

PENANG SANGAM HIGH SCHOOL

P.O.BOX 44, RAKIRAKI

LESSON NOTES

WEEK 14

Year/Level: 13A/B

Subject: BIOLOGY

Strand	1 Structure And Life Processes
Sub Strand	1.2 Human Evolution
Content Learning Outcome	Study and understand the main stages of hominid evolution as seen in the genera <i>Homo</i> and Explain trends and features of bipedalism

Homo sapiens neanderthalensis

- ✓ 'Neanderthal Man'
- ✓ Their skulls were long and flat, with a low forehead, broad nose and a prominent brow ridge above the eyes.
- ✓ Although their brains were larger than Homo sapiens, language was not well developed and their technological development was limited
- ✓ Teeth are smaller than H. erectus but bigger than our own
- ✓ Fully bipedal
- ✓ They buried their dead, which is an indication of some form of 'spiritual life' or advanced culture.
- ✓ **Culture:** Neanderthals lived in caves and rock shelters. They made use of the animal skins for clothing and blankets. Tools from Neanderthal sites include fine points, sharp knives, and scrapers. -

MOUSTREIAN TOOLS

Advantage Of Burying The Dead

- Respect for dead indicating social bonding
- Avoiding scavengers/wild animals from eating the corpse
- Possibility of belief in 'life after death'
- Avoid spread of diseases
- Avoid pungent smell from decomposing corpse

Homo sapiens sapiens

- ✓ Cro – Magnon Man, Modern Man
- ✓ It is claimed that the appearance of Homo sapiens resulted in the disappearance of the Neanderthals.
- ✓ Homo sapiens developed better skills and had more advanced technology
- ✓ Exploited numerous food sources as a hunter/gatherer. Adopted farming with domesticated animals and cultivated crops.
- ✓ Fully bipedal
- ✓ Homo sapiens used tools made from bone as well as stone, which includes spears, arrows, bows and hooks for fishing.
- ✓ Their clothes were made mainly from leather and plant material.

- ✓ They lived in tents and formed communities.
- ✓ Visual arts appear for the first time, in the form of marvelous cave paintings, bone carvings, and clay statues.
- ✓ They wore jewellery and decorated their bodies with paint.
- ✓ developed rituals that were linked to hunting, births and deaths.
- ✓ Like the Neanderthals, they buried their Dead, indicating a development of advanced culture and spiritual rituals.
- ✓ Due to a large brain capacity of about 1 400 cm³ modern humans have the ability to change their environment to suit their needs, unlike early Homo species who could not change their environments and therefore became extinct.

BECOMING HUMAN

QUADRUPEDAL TO BIPEDAL WALKING

ADAPTATIONS FOR BIPEDALISM

Feature	Adaptation for Bipedalism
Position of foramen magnum	Enters vertically into braincase and allowing the head to remain upright and not lolling (flopping/reclining) forward
Spine shape	S-shape supports the back giving more stability to the centre of gravity; able to stay upright
Shape of foot	Arch shape provides strength to the foot in supporting rest of the body in holding it upright
Femur	Supports pelvis and upper body allowing it to remain upright

ADVANTAGES OF BIPEDALISM

- **Hands are free to fashion tools or cook food or hunt**
- **more energy to reproduce and therefore more chance of producing offspring bearing this unique trait**
- **more energy efficient**
- **can see far distances**
- **Ability to carry young and move on two legs**
- **Throwing stones and sticks are much easier with upright stance**

Activity:

1. List two advantages of bipedalism
