Assessment Schedule – 2005

Biology: Describe the functioning of human digestive and skeletomuscular systems (90166)

Evidence Statement

Q	Achievement	Achievement with Merit	Achievement with Excellence
1(a)	Forms a smooth layer **or** cushion**: for** movement / articulation. **OR** Reduces friction / wear for movement / articulation. **NB** movement can be implied.		
1(b)	Voluntary described in simple terms as muscles that we choose to move. **OR** Involuntary described (but no contrast). **Must mention control aspect.** **NOT** just giving named examples.	Voluntary muscles are explained. Voluntary = Muscles that work because 'we decide to move them'. **OR** They are under conscious control. **OR** Cannot work without conscious control (involuntarily). **Plus Contrasted** to involuntary muscles. Eg Skeletal muscles need to be controlled to ensure control of movement.	
1(c)	Description of the movement includes: **Flexor** contracts (antagonism optional) **:** **Flexor** joined to bone (by tendons) **:** Ligaments hold bones together. Cartilage **NOT** needed	Explanation that: Muscles work in pairs / antagonistically. Need for contraction and relaxation. Eg Flexor contracts & Extensor relaxes (names muscles) **:** Ligaments hold joint together **:** Tendons join muscles to bone across a joint.	Discussion of movement must include mention of **all** the components, eg the flexor muscle works in an antagonistic pair with the extensor (quadriceps). As the flexor contracts, the extensor relaxes. The lower leg (tibia and fibula) is pulled backwards. The tendons join the muscles to the bones so they can pull on the bones. Ligaments allow the knee to bend but hold it together in a stable position. The need for **all** the components to play a part is mentioned or implied.

Q	Achievement	Achievement with Merit	Achievement with Excellence
2(a)	Accept **any** reasonable function such as protection eg skull / ribs; production of blood cells eg femur / humerus / sternum / pelvis; hearing (eg bones in middle ear) **OR** names at least one. Eg Malleus / hammer.		
2(b)	Children more likely to have a Greenstick (fracture) (than adults) **OR** Adults more likely to have simple / compound factures (than children) **OR** the bone is still soft and developing in young children **OR** the adult bone is harder and therefore more prone to a full fracture.	Explains reason for age related break. The bone is still soft and developing in young children **AND** therefore more likely to bend / have a greenstick fracture **OR** the adult bone is harder and therefore more prone to a full fracture such as simple fracture / compound fracture.	
2(c)	Describes rheumatoid and / or osteoarthritis in simple terms. Eg • cartilage wears out / • bones rub / • joint has poor lubrication • inflammed / swollen / stiff joint(s).	Explanation of: • inflammation: • causing stiffening: • reducing movement: Eg osteoarthritis being the wearing away of (articular) cartilage **:** bones rubbing over one another **:**and the joint swelling and becoming painful. Explains osteoarthritis **OR** rheumatoid arthritis.	Discussion of **both** osteo and rheumatoid: includes detail of: • **Osteoarthritis** is the wearing away of (articular) cartilage, bones rubbing over one another and the joint swelling and becoming painful. • **Rheumatoid** arthritis is inflammation and breakdown of the synovial membrane, reducing production of synovial fluid, reducing lubrication and causing stiffness and pain.

Q	Achievement	Achievement with Merit	Achievement with Excellence
3(a)	Allows **absorption** of food / to break down food and allow **absorption**.	Food broken into smaller molecules**:** able to be absorbed. **Links** the two points.	
3(b)	(Chemical digestion involves enzymes) Not all the enzymes are in the mouth / Only amylase/ptyalin in mouth / Only starch-splitting enzymes in mouth / No lipase / protease present.	Chemical digestion requires specific enzymes and only occurs if the named specific enzymes are present. Eg only enzyme is salivary amylase, specific to starch digestion. **OR** Eg No lipase to break down lipids.	
3(c)	Description that includes one of: At low or high pH enzymes less / more active. Eg enzymes in small intestine need correct (alkaline) pH to work best. **OR** pH 7.5/8 is the optimum pH so the enzymes are most active.	Explanation of optimum environment relates to changing pH Eg digestion slow / enzyme inactive / denatures **:** at low pH. **OR** High pH denatures stomach enzymes. (A generalised explanation where no specific enzymes or digestive parts are referred to.)	When acid stomach contents enter the duodenum, they are mixed with pancreatic juice and bile. This creates the proper acid / alkali balance (pH value) at which the pancreatic enzymes are most effective (both bile and pancreatic juice are alkaline). **OR** Lack of bile leads to reduction of pH. Range of pH discussed and related to dysfunction / denaturing of enzymes, and therefore the effectiveness of digestion. (Specifics are used.)
4(a)	Tooth may be canine or molar, but should include any **THREE** correctly labelled structures from: • Enamel • Dentine • Pulp cavity • Cement • Crown • Root.		
4(b)	Description of the fact that the teeth are adapted for different tasks. Eg Incisors / cutting / biting **or** Canines / tearing **AND** Premolars / Molars / crushing and grinding **OR** Different teeth for different foods / We are omnivores.	Explanation that builds on the description to include **two** specific tasks such as: **Must** be related to the fact that humans are omnivores / have a mixed diet. Eg Different teeth for different foods. We are omnivores.	

Q	Achievement	Achievement with Merit	Achievement with Excellence
5(a)	The most common symptoms of bowel cancer include: (**any two**) • blood or mucus in the faeces • an unexpected change in bowel habit, eg diarrhoea or constipation • pain and / or swelling in the lower abdomen • constant tiredness • weakness and paleness.		
5(b)	Describes that diarrhoea can cause: • water loss / • dehydration / • salt loss etc. **NOT** just runny faeces.	Explains that diarrhoea can cause dehydration, which means the body lacks enough fluid to function properly ie explains how / why diarrhoea can cause death from **:** • water loss causes dehydration • thicker blood / rise in heart rate / • sweating decreases and heat loss reduced / • body core temperature rises / • heat stress.	Links water loss to something either named / described that has potential to be fatal
5(c)	Description identifies how the functioning is changed by the ulcer Eg • lining of stomach gets damaged / • reduced churning of food / • digestion becomes painful / • digestion becomes less efficient.	Explains an effect of ulcers Eg • Damaged mucous lining allows stomach wall to be digested / damaged by enzymes / acid **OR** • Damaged muscle wall, reduces churning / peristalsis **:** so the stomach can't digest as much food.	Discusses the effect (consequence of damage) clearly in terms of • Lining **:** • Enzymes **:** • Function. Eg • Usually mucous lining protects stomach from digestion by its own enzymes / secretions **:** • (Part) of lining is broken down **:** • Ulceration is damage to the wall caused by the enzymes breaking it down **:** • Damaged muscle wall reduces churning / peristalsis **:** • Now the stomach can't digest as much food.

Judgement Statement

Achievement	Achievement with Merit	Achievement with Excellence
Total of SEVEN opportunities answered at Achievement or higher. At least THREE must be from Questions One and / or Two *and* at least THREE from Questions Three, and / or Four, and / or Five. 7 × A	Total of ELEVEN opportunities answered. Any FOUR at Merit level or higher *and* SEVEN at Achievement level (as for Achievement). 4 × M + 7 × A	Total of THIRTEEN opportunities answered. Any TWO at Excellence level *plus* any FOUR at Merit level *and* SEVEN at Achievement level (as for Achievement). 2 × E + 4 × M + 7 × A