Year 9
Fit 4 Life Knowledge Organiser

Components of Fitness

Health related		**Skill related**	
Aerobic Endurance	*the ability of the cardiorespiratory system to work efficiently, supplying nutrients and oxygen to working muscles during sustained physical activity.*	Balance	*the ability to maintain centre of mass over a base of support.*
Muscular Endurance	*the ability of the muscular system to work efficiently, where a muscle can continue contracting over a period of time against a light to moderate fixed resistance load.*	Agility	*the ability of a sports performer to quickly and precisely move or change direction without losing balance or time.*
Flexibility	*having an adequate range of motion in all joints of the body; the ability to move a joint fluidly through its complete range of movement.*	Coordination	*the smooth flow of movement needed to perform a motor task efficiently and accurately.*
Speed	*distance divided by the time taken. Speed is measured in metres per second (m/s). The faster an athlete runs over a given distance, the greater their speed.*	Power	*the product of strength and speed.*
Muscular Strength	*the maximum force (in kg or N) that can be generated by a muscle or muscle group.*	Reaction time	*the time taken for a sports performer to respond to a stimulus and the initiation of their response.*
Body composition	*the relative ratio of fat mass to fat-free mass (vital organs, muscle, bone) in the body.*		

Fitness Tests

Flexibility	*sit and reach test*	Muscular Endurance	*one-minute press-up*
Strength	*grip dynamometer*		*one-minute sit-up*
Aerobic Endurance	*multi-stage fitness test, known as the bleep test*	Body Composition	*Body Mass Index (BMI)*
	forestry step test		*Bioelectrical Impedance Analysis (BIA)*
Speed	*35m sprint*		*skinfold test*
Agility	*Illinois agility run test*		
Power	*vertical jump test*		

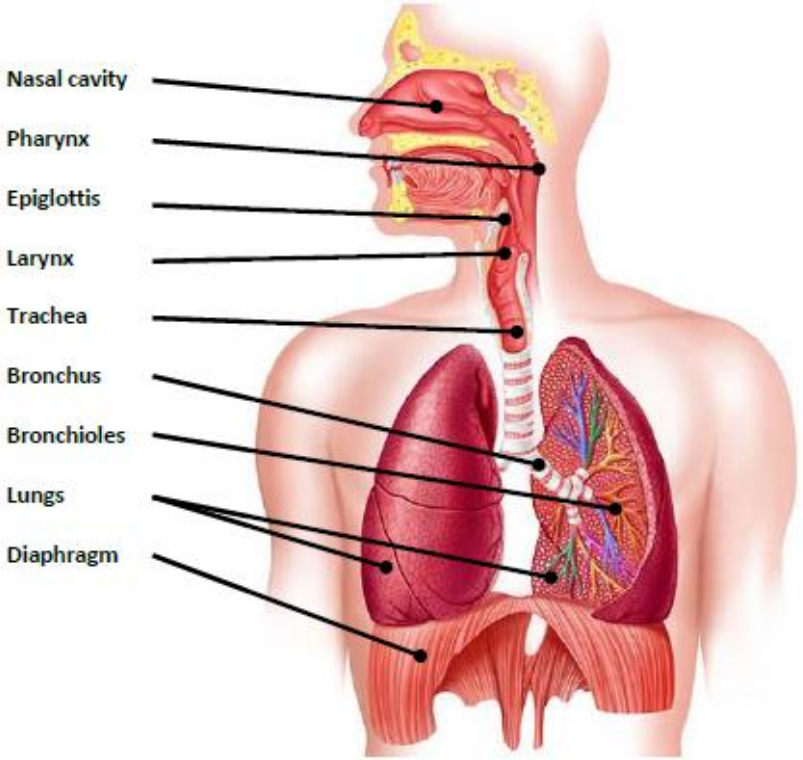
Training Methods

Flexibility training		circuit training	*this is where different stations/exercises are used to develop aerobic endurance. The station order/order of exercises is important to ensure different muscle groups are used to avoid fatigue.*
Static; active	*performed independently where the performer applies internal force to stretch and lengthen the muscle.*	**Speed training**	
Static; passive	*requires the help of another person or an object such as a wall. The other person/object applies external force causing the muscle to stretch.*	hollow sprints	*a series of sprints separated by a 'hollow' period of jogging or walking.*
ballistic	*this is where the performer makes fast, jerky movements through the complete range of motion, usually in the form of bobbing or bouncing.*	acceleration sprints	*This is where the pace is gradually increased from a standing or rolling start to jogging, then to striding, and then to a maximum sprint.*
Proprioceptive Neuromuscular Facilitation	*The technique may be performed with the help of a partner or alternatively by using an immovable object (as resistance to inhibit movement).*	interval training	*the individual performs a work period followed by a rest or recovery period.*
Aerobic Endurance training		**Others**	
continuous training	*this is training at a steady pace and moderate intensity for a minimum period of 30 minutes.*	plyometrics	*this type of training develops sport-specific explosive power and strength.*
fartlek training	*this is where the intensity of training is varied by running at different speeds or over different terrain. The training is continuous with no rest*	free weights	*use of barbells or dumb-bells to perform different types of dynamic exercises.*

Principles of Training

SPORT		**FITT**	
Progressive Overload	*in order to progress, training needs to be demanding enough to cause the body to adapt, improving performance.*	Frequency	*the number of training sessions completed over a period of time, usually per week.*
Specificity	*training should be specific to the individual's sport, activity or physical/skill-related fitness goals to be developed.*	Intensity	*how hard an individual will train.*
Individual differences	*the programme should be designed to meet individual training goals and needs.*	Time	*how long an individual will train for.*
Adaptation	*how the body reacts to training loads by increasing its ability to cope with those loads.*	Type	*how an individual will train by selecting a training method to improve a specific component of fitness and/or their sports performance.*

Reversibility	*if training stops, or the intensity of training is not sufficient to cause adaptation, training effects are reversed.*	
Variation	*it is important to vary the training regime to avoid boredom and maintain enjoyment.*	
Rest and Recovery	*rest and recovery are required so that the body can recover from the training and to allow adaptation to occur.*	



MECHANISMS OF BREATHING

	Inspiration	Expiration
Diaphragm	Contracts = Flattens	Relaxes = Domes
External Intercostals	Contract = Lifts rib cage	Relax = Rib cage drops *
Chest cavity	Increases	Decreases
Thoracic Pressure	Drops	Rises
Air flows	In	Out

*During exercise exhalation becomes an **active** process.
The internal intercostal muscles contract to pull the rib cage down.