

Welcome (Home)

Welcome to Maropeng and the Cradle of Humankind World Heritage Site. Maropeng means “returning to the place of origin” in Setswana, the main indigenous language in this area. Our ancestors have lived here for more than 3-million years, and today we are going to meet some of them. By coming here, you are coming to the birthplace of humanity. Welcome home! Please come with me as we walk up the processional way and begin our voyage of discovery.

The aim of this resource is to delight, inform and challenge learners through engaging and thought-provoking experiences at Maropeng, in most Learning Areas in the General Education Band, and some relevant subjects from the Further Education Band.

The learners' tour of exploration will start just outside the Tumulus.

The learners, with the guidance of the guides and their educators, will use the activities from this resource to explore the 4-billion-year journey of our Earth. They will take a boat ride on an underground lake, through the elemental forces – water, air, fire and earth – dipping through waterfalls and real icebergs, into the eye of a storm, past erupting volcanoes and through the depths of the Earth, emerging at the beginning of the world.

The learners will move through the exhibition, exploring the following themes and areas:

- The Beginning of the World and geological time
- The Pathway to Humanity
- The Characteristics of Modern Humanity
- Sustainability
- Real Fossil Display

This educator's guide gives the educator clear guidance of the learning programmes, learning areas or subjects which are dealt with in each specific area of the exhibition.

Intermediate Phase

- Social Sciences: Geography (Page 2)

The resource pack includes activities in the following areas of the curriculum:

General Education and Training (GET)

Foundation Phase

- Literacy Activities
- Numeracy Activities
- Life Skills Activities

Intermediate and Senior Phase

- Home Language Activities (Senior Phase only)
- Mathematics Activities
- Life Orientation Activities
- Social Science Activities
- Natural Science Activities
- Technology Activities
- Arts and Culture Activities – (Intermediate Phase only)
- Economic and Management Science Activities

Further Education and Training (FET)

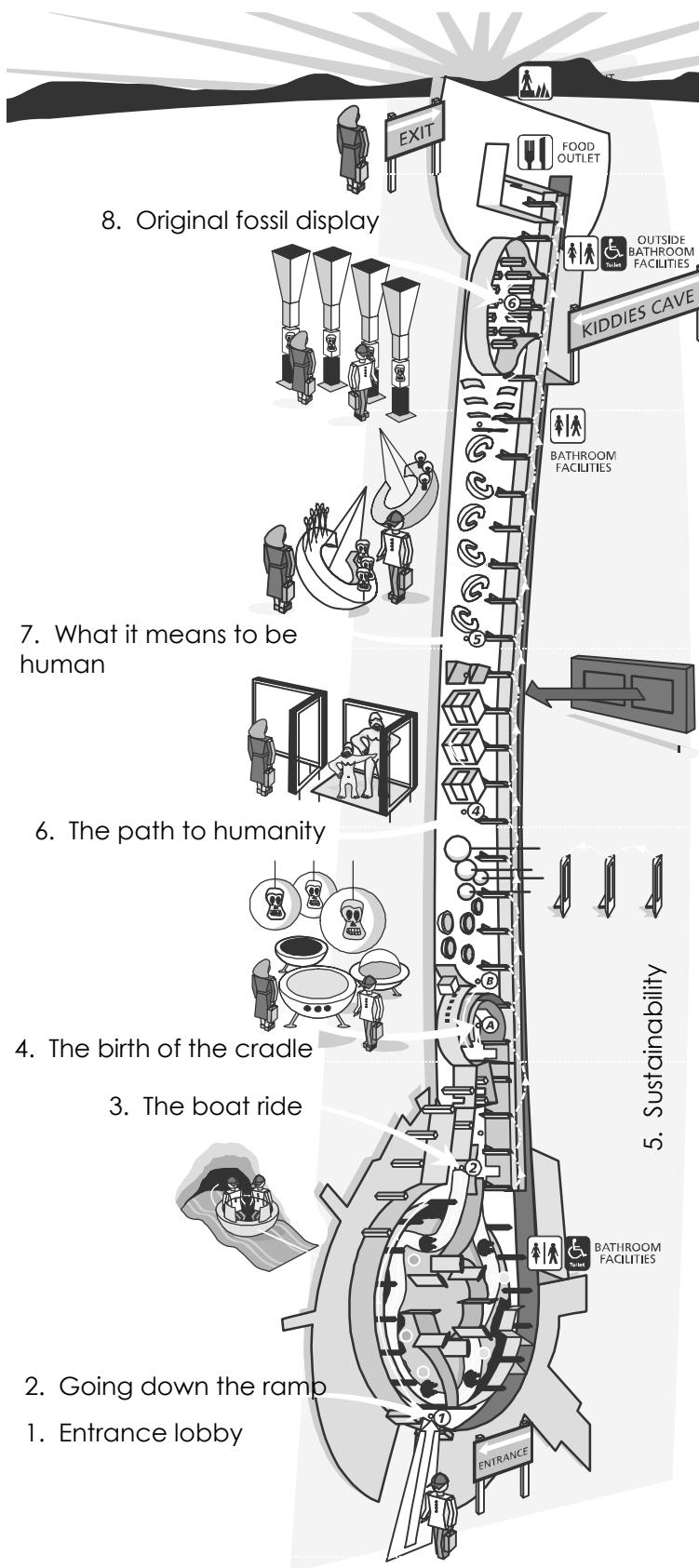
- Languages
- Economics
- Life Orientation
- Life Sciences
- Mathematics Literacy
- Physical Science
- Tourism

The map on the next page will give you a quick overview on where which learning programme/learning area or subject will be integrated.

Numbering:

Example: 4.2.1

- 4 = Grade*
- 2 = Learning Outcome*
- 1 = Assessment Standard*



1. Entrance lobby (Page iii)

- Senior Phase: Social Sciences, Mathematics and Life Orientation

2. Going down the ramp (Page iv)

3. The boat ride (Page iv)

- Intermediate Phase: Mathematics

4. The birth of the cradle (Page v)

- Foundation Phase: Numeracy and Literacy
- Intermediate Phase: Natural Sciences
- Senior Phase: Natural Sciences
- FET: Life Sciences

5. Sustainability (Page vi)

- Intermediate Phase: EMS
- Senior Phase: Life Orientation
- FET: Economics, Physical Science, Mathematics Literacy, Life Orientation and Life Sciences

6. The path to humanity (Page vii)

- Foundation Phase: Life Skills

7. What it means to be human (Page viii)

- Intermediate Phase: Technology, and Arts and Culture
- Senior Phase: Language and Technology

8. Original fossil display (Page ix)

- Intermediate Phase: Natural Sciences

Reflection and/or back at school

- Intermediate Phase: Life Orientation (Page 40)

Maropeng

- Senior Phase: EMS (Page 33: Learner Activities)
- FET: Tourism and Languages (Page 44: Learner Activities)

1. Entrance Lobby

Welcome inside the Maropeng Visitors' Centre. Around you, you will see an introduction to the major themes of the exhibition. The four entrance signifier columns symbolise the four elements which are essential to support life on Earth: the air that we breathe; the fire that warms us; the earth that sustains us; the water for life.

The air that we breathe.

Why does this represent the air?

The water for life.

What does H₂O stand for?

Why does this represent water?

Can water be a source of energy? Why?

Maths Question: What type of symmetry is this?

Natural Sciences What source of energy does the fan use to move?

Maths Question: How many bottles do you see? How did you count them? If each bottle contains 750ml of water, how many litres of water are stored here?

How much water is in a drop? (Open-ended question)

The fire that warms us.

Why do we use fire?

Natural Sciences What form of energy is fire? (Heat energy)

What does "Don't kill the world" mean?

What did you do today that might save the world?

What did you do today that might destroy the world?

Senior Phase Learner Activities

- Social Sciences (Page 2)
- Mathematics (Page 8)

High above us hang giant banners introducing the four elements again; the development of life on Earth and evolution.

Can you see the four elements? Show them.

Senior Phase Learner Activities

- Life Orientation (Page 12)

100 Questions

100 questions to start you thinking about life and the world around you.

Which is your favourite question?



World Heritage Site

On the wall is a map of the Cradle of Humankind. The Cradle of Humankind was declared a World Heritage Site in 1999 because of the area's exceptional contribution to our understanding of humankind's history and development, over more than 3-million years. Altogether, there are 15 major fossil sites in the Cradle of Humankind, of which the Sterkfontein Caves is the most famous. The fossilised remains of "Mrs Ples" and "Little Foot" were both discovered here, as well as hundreds more fossils of hominids, which are human ancestors, as well those of plants and animals. If you wish to discover more about these exceptional finds, Sterkfontein Caves, which is very close by, is well worth a visit.

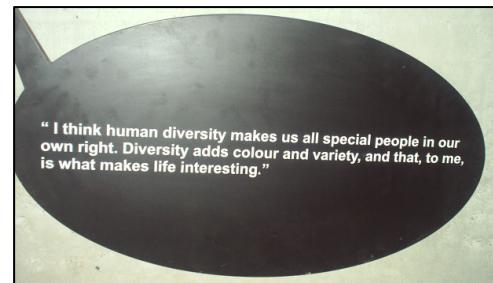


What is a World Heritage Site?

2. The Ramp

Let us move towards the ramp, leading us down into the depths of the Maropeng building, sometimes known as the "Tumulus", which means burial mound.

Although diverse in terms of skin colour, height, hair and other physical aspects, we are all one species. We speak more than 6,800 languages, but we all share our humanity.



On the way down the ramp to the boat ride below, enjoy looking at the portraits of diverse South Africans. Young, old, black, white and other colours, they are all real people. Listen, too, to the famous speeches on the way down.

As you reach the bottom, prepare to embark on a journey through the elemental forces: water, air, fire and earth

3. Boat Ride Rules



Let us come up with some rules before we go on the boat ride.

Did you recognise all the elements?

Intermediate Phase Learner Activities

- Mathematics (Page 11)

The Beginning of the World



Our world was born in a ball of burning gas 4.6-billion years ago, in a universe that is about 14-billion years old. Over time it cooled, the early atmosphere formed, and the first land masses appeared. The first life forms, which were like the black algae you sometimes see in swimming pools today, emerged about 3.8-billion years ago.

The history of life on Earth has been rocked by five major extinctions. The last great extinction was 65-million years ago, when the dinosaurs were wiped out, probably after a giant meteor slammed into the Earth off the coast of Mexico, and set off volcanic eruptions all over the world, changing the global climate. Today, some scientists say we are in the midst of the sixth major extinction – and we are the cause of it.

We know about species that have populated our Earth before us by studying fossils. Fossils are the remains of plants or animals which have been turned into stone over a long period of time in a process known as "mineralisation".

Charles Darwin, a British naturalist, was one of the first people to propose a theory of evolution – the idea that species change over time, as they adapt to changing environments.



4. The Birth of the Cradle

Tumulus Orientation

We are now in the Tumulus, a long, underground chamber in which the main exhibition is housed. Before us, lie explorations of our past and our future. On our left is the main body of the exhibition, and on our right, the large "signifier columns" which are symbolic markers for the more in-depth content in the information panels. On the extreme right-hand side is the **Sustainability Wall**, which deals with issues relating to humans' impact on the environment and how resources are divided between rich and poor across the world.

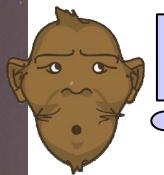


In the Tumulus we going to find most of our answers to questions asked by me or found in your activities.

Tumulus Rules

It is up to you to help us preserve our heritage for future generations. When you visit, please remember:

- Teachers are to keep learners under their care and control at all times.
- School groupings can be no larger than 30 at a time and a teacher/s must accompany each tour.
- Teachers are to ensure that learners do not tamper with any display.
- Teachers are to instruct their learners to ensure that all rubbish paper and tins are placed in the waste bins provided.
- There will be no eating or drinking whilst on the tour.
- There will be no sitting on displays.



Foundation Phase Learner Activities

- Numeracy (Page 16)
- Literacy (Page 2)

Intermediate Phase Learner Activities

- Natural Science (Page 27)

Senior Phase Learner Activities

- Natural Sciences (Page 18)

FET Learner Activities

- Life Sciences (Page 2)

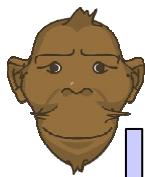
5. Sustainability

200,000 years ago, when *Homo sapiens* first emerged, there were probably at first only a few hundred of us. Now, in the 21st century, the global population is fast approaching 10-billion people.

At first, we humans barely made an impact on the environment. But this has changed, as our technological capabilities have progressed. Now our activities are causing serious implications for our planet, including the unusually fast extinction of species and global warming.

And we humans have developed very unequally. While the northern hemisphere is generally rich, the southern hemisphere is generally poor. Wealth is unevenly spread. A person who has HIV/AIDS in Africa is more likely to die quickly from the disease because he or she does not have access to drugs than a person in the USA, for example, where it has become a manageable chronic disease. As our population grows, there is ever-more competition for precious resources for our sustainability as a species such as water and land.

While we can propel ourselves into space, millions of people starve to death each year, are illiterate and have no access to basic healthcare or clean water, for example.



Now that we can do anything, what will we do?

Intermediate Phase Learner Activities

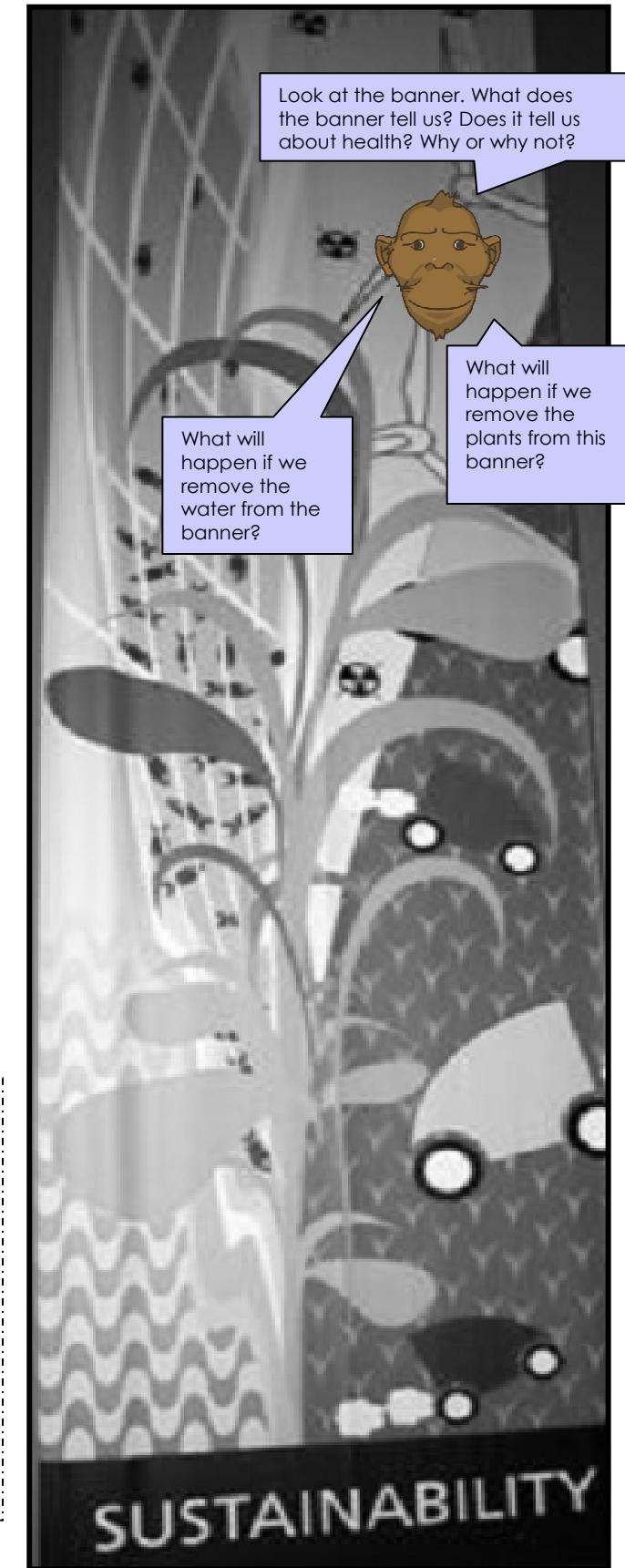
- EMS (Page 16)

Senior Phase Learner Activities

- Life Orientation (Page 12)

FET Learner Activities

- Economics (Page 30)
- Physical Science (Page 16)
- Mathematics Literacy (Page 25)
- Life Orientation (Page 22)
- Life Sciences (Page 2)



6. The Path to Humanity

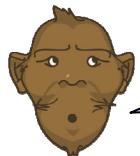
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When did you arrive on Earth?
(How old are you?)

We humans are relatively recent arrivals on Earth. But our ancestors have been here for millions of years.

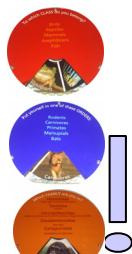
Our ancestors are called "hominids". The oldest hominid discovered so far is *Sahelanthropus tchadensis*, from Chad, which is about 7-million years old. This fossil has been nicknamed "Toumai" in the local Goran language, which means "hope of life". There are also several very old species that have been discovered in Kenya and Ethiopia.



Does your name have a special meaning? What is it?

While the exact shape of the human family tree is something scientists are still debating, the one thing that most agree on is that humankind was born here in Africa.

In the Cradle of Humankind, about 1,000 hominid fossils have been discovered, spanning more than a million years.



Foundation Phase Learner Activities

- Life Skills (Page 23)

Note: This text is aimed at Senior and FET Phases

The oldest hominid fossils from the Cradle are more than 3-million years old and belong to the genus *Australopithecus*. There were many species or types of *Australopithecus*, which lived in Eastern and Southern Africa. Mrs Ples, the famous fossil of a skull of an *Australopithecus africanus*, was discovered at the Sterkfontein Caves by palaeontologists Dr Robert Broom and John Robinson in 1947. Mrs Ples is about 2.1-million years old. In 1997, palaeoanthropologist Professor Ron Clarke and his assistants, Stephen Motsumi and Nkwane Molefe, discovered the full skeleton of an *Australopithecus* inside the Sterkfontein Caves, encased in breccia, a type of rock. This skeleton is still being excavated and its species hasn't been determined yet.

Australopithecus was followed by the genus *Homo*, to which we humans, *Homo sapiens*, belong. The earliest named *Homo* species is *Homo habilis* or "handy man", which researchers believe made the first stone tools. *Homo habilis* emerged about 2-million years ago. After *Homo habilis* came, among others, *Homo ergaster*, *Homo erectus*, *Homo heidelbergensis*, *Homo neanderthalensis*, *Homo floresiensis* and *Homo sapiens* – us. These species lived in different parts of the world. Not all *Homo* species were direct ancestors of humans. The human family tree has many branches, several of which broke off as species became extinct.

Modern humans, *Homo sapiens*, emerged only about 200,000 years ago. While older species of *Homo*, such as *Homo erectus* and *Homo neanderthalensis* lived in Asia and Europe mostly, scientists believe that modern humans evolved here in Africa. The oldest fossil evidence for modern humans discovered so far comes from Ethiopia and South Africa.



7. What it Means to be Human

Bipedalism

About 7-million years ago, early hominids began to adapt to a climate that was cooling globally. Before this, Africa had been mostly covered in rainforest. But as the temperature cooled and dried, savannah replaced the forest. This meant tree-climbing apes had to become more adept at walking on land.

Our ancestors who ventured out into the savannah were rewarded with roots, shrubs and occasional animal carcasses, ensuring that those who walked on two legs were more likely to survive.

Bipedalism allowed hominids to free their arms, enabling them to make and use tools well, stretch for fruit in trees and use their hands to communicate. They could also see further over the savannah grass.

But even with these advantages, our ancestors probably spent time in trees as well, which we can tell by studying fossils of hands and feet, and how they were adapted to climbing.

Although there is a popular idea that our ancestors slouched and stooped forward, the study of fossil hips, spines and feet suggest they always walked fairly upright .



Intermediate Phase Learner Activities

- Technology (Page 31)
- Arts and Culture (Page 36)
- Social Sciences: History (Page 2)

Senior Phase Learner Activities

- Languages (Page 24)
- Technology (Page 31)



Development of the Jaw and Diet

Our ancestors' diet changed over time. From eating mostly plants, they began to eat a mixture of meat and protein, along with plant matter. This helped their brains to develop, and in turn altered the shapes of their jaws.

Over time, their jaws became less heavy or "robust" and more slender or "gracile". The jaws of *Australopithecus*, for example, projected forward far more than ours, but as *Homo* developed, the jaw moved further back, under the growing braincase. Our teeth also became smaller as we developed the capacity to cut and grind food.



Can you fit the jaws back onto the skulls? What do you notice?

Development and Growth of the Brain

One of the defining characteristics of becoming human has been the growth and development of our brains. *Australopithecus* had an average cranial (brain) capacity of about 450 cubic centimetres (cc), about the size of an orange. Today, our brains are on average more than three times as big as that, at around 1,400 cc.

But bigger brains don't necessarily mean a species will survive. Neanderthals had brains on average between about 5% and 10% bigger than ours, and they became extinct about 20,000 years ago.



What does it mean if somebody tells you: "You are not using your brain!" (Do you use your brain?)

The Toolmaker



The oldest stone tools yet found come from Ethiopia and are about 2.6-million years old. The first technology that our ancestors developed was the **Oldowan Industry**. These tools were primitive and were mostly just pebbles that had been broken to reveal a sharp edge.

Next, came the **Acheulean Industry** (pronounced "Eish-oo-lean"). Acheulean tools included large, rough hand-axes and cleavers, probably for chopping and mashing meat. Dozens of Acheulean tools, including hand-axes, have been found right here at Maropeng in an ongoing excavation.

The Acheulean was followed by the **Middle Stone Age** and **Later Stone Age**, during which tools became much smaller and more refined and were developed for specific tasks, such as skinning an animal, or hafting onto a wooden handle to make a spear. The Later Stone Age in South Africa lasted right up until about 200,000 years ago, and the San people knew how to make these tools right into historical times.



Do we still use stone tools today?
What do we use?

Look at the tools. How did they develop?

Development of Language

Scientists don't really know much about the early development of language, as our voice-boxes are made of soft tissue, and there is no fossil evidence of how they may have developed over time. Some scientists say we may have acquired the ability to speak at the time of *Homo habilis*, 2-million years ago, while others say it is only modern *Homo sapiens* that have been able to speak, during the last 200,000 years.

Our sophisticated ability to communicate across time and space sets us apart from other animals, and has helped us to populate the Earth and travel to its most inaccessible regions. It has allowed us to gather food better, to live in groups better, and to express ourselves better.

Control and Use of Fire

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The ability to harness and use fire was a major technological step in human development. Our ancestors probably learned to capture fire from wildfires and keep it burning before they learned how to make it.

At Swartkrans in the Cradle of Humankind scientists have found a collection of about 300 bones which had been burnt at a consistent temperature, higher than that of the average bushfire. These have been dated to more than 1-million years old. This is the oldest evidence for controlled use of fire in Southern Africa so far, though there is even slightly older evidence of it in East Africa. So we can say South Africa's first braai happened right here in the Cradle!



The ability to control and use fire helped our ancestors to warm themselves and to cook food, thus helping to expand their diets.
How do humans use fire today?
How do you use fire today?

Let us sit around the fire.
• Is there anybody who wants to tell us a story around the fire?
• What about a campfire song?



• What would life be like if you could not talk to your friends?
• What would life be like if you could not talk to your brother or sister?
• What would life be like if you could not talk on your cellphone?

Living with Others

Most primates, the family to which we belong, live in groups. Group living provides better defence – a group can be more vigilant and challenging to predators than individuals can on their own.

Groups can also be more efficient than individuals at discovering, gathering and defending sources of food; and at caring for young.



How would you feel living on your own?

Peopling the World

Our ancestors left Africa in two waves, known as "Out of Africa I" and "Out of Africa II".

Out of Africa I

Most palaeoanthropologists believe that our ancestors first left Africa about 2-million years ago and moved into Asia and Europe. This theory is known as "Out of Africa I" and is strongly supported by fossil evidence.

They probably left Africa in a gradual expansion, following food in small groups, rather than in a "mass migration".

Out of Africa II

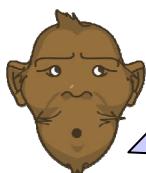
"Out of Africa II" refers to the movement of modern humans out of Africa within the past 100,000 years.

They out-competed and replaced populations of other hominids outside Africa, such as the Neanderthals, with whom they could probably not interbreed. This theory is supported by fossil and genetic evidence.

Studies of DNA in modern human populations suggest that we all share common ancestors who lived in Africa some 200,000 years ago.

Creative Explosion

Finally, we are creative beings. Our creativity is the ultimate expression of our humanity.



Sit and watch the movie on creativity and reflect on this characteristic of modern humanity, which is perhaps our most marvellous gift.

8. Original fossil display

Maropeng Architecture

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The development of Maropeng, designed by architectural firms GAPP and MMA, was based on the theme of discovery. When you approached the site, you saw seven concrete "fingers", or 14m-high concrete columns, which signify the visitors' centre.



Did you see the marketplace and amphitheatre as you came in? Why not?

The marketplace and amphitheatre are sunken into the ground, and this building itself is buried. There is a learner centre and a hotel inside the development, which is mostly hidden in the rolling hills.

As you walked through the exhibition itself, you went on a journey of discovery from the beginnings of the world, through the history of humankind, and into the future. As you emerged from the Tumulus, you discovered one of the best views in Gauteng.

When you entered the Tumulus, it looked like a giant burial mound. Now, when you turn and see it, it's totally transformed – it's silver, grey and glass, hi-tech and futuristic. You get the feeling that you're not at the end of history, but at the beginning of the future.



What contrasts can you find between the front and back of the building?

Intermediate Phase Learner Activities

- Natural Sciences (Page 27)

Foundation Phase (R-3)

1. Is the Dodo living or extinct? **Extinct**
2. Name the four elements. **Earth/Air/Fire/Water**
3. Is the Earth flat or round? **Round**
4. Is a fossil alive? **No**
5. Would life on Earth be possible without water? **No**
6. How did the dinosaurs become extinct? Possible answer: **A meteor hit Earth and created a great cloud of dust, which blocked out the sun. The plants died and there was nothing left for the plant-eating dinosaurs to eat, which then also died. There was then no food for the meat-eating dinosaurs, which also eventually died out.**
7. Is the number of people in the world getting bigger or smaller? **It is getting bigger. There will soon be 10-billion people living on Earth.**
8. Which continent do humans come from: Africa, Asia or Europe?
Africa
9. What is "Little Foot"? **Possible answers: A human ancestor; a fossil skeleton found in the Cradle of Humankind.**
10. What can you use a stone tool for? **Possible answers: cut, crush, or grind food.**

Intermediate Phase (4-6)

1. Why is the Cradle of Humankind famous?

Some of the world's most important fossil discoveries of human ancestors have been made here.

2. When did dinosaurs die out?

- a. **250-million years ago**
- b. **190-million years ago**
- c. **65-million years ago ✓**

3. Who found "Mrs Ples", an important hominid fossil, in 1947?

- a. **Raymond Dart**
- b. **Robert Broom ✓**
- c. **Ron Clarke**

4. What did the Earth look like 4.6-billion years ago?

It was a burning ball of fire and gas.

5. What are fossils?

Fossils are the mineralised remains of plants or animals that lived in the past. Fossils are bones or other remains which are turned into rock by the process of mineralisation, which can take millions of years.

6. What is "Little Foot"?

- a. **an early hominid skeleton found at Sterkfontein in the mid-1990s✓**
- b. **a skull found at Taung in 1924**
- c. **a dinosaur that had little feet and roamed the earth 85-million years ago**

7. Where did modern humans first emerge, about 200,000 years ago?

- a. **Asia**
- b. **Europe**
- c. **Africa ✓**

8. What is bipedalism?
 - a. **The ability to ride a bicycle**
 - b. **The ability to habitually walk upright ✓**

9. The oldest stone tools made by our ancestors discovered so far discovered are:
 - a. **4.6-million years old**
 - b. **2.6-million years old ✓**

10. How many mass extinctions have occurred on Earth?
 - a. **5✓**
 - b. **10**
 - c. **15**

11. Why did the Dodo become extinct?

Humans, and the animals they introduced, killed them.

12. Charles Darwin is famous for:
 - a. **his scientific theory of evolution✓**
 - b. **his important discovery of Unidentified Flying Objects (UFOs)**
 - c. **his large beard**

13. Which hominid species has the biggest brain?

- ***Homo sapiens*✓**
- ***Australopithecus africanus***
- ***Australopithecus afarensis***

14. Is the Earth's climate slowly getting warmer or colder?

It is getting warmer, in a process known as "global warming".

15. Humans are:
 - a. **carnivores**
 - b. **omnivores✓**
 - c. **herbivores**

16. True or False? Today, less people live in cities than in 1900.

False. Today, more people than ever before live in cities. In 1900, only about 10% of the world's population lived in cities, but by 2000 this had increased to nearly 50%.

Over the next 30 years, the world's urban population is expected to grow to 5-billion. Some of the world's biggest cities include Sao Paulo in Brazil, Mexico City in Mexico, London in the United Kingdom, Moscow in Russia, Tokyo in Japan, Lagos in Nigeria, Mumbai in India and New York in the United States.

17. By 2050, the world's population is projected to be about:

- a. **9-billion people ✓**
- b. **20-billion people**
- c. **50-billion people**

18. The Neanderthals, a group of hominids which lived mostly in Europe, lived between about:

- a. **600,000 and 200,000 years ago**
- b. **200,000 and 20,000 years ago ✓**
- c. **3-million and 2-million years ago**

19. Which hominid had the more powerful bite, specially adapted to eating tough vegetation?

- a. ***Paranthropus robustus* ✓**
- b. ***Homo ergaster***

20. True or False? Birds are descended from dinosaurs.

True. Birds probably evolved from small carnivorous, feathered dinosaurs like *Sinosauroptryx*. The oldest-known flying bird was *Archaeopteryx*, which also had slender legs that moved well on land.

It was followed by better-flying birds like *Ichthyornis*, which lived between about 135-million and 70-million years ago and finally by modern birds, about 60-million years ago.

Senior Phase (7-9)

1. True or False? Charles Darwin wrote a book on evolution called *On the Origin of Species*.
True

2. What is the most likely cause of the dinosaur extinction?
 - a. **a meteor hitting Earth ✓**
 - b. **a tsunami**
 - c. **tornadoes**

3. Which hominid do scientists believe was the first to make stone tools?
 - a. ***Homo habilis* ✓**
 - b. ***Homo erectus***
 - c. ***Homo sapiens***

4. Where did modern humans first emerge about 200,000 years ago?
 - a. **Asia**
 - b. **Europe**
 - c. **Africa ✓**

5. Why is the Cradle of Humankind a World Heritage Site?
Possible answer: Some of the world's most important fossil discoveries of human ancestors have been made here.

6. Which hominid had the more powerful bite, specially adapted to eating tough vegetation?
 - a. ***Paranthropus robustus* ✓**
 - b. ***Homo ergaster***

7. Who found Mrs Ples in 1947?
 - a. **Raymond Dart**
 - b. **Robert Broom ✓**
 - c. **Ron Clarke**

8. The oldest tools discovered so far are:
- a. **4.6-million years old**
 - b. **2.6-million years old ✓**
9. What is bipedalism?
- a. **the ability to ride a bicycle**
 - b. **the ability to habitually walk upright ✓**
 - c. **the ability to talk**
10. What species of hominid is the Cradle of Humankind most famous for?
- a. ***Australopithecus africanus* ✓**
 - b. ***Homo heidelbergensis***
 - c. ***Homo sapiens***
11. Which hominid had the bigger brain?
- a. ***Homo habilis* ✓**
 - b. ***Australopithecus africanus***
12. When did early *Homo* populations first leave Africa?
- a. **about 2-million years ago ✓**
 - b. **about 1-million years ago**
13. Where did Neanderthals mostly live?
- a. **Africa**
 - b. **Europe ✓**
 - c. **America**
14. Did *Homo neanderthalensis* have a bigger or smaller brain than humans today?
Bigger. Their average brain capacity was about 1,500 cc, while modern humans' brain capacity is about 1,400 cc.
15. What are fossils?
Fossils are the mineralised remains of animals or plants or other traces such as footprints or toothmarks. Fossils are bones or other remains which are turned into rock by the process of mineralisation, which can take millions of years.

FET

1. Name three fossil sites at the Cradle of Humankind.

Possible answers: Bolt's Farm, Swartkrans, Sterkfontein, Minnaar's Cave, Cooper's Site, Kromdraai, Plover's Lake, Wonder Caves, Drimolen, Motsetse, Gladysvale, Haasgat, Gondolin, Makapans Valley, Taung.

2. When did dinosaurs die out?

- a. 250-million years ago
- b. 190-million years ago
- c. 65-million years ago ✓

3. True or False? Charles Darwin wrote a book on evolution called *On the Origin of Species*.

True

4. What type of animal is a *Dinofelis*?

- a. a dinosaur
- b. a sabre-toothed cat✓
- c. an ancient elephant

5. Which hominid do scientists believe was the first to make stone tools?

- a. *Homo habilis* ✓
- b. *Homo erectus*
- c. *Homo floresiensis*

6. Where did modern humans first emerge about 200,000 years ago?

- a. Asia
- b. Europe
- c. Africa✓

7. Why is the Cradle of Humankind a World Heritage Site?

Possible answer: Some of the world's most important fossil discoveries of human ancestors have been made here.

8. Which hominid had the more powerful bite, specially adapted to eating tough vegetation?

- a. ***Paranthropus robustus*✓**
- b. ***Homo ergaster***

9. Who found Mrs Ples in 1947?

- a. **Ron Clarke**
- b. **Raymond Dart**
- c. **Robert Broom ✓**

10. The oldest tools discovered so far discovered are:

- a. **3-million years old**
- b. **2.6-million years old✓**
- c. **2.2-million years old**

11. What is bipedalism?

- a. **the ability to ride a bike**
- b. **the ability to habitually walk upright✓**
- c. **the ability to talk**

12. What species of hominid is the Cradle of Humankind more famous for?

- a. ***Australopithecus africanus*✓**
- b. ***Homo heidelbergensis***

13. Which hominid had the bigger brain?

- a. ***Homo habilis***
- b. ***Homo erectus*✓**

14. When did early *Homo* populations first leave Africa?

- a. **about 2.6-million years ago**
- b. **about 2-million years ago✓**
- c. **about 1-million years ago**

16. Which one of these Cradle of Humankind sites is not a hominid-bearing fossil site?
- a. **Haasgat ✓**
 - b. **Sterkfontein**
 - c. **Kromdraai**
17. When did dinosaurs die out?
- a. **250-million years ago**
 - b. **190-million years ago**
 - c. **65-million years ago ✓**
18. In which country are the Laetoli footprints found?
- a. **South Africa**
 - b. **Kenya**
 - c. **Tanzania ✓**
19. Which mode of travel emits the least carbon emissions per kilometre
- a. **A car with a four-litre engine**
 - b. **A car with a one-litre engine**
 - c. **Walking ✓**
20. Who said this? "A global human society based on poverty for many and prosperity for a few, characterised by islands of wealth, surrounded by a sea of poverty, is unsustainable."
- a. **Thabo Mbeki ✓**
 - b. **Nelson Mandela**
 - c. **Kofi Annan**

15. Where did Neanderthals mostly live?

- a. Africa
- b. Europe ✓
- c. America

16. Did *Homo neanderthalensis* have a bigger or smaller brain than humans have today?

Bigger. Their average brain capacity was about 1,500 cc, while modern humans' brain capacity is about 1,400 cc.

17. In which country are the Laetoli footprints found?

- a. South Africa
- b. Kenya
- c. Tanzania ✓
- d. Zimbabwe

A set of *Australopithecus afarensis* footprints found at Laetoli, Tanzania, tell us that hominids walked upright more than 3-million years ago. The remarkably preserved footprints of our hominid ancestors were cast in a wet volcanic ash that hardened over time. They were excavated in 1978.

18. Who said this? "A global human society based on poverty for many and prosperity for a few, characterised by islands of wealth, surrounded by a sea of poverty, is unsustainable."

Thabo Mbeki

19. How did the partial skeleton of *Australopithecus afarensis* found in Ethiopia get its name, "Lucy"?

- a. The discoverer's name was Lucy
- b. It was named after a Beatles song, *Lucy in the Sky with Diamonds* ✓
- c. It was discovered in Lucy, Ethiopia.

20. True or False? South Africa uses about 40% of the total electricity consumed in Africa.

True