

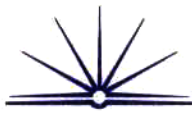
Question 32

a) i) → fur or hair.

- ii) 1. The skull of the *Homo sapiens* skeleton and its braincase are far larger than the skull of *Australopithecus africanus* who had a cranial capacity of approx 500 of a smaller brain (which explains the different skull size).
2. Humans have larger pelvises, *A. africanus* had a smaller narrower pelvis structure than the *H. sapiens*.

b) i) Using a variety of different sources, such as books, museums, people, scientists familiar with the use of the equipment, talking to an archaeologist, visiting an archaeological site; watching the scientists at work; documentaries, encyclopedias, internet investigations using general search engines & ones catered for 'scientific fields'.

ii) By deciding on how valid the source from which you gained the information from was, you could then make a judgement about how relevant & reliable



(c). Skin pigmentation is an example of polymorphism in humans. Dark skin pigmentation can be dominantly found in hot conditions including places such as Africa and Australia. The melanin (the ^{chemical that gives the} dark pigmentation) has proven to be a very significant in reducing the formation of skin cancer. It is an evolutionary advantage. As a result they people with this pigmentation have been more successful in being able to survive, reach maturity and reproduce to pass on this gene to their next generation which increases their population when compared to people with white skin from a European background. Who are more confined to areas with less sun exposure. ~~who~~ however they are able to survive better in colder environments than people with the dark skin pigmentation.

a) Two features of these primates is their way of walking/stance and the ~~different~~ difference between arm length and leg length. The information I gathered was from a visit to the zoo where I observed prosimians, monkeys and apes and I compared them to humans. The information I gathered on prosimians were that they're small primates who are quadrupedal, are arboreal, have a prehensile tail and have longer forelimbs than hindlimbs. Monkeys - both new world and old world were very much like prosimians, they too were quadrupedal, were mostly arboreal and their forelimbs were longer than their hindlimbs. Apes showed a change, they are larger animals who were knucklewalkers and still their forelimbs were longer than their hindlimbs, they were also terrestrial just like humans.

Humans showed a major ~~difference~~ difference - we had an upward stance which makes us bipedal, our arms are at equal length with our legs and we are terrestrial. From this information we can see the gradual form of evolution from prosimians to humans, we can see how we've gone from quadrupedal to bipedal, we can see how we've moved from trees down to sturdy land. We can see how the length of our limbs have changed to benefit us, by being bipedal we can use our hands to do other things. Overall from my investigation we can see the evolutionary significance that has taken place.



(2)

c. The main factors affecting human biological evolution would be modern medicine, increase population mobility and genetic engineering. All of which can have ~~good~~ positive and negative effects and which will ~~be~~ alter the evolution. Modern medicine has the ability to decrease disease in the world, which in turn would create humans living longer. This could be a good thing or a bad thing in that it could lead to overcrowding and economical problems. It also has the effect of the ageing population which would increase welfare for these people. It has the ability, through antibiotics and resistance to develop more virulent strains of disease, never seen before which ^{may} ~~could~~ not be able to be controlled and cause death to many and cause extinction of the human race. Health promotion initiatives has the

ability to reduce lifestyle disease death and illness, and make life for a people more enjoyable. Modern medicine may increase or decrease our evolution. Increased population mobility ~~and~~ ^{will} be able to reduce polymorphism and clinal gradations which may break down barriers about race, discrimination and feeding. It may increase our evolution ~~evolve~~ by reducing the deaths from wars and by mixing genes for positive traits and hybrid vigour. However this mixing may lead to a population that is identical which could result in less variation so our evolution could be short lived when a sudden environmental change comes about and destroys the human race. Genetic engineering has the ability to have positive and negative effects on human biological evolution. It may decrease the incidence or eradicate genetic disease which could reduce the death rate, increasing the population, which in turn may be too much for the resources on earth. By curing these genetic diseases the genes that cause the defect remain in the population which could come back to affect the population in further evolution. Genetic engineering could help humans evolve for a long time by producing more efficient agriculture through genetic methods which would create greater food for the population. However it could create ~~super~~ super diseases,

would if genetically modified organisms cross with those that are not which could cut short our evolution. By adding traits into humans that have never been seen before such as through cloning could alter the way and what we ~~evolve~~^{evolve} into it could also create a population that could easily be eradicated. There is a danger that through genetic engineering germ warfare and disease could easily be spread which would affect our evolution greatly. Modern medicine, ^{increased} ~~Modern~~ population mobility and genetic engineering all have the ability to have positive effects on our evolution increasing its negative effects that decrease it driving humans to extinction. Much thought ^{and} ~~more~~ care needs to be taken to address this to ~~prevent~~ prevent it from occurring.