Level 2 Fitness Instructor – Anatomy and Physiology for Exercise

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Course Start Date	22/09/21
Course Location	Online
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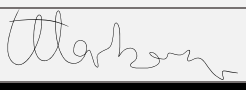
Statement of Achievement

Assessor, by signing this statement of unit achievement you are confirming that all learning outcomes, criteria and range statements have been achieved under specified conditions and that the evidence gathered is authentic.

This statement of unit achievement table must be completed prior to claiming certification.

Section	Pass/Refer	Assessor Full Name	Assessor Signature
Understand the structure and function of the circulatory system			
Understand the structure and function of the respiratory system and skeleton (and joints)			
Understand the muscular system			
Understand the life-course of the musculoskeletal system and its implications (special populations)			
Understand energy systems and their relation to exercise			
Understand the nervous system and its relation to exercise			

Learner Name	Elizabeth Harborne	IQA Name	
Learner Signature	20/10/21	IQA Signature	
Date		Date	

Understanding the structure and function of the circulatory system

Q1

Tick which statement is true from the two following statements.

	Tick one
The heart is located on the left-hand side of the chest cavity	✓
The heart is located on the right-hand side of the chest cavity	

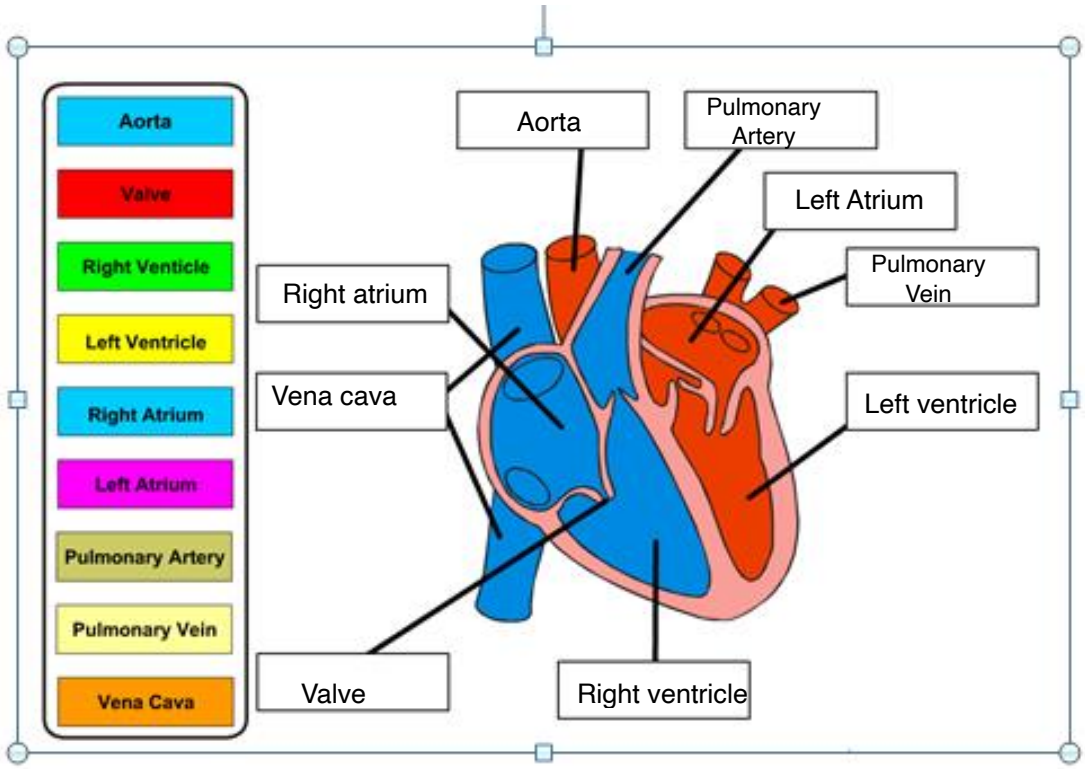
Q2

Describe the main function of the heart.

Pumping deoxygenated blood to the lungs and oxygenated blood to the rest of the body.

Q3

Complete the diagram by identifying the different chambers and major blood vessels of the heart



Q4

Using all the answers given in the previous question complete the flow table of blood through the heart. You must provide a description of the functions of each of the structures.

Learner Guidance:

- You must describe where it receives blood from and transports it to
- Identify whether it carries oxygenated or deoxygenated blood

Structure	Function
Pulmonary Vein	Major vein that carries oxygenated blood from the lungs to the heart
Left Atrium	One of the four chambers of the heart. It receives oxygenated blood from the pulmonary vein.
Left Ventricle	One of the four chambers of the heart. The left ventricle pumps oxygenated blood through the aorta.
Aorta	Main and largest artery in the body. It distributes oxygenated blood to all of the body (except the lungs) through systemic circulation.
Working Muscles	Oxygenated blood is delivered to the working muscles
Vena Cava	A large vein that carries blood to the heart from the body. The superior vena cava carries the blood from the head, neck arms and chest. The inferior vena cava carries the blood form the lower body.
Right Atrium	One of the four chambers of the heart. It's the first chamber to receive deoxygenated blood that has returned from the body.
Right Ventricle	One of the four chambers of the heart. It receives deoxygenated blood from the right atrium and pumps the blood into the pulmonary Artery.
Pulmonary Artery	Carries the deoxygenated blood from the heart to the lungs. It is the only artery that contains deoxygenated blood.

Q5

Describe the role of the valves in the heart.

The valves prevent the back flow of blood in the heart. AV prevent the flow of blood back into the atria during ventricular contraction and semilunar prevent the back flow into the ventricles during ventricular relaxation.

Q6

Describe systemic circulation.

Systemic is the circuit of oxygenated blood from the heart to all the of the body through systemic arteries and blood vessels. It then takes the deoxygenated blood back to the heart through blood vessels and systemic veins where it is then pumped back to lungs and oxygenated through pulmonary circulation.

Q7

Describe pulmonary circulation.

Pulmonary is the circuit of deoxygenated blood pumped from the heart through the pulmonary artery to the lungs where it is oxygenated through gaseous exchange. This then travels back to the heart via the pulmonary vein before it begins the systemic circulation.

Q8

Describe two differences between the structure of arteries and veins

Arteries have thick, elastic, muscular walls.
Veins have thin walls with fewer muscular fibres.

Veins contain valves to prevent back flow of blood but arteries do not.

Q9

Describe two differences between the function of arteries and veins

Arteries carry blood away from the heart, where as veins carry blood towards the heart.

Arteries (with the exception of the pulmonary artery) carry oxygenated blood, Veins carry deoxygenated blood except pulmonary vein.

Q10

Describe the role of capillaries.

Capillaries have thin walls where oxygen and nutrients from the blood can pass through and reach organs and tissues in the body. They also take a way waste products from the tissues.

Q11

Describe one feature of a capillary that enable them to perform their role.

Their thin walls allow the process of gaseous exchange to occur through diffusion.

Q12

Define the following terms.

Blood Pressure	Is the pressure of circulating blood agains the walls of blood vessels.
Systolic Pressure	Measures the pressure in your artery walls when your heart contracts
Diastolic Pressure	Measures the pressure in your artery walls when your heart relaxes.
Hypotension	Low blood pressure, with a reading of less than 90/60mmHg.
Hypertension	High blood pressure, with a reading of more than 140/90mmHg.

Q13

According to the NHS what range of blood pressure would be classified as normal?

120/80mmHg

Q14

According to the NHS, at what reading or higher would classify as high blood pressure?

140/90mmHg.

Pass/Refer

Understand the structure and function of the respiratory system

Q1 Describe where in the body the lungs are located.

Lungs are in the chest cavity on either side of the sternum.

Q2

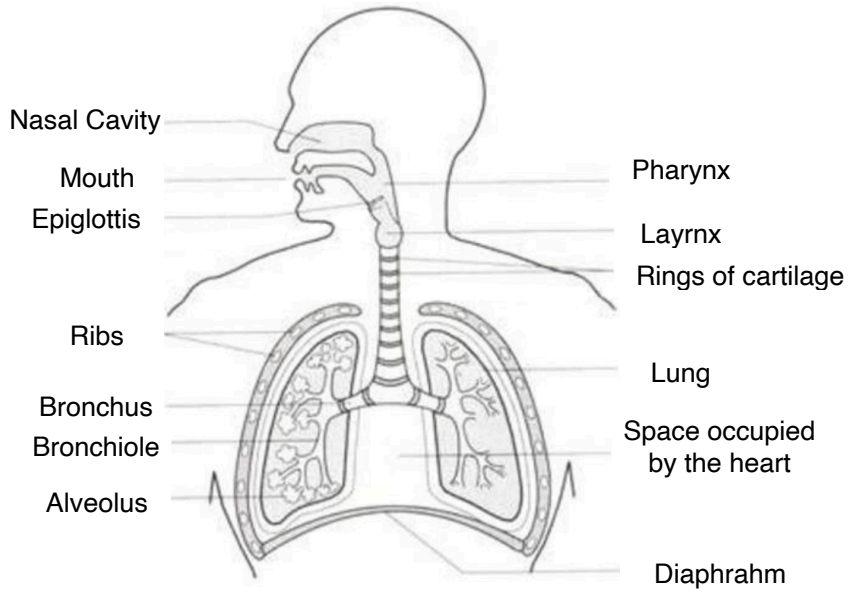
Describe the function of the lungs.

The main function of the lungs is to inhale oxygen, oxygenating the blood to be carried body,
And to exhale waste gasses carried back to the lungs through deoxygenated blood.

Q3

Complete the diagram below by filling in the boxes and identifying the different structures of the respiratory system.

Diaphragm
Lung
Pharynx
Bronchiole
Bronchus
Ribs
Mouth
Alveolus
Nasal Cavity
Rings of Cartilage
Space occupied by the heart
Larynx
Epiglottis



Q4

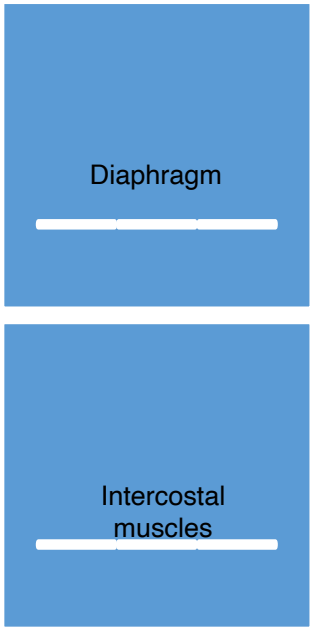
Using some of the answers given in the previous question complete the flow table of air through the respiratory system. You must provide a description of the functions of each of the structures.

Structure	Function
Nasal Cavity	Nasal cavity is dived into two nasal passages. The passages filter and warm the air making it moist before it enters the lungs.
Pharynx	The pharynx receives air from the both the nasal and oral cavity.
Larynx	The larynx facilitates respiration and protects the lower airways. It's also contains the vocal cords that open when breathing, close to protect the windpipe when swallowing, and vibrate to make sound for speech.
Epiglottis	Epiglottis is a flap in the through that prevents food from going down the trachea.

Bronchus	The bronchus carries air from the trachea to the bronchioles
Bronchiole	The bronchioles are at the end of the bronchus and carry the air to the alveoli.
Alveolus	Alveoli are small sacks in the lungs where gas exchange takes place. This happens through diffusion in the capillaries.
Diaphragm	The diagram is a muscle that when relaxed is domed, pushing the air of the lungs in an exhale. When contracted it is flat creating more space for the lungs to fill with air.

Q5

Identify two major muscles involved in respiration.



Q6

Where in the lungs does gaseous exchange take place?

Alveoli

Q7

Describe the movement of oxygen and carbon dioxide in the lungs during gaseous exchange.

As oxygen is inhaled, it diffuses through the thin walls of the capillaries surrounding the alveoli. This oxygenated blood is then carried from lungs via the pulmonary vein. Deoxygenated blood is carried into the lungs by the pulmonary artery, from there it is carried into the capillaries surrounding the alveoli. The carbon dioxide in the blood diffuses through the capillaries into the alveoli and is exhaled out of the body.

Pass/Refer

Understand the structure and function of the skeleton

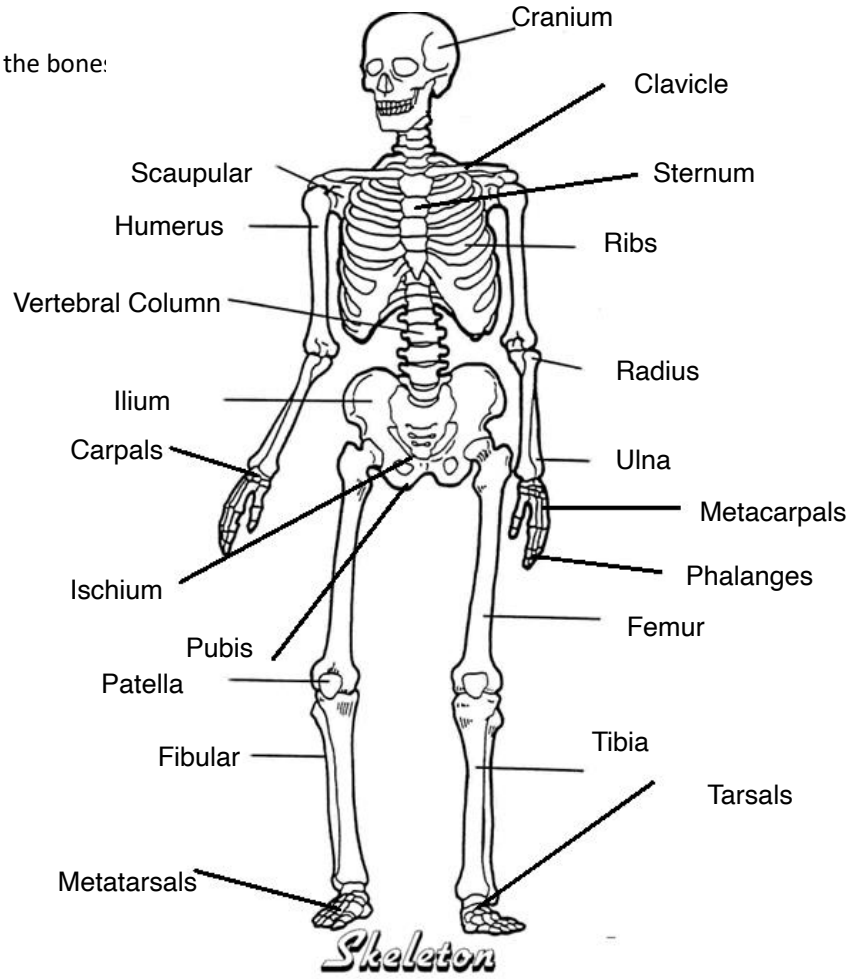
Q1

Describe the five functions of the skeleton.

Function	Description
Provides shape and support	Supports the weight of the body to allow it to stand and move
Enables the body to move	Bones, joints and connective tissue and muscle work together to make the body mobile
Protects internal organs	The skull shields the brain and the ribs surround and protect the heart and lungs.
Produces blood cells	Bone marrow produce red and white bloodcells.
Stores materials	Bones contain the body's supply of minerals such as Vitamin D and calcium

Q2 Correctly label the skeleton, use all the bones

Cranium
Clavicle
Ribs
Sternum
Humerus
Radius
Ulna
Scapula
Ilium
Pubis
Ischium
Carpals
Metacarpals
Phalanges
Femur
Patella
Tibia
Fibula
Tarsals
Metatarsals
Vertebral Column



Q3

Identify three bones that are part of the axial skeleton

Skull
Vertebre
Sternum

Q4

Identify four bones that are part of the appendicular skeleton

Femur
Tibia
Fibular
Humerus

Q5

There are five different classifications of bone, complete the table below by providing an example and explaining its function.

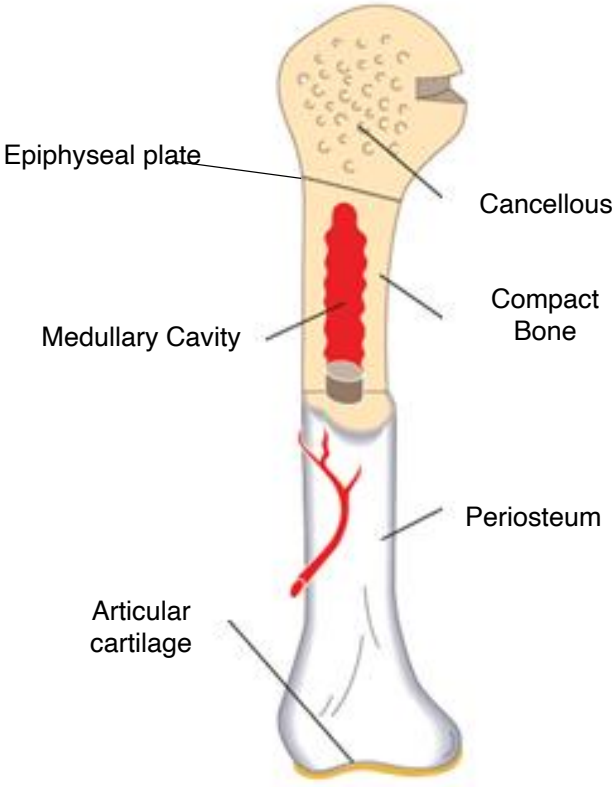
- Learner Guidance: Explain requires more analysis to demonstrate your understanding of the topic, short paragraph.

Type of bone	Example	Function
Long Bone	Femur	They provide structure and mobility and act as levers. They are hard, dene bones. They are greater in length than width and are slightly curved, giving the body strength.
Short Bone	Metacarpals	They have equal proportions, provide stability to the wrist and ankle joints and also help facilitate some movement.
Flat bone	Scapular	They are thin and sandwiched between two layers, they also provide protection for internal organs. They allow muscle to attach to them.
Irregular	Vertbral collumn	They have complicated shapes. These shapes are due to their function which is to protect various parts of the body. The Vertebre protect the spinal cord.
Sesamoid	Patella	Improve leverage and protect joints from damage. They develop in areas where there is friction, tension and physical stress.

Q6

Identify the structure of a long bone by labelling the diagram.

Learner guidance: use structures of the long bone found on question 7 on the next page



Q7

For each of the structures of the long bone you have labelled in the previous question, complete the table below to explain their structure in more detail.

Structure	Explanation
Medullary Cavity	Hollow part of the bone that contains bone marrow. The Bone marrow makes blood cells and stores fat.
Articular Cartilage	Smooth, white tissue that covers the end of bones. They come together to form joints. It allows bones to glide over each other with little friction.
Spongy Bone	It's a porous type of bone. Reduces the density of the bone and allows the ends of the long bones to compress when stress is applied to the bone.
Compact Bone	Solid and strong to help to the long bone withstand weight-bearing stress.
Periosteum	Tissue that covers the surface of the bone. It contributes to the blood supply of bones and the surrounding muscles. It contains nerve fibres that transmit messages throughout the body.
Growth Plate	Area of cartilage near the end of the bone. They are the last part of a child's bone to harden when growing.

Q8

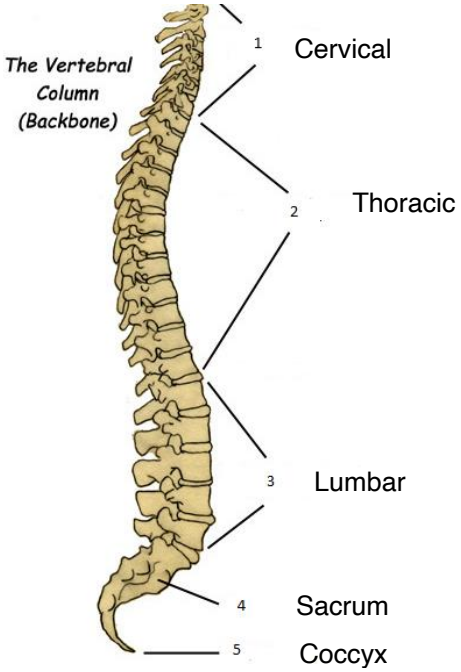
Explain the five stages of ossification (bone growth).

1	Foetal Stage: In the foetus, most of the skeleton is made up mostly of cartilage. As the foetus grows, osteoblast (bone building cells and osteoclasts (bone clearing cells) slowly replace the cartilage cells and ossification begins.
2	Birth stage: Many of the bones have been partly ossified
3	Birth to adolesdance.: The growth and elongation continue. The two epiphyseal plates between the diaphysis and the epiphyses of the bones. The Epiphyseal plates expand and form new cells, allowing the diaphysis to lengthen. The length of the diaphysis grows at both ends and the heads at each end the bone move away from each other.
4	Adulthood stage : The thickness of the epiphyseal plate gradually decreases and the growth ends. Ossification is fully complete between the ages of 18-30.
5	Later life: As the skeleton ages, calcium is lost from the bone. Loss of calcium and bone mass weakens the bone, increasing the risk of fractures.

Q9

Label the different sections of the spine using all the sections in the box below.

Lumbar
Thoracic
Sacrum
Cervical
Coccyx



Q10

From the different sections labelled in the previous question, describe the potential ranges of motion of each section.

Section	Potential Ranges of Motion
Cervical	Rotation, flexion and extension, lateral flexion and extension
Thoracic	Rotation, flexion and extension, lateral flexion and extension
Lumbar	Flexion and extension
Sacral	Fixed, no movement.
Coccyx	Fixed, no movement.

Q11

Describe what is meant by the term 'neutral spine'.

Natural "S" shape spinal position. Each vertebrae is aligned on on top of the other without any uneven deformation of the intervertebral discs.

Q12

Which area of the spine would you expect to see the following natural curves?

Kyphotic

Thoracic

Lordotic

Lumbar

Q13

Describe how a Lordotic spine affects the normal shape of the spine.

There is an abnormal curvature in the lumbar area of the spine. Most noticeable when supine, there will be a space between the spine and the surface beneath. In severe cases individuals are unable to reverse the position when bending forward.

Q14

Describe how a Kyphotic spine affects the normal shape of the spine.

There is an abnormal curvature in the thoracic area of the spine. A hump in the top of the back and an inability to stand up straight.

Q15

Describe how Scoliosis of the spine affects the normal shape of the spine.

A sideways curvature of the spine, which can make one shoulder seem higher than the other.

Q16

Describe how pregnancy can affect the normal shape of the spine.

The baby can cause abdominal muscles in the mother the weaken, the extra weight can alter the position of the pelvis leading to a hyperlodrotic posture.

Pass/Refer

Understand joints in the skeleton

Q1

Complete the table below of the different classification of joints, include the potential movement available at each.

Classification of joint	Location of joint	Potential movement of joint
Synovial	Hip	Freely moveable in all dierection: Flexion, extension, horizontal flexion and extension, interal and external rotation, adduction, abduction and cirumduction.
Cartilaginous	Vertebrae	Slightly moveable: rotation, flexion and extension and lateral flexion and extension.
Fibrous	Cranium	Fixed, no movement.

Q2

Describe the structure of the synovial membrane.

It is made up of two layers. Intimal - which stores the synovial fluid, and the subintima - a fibrous outer layer.

Q3

Describe the structure of the articular cartilage.

It's Hyanline cartilage. It doesn't have blood vessels, lymphatics or nerves meaning it has a limited ability to heal and repair. It is made up of water, collagen and proteoglycans.

Q4

Describe the six different types of synovial joints and state the range of motion available at each.

Ball and socket: Allows movement in almost any direction - Flexion, extension, horizontal flexion and extension, internal and external rotation, circumdiction, adduction and abduction.

Hinge: Allows flection and extension of and appendage.

Pivot: Allows rotation around an axis.

Saddle: Allows movement back and forth and side to side.

Gliding plate: Allows two bones to slide past each other

Ellipsoid/Condyloid: Flexion, extension, adduction, abduction and circumduction.

Q5

What joint actions are possible at the following joints?

Elbow

The elbow is a hinge. It allows flection and extension of and appendage.

Spine Learner guidance: name at least 3 joint actions

Vertebrae are cartilaginous joints. The cervical and thoracic vertebrae allow the most potential actions: Rotation, flexion and extension and lateral flexion and extension.

Hip Learner guidance: name at least 4 joint actions

Ball and socket: Allows movement in almost any direction - Flexion, extension, horizontal flexion and extension, internal and external rotation, circumdiction, adduction and abduction.

Q6

Describe each of the following joint actions and provide an example of a joint where it can occur.

Extension

Extension increases the angle at the joint, and example is straightening the arm. The angle at the elbow is increased.

Abduction

Abduction takes away from the midline body. For example lifting the arm up from the shoulder.

Plantar Flexion

Bending the ankle join so the toes are pointing downwards.

Pass/Refer

Understand the muscular system

Q1

Complete the table below.

Different types of muscle tissue	Main characteristics	Main role
Skeletal Muscle	It is striated in appearance and allows voluntary control.	They create bodily movement and also stabilise the body to prevent unwanted movement.
Smooth Muscle	They are smooth and spindle shaped. The are involuntary and not under conscious control.	They allow bodily function outside of conscious control. An example is the muscles involved in the digestive system or in the walls blood vessels.
Cardiac Muscle	It is striated in appearance and not under conscious control.	The heart is a cardiac muscle, it involuntarily contracts and relaxes to pump oxygenated and de oxygenated blood around the body.

Q2

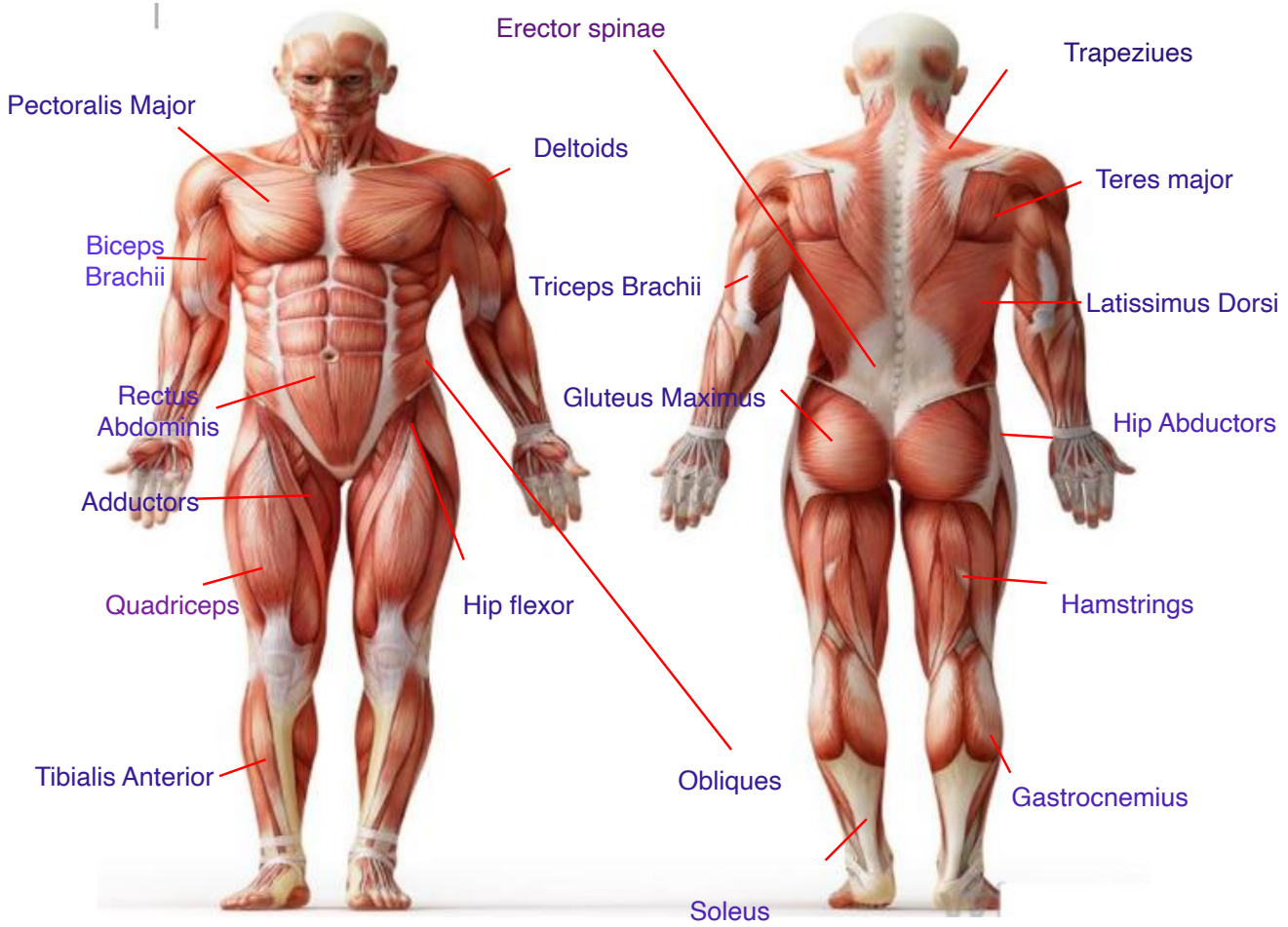
Complete the table below by describing the main structural points of a skeletal muscle.

Structure	Description
Muscle Fibre	Muscle fibres are located, bundled together inside Fasisculi. A single muscle fibre consists of a single muscle cell made up of a bundle of myofibrils. These are filaments that are arranged in segments called sarcomeres. The thin filaments are made of strands of actin which is twisted around tropomyosin. Thick filaments are are made of myosin.
Fascicle	Fascicles are bundles of muscle fibres. They are surrounded by a type of connective tissue called perimysium.
Fascia	Fascia is a thin casing of connective tissue. It holds the muscle in place.
Sarcomere	Sarcomere are composed of two main proteins filament; actin and myosin. A sarcomere is the basic contractile unit of a muscle fibre. A theory of this is the Sliding filament theory whereby the actin and myosin slide over oneanother, causing the sarcomere to shorten, thereby causing the muscle to shorten and lengthen.
Myofibril	Myofibril are located inside a single muscle fibre. They contain the sarcomeres mentioned above which cause the muscle contraction.

Q3 Label the skeletal muscles using the muscles from the list below, and identify what joint action each one allows.

Learner guidance: when describing joint actions please identify the limb/body part moving

Muscle to locate	Action it allows
Rectus Abdominis	Flexion of the spine
Pectoralis Major	Adduction, inward rotation, horizontal flexion of the shoulder joint.
Deltoids	Abduction, flexion, extension and rotation of shoulder
Tibialis Anterior	Dorsiflexion of ankle
Biceps Brachii	Flexion of elbow and supination of forearm.
Obliques	Lateral flexion and rotation of the spine
Soleus	Plantarflexion of the ankle.
Gastrocnemius	Plantarflexion of the foot. Flexion of knee.
Teres Major	Medial rotator, extension and adductor of the arm
Gluteus Maximus	Extension and outward rotation of hip.
Triceps Brachii	Extension of the elbow, extension of shoulder
Trapezius	Elevates, depresses, rotates and retracts the shoulder girdle.
Erector Spinae	Rotation and flexion of the spine
Latissimus Dorsi	Adduction, extension and inward rotation of arm.
Hamstrings	Hip extension and knee flexion
Quadriceps	Knee extension
Abductors	Abduction and inward rotation of the hip.
Adductors	Adduction and outward rotation of hip
Hip Flexors	Hip flexion



Q4

Describe the structure of the pelvic floor muscles.

The pelvic floor is a dome-shaped muscular sheet separating the pelvic cavity above from the perineal region below. It attaches to the walls of the lesser pelvis, separating the pelvic cavity from the perineum inferiorly.

Q5

Describe two functions of the pelvic floor muscles.

Support of bladder, intestines, uterus through their tonic contraction.

Urinary and faecal continence.The muscle fibres have a sphincter action on the rectum and urethra. They relax to allow urination and defecation.

Q6

Describe an concentric muscle contraction.

A concentric contraction is a type of muscle activation that causes tension on your muscle as it shortens. For example the lifting phase of a bicep curl.

Q7

Describe an eccentric muscle contraction.

Eccentric contraction occurs when the total length of the muscle increases as tension is produced. For example the lowering phase of a bicep curl.

Q8

Describe an isometric muscle contraction.

Isometric contraction occurs when muscle length remains relatively constant as tension is produced. For example, during a biceps curl, holding the dumbbell in a static position, pausing part way up the lifting or lowering phase.

Q9

Identify the joint action occurring in a barbell bicep curl during the concentric phase.

Flexion of the elbow.

Q10

Identify the joint action occurring in a barbell bicep curl during the eccentric phase.

Extension of the elbow.

Q11

Complete the table below by identifying three different muscle fibre types and their main characteristics.

Muscle fibre types	Characteristics
Slow twitch	Many mitochondria, so aerobic energy is produced
	Many capillaries so red in colour
	Smaller in diametre
Intermediate fibres	Larger in diameter than slow twitch, but smaller than fast twitch.
	Some capillaries, so pink in colour
	Some mitochodria (not as many as slow twitch)
Fast twitch	Larger in diameter than slow twitch and intermediate fibres.
	few capiliaries white in colour
	No mitochondria, energy is produced anaerobicly

Pass/Refer

Understand the life-course of the musculoskeletal system and its implications for special populations exercise

Q1

Describe two physical changes, and their implications for exercise, when training young people (in the 14-16 age range)

Leaner Guidance: Think about what effect training can have on tendons, ligaments, muscles, joint and bone mineral density changes.

During growth spurts, bones are growing faster than muscles and tendons. This can affect an adolescence's balance and co-ordination. To avoid injuries, simple, functional movements should be preferred eg squatting, deadlifting etc, over complex movements eg olympic lifting.
The growth plate is the weakest area of the growing skeleton. Preventative training measures to avoid growth plate injury should be put in place. This would include avoiding excessive training, or static/high impact training.

Q2

Describe two physical changes, and their implications for exercise, when training older people (50 plus age range)

Leaner Guidance: Think about what effect training can have on tendons, ligaments, muscles, joint and bone mineral density changes.

In older adults there is a loss of bone mass and reduced bone density. This means bones become less resilient to stress and more susceptible to fracture. It also means a reduction in shock absorption in the joints. High impact training such as jumping should be avoided.

In older adults, their heart and circularity system is less efficient. This will affect their anaerobic threshold (lowering it) but also the efficiency of oxygen reaching parts of their body. This can reduce muscle strength and tolerance to fatigue, as well as added stress on the heart when training anaerobicly.

Q3

Describe two physical changes, and their implications for exercise, when training antenatal and postnatal women.

Leaner Guidance: Think about what effect training can have on tendons, ligaments, muscles, joint and bone mineral density changes.

During pregnancy relaxin is released to help the body accommodate a growing baby. This causes joints to become more elastic and lose some stability, making women prone to injury. Heavy weights in the end range of mobility should be avoided.

During pregnancy, the weight of the foetus can cause stress to the spine and change posture, this will affect the joints, ligaments and tendons in the spine. After childbirth a focus should be on correcting posture and alignment, address muscle imbalances and pelvic floor function.

Pass/Refer

Understand energy systems and their relation to exercise

Q1

What does ATP stand for?

Adenosine triphosphate

Q2

Describe what the role of carbohydrates, fats and protein are in the production of energy.

Carbohydrates are stored as glycogen in the muscles and liver, and as glucose in the blood. Fat is made up of triglyceride molecules that are broken down to fatty acids, releasing energy in the process. Protein can be broken down to release energy by amino acids. This only takes place, however, during long-lasting endurance events.

Q3

Explain the use of the creatine phosphate (CP) or phosphocreatine system during exercise.

Learner Guidance

- Include what nutrients or compound the energy system will use to resynthesis energy
- Explain the types of activity/exercise that the energy system will fuel.

During exercise, muscular contractions need Adenosine triphosphate. Energy is immediately available however, will only give enough energy for a few seconds. The creatine phosphate system remakes ATP as quickly as the muscle stores use it up. Once ATP is used, it loses a phosphate and become ADP. ADP is turned back into ATP by using another chemical found in the muscle fibres called creatine phosphate (CP), ready to be used again in the next muscle contraction. It is used at the start of exercise for activities which require a brief, explosive, maximal effort, for example, 100m sprint or olympic weight lifting.

Q4

Explain the use of the lactic acid system/anaerobic system during exercise.

Learner Guidance

- Include what nutrients or compound the energy system will use to resynthesis energy
- Explain the types of activity/exercise that the energy system will fuel.

When oxygen isn't available or when stores of creatine phosphate run out, The ADP uses energy formed from the breakdown of carbohydrates (glycogen or glucose) to produce ATP. Lactic acid is produced as a by-product. However as the lactic acid builds in the muscle, muscular contraction becomes more difficult.
It's not as powerful as the CP system, but it can produce a relatively high proportion of Adenosine Triphosphate (ATP) for around 30seconds before quickly starting to plateau as energy production decreases significantly between 30-90seconds.
Activities such as the 200m or 400m sprint use this energry system.

Q5

Explain the use of the aerobic system during exercise.

Learner Guidance

- Include what nutrients or compound the energy system will use to resynthesis energy
- Explain the types of activity/exercise that the energy system

The ADP formed during energy production uses energy from glucose/glycogen (carbohydrates), fat or protein breakdown to reform ATP. It is used during low intensity exercise when there is sufficient oxygen reaching the muscles. This process happens in the mitochondria of the muscles fibres (slow twitch), producing carbon dioxide and water as a result.
Activities that use this energy system are more endurance based such as long distanced running, hiking, swimming and rowing.

Pass/Refer

Understand the nervous system and its relation to exercise

Q1

Describe three roles and functions of the nervous system.

It controls voluntary functions. For example, movement; walking, lifting, running etc

It controls involuntary functions. For example, digestion, systemic and pulmonary circulation.

It controls involuntary movements. For example, if you touch something hot, automatically pulling your hand away.

Q2

Describe the principles of muscle contraction.

Learner Guidance – What are the role of nerves in muscle contraction? Think about nerve impulses

Muscle contraction is initiated by the nervous system. The brain sends a motor neurone(signal) down the spinal cord and on the the nerves. The nerves meet the muscle at the neuromuscular junction. The motor neurone release a chemical (acetylcholine), which is picked up by the muscle fibre via a motor unit. This tells the muscle fibre to contract.

Q3

Describe the 'all or none' law.

Learner Guidance – Think about motor unit recruitment

"The strength of a response of a nerve cell or muscle fibre is not dependent upon the strength of the stimulus. If a stimulus is above a certain threshold, a nerve or muscle fibre will fire." So basically, there will either be a full response or there will be no response at all for an individual neurone or muscle fibre.

Q4

Describe what determines whether or not a contraction takes place within a motor unit.

The strength of a muscle contraction is determined by the size and number of motor units being stimulated. If no motor units are stimulated, then no contraction will take place.

Q5

Describe two adaptations that occur in the neuromuscular system with regular exercise that improves motor fitness.

More motor units are recruited which in turn reach more muscle fibres. This increases the the strength of the muscle contraction.

There is also a slower rate of decline in existing Motor unit conduction after endurance trainging.

Pass/Refer

Assessor Feedback

Assessor Feedback