exert a maximal or near maximal force against an object.	Activities requiring force, e.g., throwing events.
Flexibility	The ability of a joint or series of joints to move through an unrestricted, pain free range of motion.	Activities requiring a wide range of movement around a joint, e.g., gymnastics, martial arts.
Body Composition	The percentage of fat, bone, and muscle in your body.	Low body fat: gymnastics, long distance running. High muscle mass: sprinters, power activities.
Speed	The ability to move the body in one direction as fast as possible.	Activities requiring fast movement, e.g., sprinting.

Skill Related Components of Fitness

Component	Explanation	Suitable Sport or PA
Power	The product of force multiplied by distance, divided by time.	Activities requiring explosive movement e.g., gymnastics, basketball.
Agility	The ability to rapidly change body direction, accelerate, or decelerate.	Activities requiring quick changes of direction, e.g., dodging the opposition in a team game, freestyle skiing.
Coordination	The body's ability to perform smooth and efficient movements.	Any activity requiring the movement of two or more body parts and can include the use of sporting equipment, e.g., hand, eyes, and tennis racquet to connect with the tennis ball.
Balance	The ability to retain the centre of mass above the base of support when stationary (static balance) or moving (dynamic balance).	An activity requiring the control of the distribution of weight or to remain upright and steady.
Reaction Time	How fast an athlete can respond to stimulus.	Any activity where a quick decision or response to a stimulus is needed.

Principles of Training

Frequency	The number of training sessions completed over a period of time, usually per week.
Intensity	How hard an individual will train.
Time	How long an individual will train for.
Type	How an individual will train by selecting a training method to improve a specific component of fitness.

Additional Principles of Training

Progressive Overload	In order to progress, training needs to be demanding enough to cause the body to adapt, improving performance.
Specificity	Training should meet the needs of the sport, or physical/skill-related fitness goals to be developed.
Individual Differences	Training should meet the needs of an individual.
Adaptations	Changes to the body due to increased training loads.
Reversibility	If training stops, or the intensity of training is lowered, fitness gains from training is lost.
Variation	Altering types of training to avoid boredom and maintain motivation to train.
Rest and Recovery	To allow the body to recover and adapt.

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Measurements/ Calculations and Formulas

Intensity	
HR- How many times the heart beats within a minute, Beats Per Minute (BPM)	Count radial pulse with two fingers for 15 seconds x 4 = HR
Max HR- An average of what someone's maximum heart rate is depending on their age.	220- Age = Max HR
Training Zones- The target ranges (of heart rate, pace or perceived exertion) that will be used to prescribe workout intensity.	MAX HR Divided by 100 x the training zone % Example 16 year old – 204/100 x 85 = 204/100 x 65 =
Strength and Endurance Calculation	
1RM (1 Repetition Max) Used to measure muscular strength	How much weight can be lifted in one repetition.
15RM (15 Repetition Max) Used to measure muscular endurance	How much weight can be lifted in fifteen repetitions.
Borg Scale- Rating of Perceived Exertion (RPE) Scale	
Borg Scale is a way of measuring physical activity intensity level. Perceived exertion is how hard you feel like your body is working.	Rate yourself on a scale of 6-20 depending on your perceived exertion. This value is then x10 for example 12on the scale would equal 120BPM.

Target Zones

Anaerobic Training Zone 85%-100%	Used for improving speed, power, muscular strength
Aerobic Training Zone 65%- 85%	Used for improving aerobic endurance and muscular endurance

Technology to Measure Exercise Intensity

Heart Rate Monitors	
Smart Watches	
Apps