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OUT OF LESSON BOOKLET

TERM 1

GEOGRAPHY

YEAR 8

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Year 8 Term 1 Extreme Environments

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1. World Biomes
2. Climate Graphs
3. Tropical Rainforest Location and Climate
4. Convectional Rainfall
5. Nutrient Cycle
6. Congo Basin Rainforest
7. Tropical Rainforest Plant Adaptations
8. Design a Rainforest Plant
9. Causes of Deforestation
10. Impacts of Deforestation
11. Geography in the News

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LESSON 1

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Planner

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Date:23 September 2020

World Biomes

What adjectives would you use to describe these places?

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Learning Focus:
To identify the characteristics of the different world biomes.

Key Terms:
Tropical rainforest, Tundra, Desert, Taiga, Temperate deciduous forest, Grassland

Learning Outcomes:
To describe the characteristics of the different world biomes and apply this to identify landscapes and climate within each biome

What is a biome?

https://www.youtube.com/watch?time_continue=166&v=hIy0ZlyPPDg&feature=emb_title

Using the video create your own definition of todays key word:

Biome

THINK PAIR SHARE



What is a biome?

- **A large region of earth that has a certain climate and types of plants and animals (flora and fauna).**
- The plants and animals of each biome have adapted to help them survive in the biome's climate.
- For example, how has a camel adapted to survive the desert biome?

World Biomes

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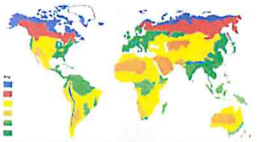
Activities:

1. Match up the photographs of the different world biomes to the correct description.
2. Use the descriptions to locate the biomes and complete the box next to its picture.
3. Label the continents.
4. Suggest possible reasons for the location of different biomes.

   e.g. The tropical rainforests are found along the equator because...

Tundra is found near the poles because... etc.



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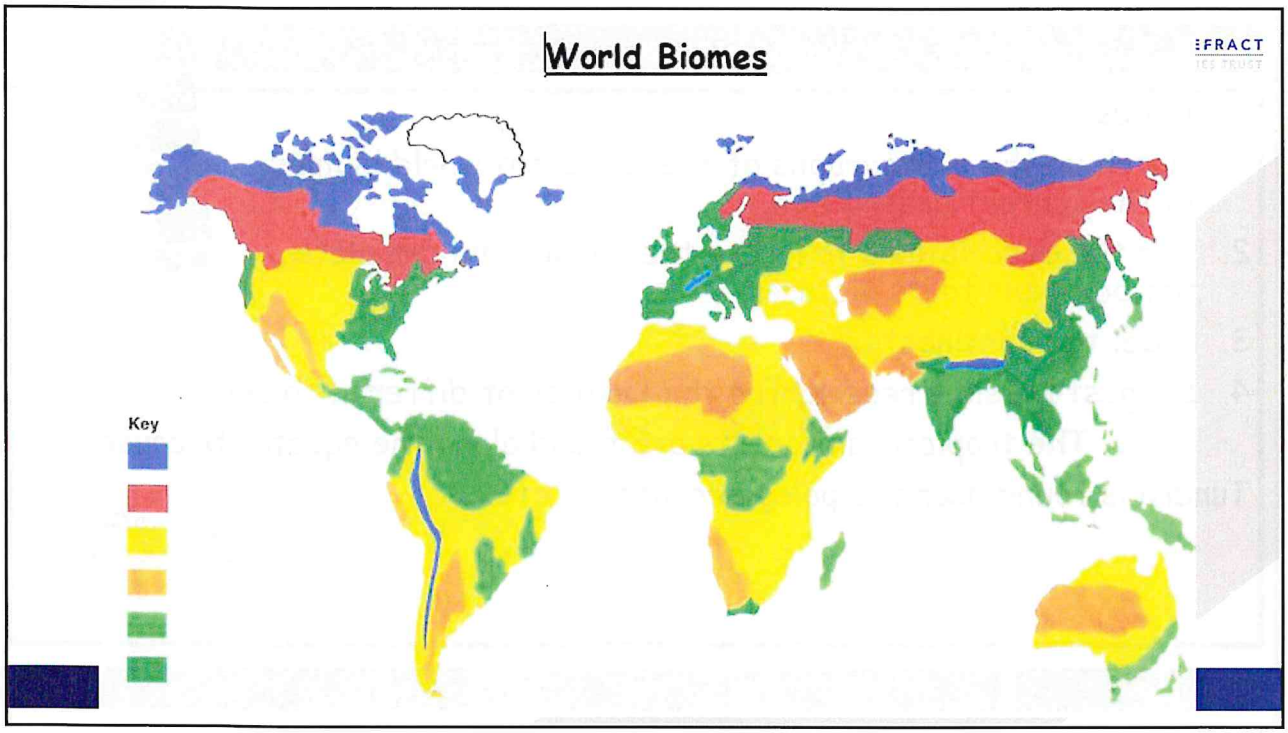
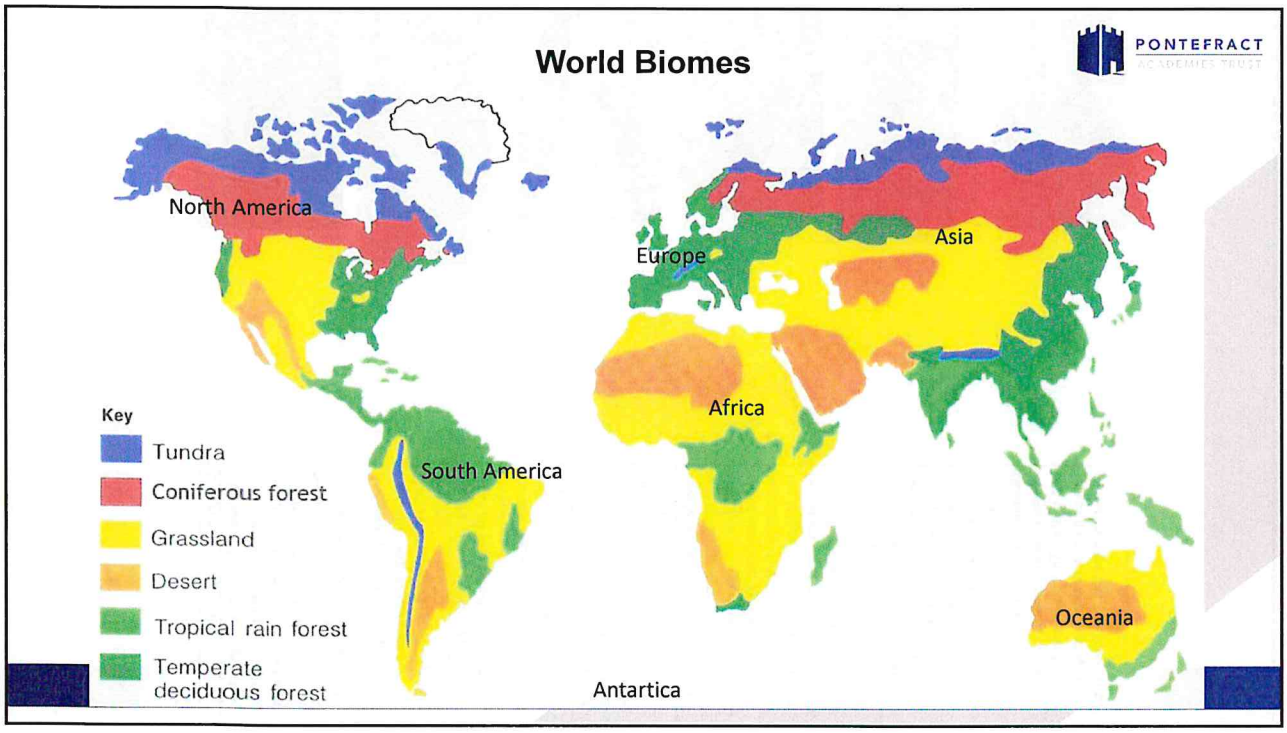
Match the photograph to the correct description.

Description of the climate
Savanna - A hot and dry grassland scattered with shrubs and isolated trees, which can be found between a tropical rainforest and desert biome.
Tropical Rainforest - A very hot and wet (humid) biome located on or near the equator and with the greatest biodiversity (number of plants and animals) found anywhere on earth.
Tundra - It is below freezing at night all year round. This biome covers one-fifth of the land on earth - there is little precipitation, a short growing season; and poor nutrients.
Desert - This area is very hot and also very, very dry (arid). Because of this very little grows - only very hardy plants such as cactus which can survive drought.
Coniferous Forest - This biome is also called taiga and is a northern coniferous (evergreen) forest. It is a cold woodland located north of temperate deciduous forests. It is the largest biome - covering about 50 million acres of land - about 17% of the Earth's land area and can be found in Canada, Europe, Asia, and the United States
Temperate Deciduous Forest - can be found in the eastern half of North America, and the middle of Europe. There are many deciduous forests in Asia. There are no extremes of climate. The deciduous forest has four distinct seasons, spring, summer, autumn, and winter. In the autumn the leaves change colour. During the winter months the trees lose their leaves.


World Biomes
Key


World Biomes
PONTEFRACT
North America
Europe
Asia
Africa
South America
Oceania
Antartica
Key
Tundra
Coniferous forest
Grassland
Desert
Tropical rain forest
Temperate deciduous forest

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1. You will be shown pictures of different biomes
2. You need to identify which biome you think it is on your mini white boards

Tundra

Coniferous forest

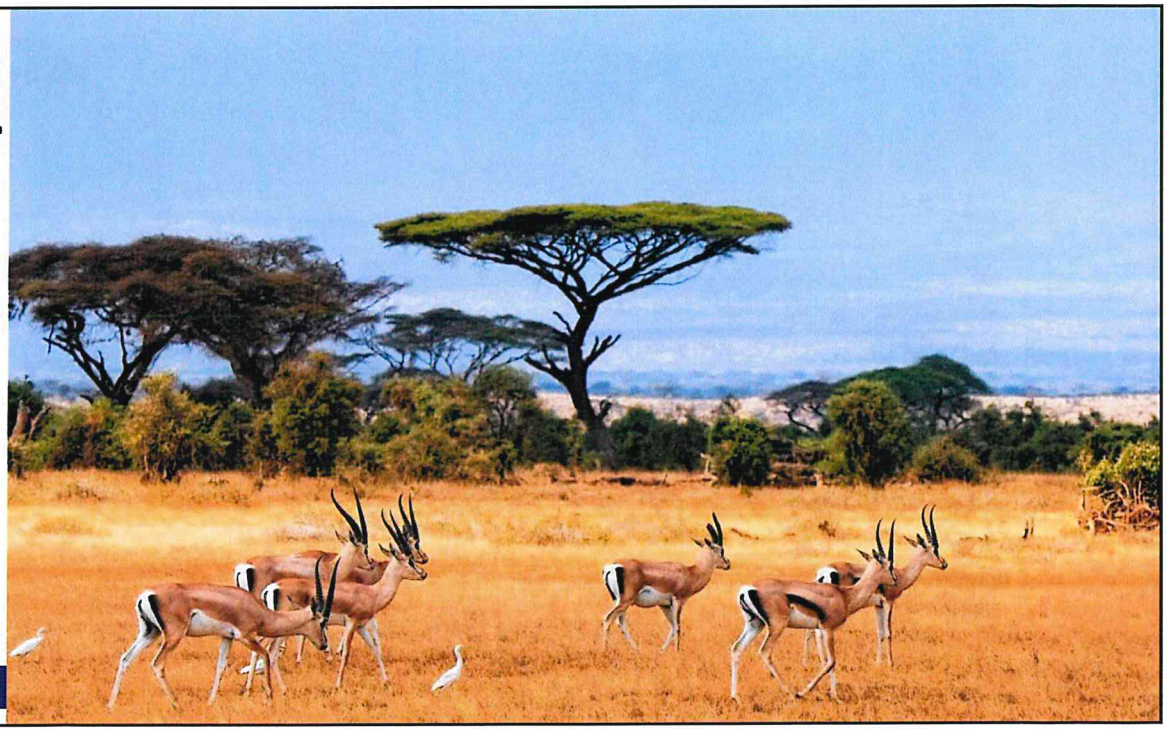
Grassland

Desert

Tropical rain forest

Temperate deciduous forest

1



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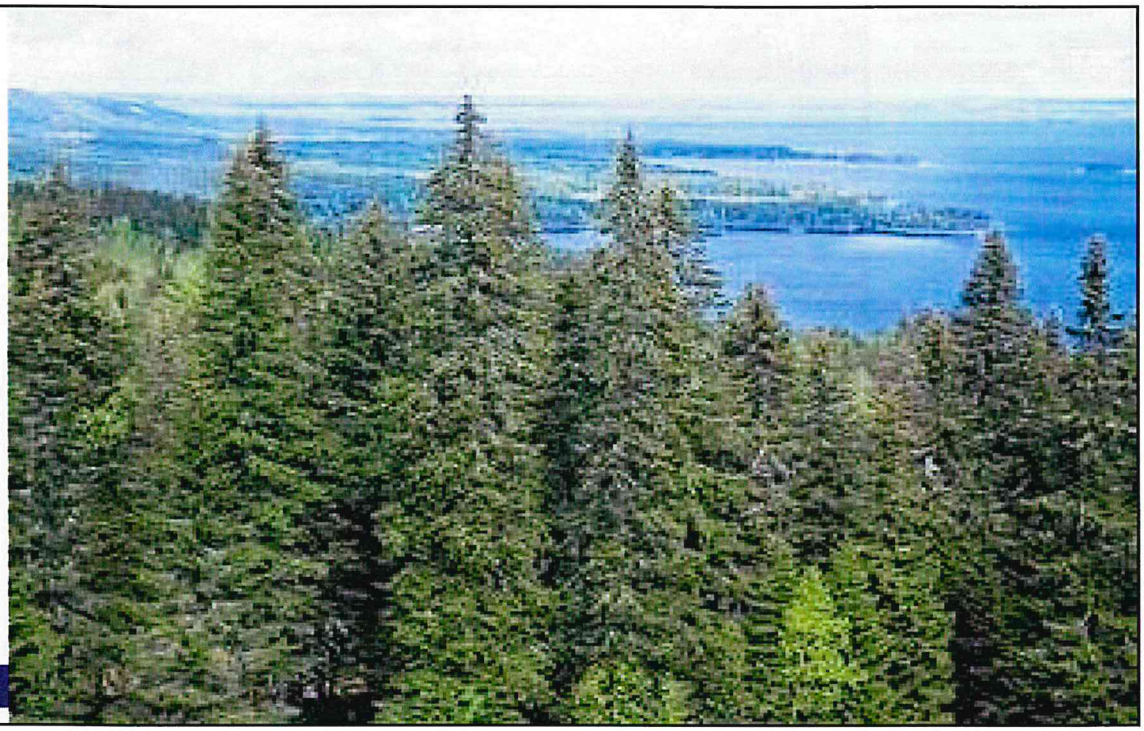
3

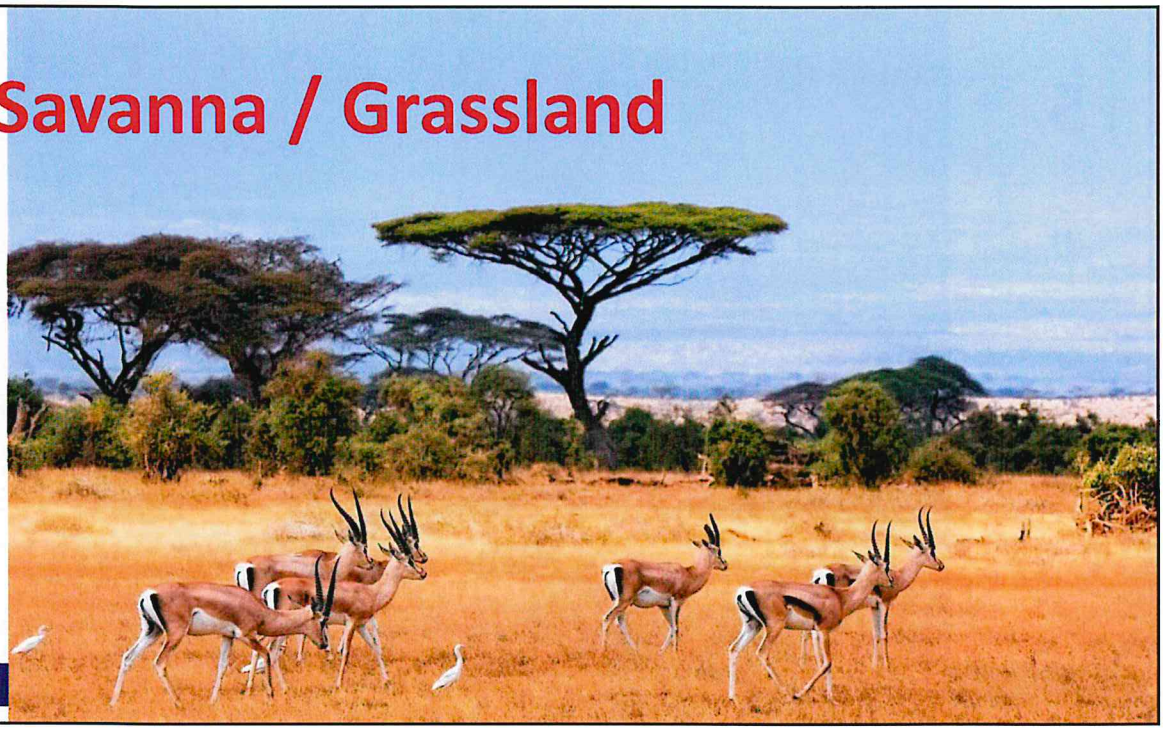
4

5

6



1 Savanna / Grassland

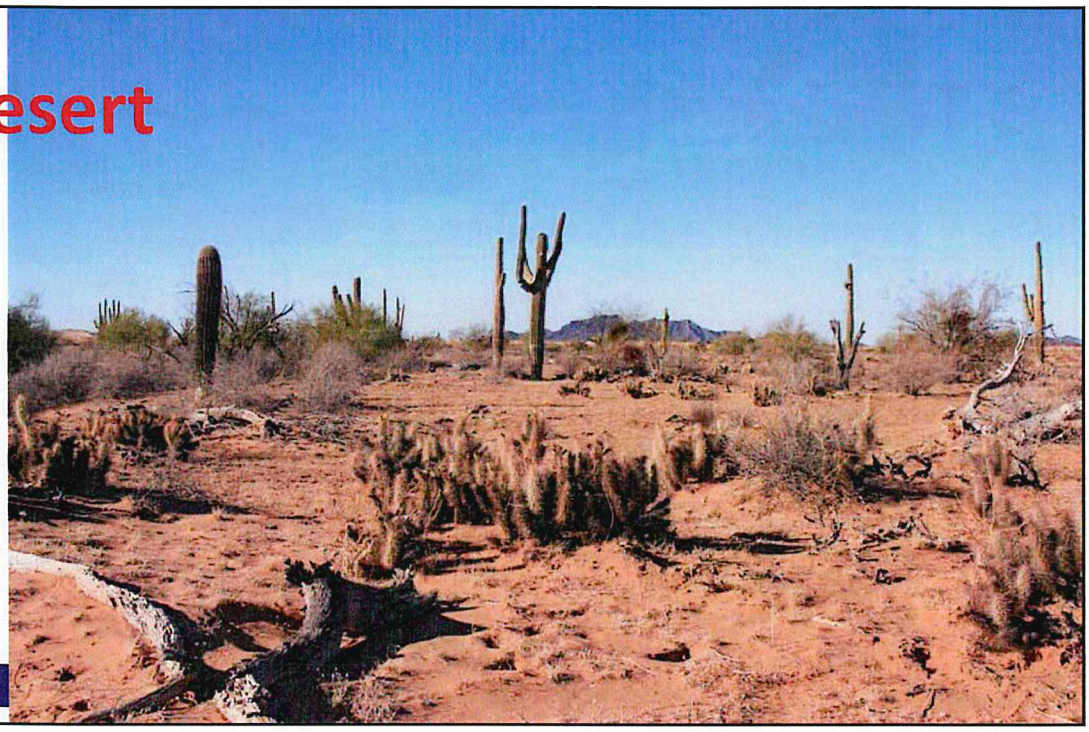


2 Rainforest

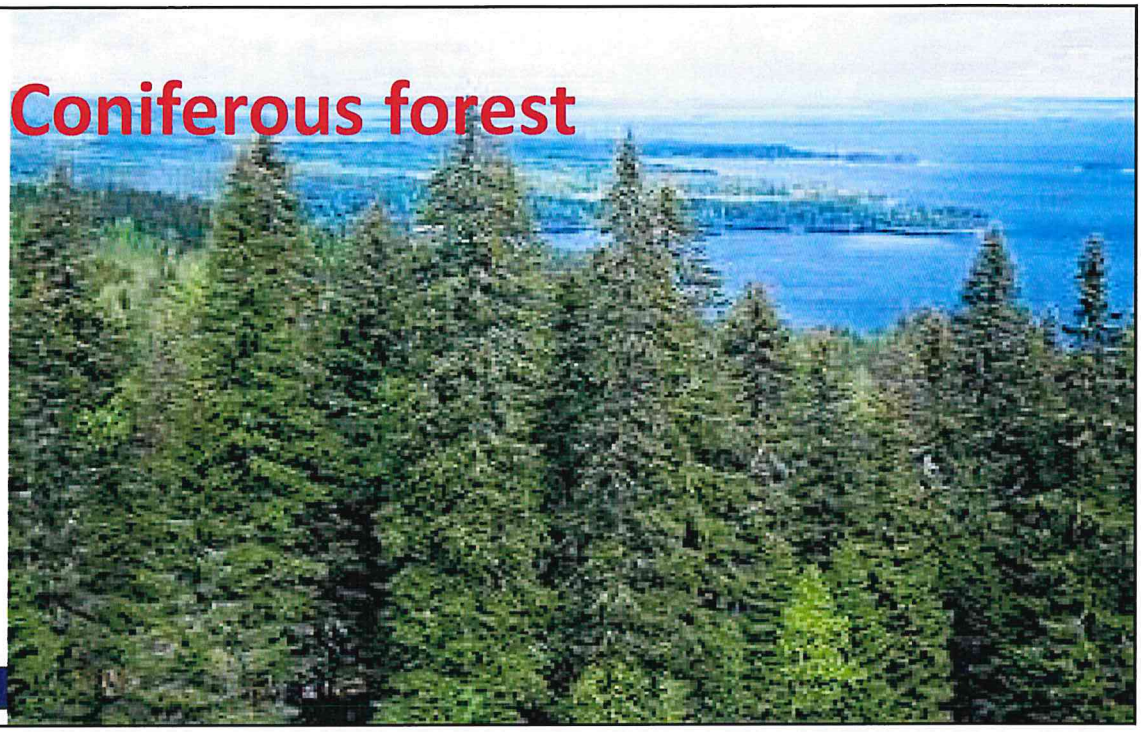
3 Tundra

4 Deciduous forest

5 Desert



6 Coniferous forest



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LESSON 2

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Planner

Please have your planner open on today's date

Date: 23/09/2020

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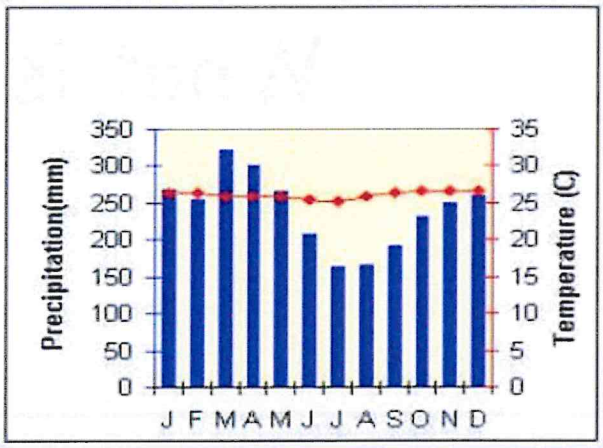
Do

World Biome Climate

1. What is the image of?
2. What does it tell us?
3. Why might it be useful?
4. How can you link it to our previous lesson?



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Learning Focus:
What is a climate graph and how can they be used?

Key Terms:
Climate graph, Precipitation, Temperature, Axis

Learning Outcomes:
Match climate graphs to the different biomes
Produce a climate graph
Describe a climate graph

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What is climate?

THINK  PAIR  SHARE 

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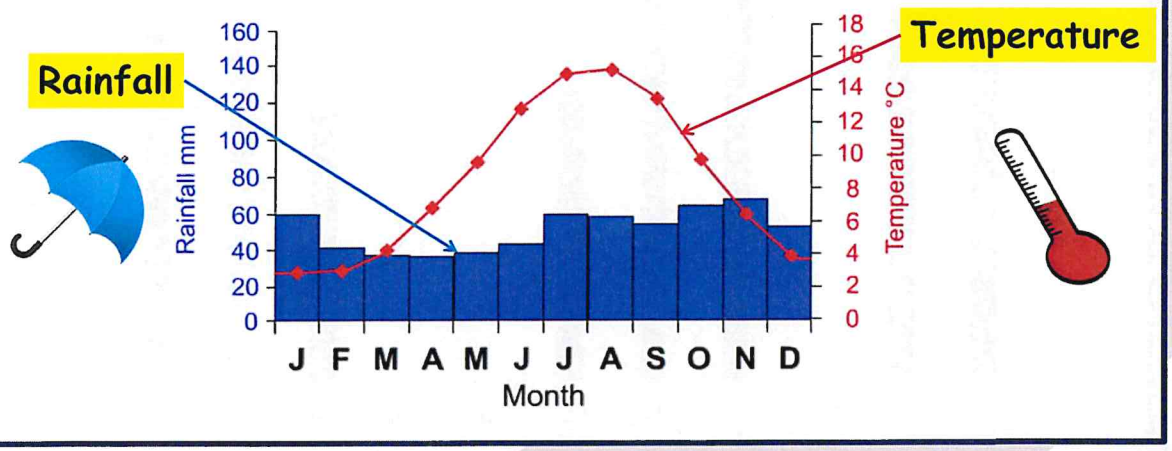
Climate is the **overall pattern** of weather, usually an average taken over many years.

Usually measured over **at least 30 years.**

As we saw last lesson, the world is split into different climate zones known as biomes.

We can look at the climate graphs of different places.

These will tell us the average kind of weather expected there over the year…



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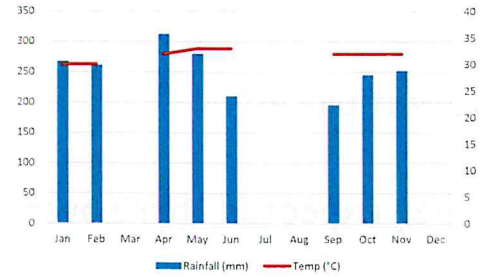
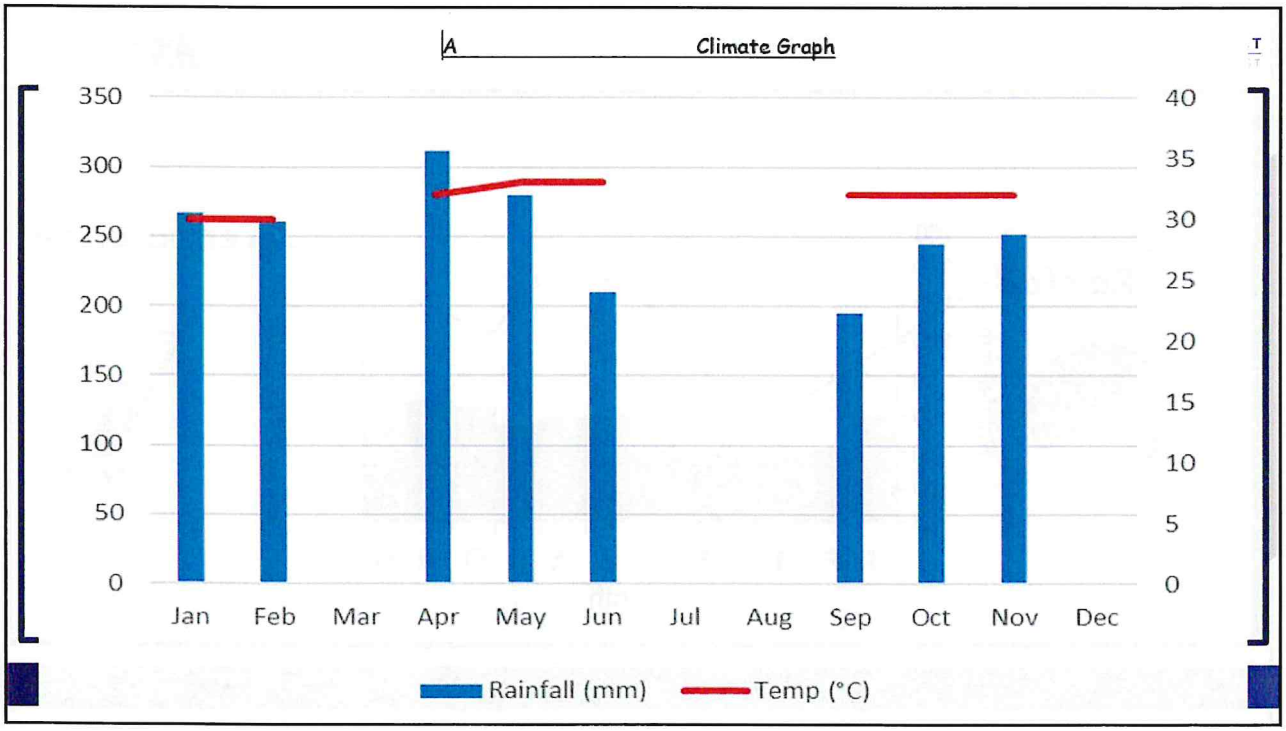
Now it is your turn to practise creating climate graphs using the data.



REMEMBER:
Bars = rainfall
Line = temperature

Don't forget to label your axes!

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Temp (°C)	30	30	31	32	33	33	32	32	32	32	32	31
Rainfall (mm)	267	261	324	312	280	210	176	186	195	245	252	268



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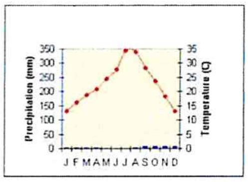
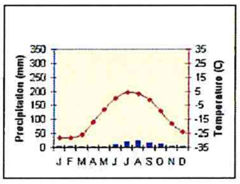
Activities

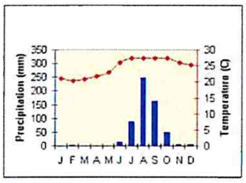
1. Which biome does your climate graph belong to?
2. Add a title to your climate graph.
3. On the sheet of climate graphs match them to the different biomes.

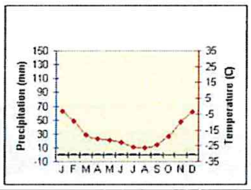

Deciduous

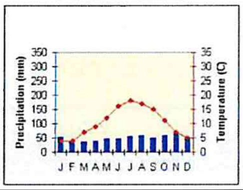

Coniferous











Biomes

Coniferous Forest

Deciduous Forest

Desert

Savannah/Grassland

Tundra

Biome Climate Graphs

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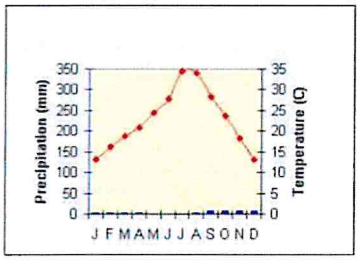
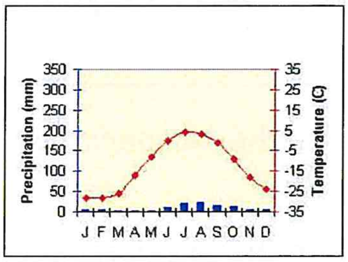
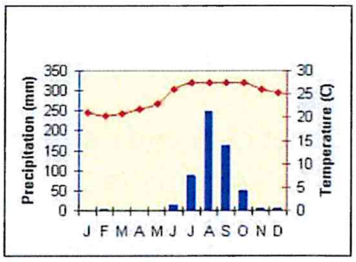
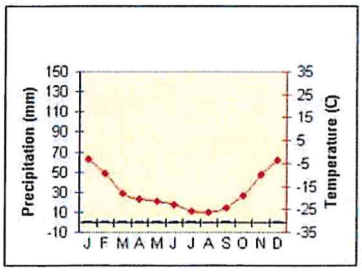
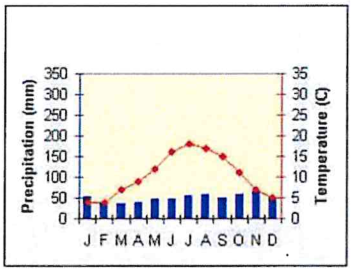
Match the climate graph to the correct biome.











Biomes

Coniferous Forest

Deciduous Forest

Desert

Savannah/Grassland

Tundra

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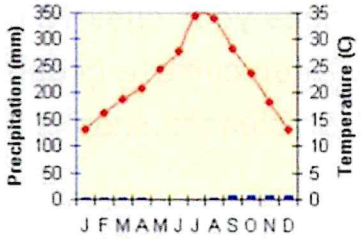
Describe how climate changes over the year for one of the biomes.

The biome I have chosen is the **desert**.
The general trends shows that the temperature peaks in the summer months and falls during the winter month. It reaches 35°C in July - August but then is around 13°C in Dec-Jan.
The rainfall is low all year round between 5-10mm per month, there around 10 mm in Sept-Dec and 5 mm Jan-Apr.
However, there is an anomaly between May-July when there is no precipitation recorded.



Geography Skills

T.E.A.

When looking at a resource for the first time sit back and have a cup of tea.

T - Trend

What is the trend/pattern of the figure?

E - Evidence

What evidence is there to support this? Refer to the figure by using locations, statistics, quotes etc.

A - Anomaly

Is there anything which does not fit this pattern? (There may not always be an anomaly)

PONTEFRACT ACADEMIES TRUST

Describe how climate changes over the year for one of the biomes.

The biome I have chosen is _____ .

The general trends shows that the temperature…
Evidence for this is…

The general trends shows that the precipitation…
Evidence for this is…

However, there is an anomaly that does fit the pattern, …

Geography Skills

T.E.A.

When looking at a resource for the first time sit back and have a cup of tea.

T - Trend

What is the trend/pattern of the figure?

E - Evidence

What evidence is there to support this? Refer to the figure by using locations, statistics, quotes etc.

A - Anomaly

Is there anything which does not fit this pattern? (There may not always be an anomaly)

Mini Whiteboard Quiz

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Name the biome found along the equator.

Mini Whiteboard Quiz

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The blue bars on a climate graph show...

Mini Whiteboard Quiz

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Draw a climate graph for a tropical rainforest.

Mini Whiteboard Quiz

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Which biome is often found between tropical rainforests and hot deserts?

Mini Whiteboard Quiz

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When might climate graphs be used?

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LESSON 3

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Planner

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Tropical Rainforest Biome

1. The blue bars on a climate graph show…
2. The line on a climate graph shows…
3. Name 3 world biomes (not including tropical rainforests)

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Learning Focus:
Why are tropical rainforest located along the equator?

Key Terms:
Equator, Latitude, Evaporation, Condensation, Precipitation

Learning Outcomes:
Describe the location and climate of tropical rainforests
Explain the reasons for their location and climate

Tropical Rainforest Biome

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Activities

1. Using an atlas label the different tropical rainforest regions onto your map. Remember to use a pencil and ruler.

Tropical Rainforest Biome

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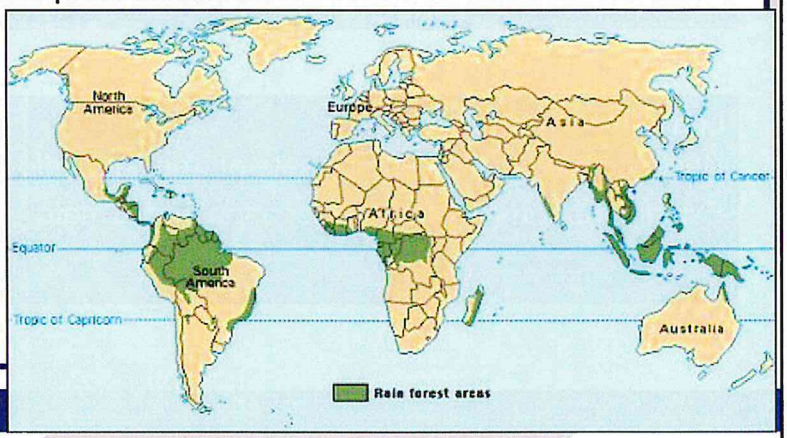
Activities

1. Using an atlas label the different tropical rainforest regions onto your map. Remember to use a pencil and ruler.
2. Describe the distribution of tropical rainforests.

T Trend- what is the overall pattern of the distribution, is it spread out or all in I place?

E Evidence- give an example for what you're saying e.g. areas of high density, use country names!

A Anomaly- is there anything that doesn't fit the trend? Anywhere that is different from what you'd expect?



Tropical Rainforest Biome

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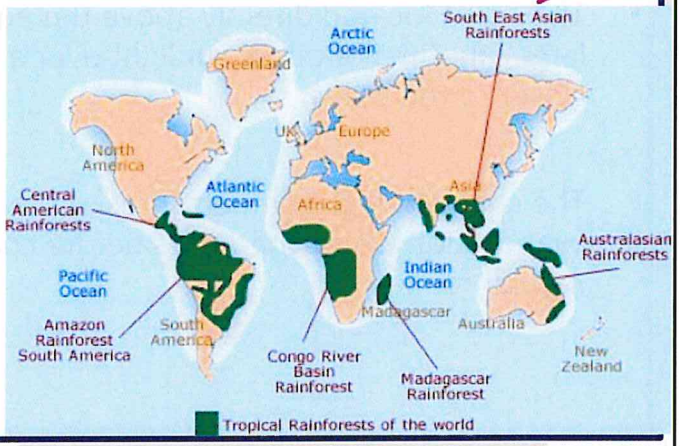
Along the equator.

In the continents of N. America, S. America, Africa, Asia and Australasia.

They are not found in Europe.

Countries with tropical rainforest include Brazil, Congo, Malaysia and Madagascar.

There are some anomalies along the Tropic of Capricorn in the south of Brazil and Madagascar.



Tropical Rainforest Biome

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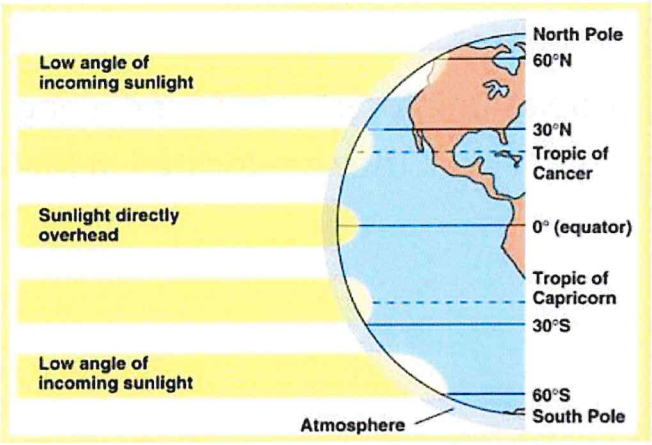
In pairs, explain the climate of the tropical rainforest biome.

You must have it written in your books.

Why is it hot all year round?

Why are there high levels of precipitation all year round?



Tropical Rainforest Biome

- The sun it located directly above the equator. This exposes the equator to large amounts of direct sunlight over a smaller area compared to other areas closer to the poles.
- The constant high temperatures at the equator lead to large amounts of evaporation which then rises before cooling and condensing leading to regular rainfall.

Tropical Rainforest Biome

On your mini whiteboards correct the mistakes

Tropical rainforests are found along the Equator and Tropic of Cancer. They are located in Malaysia, Italy and Brazil.

Tropical Rainforest Biome

On your mini whiteboards correct the mistakes

The equator is hot all year round because it is closer to the sun.

These warm temperatures cause condensation leading to large amounts of rainfall.

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LESSON 4

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Planner

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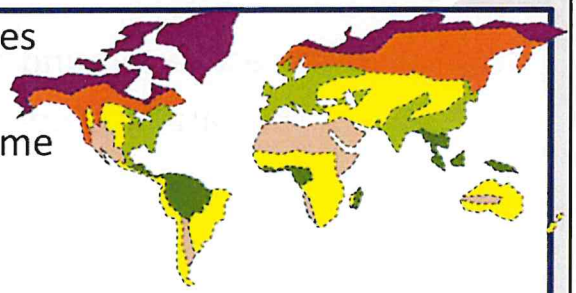
Convectional Rainfall

1. Identify the 6 world biomes
2. Draw a climate graph for the tropical rainforest biome Label the axes.



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Learning Focus:
Why does it rain along the equator?

Key Terms:
Convectional rain, Equator, Evaporation, Transpiration, Water vapour, Condensation, Precipitation, Cumulonimbus clouds

Learning Outcomes:
Identify the key stages of convectional rainfall

Describe these key stages

Explain the process involved in convectional rainfall

Tropical Rainforest Climate

On your mini whiteboards correct the mistakes

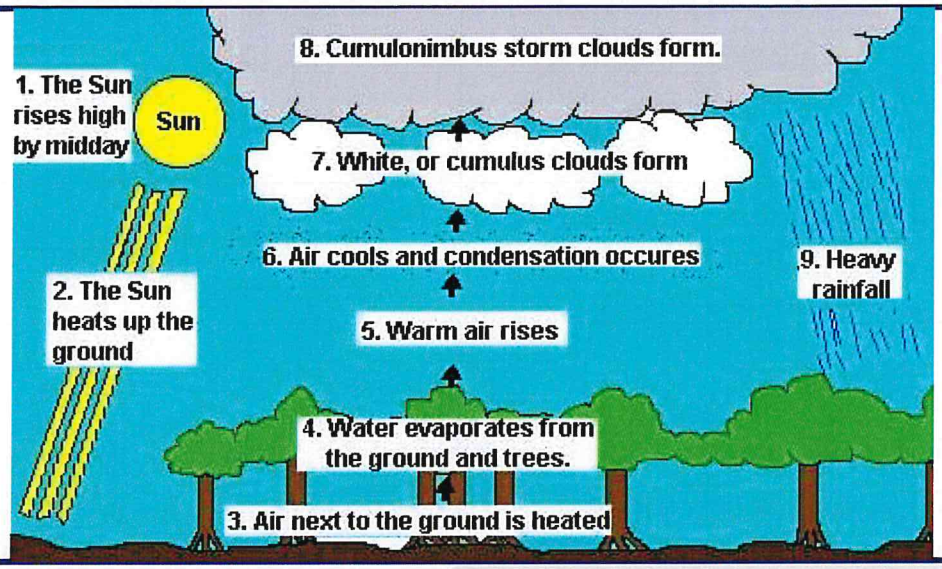
Tropical rainforests are found along the Equator and Tropic of Cancer.
They are located in Malaysia, Italy and Brazil.

Tropical Rainforest Climate

On your mini whiteboards correct the mistakes

The equator is hot all year round because it is closer to the sun.
These warm temperatures cause condensation leading to large amounts of rainfall.

Convectional rainfall



Convectional rainfall

Activity:

Create a story board to show the processes involved in the formation of convectional rainfall.

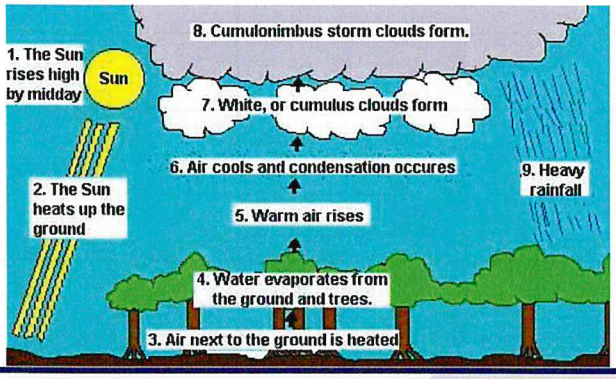
Convectional Rainfall

The sun heats up the ground and water. The water begins to _____.	The warm air and _____ _____ begin to rise.
As the air rises it will start to _____ and _____ back into water droplets forming _____.	As more and more water droplets are added to the clouds they will become too heavy causing heavy _____.

Convectional rainfall

Activity:

In groups of 3-4 create a short silent role play to show the convectional rainfall cycle.



Week 2 VIP Test

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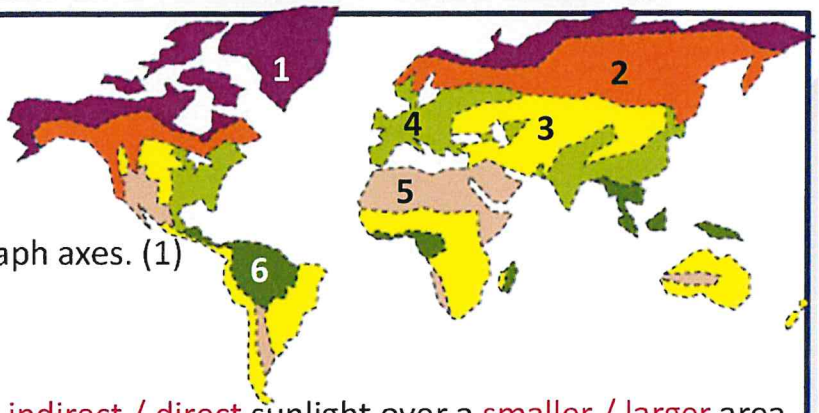
1-6. Name the biomes shown on the map. (6)



7. Draw and label climate graph axes. (1)

8. The equator is exposed to indirect / direct sunlight over a smaller / larger area which creates is warm climate. (2)

9. Name the type of rainfall that occurs in tropical rainforests. (1)

Week 2 VIP Test

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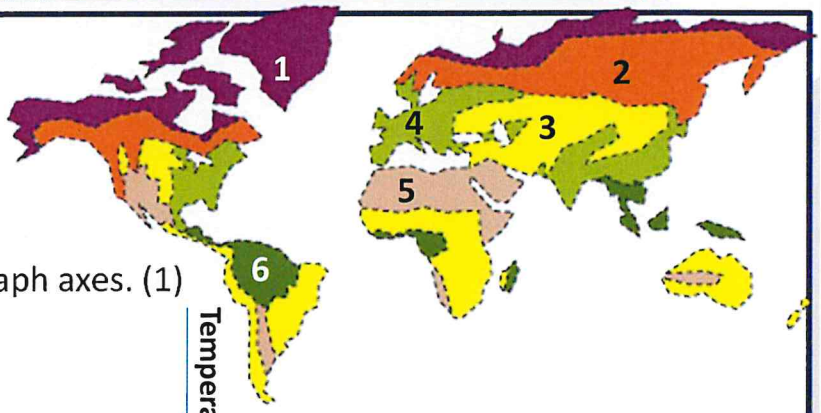
1. Tundra (1)
2. Coniferous Forest (1)
3. Savanna/grassland (1)
4. Deciduous forest (1)
5. Desert (1)
6. Tropical rainforest (1)



7. Draw and label climate graph axes. (1)

8. Direct, smaller (2)
9. Convectional (1)

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LESSON 5

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Planner

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Date: 23/09/2020

Copy

Do

The Nutrient Cycle

1. Describe the location of tropical rainforests
2. Draw a climate graph for the tropical rainforest biome Label the axes.
3. List the key words used to explain convectional rainfall.

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Learning Focus:
The nutrient cycle is natures recycling system

Key Terms:
Vegetation, Nutrients, Decomposer, Leaching, Litter

Learning Outcomes:
Identify the key stages of the nutrient cycle
Explain the key stages and why they occur
Apply this knowledge to understand soil in tropical rainforests

Key terms

- **Vegetation – All plants and trees.**
- **Biomass – The living things in an ecosystem e.g. vegetations**
- **Litter – Dead leaves or logs on the forest floor.**
- **Decomposer – Bacteria or organisms (e.g. fungi) that break down organic material (leaf litter)**
- **Nutrients – Provide energy for plants to grow e.g. potassium and nitrogen**
- **Leaching – Rain water washes the nutrients out of the soil.**

Nutrient Cycle

Transform – Turn writing into pictures and numbers.

You will be presented with some information. Your job is to transform this information into pictures and numbers.

You can use as many pictures and numbers as your want.

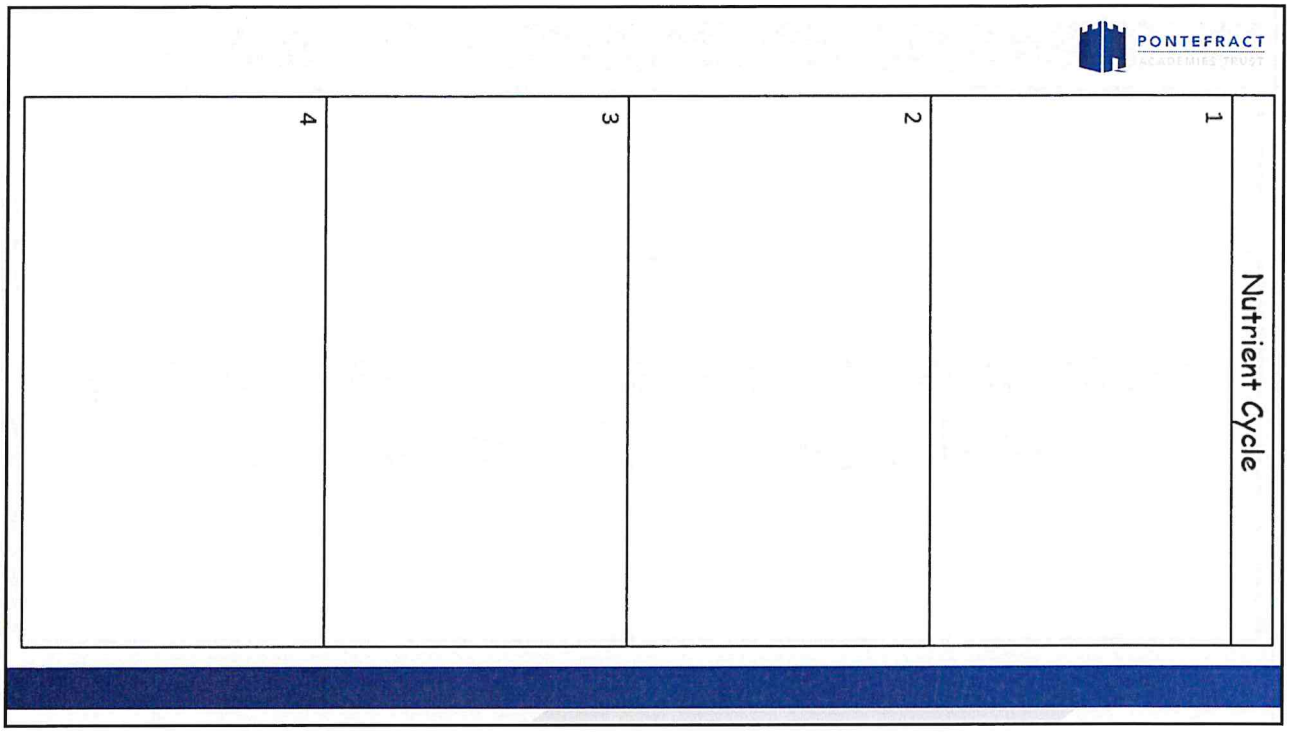
You are allowed up to 3 words per box.

Draw in pencil

You cannot just copy the information

You cannot use more that 3 words per box

Nutrient Cycle
1
2
3
4


PONTEFRACT
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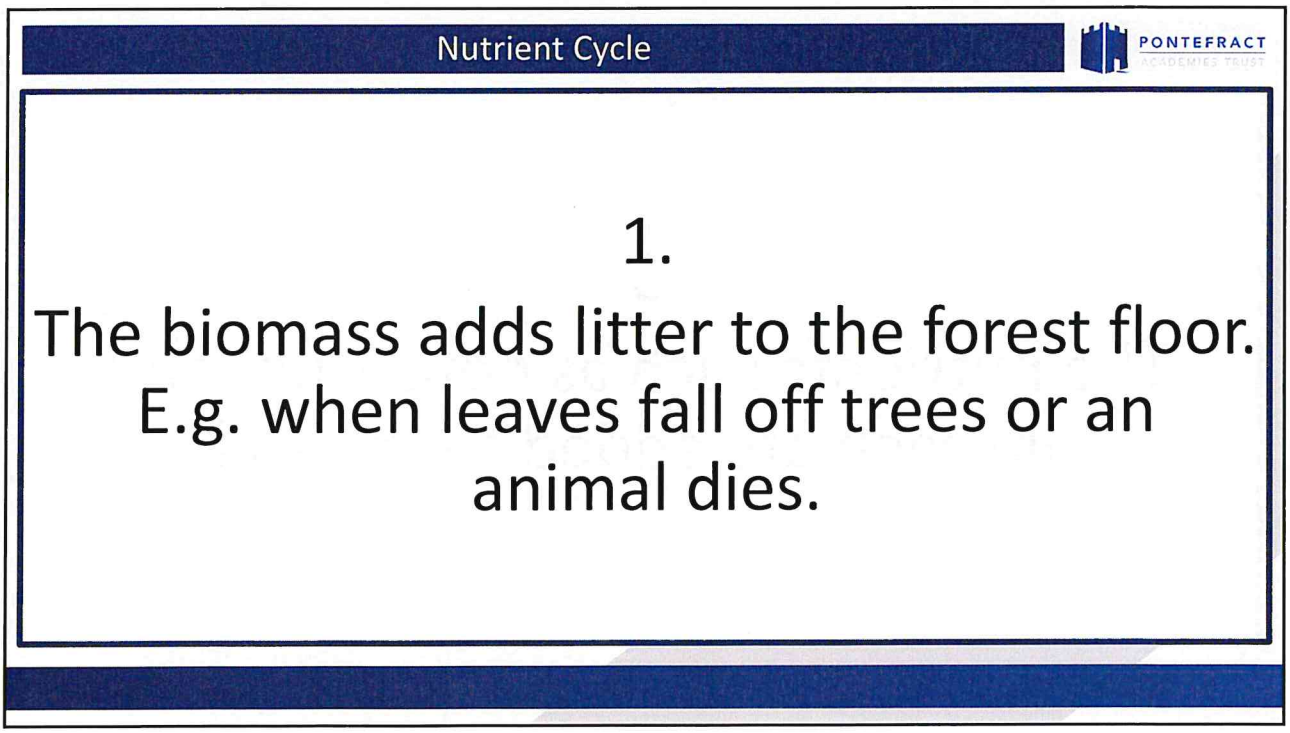
Nutrient Cycle
1
2
3
4


Nutrient Cycle
PONTEFRACT
ACADEMIES TRUST
1.
The biomass adds litter to the forest floor. E.g. when leaves fall off trees or an animal dies.

Nutrient Cycle

2.

Decomposers such as bacteria and fungi break down the litter material.

Nutrient Cycle

3.

The nutrients such as potassium and nitrogen are added to the soil.

Nutrient Cycle

PONTEFRACT ACADEMIES TRUST

4.

Some of these nutrients are leached away and the rest is taken in by the vegetation to help it grow.

Nutrient Cycle

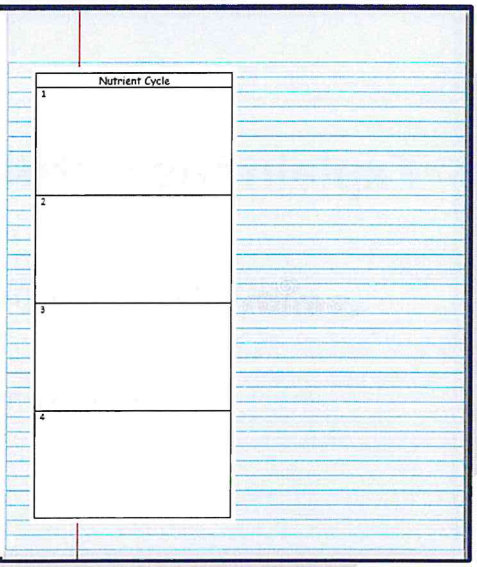
PONTEFRACT ACADEMIES TRUST

Glue your transform strip on the left side of your page.

Next to each box explain each stage of the nutrient cycle using your pictures to help you.

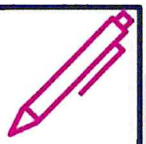
Remember to use the key terms we have learnt this lesson.

5:00



Nutrient Cycle

Self assess your work



1. The biomass adds litter to the forest floor. E.g. when leaves fall off trees or an animal dies.
2. Decomposers such as bacteria and fungi break down the litter material.
3. The nutrients such as potassium and nitrogen are added to the soil.
4. Some of these nutrients are leached away and the rest is taken in by the vegetation to help it grow.

Reduce

Explain the nutrient in cycle in exactly 10 words.

Try to include as many **key terms** from the lesson as possible.

It must make sense and be in **sentences**.

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LESSON 6

PONTEFRACT
ACADEMIES TRUST

PONTEFRACT ACADEMIES TRUST

Planner

Please have your planner open on today's date

Date: 23/09/2020

Copy

Do

Congo Basin Rainforest

1. Describe the location of tropical rainforests.
2. Draw a diagram to show convectional rainfall in the rainforest.

PONTEFRACT ACADEMIES TRUST

Learning Focus:
What us it like in the Congo Basin Rainforest?

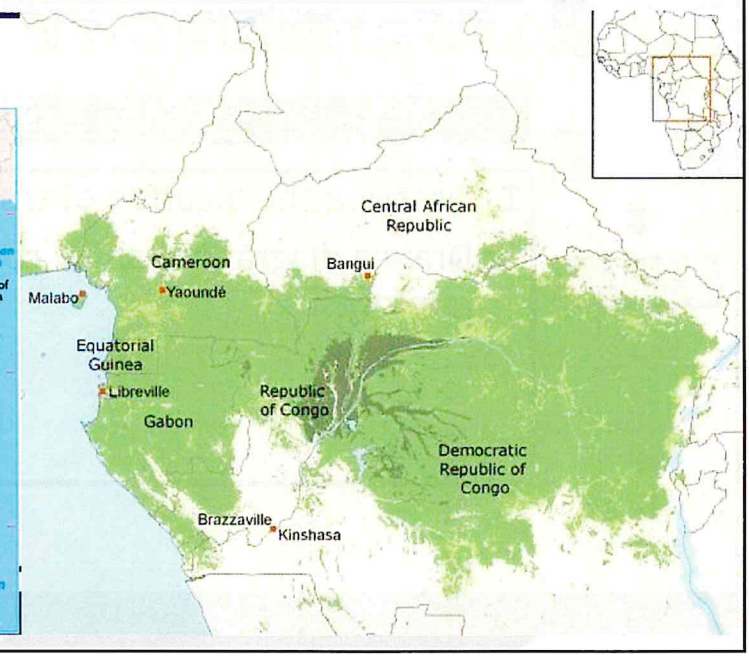
Key Terms:
Africa, Forest floor, Under canopy, Canopy, Emergent Layer, Biodiversity

Learning Outcomes:
Describe the location of the Congo Basin Rainforest
Identify the key layers of the rainforest structure
Describe the conditions of each layer of the rainforest

Congo Basin Rainforest

PONTEFRACT ACADEMIES TRUST

Describe the location of the Congo Basin Rainforest.



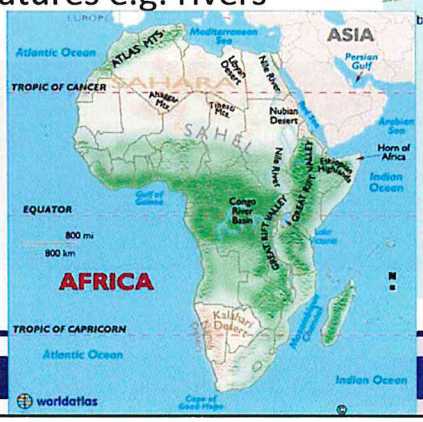
Congo Basin Rainforest

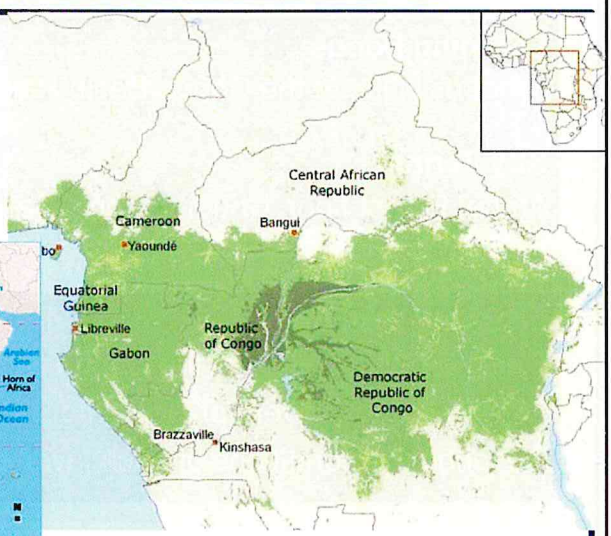
PONTEFRACT ACADEMIES TRUST

Describe the location of the Congo Basin Rainforest.

Include: lines of latitude, continent, compass directions, countries, oceans, other physical features e.g. rivers

3:00





Congo Basin Rainforest

PONTEFRACT ACADEMIES TRUST

Watch the video on the Congo Basin Rainforest in the DRC.

Pay very close attention – There will be a group competition

https://www.youtube.com/watch?v=i1D2Bpo1AW0

List at least 5 things you learnt from the video

In pairs share your ideas and add to your list

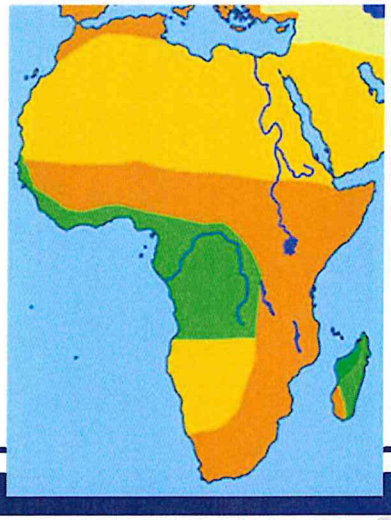
In groups share your ideas and add to your list

02:00

Congo Basin Rainforest

PONTEFRACT ACADEMIES TRUST

The video also looked at the other areas found around the Congo Basin Rainforest. Including Savannah



Congo Basin Rainforest

PONTEFRACT ACADEMIES TRUST

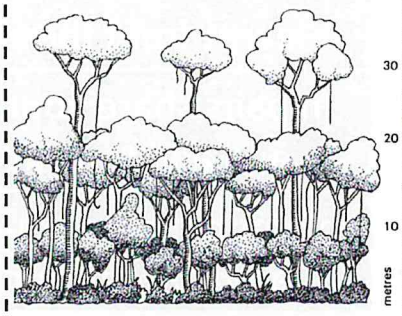
Activities:

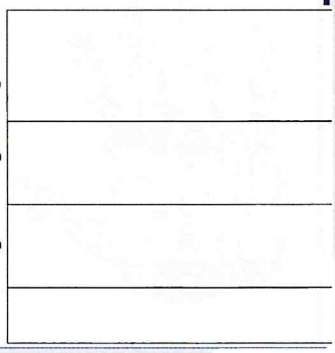
1. Read the Rainforest Poem
2. Use the poem to annotate your diagram of the rainforest structure
   - Include name of the layer, conditions and animals found in each layer.

The rainforest is like the layers of a sandwich
(The biggest sandwich around),
If you to go the very top of the trees,
The emergent layer can be found.

Sunlight is plentiful up at the top,
The emergent dash for the light,
They're head and shoulders above the rest,
Having won the competitive fight.

There's a warning for those who do not like heights;
Here is a definite NO,
The emergent can be sixty meters in height.
Perhaps we should head down below?





PONTEFRACT ACADEMIES TRUST

Rainforest structure poem

The rainforest is like the layers of a sandwich
(The biggest sandwich around),
If you to go the very top of the trees,
The emergent layer can be found.

Sunlight is plentiful up at the top,
The emergent dash for the light,
They're head and shoulders above the rest,
Having won the competitive fight.

There's a warning for those who do not like heights;
Here is a definite NO,
The emergent can be sixty meters in height.
Perhaps we should head down below?

The section beneath – the canopy,
Is a green, umbrella-like skin,
Two-thirds of the forest life lives here,
It's noisy, lively din.

Birds, monkeys, frogs and sloths
In a maze of branches found there.
I'll warn you now – it's getting darker,
As we travel downwards – beware.

The understory has smaller trees,
In gaps where old one have died,
The trees just grow as quickly as they can,
They have no time to decide.

Perhaps only fifteen meters in height,
But all around the trees (and entwined),
Are the twisting, turning, green lianas,
(Or what you might call a vine).

The final layer is very dark,
But I'll try to spread some light,
Dark through the day, perhaps light for minutes,
And obviously dark through the night.

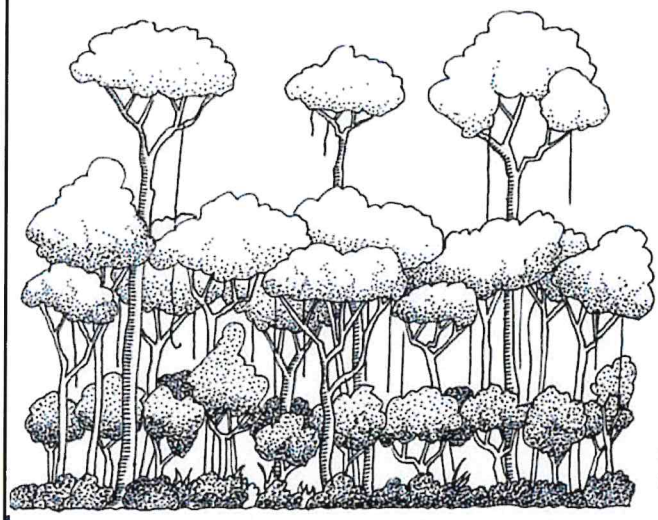
Because of the thick green layer above,
The sunlight has little say,
Down in this layer – the forest floor,
Things quickly, abruptly decay.

Remains are quickly recycled,
From the ground and into the roots,
Rainforest life continues,
In the form of new green shoots.

It all sounds simple and easy,
But small changes mean it all stops,
So it's rather sad that this complex web
Seems destined for the chop.

PONTEFRACT ACADEMIES TRUST

Layers of the Rainforest



30

20

10

metres

PONTEFRACT ACADEMIES TRUST

Congo Basin Rainforest

Activities:

1. Read the Rainforest Poem.
2. Use the poem to annotate your diagram of the rainforest structure.
   - Include name of the layer, conditions and animals found in each layer.
3. https://www.youtube.com/watch?v=UIbplCn8-zs – Watch the video and add more detail to your rainforest diagram.
4. Explain why certain animals live in each layer of the rainforest.
   - _____ are found on the forest floor because….
   - _____ are found in the canopy because….
5. Choose one of the layers of the rainforest and right a short poem to describe it.

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LESSON 7

PONTEFRACT
ACADEMIES TRUST

PONTEFRACT ACADEMIES TRUST

Planner

Please have your planner open on today's date

Date: 23/09/2020

Copy

Do

Rainforest Vegetation Adaptations

1. Name the 6 world biomes.
2. List the keys words you would use to explain the nutrient cycle.
3. What type of rainfall occurs in Tropical Rainforests

PONTEFRACT ACADEMIES TRUST

Learning Focus:
How have plants adapted to the conditions of the rainforest?

Key Terms:
Buttress roots, Saprophyte, Epiphyte, Lianas, Drip tip, Nutrients, Convectional rainfall, Humid

Learning Outcomes:
Identify different rainforest plant adaptations

Describe a range of rainforest plant adaptations

Explain how different rainforest plant adaptations help them to survive the extreme conditions

Tropical Rainforest Vegetation Adaptations

PONTEFRACT

What do we mean by the term

Adaptation?

Write your own definition in your book

Tropical Rainforest Vegetation Adaptations

PONTEFRACT

What do we mean by the term

Adaptation?

Adaptations are features which let plants or animals survive in the climate where they normally live.

Rainforest Vegetation Adaptations

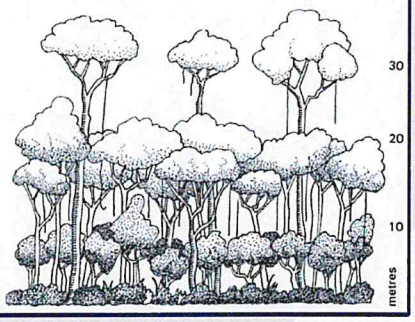
PONTEFRACT ACADEMIES TRUST

On your mini whiteboards list the different rainforest characteristics that plants would have to adapt to. (Think back to last lesson)

02:00

Will all the vegetation have the same adaptations?

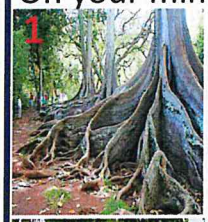
How might vegetation on the forest floor adapt differently to vegetation in the canopy?

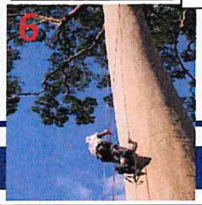


Rainforest Vegetation Adaptations

PONTEFRACT ACADEMIES TRUST

On your mini whiteboard match the adaptation photograph to the description.



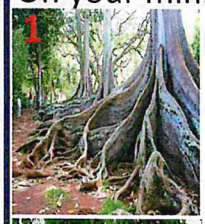


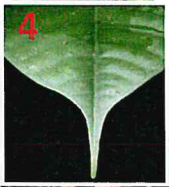
A. A climbing vine that can grow up to 200 metres long.
B. Shallow, large, wide supporting roots that cover a huge area.
C. A plant with large holes in its leaves.
D. Plants that grow on the branches or trunks of other trees.
E. Plants that grow on the forest floor where there is very little light.
F. Very tall, straight trees with very few side branches.
G. Shaped leaves with a pointed tip and a waxy surface.

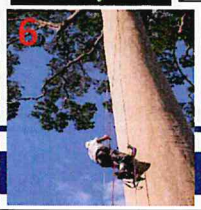
Rainforest Vegetation Adaptations

PONTEFRACT ACADEMIES TRUST

On your mini whiteboard match the adaptation photograph to the description.







A. A climbing vine that can grow up to 200 metres long. 5
B. Shallow, large, wide supporting roots that cover a huge area. 1
C. A plant with large holes in its leaves. 7
D. Plants that grow on the branches or trunks of other trees. 3
E. Plants that grow on the forest floor where there is very little light. 2
F. Very tall, straight trees with very few side branches. 6
G. Shaped leaves with a pointed tip and a waxy surface. 4

Rainforest Vegetation Adaptations

PONTEFRACT ACADEMIES TRUST

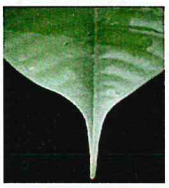
Complete the table by explaining why each adaptation is needed.

https://www.youtube.com/watch?v=s9QWRZr4uXw&t=13s – Watch up to 3mins

1. How has the swiss cheese plant adapted?

2. How has the pitcher plant adapted?

3. Why to plants have drip tip leaves?



THINK

PAIR

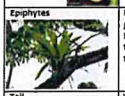
SHARE

Rainforest Vegetation Adaptations

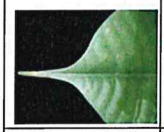
PONTEFRACT ACADEMIES TRUST

Complete the table by explaining why each adaptation is needed to help the plant survive the conditions of the rainforest.

Key Terms	
sunlight	heavy rainfall
nutrients	dark
vegetation	support

Feature	Description	Explanation
Buttress Roots 	Shallow, large, wide supporting roots that cover a huge area.	
Saprophytes 	Plants that grow on the forest floor where there is very little light.	
Epiphytes 	Plants that grow on the branches or trunks of other trees.	
Tall, branchless trunks 	Very tall, straight trees with very few side branches.	
Lianas 	A climbing vine that can grow up to 200 metres long.	
Swiss Cheese Plant 	A plant with large holes in its leaves.	
Drip tip leaves 	Shaped leaves with a pointed tip and a waxy surface.	

PONTEFRACT ACADEMIES TRUST

Feature	Description	Explanation
Buttress Roots 	Shallow, large, wide supporting roots that cover a huge area.	
Saprophytes 	Plants that grow on the forest floor where there is very little light.	
Epiphytes 	Plants that grow on the branches or trunks of other trees.	
Tall, branchless trunks 	Very tall, straight trees with very few side branches.	
Lianas 	A climbing vine that can grow up to 200 metres long.	
Swiss Cheese Plant 	A plant with large holes in its leaves.	
Drip tip leaves 	Shaped leaves with a pointed tip and a waxy surface.	

Vocabulary Quiz

PONTEFRACT ACADEMIES TRUST

Can you identify the correct key term.

1. When heat turns water into water vapour.
2. Plants that grow on the branches of trees and steal their nutrients.
3. When rain washes nutrients out of the soil.
4. Term used for rain, hail, sleet and snow.
5. The top layer of the rainforest.
6. Vines that wrap around trees for support.
7. The long term weather pattern in a specific area.
8. Features that help plants or animals survive in a specific area.

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LESSON 8

PONTEFRACT
ACADEMIES TRUST

PONTEFRACT ACADEMIES TRUST

Planner

Please have your planner open on today's date

Date: 23/09/2020

Copy

Do

Design a Rainforest Plant

1. Identify 1 vegetation adaptation found on the forest floor.
2. Identify 1 rainforest vegetation adaptation that helps them survive the heavy rainfall.
3. Why are rainforest soils so poor and lacking nutrients?

PONTEFRACT ACADEMIES TRUST

Learning Focus:
Apply your knowledge of rainforest conditions and plant adaptations.

Key Terms:
Buttress roots, Saprophyte, Epiphyte, Lianas, Drip tip, Nutrients, Convectional rainfall, Humid

Learning Outcomes:
Identify suitable plant adaptations for a chosen area of the rainforest

Describe and explain how these adaptations will help the plant survive in your chosen area of the rainforest

Produce an annotated diagram of your rainforest plant

Design a Rainforest Plant

PONTEFRACT

Your task is to design a plant that can survive the extreme conditions of the rainforest

Design a plant to survive in the Tropical Rainforest Name _____ Group _____

Task 1: *State* which layer your plant is going to live in.

Task 2: *Describe* the layer of the rainforest you have chosen. (Climate, sunlight, soil, types of plants and animals found there, etc.)

Task 3: **Explain how** your plant is able to **survive** in that particular environment. Think about how it will get nutrients, survive the heavy rain and high temperatures and protect itself from other plants and animals.

Task 4: Draw your plant design. *Annotate* its main features.

Design a plant to survive in the rainforest

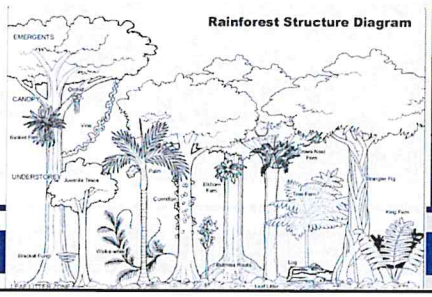
PONTEFRACT ACADEMIES TRUST

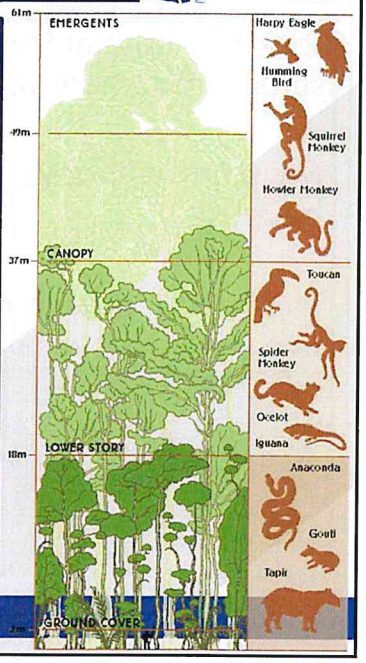
Task 1: Decide which layer of the rainforest you want you plant to live on and write a description of that layer.

My plant will live _____. In this layer of the rainforest…

Include: climate, sunlight, rain, types of plants and animals.

5:00



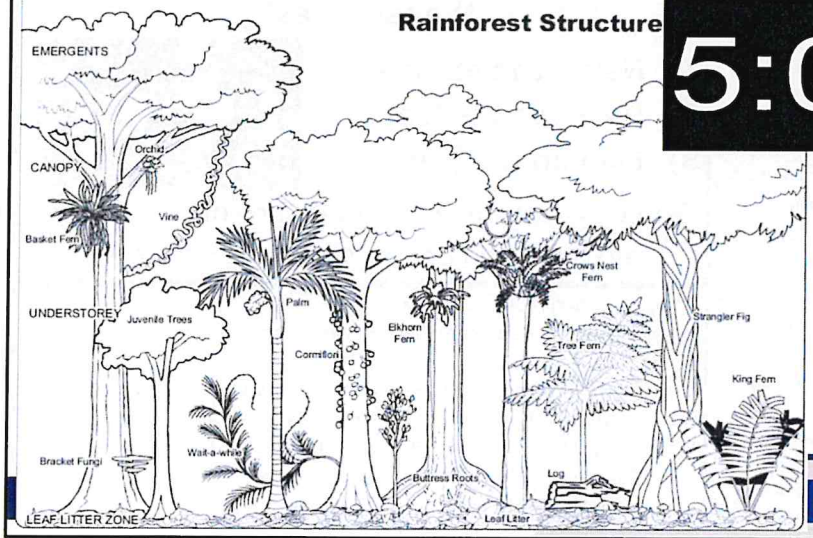


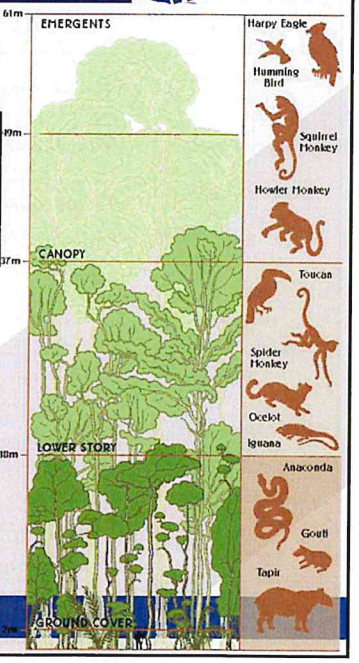
Design a plant to survive in the rainforest

PONTEFRACT ACADEMIES TRUST

Task 2: Describe your layer of the rainforest Include: climate, sunlight, rain, types of plants and animals.

5:00





Design a plant to survive in the rainforest

PONTEFRACT ACADEMIES TRUST

Task 3: Choose at least 3 adaptations for your plant. Make sure that they are suitable for where your plant will grow.

My plant will have _____ this will help it to survive because...

Think about how your plant will get nutrients, survive the high heat and heavy rain and how it will protect itself from other plants and animals.




15:00

Design a plant to survive in the rainforest

PONTEFRACT ACADEMIES TRUST

large leaves	small leaves	leaves face away from the sun
leaves face towards the sun	leaves have drip tips	waxy leaves
deep root system	wide root system	buttress roots
can survive without any sunlight	likes a bit of sunlight	likes lots of sunlight
loves water	dislikes water	floats
evergreen	deciduous	colourful
drab	small plant	tall plant
lives on other plants (epiphyte)	grows on rocks	has wind-blown seeds
produces pollen	eats insects	produces nectar
has flowers	has fruit (nuts or berries)	has a nice smell
has thorns or spikes on leaves or stem	poisonous	has sticky hairs on leaves

Task 3: Choose at least 3 features your plant will need to survive <u>in your layer</u> of the rainforest.

1) **Name the feature**
2) **Describe** the feature
3) **Explain** the feature

15:00

You can; use the list to help, use ones we have already seen or come up with your own

<u>Feature</u> - Waxy coating on the leaves
<u>Description</u> – The leaves are coated with wax and have a pointed tip at the end
<u>Explanation</u> – My plant lives in the canopy where there is lots of heavy rainfall. Therefore, as my plant has a waxy coat and a pointed tip, the rain runs off it very quickly. This stops the leaves and branches ripping off and also means that the rainwater gets quickly down to the roots.

Design a plant to survive in the rainforest

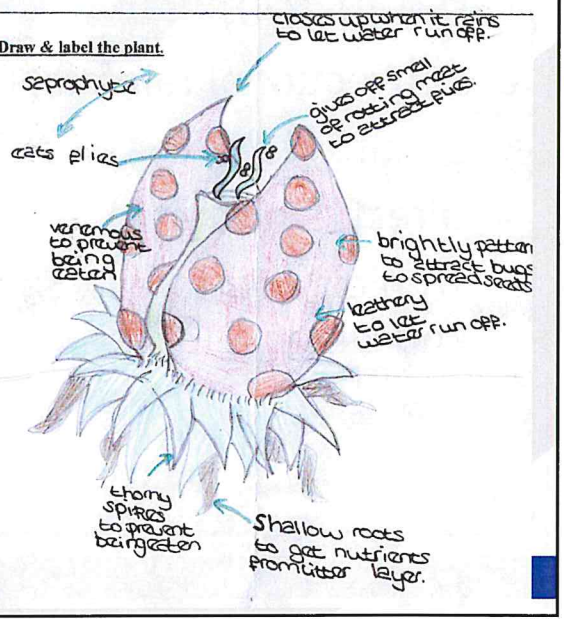
PONTEFRACT ACADEMIES TRUST

Task 4: Neatly draw a sketch of your plant. Add labels to show your adaptations and how they help it to survive.

15:00

Name of the plant: Amazonian fly eating saprophyte

Draw & label the plant.



Week 4 VIP Quiz

PONTEFRACT ACADEMIES TRUST

1. Put the statements in order to describe the nutrient cycle. (3)

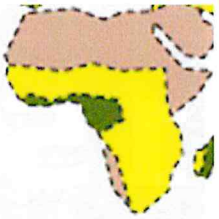
A. Decomposers such as bacteria and fungi break down the litter material.	**B.** The biomass adds litter to the forest floor. E.g. when leaves fall off trees or an animal dies.	**C.** Some of these nutrients are leached away and the rest is taken in by the vegetation to help it grow.	**D.** The nutrients such as potassium and nitrogen are added to the soil.

2. What type of rain occurs in tropical rainforests? (1)
3. Tropical rainforests are located on the _____ (1)
4. The equator is exposed to indirect / direct sunlight over a smaller / larger area which creates is warm climate. (2)
5. Name the 3 biomes that are found in Africa, (3)

Week 4 VIP Quiz

PONTEFRACT ACADEMIES TRUST

1. B, A, D, C (3)
2. Convectional rainfall (1)
3. Equator (1)
4. Direct, smaller (2)
5. Tropical Rainforest, Savannah/Grassland and Deserts (3)



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LESSON 9

PONTEFRACT
ACADEMIES TRUST

PONTEFRACT ACADEMIES TRUST

Planner

Please have your planner open on today's date

Date: 23/09/2020

Copy

Do

Why are the rainforests disappearing?

1. List the key words you would include to describe the nutrient cycle.
2. Draw a labelled diagram to show convectional rainfall

PONTEFRACT ACADEMIES TRUST

Learning Focus:
Why is the rainforest disappearing?

Key Terms:
Logging, Agriculture, Cattle Ranching, Mineral extraction, Road building, Hydroelectric power

Learning Outcomes:
Identify the causes of deforestation

Describe how these activities lead to the removal of trees

Explain why these activities are carried out (What do we get from it?)

Why are the rainforests disappearing?

PONTEFRACT ACADEMIES TRUST

Complete the question grid using the photograph

WHO?

WHAT?

WHEN?

WHERE?

WHY?

	Is?	Did?	Can?	Would/Could?	Will?	Might?
What?						
Where?						
When?						
Which?						
Who?						
Why?						
How?						

PONTEFRACT ACADEMIES TRUST

Deforestation

PONTEFRACT ACADEMIES TRUST

What is deforestation?

Deforestation is the large-scale removal of trees from an area.

The East African

China's demand for luxury wood furniture 'fuels' West Africa's deforestation

China's huge craving for logging products has made it a major destination for timber sourced from vulnerable areas in Africa.

BBC News

Climate change: How the UK contributes to global deforestation

Chocolate, pizza, shampoo.... Just some of the things that could be making climate change worse.

The Ecologist

Deforestation in Colombia

To address the current rapid rates of deforestation in the Colombian Amazon, it is important to understand the complex context and the ...

2 weeks ago

Science Magazine

Illegal deforestation in Brazil soars amid climate of impunity

Deforestation in Brazil is rising even in legally protected areas and indigenous lands where criminals rarely ventured in the past. Guardian/ ...

Deforestation

PONTEFRACT ACADEMIES TRUST

How do people use the rainforest?

Causes of deforestation

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Causes of deforestation

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Activities:

1. Visit the different information stations around the room and complete the information table on the different causes of deforestation.

2. Go back to your question grid, using what you have learnt this lesson answer as many of your questions as you can.

Logging

Logging is one of the smaller causes for deforestation with only 3% of the total loss coming from timber products.

Timber companies are most interested in trees such as mahogany and teak and sell them to other countries to make furniture. Smaller trees are often used for fuel or made into charcoal. Vast area of the rainforest can be cleared in one go when logging (called felling).

In the Congo Basin Rainforest 87% of the total volume of wood harvested was one of five species of African mahogany. The majority of the exports are shipped to Portugal, Germany, and France.

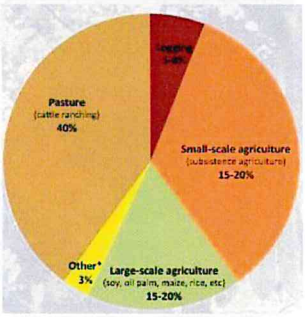
Mineral Extraction

It so happens that some of the minerals that developed countries need are found beneath stretches of tropical rainforest.

Gold, diamonds, cobalt, copper and oil are major resources that are mined from the Congo Basin Rainforest. Recently, mining groups have targeted coltan, a rare mineral used in electronics such as mobile phones.

In the Amazon, mining is mainly about gold. The rainforest suffers badly as large amounts are chopped down to make way for the mines.

Cattle Ranching



Large areas of the Amazon rainforest have been cleared to make way for livestock rearing. The rearing (growing) of cattle accounts for 80% of the rainforests destruction. However, land cannot be used for long. The quality of the cattle's feeding land (pastures) declines quickly and they have to move the cattle onto new areas which means cutting down more trees.

Amazon Brazil is home to approximately 200 million head of cattle, and is the largest exporter in the world, supplying about one quarter of the global market.

Hydro-Electric Power

An unlimited supply of water and ideal river conditions have encouraged dams to be built to generate hydro-electric power (HEP). This involves flooding vast areas of rainforests. Often dams have a short life. The submerged forest gradually rots, making the water very acidic. This then corrodes the HEP turbines. The dam also become blocked with soil washed down deforested slopes by heavy rain.

Inga Dams on the Congo river were built between 1972-82. There are plans to improve and expand these dams, it is know as the Grand Inga project. Once completed it will be the larges Hydro-electric power facility in the world.

Road building

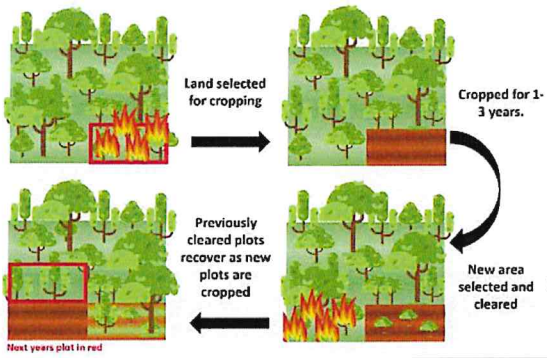
Roads are needed to bring in equipment and transport products to markets, but road buildings means cutting great trails through the rainforest.

Additionally, a road built for a particular use means more people are then able to use the rainforest which speeds up the rate of deforestation. In the Congo Basin Rainforest, farmers are now able to move from the nearby dry savannah to develop more reliable farms in the rainforest climate.

In 1972, the Trans-Amazonian highway was built which is over 4000Km long. This allowed more people into the forest and allowed for more deforestation.

Agriculture

The forest is cleared to make way for vast plantations, where crops such as bananas, palm oil, cocoa, sugar cane, tea and coffee are grown. These are known as cash crops which are exported to other countries. This large scale farming is known as commercial agriculture.



Small scale, subsistence farming (growing enough food for yourself and your family) is also a major contributor to deforestation in the Congo Basin rainforest. This if often done by the process of shifting cultivation which is a traditional method practised by the tribes.

Causes of Deforestation		
Name of activity	Description of activity	Why is this activity taking place?
Logging		
Mineral Extraction		
Cattle Ranching	Large areas of rainforest are cleared then grass is grown for cattle to graze.	
Hydro-electric Power	Hydro-electric dams are built a cross a river. The river floods large areas of the forest behind the dam creating a reservoir.	
Agriculture		
Road Building		Roads are built to transport equipment and products linked to the other activities. They allow easier movement of people around the country and open up new trade corridors.

PONTEFRACT

Challenge someone to answer one of your questions.
You must also be able to answer your question.

PONTEFRACT
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LESSON 10

PONTEFRACT
ACADEMIES TRUST

PONTEFRACT ACADEMIES TRUST

Planner

Please have your planner open on today's date

Date: 23/09/2020

Copy

Do

Impacts of Deforestation

Below are 3 answers. What could the question be?

1. When nutrients are washed out of the soil.
2. Tundra, Deciduous forest, Coniferous forest, Desert, Tropical Rainforest, Savannah.
3. Saprophyte.

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Learning Focus:
How will deforestation impact us and the world we live in?

Key Terms:
Social, Economic, Environmental, Biodiversity, Global, Local, Indigenous tribes, Biodiversity

Learning Outcomes:
Describe the effects of deforestation

Categorise these effects into social, economic and environmental

Explain the positive and negative

Impacts of Deforestation

PONTEFRACT ACADEMIES TRUST

Links between 2 major global environmental issues: Deforestation and Climate Change

https://www.youtube.com/watch?v=SxRRdhXmmwA

Why is the Congo Basin Rainforest important?

What might happen to the climate and people if it is deforested?

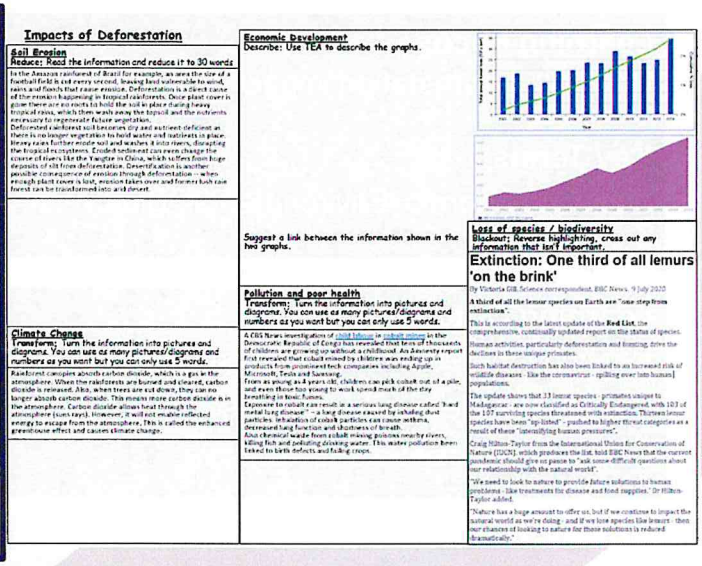
Impacts of Deforestation

PONTEFRACT ACADEMIES TRUST

You are going to investigate a range of impacts of deforestation.

You have a range of resources for you to study.

You will complete different activities using these resources.



Impacts of Deforestation

Soil Erosion
Reduce: Read the information and reduce it to 30 words

In the Amazon rainforest of Brazil for example, an area the size of a football field is cut every second, leaving land vulnerable to wind, rains and floods that cause erosion. Deforestation is a direct cause of the erosion happening in tropical rainforests. Once plant cover is gone there are no roots to hold the soil in place during heavy tropical rains, which then wash away the topsoil and the nutrients necessary to regenerate future vegetation.
Deforested rainforest soil becomes dry and nutrient deficient as there is no longer vegetation to hold water and nutrients in place. Heavy rains further erode soil and washes it into rivers, disrupting the tropical ecosystems. Eroded sediment can even change the course of rivers like the Yangtze in China, which suffers from huge deposits of silt from deforestation. Desertification is another possible consequence of erosion through deforestation — when enough plant cover is lost, erosion takes over and former lush rain forest can be transformed into arid desert.

Climate Change
Transform: Turn the information into pictures and diagrams. You can use as many pictures/diagrams and numbers as you want but you can only use 5 words.

Rainforest complex absorb carbon dioxide, which is a gas in the atmosphere. When the rainforests are burned and cleared, carbon dioxide is released. Also, when trees are cut down, they can no longer absorb carbon dioxide. This means more carbon dioxide is in the atmosphere. Carbon dioxide allows heat through the atmosphere (sun rays). However, it will not enable reflected energy to escape from the atmosphere. This is called the enhanced greenhouse effect and causes climate change.

Economic Development
Describe: Use TEA to describe the graphs.

Suggest a link between the information shown in the two graphs.

Pollution and poor health
Transform: Turn the information into pictures and diagrams. You can use as many pictures/diagrams and numbers as you want but you can only use 5 words.

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Exposure to cobalt can result in a serious lung disease called 'hard metal lung disease' – a lung disease caused by inhaling dust particles. Inhalation of cobalt particles can cause asthma, decreased lung function and shortness of breath.
And chemical waste from cobalt mining poisons nearby rivers, killing fish and polluting drinking water. This water pollution been linked to birth defects and failing crops.

Loss of species / biodiversity
Blackout: Reverse highlighting, cross out any information that isn't important.

Extinction: One third of all lemurs 'on the brink'

By Victoria Gill, Science correspondent, BBC News, 9 July 2020

A third of all the lemur species on Earth are "one step from extinction".

This is according to the latest update of the Red List, the comprehensive, continually updated report on the state of species.

Human activities, particularly deforestation and hunting, drive the declines in these unique primates.

Such habitat destruction has also been linked to an increased risk of wildlife diseases - like the coronavirus - spilling over into human populations.

The update shows that 33 lemur species - primates unique to Madagascar - are now classified as Critically Endangered, with 103 of the 107 surviving species threatened with extinction. Thirteen lemur species have been "up-listed" - pushed to higher threat categories as a result of these "intensifying human pressures".

Craig Hilton-Taylor from the International Union for Conservation of Nature (IUCN), which produces the list, told BBC News that the current pandemic should give us pause to "ask some difficult questions about our relationship with the natural world".

"We need to look to nature to provide future solutions to human problems - like treatments for disease and food supplies," Dr Hilton-Taylor added.

"Nature has a huge armoury to offer us, but if we continue to impact the natural world as we're doing - and if we lose species like lemurs - then our chances of looking to nature for those solutions is reduced dramatically."

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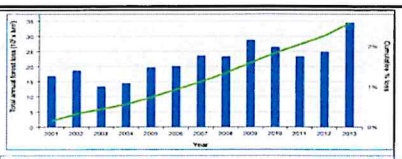

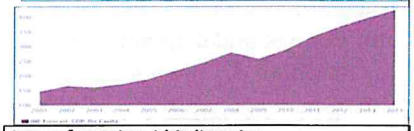

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Impacts of Deforestation

PONTEFRACT ACADEMIES TRUST

The activities you will complete include:

Transform: Your task is to turn the writing into **pictures and diagrams**. You can use **numbers** but you are only allowed to use a maximum of **5 words**.

Describe: Use **TEA**! Say what you see (Do not explain). Are there any patterns? Include examples. Are there any anomalies? (Something that doesn't fit the pattern)

Blackout: Read through the information and cross out anything that isn't useful in understanding the impact. (The opposite of highlighting)

Reduce: Read through the information. Your challenge is to reduce the information down to just **30 words**.

Impacts of Deforestation

PONTEFRACT ACADEMIES TRUST

You have 5 minutes to complete the activity for each impact.

Transform: Your task is to turn the writing into **pictures and diagrams**. You can use **numbers** but you are only allowed to use a maximum of **5 words.**

Describe: Say what you can see. (Do not explain). Are there any patterns? Include examples (e.g. continents, countries, dates, figures, etc.). Are there any anomalies (something that doesn't fit the pattern)?

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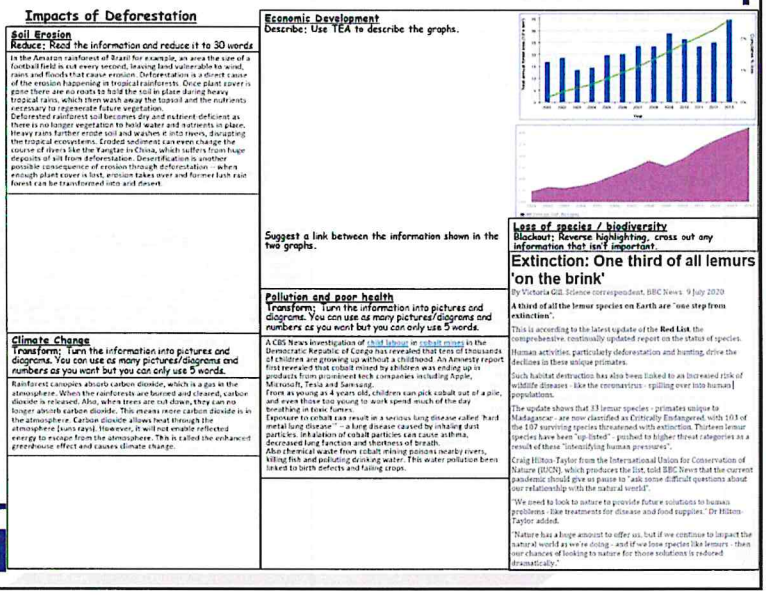

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Impacts of Deforestation

PONTEFRACT ACADEMIES TRUST

1. Copy the table into your book.
2. Categorise the effects below:

Environmental	Social

Soil erosion
Climate change
Job opportunities
Increased income
Interrupts the nutrient cycle
Decrease in indigenous tribes
Increased carbon dioxide emissions
Interrupts the water cycle
Water pollution
Loss of biodiversity
Child Labour

3. Making Connections: Can you make any links between the effects? Explain the links you find.

Impacts of Deforestation

PONTEFRACT

Re – visit your question grid from last lesson.

Answer as many of the questions as you can using what you have learnt.

Challenge someone to answer one of your questions.

You must also be able to answer your question.

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LESSON 11

PONTEFRACT
ACADEMIES TRUST

Geography in the News 3

Wider reading in Geography

Geography in the News this week explores litter.
https://www.bbc.co.uk/newsround/54015196

Define

To begin with, it will be very useful to know what the following terms mean. Write a definition for each:

- **Litter**
- **Plastic pollution**
- **Landfill**
- **Incinerator**
- **Conservationists**
- **PPE**

Coronavirus: Face masks part of 'new plastic pollution explosion'

More and more protective equipment is ending up in the sea as the world battles the coronavirus pandemic.

It's estimated that 194 billion disposable face masks and gloves are being used every month worldwide, according to a report in the Environmental Science and Technology journal.

And divers and observers are spotting more of this discarded waste floating underwater, causing problems for wildlife and washing up on shorelines all over the world.

Volunteers say face masks are turning up more and more on beaches

The charity Surfers Against Sewage says it has seen an "explosion" of discarded masks and plastics on beaches and in rivers in UK.

Most single use personal protective equipment (PPE) - such as gloves or face masks - are made from a variety of plastics.

These types of plastic masks could then take up to 450 years to fully break down if they end up in the sea, according to Waste Free Oceans.

Even when thrown away correctly, it is claimed most PPE cannot be recycled because it's seen as medical waste.

So it ends up either in landfill or being sent to an incinerator, which burns the waste and can release toxic smoke.

'New wave of plastic pollution'

From September, Surfers Against Sewage plans to name and shame on social media individual companies whose waste its members most regularly find.

Jack Middleton from the charity, which is based in Cornwall, said: "Since lockdown has started to be lifted we've witnessed a new wave of plastic pollution littering our beaches in the form of disposable masks and gloves.

"While the PPE has helped to save lives over the past few months, we now need to consider how we dispose of it properly to prevent it from flowing into our rivers and oceans and destroying our beaches.

Surfers Against Sewage hold regular beach clean-ups across the UK

"We're used to seeing plastic bottles and bags when we're surfing but this new type of plastic pollution is something that no-one could have foreseen."

Mr Middleton and other conservationists are encouraging people to use reusable face masks to help cut down on tens of thousands of tonnes of extra plastic waste.

Face masks and gloves litter increasing

Charlotte England takes part in mass clean-ups in Bristol along the River Avon. She says she has noticed increasing amounts of PPE, particularly face masks, among the litter she cleans up. "You see the masks everywhere, in parks and in the streets," she said. This is a big problem because before lockdown these items weren't ever really in circulation among the general public, they were limited to the medical industry. I think what's needed is clear guidance from the government on the promotion of reusable masks. They have said they are safe to use but I don't think the fact that they are an [environmentally friendly] alternative to the single-use masks has been widely communicated."

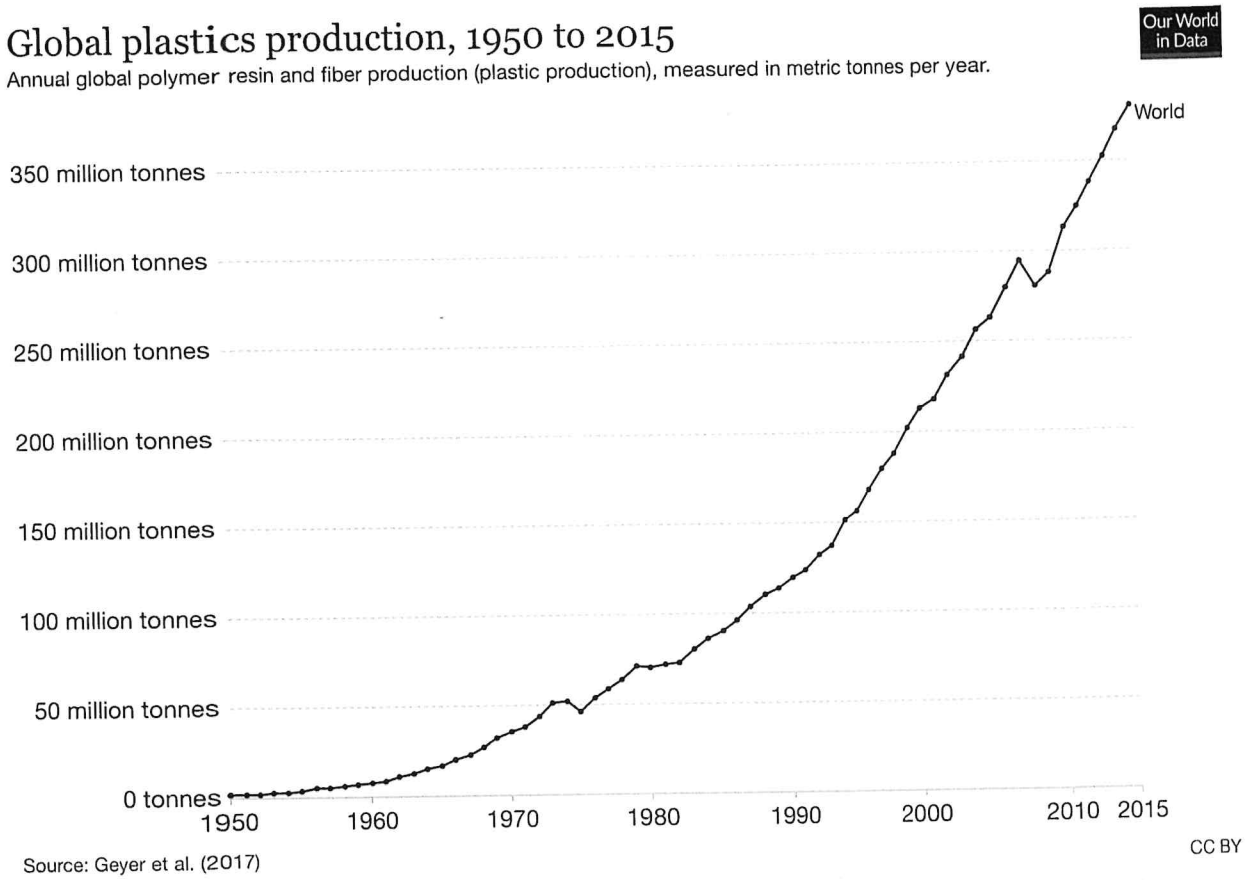
The

ing the BBC Newsround article above, complete the questions below.

1. How many disposable face masks and gloves are estimated to be being used every month around the world?
2. Where are divers and observers spotting more PPE waste?
3. Identify the charity that has seen an explosion of discarded masks and plastics on beaches and in rivers in the UK.
4. What is most single-use PPE made from?
5. How long can it take for masks, containing plastic, to breakdown in the sea?
6. Why can't most PPE be recycled?
7. How is most PPE waste disposed of?
8. Identify two items of PPE that form the new wave of plastic pollution.
9. When did this new wave of plastic pollution start?
10. What are conservationists recommending to reduce the amount of plastic waste from PPE?

The

1. Describe global plastics production between 1950 and 2015. Remember to use TEA (Trend, Evidence, Anomaly)



The

What are the social, economic and environmental impacts of litter?

Social impacts	Economic impacts	Environmental impacts

Extension Activities

The Links

How does this Geography in the News link to what you have previously studied in geography?

The Next

It's the Great British September Clean between 11-27 September 2020. The campaign, by Keep Britain Tidy, is encouraging us to volunteer our time and either organise a group or individual clean up. Take some time to find out more here: https://www.keepbritaintidy.org Why not get involved?