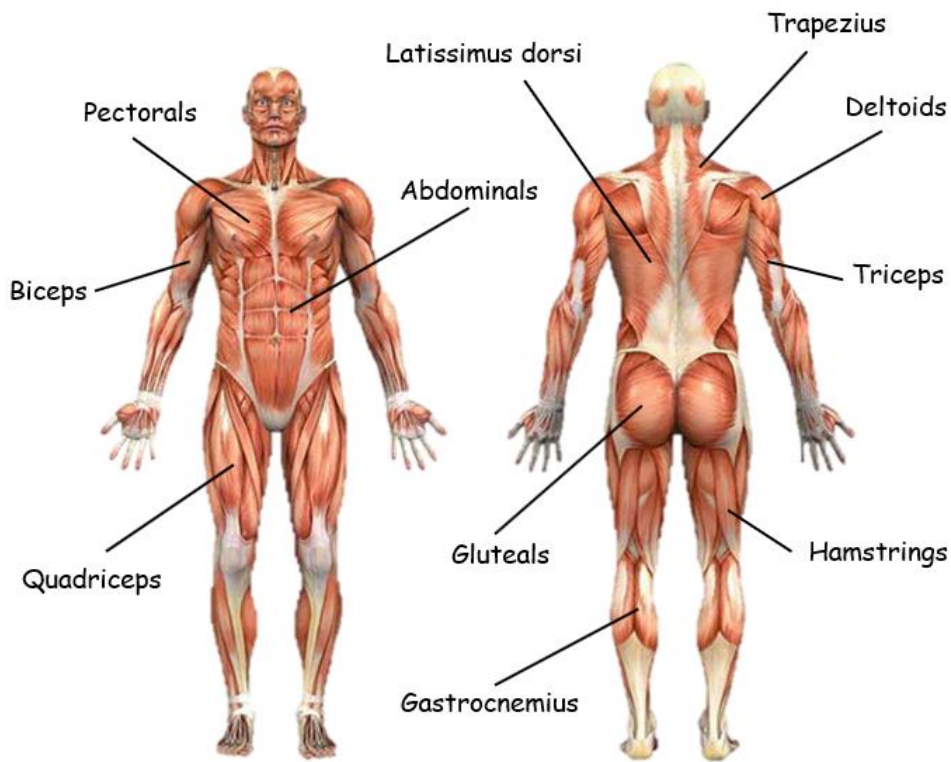


1.1.b. The structure and function of the muscular system

Location of major muscles:



Examples from physical activity and sport	Deltoid 	Pectorals 	Latissimus 	Trapezius 	Biceps
	Moves the upper arm in all directions from the shoulder e.g. bowling in cricket & front crawl swimming	Adduction and flexion of the shoulder e.g. forehand drive in tennis & a hand off in rugby	Extension, adduction or rotation at the shoulder e.g. Butterfly in swimming & a rowing stroke	Extension of neck e.g. preparing to head a ball & stabilises the neck when getting punched in boxing	Flexion at the elbow e.g. bicep curl when lifting weights & preparing to throw a javelin in athletics
	Triceps 	Abdominals 	Gluteals 	Quadriceps 	Hamstrings
	Extension at the elbow e.g. a jab in boxing and throwing a javelin in athletics	Flexion at the waist/trunk e.g. performing a sit-up & bending at the waist to during a throw-in in football	Extension, adduction and rotation of the leg at the hip e.g. leg drive when sprinting & preparing to kick a ball	Extension of the knee e.g. kicking a football or rugby ball & performing a jump shot in basketball	Flexion of the knee e.g. preparing to kick a football & bending knees before jumping
					Gastrocnemius
					Pointing the foot downwards e.g. jumping up & pointing toes during a gymnastics performance

The roles of muscles in movement:

- Muscles work together to provide movement
- When one muscle contract the other muscle relaxes
- When muscle work like this it is called antagonistic pairs
- The muscle that contracts is called the agonist
- The muscle that relaxes is called the antagonist
- Muscles that help the agonist and stabilise the joint are called **fixator muscles**
- When the biceps contract to flex the elbow, the deltoid & trapezius are fixators

The biceps and triceps		The quadriceps and hamstrings		The muscles at the shoulder	
When we bend the elbow (flexion) the biceps contract and the triceps relax	When we straighten the elbow (extension) the triceps contract and the biceps relax	When we bend the knee the hamstrings contract and the quadriceps relax	When we straighten the knee the quadriceps contract and the biceps relax	Flexion of the shoulder Agonist: Back deltoid Antagonist: Front deltoid	Adduction of the shoulder Agonist: Latissimus dorsi Antagonist: Middle deltoid
Agonist = Biceps Antagonist = Triceps	Agonist = Triceps Antagonist = Biceps	Agonist = Hamstrings Antagonist = Quadriceps	Agonist = Quadriceps Antagonist = Hamstrings	Extension of the shoulder Agonist: front deltoid Antagonist: back deltoid	Abduction of the shoulder Agonist: Middle deltoid Antagonist: Latissimus dorsi