



# discovery sheet

To help you discover more about our planet we have devised these gallery worksheets. For each gallery we have given you a recommended stay time to help you progress through.

To complete this activity, you will need to use a combination of the audio-visual presentations, written information and computer interactives.

name **\*TEACHERS COPY\***



## state of the earth

5 mins

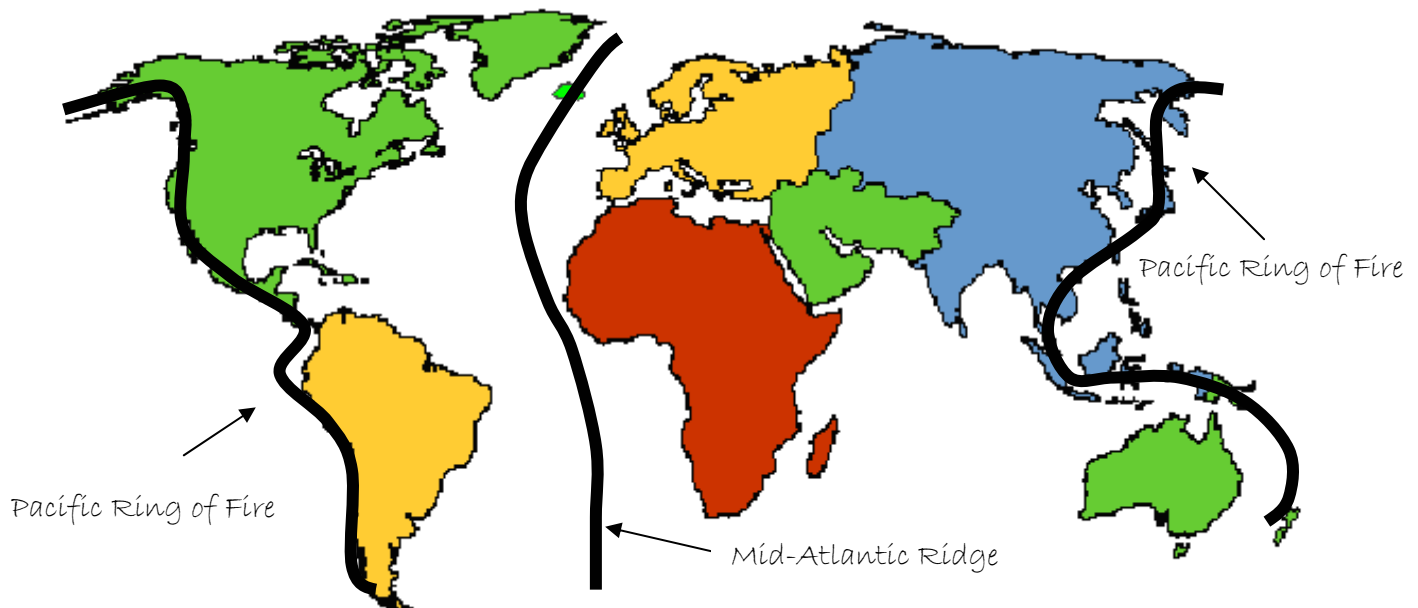
*"The present is the key to the past"*  
A quote by which famous Earth Scientist?

*James Hutton*

Go to the 'continents on the move' wall.  
How much sea floor spreading has occurred at the Mid Atlantic Ridge since July 1999?

*You will need to check this on the day.*

On the map of the world drawn below, mark two areas where there are volcanoes.



Name the active volcano that is closest to Britain.

*Grimsvotn in Iceland (also Etna and Stromboli in Italy).*

Go through the Time Machine, How it all Started, and Restless Earth galleries. Consider how the different forces and processes have shaped, and continue to shape the world around us.



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the time machine

1.5 mins



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how it all started

3.5 mins

Discover “how it all started”, travel through space from the outer reaches of the Universe to planet Earth.



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restless earth

3.5 mins

Feel the earth quake, watch volcanoes explode, feel the heat, smell the volcanic air!



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shaping the surface

3.5 mins

Watch the presentation on how glaciers and rivers erode the land.

When did the Scottish Ice Sheet finally melt?

*10 thousand years ago*

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## casualties and survivors 10 mins

According to the fossil record, when were conditions on Earth suitable for life to evolve?

*4,000 million years ago*

Evolution has been punctuated by many mass extinction events. As you pass through the gallery three of these are highlighted. These events were catastrophic for many species but as some creatures become extinct, new ones evolve to fill in the gaps. Use the information on the 'pillars of extinction' to identify and write down some of the casualties and survivors.

Time of mass extinction	Possible Cause	Casualties	Survivors
440 Million years ago	Ice Age	50% of all animal spp Cryptolites, Trilobites	marine animals
245 Million years ago	Sea level fell - reduced living space for sea creatures	96% of all life	bony fish, shell fish, arthropods
65 Million years ago	Possibly massive meteorite impact	Dinosaurs, ammonites, some marine reptiles	small mammals

What do you think?

A number of scientists think that we are at the beginning of another mass extinction event as a result of human activity. Do you agree or disagree with this?

Agree

Disagree

Why?

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# oceans

10 mins

What percentage of the Earth's surface is covered by water? 70 %

Which atmospheric gas do the oceans absorb in large quantities? CO<sub>2</sub>

Why is this important? -----

CO<sub>2</sub> is a greenhouse gas that contributes to global warming (and climate change)

Our Oceans are full of a huge variety of life. If you look through the portholes you will see some of the different environments and creatures found in them. We have highlighted three of those below. Can you draw or name and describe one animal from each of these very different environments in the relevant porthole?

**porthole 1**

*Fish, rays, plankton,  
white tip shark,  
clown fish, sea anemone,  
puffer fish, pipe fish,  
coral.*

**tropical coral reef**

**porthole 3**

*Angler fish,  
sea butterfly, shell-  
less snail (sea devil),  
shellfish, jellyfish, shark,  
hammerhead shark, blue  
whale, hake, tubeworm, sea  
spider, octopus,  
bristleworm, batfish,  
tripod fish.*

**ocean depths**

**porthole 5**

*walrus, narwhal,  
leopard seal, penguin,  
fish, weddell seal,  
algae, krill, seals,  
herring, white whale.*

**polar seas**



# polar

10 mins

The Polar Regions may look similar but in fact they are very different. Below is a map of the world, we want you to join up the descriptions with the polar region they match. The first one has been done for you but take care, some of the descriptions can apply to both poles!

This area is called the Arctic **N**

Albatross are found here **S**

Ice at this pole can be up to 4000m thick all year round **S**

This area is called the Antarctic **S**

Ice at this pole can be as little as 2m thick in the summer **N**

This is a frozen continent **S**

↑  
North



Chinstrap penguins are found at this pole **S**

The only humans living here are scientists **S**

Walrus are found here **N**

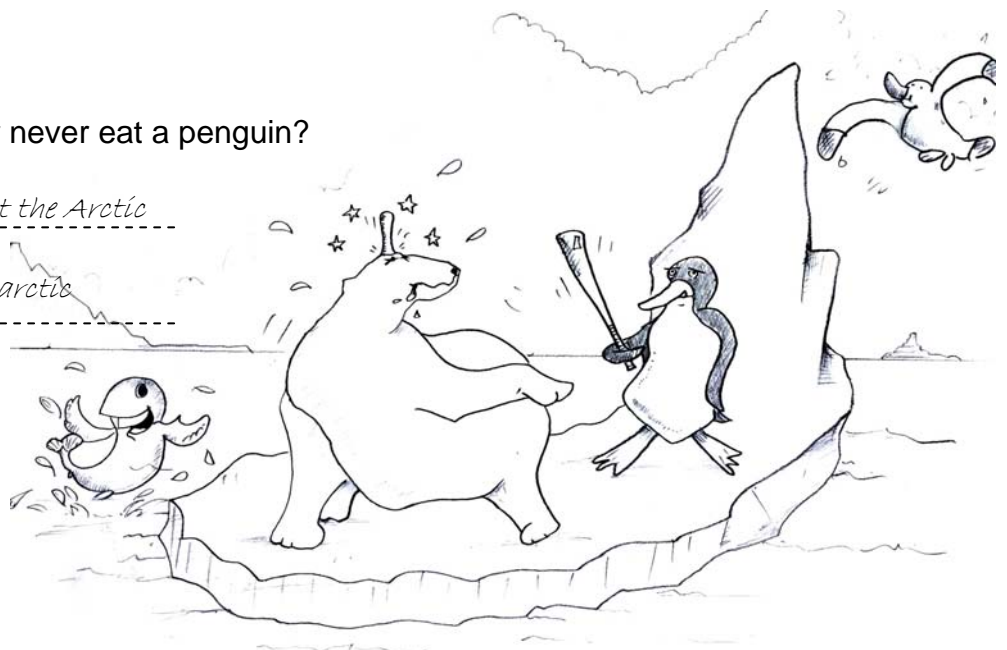
Humans have lived here for centuries **N**

Krill are found here **Both Poles**

This pole is made of ice floating on the ocean **N**

Why would a polar bear never eat a penguin?

*Because polar bears live at the Arctic  
and penguins at the Antarctic*





# 4DVENTURE

16 mins

## A Epic 4D Journey of Contrasts

Get set for turbulence as you embark on an epic 4D expedition flying from the Arctic to deep within the Tropical Rainforest.



What are the names of the different biome's that we fly over?

1. Tundra



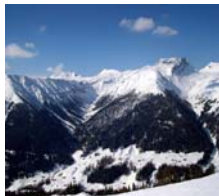
2. Bo \_ \_ \_ \_ F \_ \_ \_ \_ \_



3. Te \_ \_ \_ \_ \_



4. Al \_ \_ \_ \_



5. Ma \_ \_ \_ \_



6. Sa \_ \_ \_ \_



7. Sa \_ \_ \_ \_





## tropical rainforest

12.5 mins

Explore our re-creation of a south-east Asian rainforest. Breathe in the humid, earthy smell. On the left, look deep into the heart of the forest, to the right is the more open forest, leading to the river and out into the mangrove swamp and tropical sea beyond.

Watch as day turns to night but be prepared for a torrential rainstorm, crashing thunder and flashing lightning!



What on earth?

Below are a number of close ups of 'things' in the rainforest. Can you identify them?



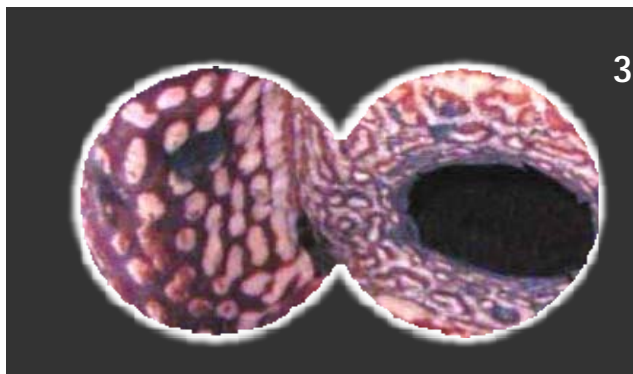
1.

Picture 1 is a \_\_\_ *Clouded leopard* \_\_\_

Picture 2 is a \_\_\_ *wrinkled hornbill* \_\_\_



2.



3.

Picture 3 is a \_\_\_ *Rafflesia* \_\_\_

Picture 4 is an \_\_\_ *orang utan* \_\_\_



4.

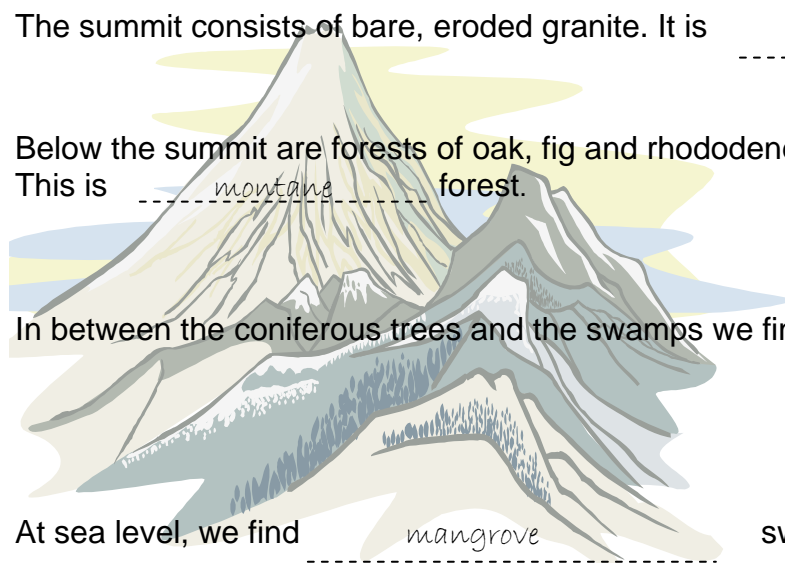
Gaining altitude has a similar effect as gaining latitude. Below is an idealised cross-section on Mount Kinabalu. Show the different environments found as you travel up the mountain.

The summit consists of bare, eroded granite. It is 4,095.2 metres high.

Below the summit are forests of oak, fig and rhododendron. This is montane forest.

In between the coniferous trees and the swamps we find lowland rainforest.

At sea level, we find mangrove swamps.



Mt Kinabalu is still growing. What process is responsible for this?

Movement of plates - granite is still being pushed upwards as 2 plates collide.

the end.