

Demonstrate understanding of trends in human evolution

Level 3, 4 Credits

This achievement standard involves demonstrating understanding of trends in human evolution.

Achievement	Achievement with Merit	Achievement with Excellence
Demonstrate understanding of trends in human evolution	Demonstrate in-depth understanding of trends in human evolution	Demonstrate comprehensive understanding of trends in human evolution

- Trends in human evolution refers to change over a period of time in relation to:
 - human biological evolution
 - human cultural evolution
 - patterns of dispersal of hominins. Hominins refers to:
 - living and fossil species (belonging to the human lineage)
 - subgroup of hominids which includes both humans and the great apes
- Trends in human biological evolution begin with early bipedal hominins and may require comparison with living hominids (apes)
- Trends are limited to:
 - skeletal changes linked to bipedalism
 - valgus angle (of femur) shifts knees under centre of gravity – improves balance when walking (eliminates swagger / side to side movement)
 - broad & shallow (cup-shaped) pelvis supports internal organs - better attachment for large leg muscles
 - non-divergent toe allows “thrust” in walking
 - compare to quadrupedal features (arms support weight, knuckle-walking; spine not taking full weight)
 - changes in skull and endocranial features
 - changes in manipulative ability of the hand (e.g. comparing Neandertal and gorilla hands)
 - finer / precision grip
 - greater dexterity
 - finer motor control
 - opposable / dextrous thumb - thumb able to touch finger (tips) for precision grip
 - able to manipulate smaller objects
- Trends in human cultural evolution limited to evidence relating to:
 - use of tools
 - stone
 - wood
 - bone
 - fire
 - shelter
 - caves
 - temporary settlement
 - permanent settlement
 - clothing
 - social behaviour
 - abstract thought
 - communication
 - language
 - art
 - food-gathering
 - hunter-gatherer
 - domestication of plants and animals

Interpretations of the trends in human evolution are based on current scientific evidence which is widely accepted and presented in peer-reviewed scientific publications.

Terms

Demonstrate understanding involves using biological ideas to describe trends in human evolution.

Demonstrate in-depth understanding involves using biological ideas to explain how or why trends in human evolution occur.

Demonstrate comprehensive understanding involves linking biological ideas about trends in human evolution. The linking of ideas may involve justifying, relating, evaluating, comparing and contrasting, and analysing using scientific evidence.

Learning Outcomes:

At the end of this topic I can –

- Define the term **hominin** (modern humans and their fossil ancestors) and contrast it with **hominid** (humans and great apes).
- Recognise whether a **skeleton** and **skull** belongs to a living **ape** or a **hominin** and be able to provide a list of skeletal differences between hominins and quadrupedal apes.
- Explain the changes in **skull** and **endocranium** in hominin evolution.
- Demonstrate an understanding of how each of the skeletal differences shows that we are adaptive for bipedalism.
- Describe the progressive change over a period of time in human **biological evolution**
- Explain the changes in the **manipulative ability of the hand** and be able to relate this to the adaptive advantage of hominins having a fully opposable thumb.
- Describe the progressive change over a period of time in human **cultural evolution** in:
 - o The use of **tools** (stone, wood, bone)
 - o The use of **fire**
 - o **Shelter**
 - o **Clothing**
 - o **Abstract thought** (communication, language, art)
 - o **Food-gathering**
 - o **Domestication** of plants and animals.
- Discuss the models for the dispersal / origins of modern *Homo sapiens*.
 - o Out of Africa model/ African replacement.
 - o Multiregional hypothesis.