Assessment Schedule 2006

Biology: Describe trends in human evolution (90719)

Evidence Statement

Question	Achievement	Achievement with merit	Achievement with excellence
1(a)	Gives TWO primate skull features, eg • relatively large cranium • forward-facing orbits / binocular vision • brow ridge • walled off eye sockets • generalised dentition.		
1(b)	Describes a feature of the skull for or against bipedalism, eg • bipedal as foramen magnum under skull / more centralised • bipedal as reduced nuchal crest. • not bipedal as foramen magnum is located at the rear.	Relates the feature to the ability of the head to be balanced on the spine, eg • foramen magnum under skull / more centralised suggests that skull is balanced on top of vertical spinal column, implying bipedalism.	
1(c)	Describes **any two** features of a post-cranial skull that indicate bipedalism, eg • valgus angle • lower end of femur buttress flatter • big toe aligned with rest of foot • arches in foot • spinal column has S-curve • bowl shaped pelvis.		
1(d)	Describes two advantages, eg • can reach up higher • hands freed for other functions • see over grass / bush • more energy efficient • less surface area to sun • more surface area to wind • appear larger to predators.	Gives a reason why both are advantages, eg • can reach up higher allowing access to food / climbing branches • hands freed so can carry food / offspring / tools • see over grass / bush which allows better scavenging / improved ability to spot predators or prey • more energy efficient so can travel greater distances • less surface area to sun so energy not wasted in cooling down • more surface area to wind so cool down quicker.	Discussion that clearly compares the advantages in both habitats, eg • In both the savannah and forest bipedal hominins would have been upright allowing them to see predators. In the savannah they would have been less susceptible to heat exhaustion as less of their body surface is directly in the sun and they would be more exposed to cooler air breezes. In the forest it would have been easier to reach food. In both habitats movement is more efficient.

2(a)	Describes a feature of the human hand that allows greater precision and dexterity, eg • opposable thumb • sensitive skin • A longer thumb.		
2(b)	Describes a trend in tool manufacture, eg: • length of cutting edge increases • number of blows increases. • more precise tools • more refined tools • more time taken making tools.		
2(c)	Describes how **OR** why Cro-Magnon society supports the toolmakers, eg • (how) By being settled in one place. • (how) Role specialisation provides toolmakers with their needs eg food, clothing protection. • (why) Only some people would be toolmakers. • (why) The society enables toolmakers: more time to make tools / to make tools more effectively / provide tools for a wider range of activities. • (why) toolmakers were valued.	Links how **AND** why Cro-Magnon society supports the toolmakers, eg • By being settled in one place only some people would be toolmakers / toolmakers would have more time to make tools. • Role specialisation provides toolmakers with their needs so they can make tools more effectively.	Links reasons for how **AND** why with significance of specialisation (greater efficiency) eg: • By being settled in one place only some people would be toolmakers which enabled better-specialised tools for better hunting / opportunity for learning from specialists (specialisation of roles).
3(a)	Describes how humans were able to migrate so rapidly, eg • due to a lowered sea level • due to land bridges being created • constant food supply around the coast.	Explains how humans were able to migrate so rapidly, eg • It would be possible to reach many areas via land bridges as it means a shorter / safer route. • Straits between islands could be narrower – more likely to use boats / rafting to cross straits. • Coastal travel would be easier on newly-exposed continental shelf with ready food supplies in shallow coastal waters.	
3(b)	Describes why humans were slow to colonise Europe, eg • The coastal Asian route was potentially easier to travel. • Europe was heavily glaciated • Neanderthals were already present in Europe. • Much colder in Europe.	Explains why humans were slow to colonise Europe, eg • European climate much more severe than the more southerly coastal route, forcing more southerly travel / so harder to get food. • Neandertals were already present in Europe creating competition. • Too cold in Europe as adapted to warmer climates so migrated further south.	

3(c)	Describes how the data in Fig 5 supports rapid migration, eg • Very flat branching pattern in the phylogeny. • The sudden emergence of many populations 50-65,000 yrs ago. • The divergence occurred in all the coastal populations.	Links the rapid divergence with all the coastal populations, eg • The very flat branching pattern in the phylogeny shows all the coastal populations formed over a short period of time. • The sudden emergence of many populations 50-65,000 yrs ago in all the coastal regions.	
3(d)	Describes how the information relates to either the replacement or the multiregional hypothesis, eg • supports the replacement hypothesis • does not support the multiregional hypothesis.	Gives a reason why the information supports the replacement hypothesis **or** does not support the multiregional hypothesis, eg • The non-tasting allele / gene evolved arose before modern humans left Africa supporting the replacement hypothesis. • As there are lots more alleles in Africa than out of Africa it supports the replacement hypothesis.	Discusses how the information supports the replacement hypothesis **and** does not support the multiregional hypothesis, eg • The non-tasting allele arose before exodus ~100 000ya in Africa and then diversified in Africa after the exodus thus emigrants do not have 7 / newer / 5 extra versions / just non-tasting and original alleles. This supports the replacement hypothesis of homo sapiens evolving in Africa and then migrating throughout the world. This evidence does not support the multi-regional hypothesis as otherwise all the alleles would be found outside Africa.

Judgement Statement

Biology: Describe trends in human evolution (90719)

Achievement	Achievement with Merit	Achievement with Excellence
SIX questions answered correctly. Minimum 6 × A	SEVEN questions answered correctly, including at least FOUR at Merit level. Minimum 4 × M + 3 × A	EIGHT questions answered correctly, including at least THREE at Merit level and at least TWO at Excellence level. Minimum of 2 × E + 3 × M + 3 × A