

**PENANG SANGAM HIGH SCHOOL  
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**P.O.BOX 44, RAKIRAKI**

**LESSON NOTES**

**WEEK 11**

**Year/Level:** 13A/B

**Subject:** BIOLOGY

<b>Strand</b>	1 Structure And Life Processes
<b>Sub Strand</b>	1.2 Human Evolution
<b>Content Learning Outcome</b>	Explain trends of hominid evolution with corresponding evolution of culture

**Hominids** (Hominidae)

- ✓ Hominids consist of early humans and their ancestors – Ramapithecus (the oldest hominid fossil), Australopithecus, and Homo.

**Hominids**

- ✓ They are large primates with an upright stance and bipedal locomotion.
- ✓ They have a locking knee joint and the big toe is not opposable.
- ✓ The limbs are equal in length.
- ✓ The pelvis of humans is shorter and they are not pot-bellied like apes.
- ✓ Human legs are longer than apes with the thighbone angling towards the knee placing the feet closer together and therefore directly under the centre of gravity of the body.
- ✓ Human feet are flat compared to the curved feet of apes- **plantigrade**
- ✓ Human hands are flatter and broader and the fingertips flatter with sensitive nerve endings in the tips.
- ✓ The human brain size of 1350 cc is larger than the apes at 400 cc.
- ✓ When this is compared to body size the relative size of the human brain is much greater.
- ✓ The dental arch in gorillas is U-shaped while in humans it is a parabolic arch.
- ✓ Ape teeth have thin enamel while humans have thick tooth enamel.
- ✓ No bony ridges over the eyes.

<b>Pongids</b>	<b>Hominids</b>
Forelimb knuckle-walkers (quadrupedal)	Walk upright and the hands do not normally touch the ground (bipedal)
Arms longer than legs	Legs longer than arms
Feet- low arches and opposable big toe	Feet- high arches and big toe in line with others
Teeth- large gaps between canines	Teeth- gaps between canines reduced/ absent
Tree dwelling	Live in open plains/land
Skull- bent forward	Upright skull
Prominent eye ridge	Smooth eye ridge
Slanting face	Vertical face
Smaller brain size	Bigger brain size

## Humans Share Characteristics With Many Groups Of Animals.

- Humans have an upright stance and are bipedal.
- They use durable tools and are capable of speech and abstract thought.
- They have a prolonged period of parenting.
- They have reduced hair on their bodies with coarse hair found on the head, armpits and pubic area.
- There is an S-shaped spine and a broad pelvis.
- The legs are longer than the arms.
- Human feet have an arch to facilitate walking on two feet.

### Adaptation of life in open plains

#### **Shorter snout**

Less dependence on smell and greater dependence on sight.

#### **Anatomical changes**

Well balanced skull, vertical neck, straight legs and platform like feet led to an erect posture and an erect posture led to bipedalism. Hands become free, can be used to make tools, prepare food.

### Activity:

1. Explain how selective breeding can lead to evolution within the populations of domestic animals?

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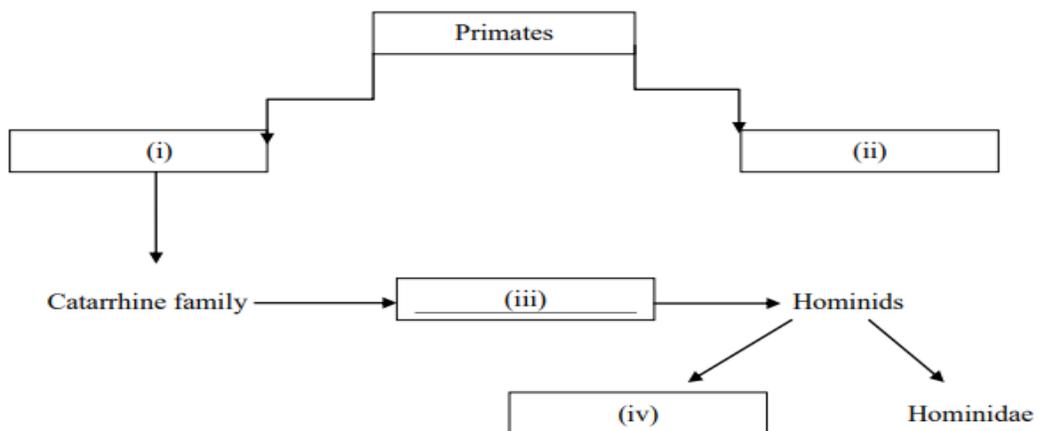
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2.

- (a) An incomplete flow chart of the classification of Primates is given below.



Select from the **Word list** the appropriate term to replace each of the four numerals.

**Word list:**

Ponginae    Hominoids    Prosimians    New World monkeys    Anthropoids