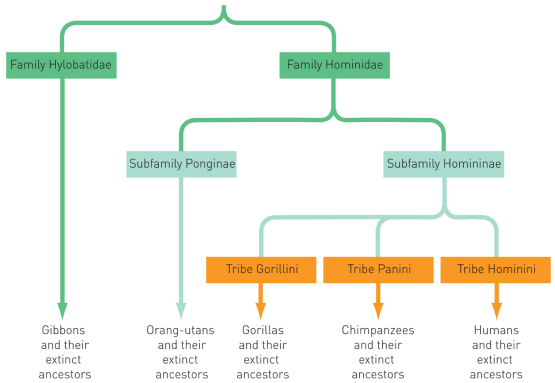
12. UNDERSTAND THAT HUMANS AND GREAT APES ARE IN THE SAME TAXONOMIC FAMILY (HOMINIDAE).THEY HAVE MANY DIFFERENCES.

Hominoid = human like (apes and humans)
Hominid = human, recent ancestors and great apes
Hominin = only mans ancestors

Hominidae Family
The hominid Family (hominidae) is a sub group of the primates to which humans belong. Hominids have:

- Arms shorter than their legs
- Nostrils close together and pointing downwards
- Thumb opposable to all fingers (digits) but toes nit opposable
- An enlarged brain
- An upright posture
- No tail



	Pongids (Apes)	Hominids (Humans)	Evolutionary benefits
HEAD	- Sagittal crest is large in pongids (attachment of neck muscles - Brow ridge is more prominent in apes (protects the eyes) - Large nuchal areas - Foramen magnum found towards back of skull - Forward jutting face, more prognathic (prognathism) - Very large check bones, to allow for jaw muscles (Zygomatic arch) - Chin is absent - 400-500cc (cranial capacity)	- Sagittal crest is absent in humans - Less prominent brow ridge - Small nuchal areas - Foramen magnum found central at base of skull. - Flat face (Prognathism) - Very small check bones (Zygomatic arch) - Prominent chin - 1350cc cranial capacity	- Skull balances on vertebral column. - Smaller neck muscles. - Enables a larger brain. - Less prognathism • better skull balance
JAW AND DENTITION	- Horseshoe shaped jaw - Large canine teeth, large incisors - Diastema present - Large brow ridges	- Parabola shaped jaw - Even sized teeth - No diastema - Smaller brow ridge	- Smaller teeth flatter face. - Better grinding action. - Smaller teeth flatter face. - Better grinding action.

HANDS	- Shorter thumb which is not as strong as in humans. • No full opposability. • Power grip only. - Bones of fingers curved	- Longer thumb • full opposability • precision grip	- Greater precision grip. - Allows for tool making, other crafts, writing
FEET	- One arch • longitudinal - Some opposability • Can grasp with feet	- Two arches • longitudinal and transverse - Big toe not opposable - Larger heel	- Allows for striding gait • formation of spring. - Big toe • ease of walking
VERTEBRAE	- C shaped - Large square vertebrae at neck – supporting large neck muscles - Higher centre of gravity (rib area)	- S shaped - Lumbar curve - Large wedge shaped vertebrae • Lower centre of gravity (pelvis area)	- Allows head to balance on neck without muscle support. - Head aligns directly above the pelvis.
PELVIS	- Shape - long and elongated - Angled forward - Femur is vertical	- Shape - short and broad - Tilted back- Bowl shaped - supports abdominal muscles - Femur is not vertical • carrying angle - Brings knees toward central line of body - Outer condyle of hinge joint is stronger	- Support for organs. - Muscle attachment for leg muscles
LOCOMOTION	- Quadrupedal - Arms longer than legs - Scapular very large - Carrying angle absent	- Bipedal - Led longer than arms - Small scapular - Carrying angle present	
OTHER	- Simple speech - Some reliance on smell - Large amounts of hair - Prenatal care for 2-5 yrs	- Complex speech - Most reliance on sight. - Limited body hair - Prenatal care for up to 20 yrs	- Communication - Parasite control/thermoregulation - Increased chance of survival

13. DETERMINE RELATEDNESS AND POSSIBLE EVOLUTIONARY PATHWAYS FOR HOMINIDS USING COMPARISON OF MODERN HUMANS AND THE GREAT APES WITH FOSSILS OF

	Physical	Lifestyle and culture	Major advantages
AUSTRALOPITHECINES	- 450-500 cc brain capacity - Strong curved fingers and toes - Shorter thumb - Well developed brow ridges - Jaw prognathic - Arms longer than legs - Vertebrae less wedge shaped	- Home bases - Hunters and foragers - Broad range of habitats - Mainly vegetarians - Social groups	- Some basic tool use • pebble tools - Bipedal - Some precision grip
HOMO HABILIS	- 600-700cc brain capacity - Robust hands, powerful grip - Could climb trees - Bulge in speech area of brain	- Food gathering - At night went to trees - Shift to meat eating - Hunting/sharing/co-operation - Communication - Extended parental care	- First tool maker!!! - Oldowan tools • stone
HOMO ERECTUS	- 1000 cc brain capacity - Modern teeth - Brow ridges	- Building of shelters - Better tools - Fire!!! - Variety of hunting techniques - Improved communication • better language - Cooking • destroyed parasites - Acheulian Hand Axe	- Use of fire : • Protection • Hunting • Warmth • Cooking of food • Tools of stone and bone – Acheulian tool culture
HOMO NEANDERTHALENSIS	- 1400- 1500 cc brain capacity - Large occipital bun - Cheeks swept back - Heavy brow ridges - Very large, flat nose - Robust but shorter than modern man/muscley	- Well developed social system - Buried dead - Cared for disabled - Co-operative hunting - Cloth maker - Art/cave drawings - Perhaps belief in after life • religion - Mousterian tool culture	- Hafting • adding a handle to tools - More complex tools • cutters, scrapers, piercers. - Use of bone and stone - Mousterian Tools

CROMAGNON – HOMO SAPIENS	- 1350 cc brain capacity - Flat face and rounded cranium - Even sized teeth - Legs longer than arms - Carrying angle - Longer thumb and straight fingers	- Live anywhere • modify environment - Complex society - Increase food production - Full speech/many languages - Cultures of tools include • Magdalenian, Aurignacian, Solutrean	- Blade/bone/antler tools (complex) - Written language - Portable art - Figurines • stone and ivory