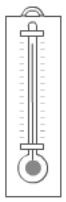
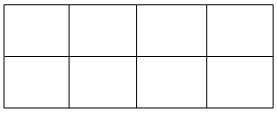
Name:_____Form:_____

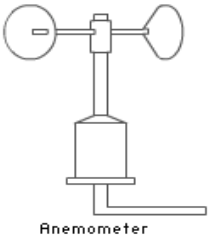
Weather, climate and natural vegetation

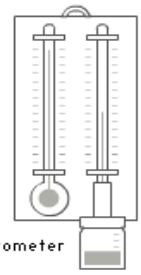
Revision checklist	**How well did I do?**
1. To be familiar with instruments used to measure weather.	☺ 😐 ☹
2. To practice exam questions on weather instruments.	☺ 😐 ☹
3. To be familiar with the factors that affect climate.	☺ 😐 ☹
4. To be able to describe the distribution of tropical rainforests	☺ 😐 ☹
5. To be able to describe the climate of tropical rainforests	☺ 😐 ☹
6. To be able to describe the soil in tropical rainforests	☺ 😐 ☹
7. To be able to describe the vegetation in tropical rainforests	☺ 😐 ☹
8. To be able to describe the plant adaptations in a tropical rainforest	☺ 😐 ☹
9. To understand the causes of deforestation	☺ 😐 ☹
10. To understand the effects of deforestation	☺ 😐 ☹
11. To understand the hazards and opportunities that exist in a Tropical Rainforest.	☺ 😐 ☹
12. To be able to describe the distribution of hot deserts	☺ 😐 ☹
13. To be able to describe the climate of hot deserts	☺ 😐 ☹
14. To be able to describe the soil in hot deserts	☺ 😐 ☹
15. To be able to describe the vegetation in hot deserts	☺ 😐 ☹
16. To understand the hazards and opportunities that exist in Deserts	☺ 😐 ☹
17. To know a case study of a Hurricane	☺ 😐 ☹

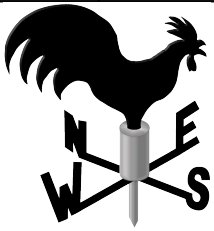
1. To be familiar with instruments used to measure weather.

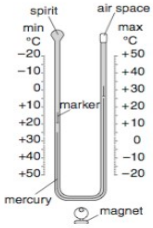
Weather term	Means	Measured using	Units
T……	Exactly how hot or cold it is	Thermometer 	
……	How heavy the air is		
……....	How much of the sky is hidden by clouds	Cloud cover 	Oktas
…….....	How fast the wind is blowing		
W…….....	Where the wind is blowing from		
P…….....	Water falling from the sky		
H.....	Moisture in the air		
The temperature range	Measures the difference between the max and min temperatures		


Barometer


Anemometer

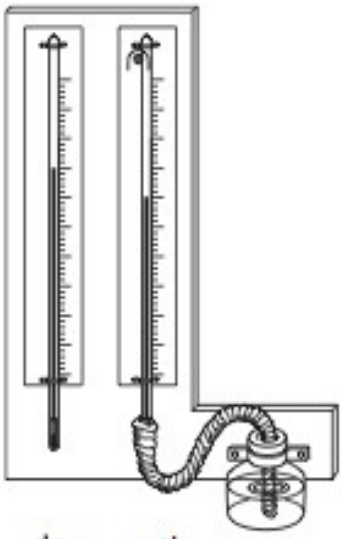

Hygrometer





2. To practice exam questions on weather instruments.

(a) Study Fig. 4, which shows four instruments which students are using to measure the weather at a school weather station.

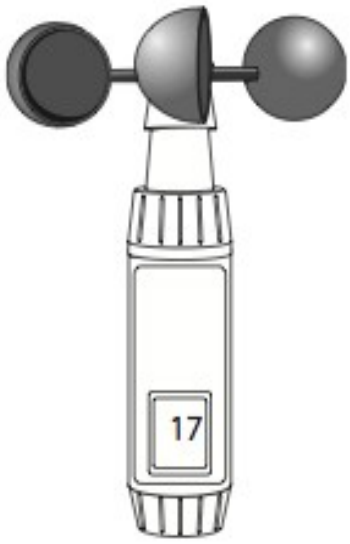


dry bulb 30°C

wet bulb 20°C

wet bulb depression = 10°C

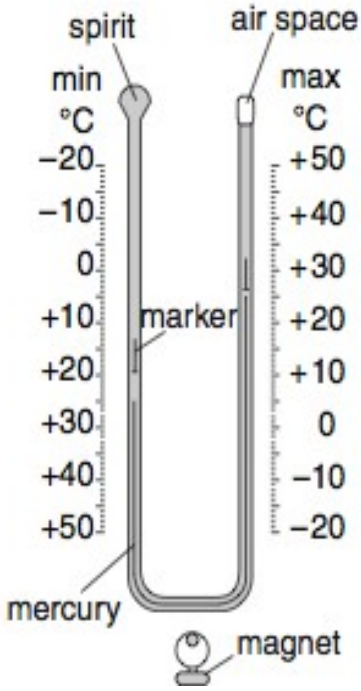
Instrument **A**



Instrument **B**

Instrument **C**

TIP!
Please note: You take the measurement from the bottom of the marker.



(i) Which weather characteristic will the students measure with instrument **A**?

..... [1]

(ii) Identify the weather instruments labelled **B** and **C**.

Instrument **B** .....

Instrument **C** .....[2]

(iii) Use instrument **D** to work out the daily range of temperature. Show your calculations.

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.....[3]

(iv) Explain why instrument **B** will give more accurate readings if it is sited on the roof of the school, rather than in the playground.

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(b) Study Fig. 5, which shows a Stevenson Screen which the students will use in their school weather station.

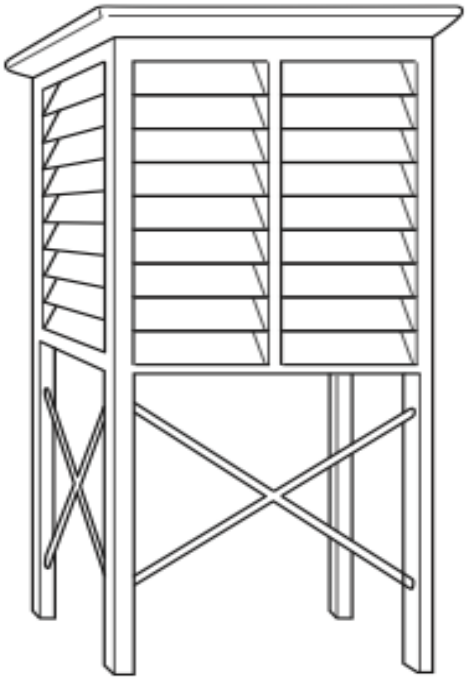

Fig. 5

(i) Identify the characteristics of the Stevenson Screen which:

A reflect the sun's rays; .....

.....

B allow free flow of air; .....

.....

C ensure that the thermometers inside it measure the temperature of the air not the ground. .....

.....[3]

(ii) What advice would you give the students about where to site the Stevenson Screen? Give reasons for your answer.

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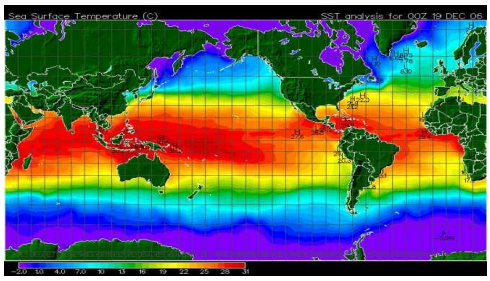
.....[5]

3. To be familiar with the factors that affect climate.

Add information to the boxes, stating the different factors that affect climate

FACTORS THAT AFFECT CLIMATE

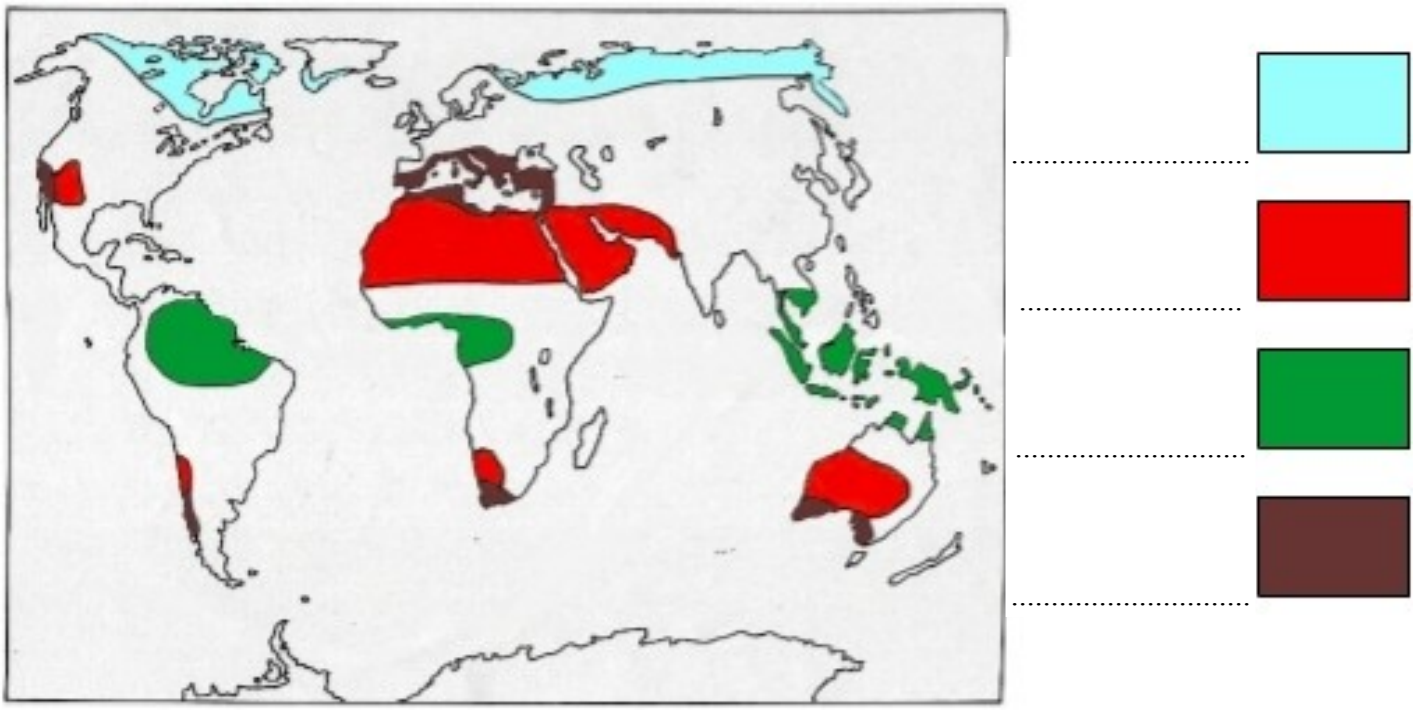


LATITUDE – The closer to the equator, the higher the temperature

List the factors that affect a microclimate:.....

.....

Complete the key, adding one of the following ecosystems labels: Arctic, Hot Desert, Equatorial, Mediterranean



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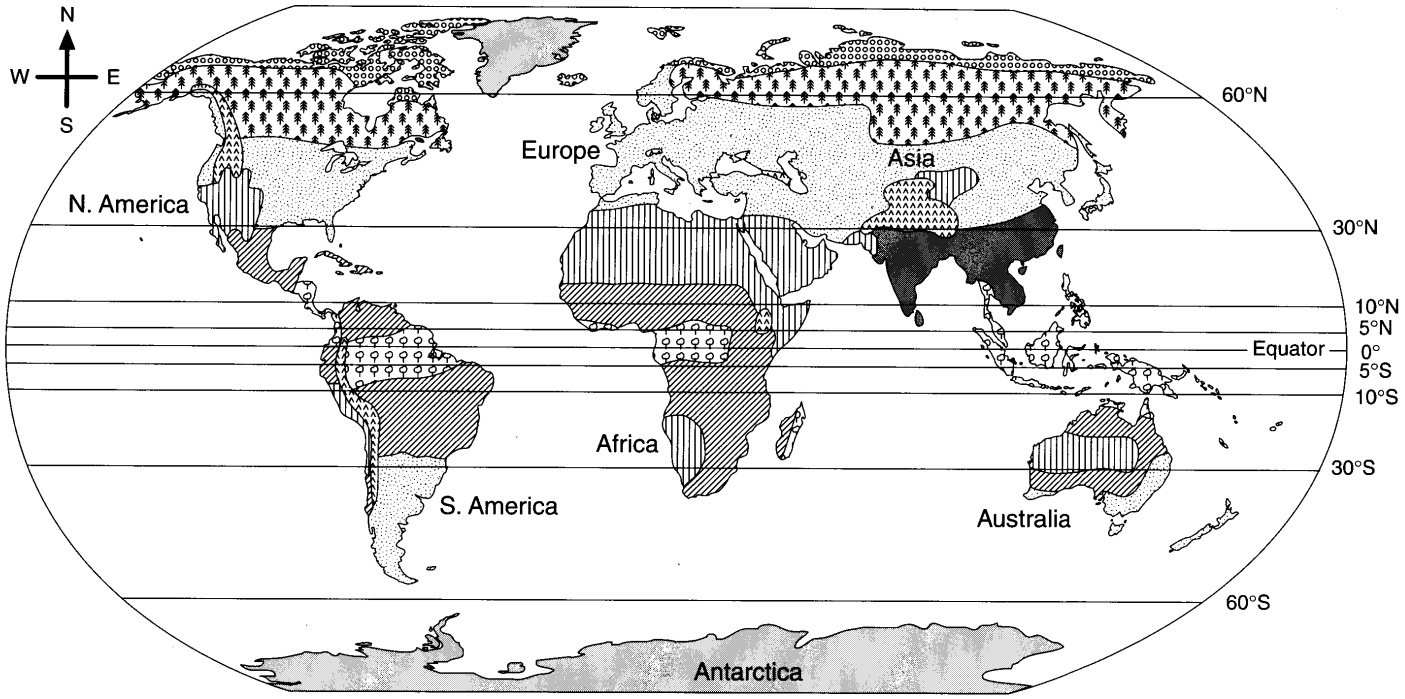
4. To be able to describe the distribution of tropical rainforests.

EXAMPLE OF A TROPICAL RAINFOREST …….



Major ecosystems (Biomes) zones of the world

Tropical rainforest
Tropical grasslands (Savannah)
Temperate deciduous
Tundra
Ice
Monsoon (rain forests)
Desert
Boreal (Coniferous forest)
Mountains

Hint:
Include names of continents and countries. Name an example of a tropical rainforest and you could also say the latitude

Example exam question:

a) Using the map above describe the distribution of tropical rainforests

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(3 marks)

5. To be able to describe the climate of tropical rainforests

Look at the climate graph →
Describe the climate in a tropical rainforest

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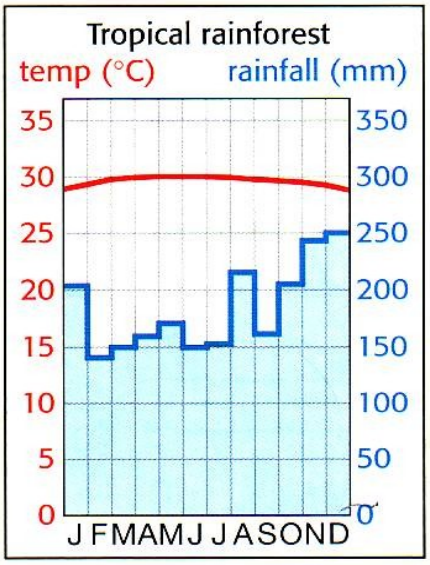
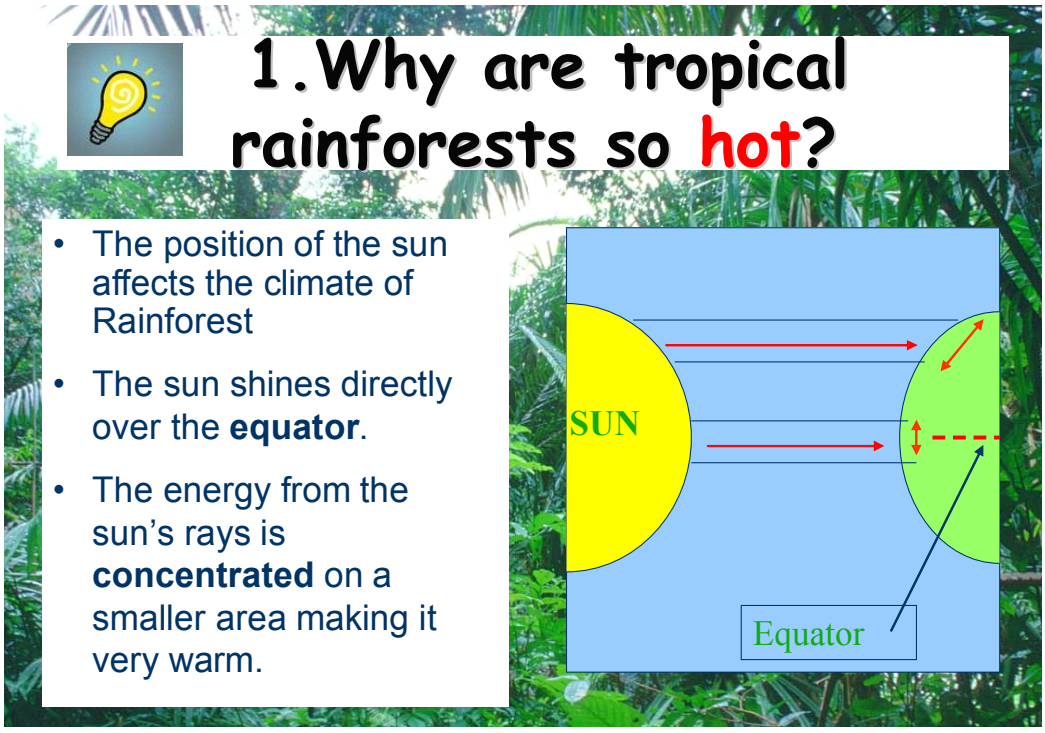


Words to use:
hot, wet, humid, heavy rain, all year



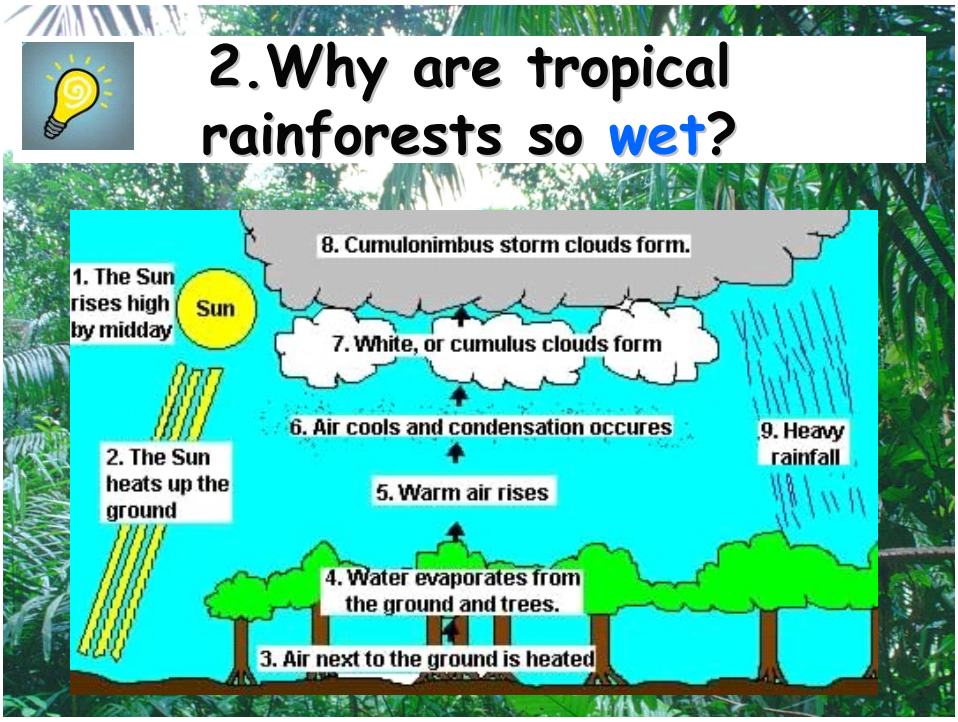
Read the above and then circle the correct answers below:

On the Equator, heat energy from the sun spreads over a **small / large** surface area.

Temperatures are therefore always **high / low**.

Heat energy nearer the Poles spreads over a **larger / smaller** surface area. So temperatures at the Poles are much **higher / lower**

5. To be able to describe the climate of tropical rainforests



In your own words explain why the climate in tropical rainforests is so wet

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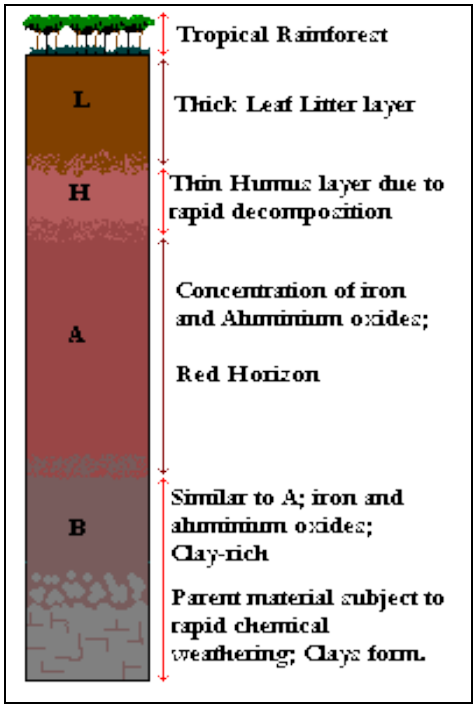
6. To be able to describe the soil in tropical rainforests

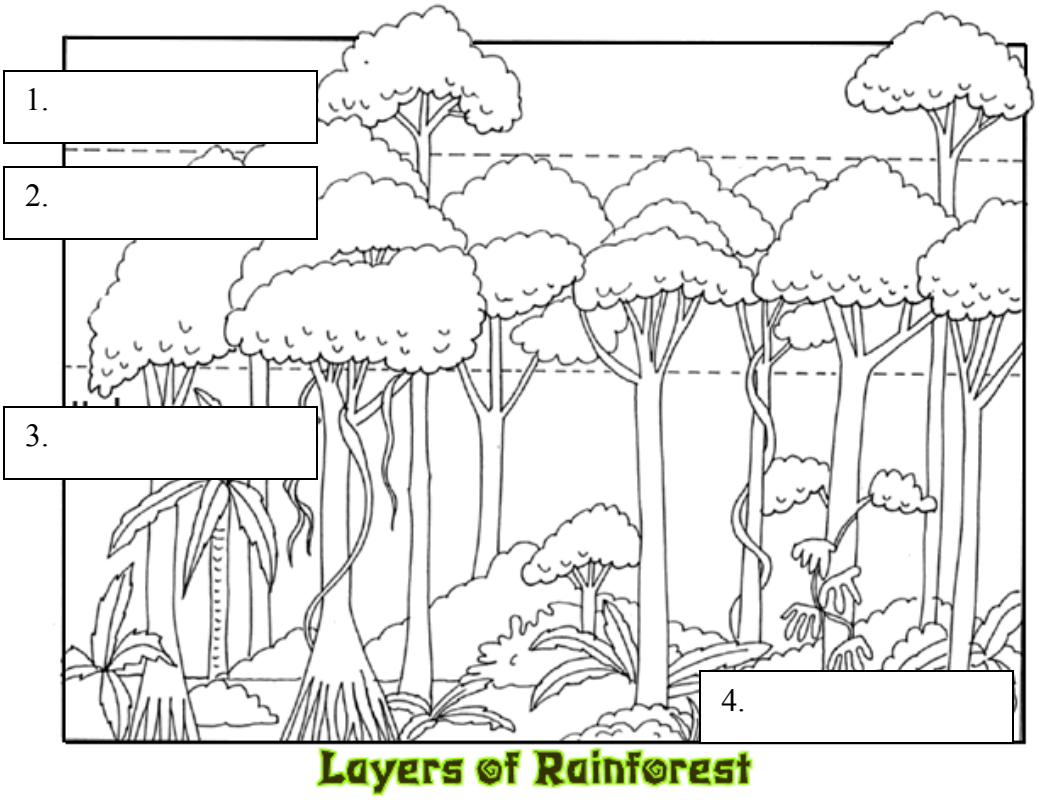
Complete the paragraph below using the words from the word box.

Word box: decompose, iron, infertile, nutrients

The TRF soils are surprisingly ……. (they do not have many nutrients and minerals). Most of the nutrients are found at the surface where dead leaves …….. (break down) rapidly. The heavy rainfall quickly dissolves and carries away…….. This is called **leaching**. This leaves behind an infertile red-coloured soil called **latosol**, which is rich in……. and very acidic.



7. To be able to describe the vegetation in tropical rainforests



Label the 4 layers of the tropical rainforest:

Under canopy

Canopy

Forest floor

Emergents

(i) Tick the correct box to show whether each of the following statements about the tropical rainforest is **True** or **False**.

	True	**False**	
There are 5 layers of vegetation in the forest.	☐	☐	
The tallest trees are called emergents.	☐	☐	
Little vegetation grows on the forest floor.	☐	☐	
The trees are evergreen.	☐	☐	*(4 marks)*

8. To be able to describe the plant adaptations in the tropical rainforest

EXAMPLE OF EXAM QUESTION: *Fill in the gaps*

Picture 1 shows how vegetation of the tropical rainforest has adapted to its environment. Describe how this vegetation has adapted to its environment.

Fan palms have large, fan-shaped leaves that are good for catching sunshine and w…… . This is important as there is not a lot of light in the f…… f……as there is a lot of shade from the c……above. The leaves are segmented (split into sections), which allows excess water to drain away.

Picture 1

Your turn to do a practice exam question

A

B

Hint: Key words to use:

Drip tips, water, heavy rain

Buttress roots, support, anchor

The pictures above show two ways, **A** and **B**, in which the vegetation of the tropical rainforest has adapted to its environment.

For **both A** and **B**, describe how the vegetation has adapted to its environment.

A .....

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.....

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B .....

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(4 marks)

9. To understand the **causes** of deforestation.

READ THIS INFORMATION:

Logging: Rainforest trees are mainly hardwoods. These can be very lucrative on the international market and as many of the countries of the world with tropical rainforests in them are LEDC's, it is a market that they often exploit. Unfortunately, to get to certain types of tree, logging companies destroy all the other vegetation around them.

Ranching: Large-scale forest clearance has taken place to make way for huge cattle ranches, as these are also a lucrative industry for the country. The cattle quickly erode the fragile, and now unprotected, soil. The farmers are not interested in the wood for sale, they often just burn it.

Damming: To provide power for industries such as the mines and papermills, large dam schemes have been introduced. An example of this is the Tucurui Dam in the Northern Brazilian rainforest. The reservoir it created flooded an area of 2875 square kilometres and displaced 40,000 people. It destroyed hundreds of species of animals and thousands of species of plants, some of which may never have actually been known about.

Subsistence Farming: The initial growth into the rainforests was along roads that were cut through the dense vegetation. These encouraged people looking for a better way of life to enter the forest and clear areas beside the roads for farming. They presumed that because the rainforest was so rich with life, the soil would be very fertile. Unfortunately that is not the case, and within a few years the farmers were forced to move on because the soil had become so bad. Not being able to afford to go back to the cities on the Eastern coasts, most of these farmers end up copping down another area of forest and starting again. Unfortunately the results are equally predictable.

Mining: the Northern Amazon rainforest is rich in minerals, such as bauxite, iron ore and even some gold. This has meant that vast areas of rainforest have been cleared to allow mining to occur. Settlements have grown up, such as Carajas and Manaus purely based on the mining industry.

EXAM QUESTION:

Give **three** causes of deforestation.

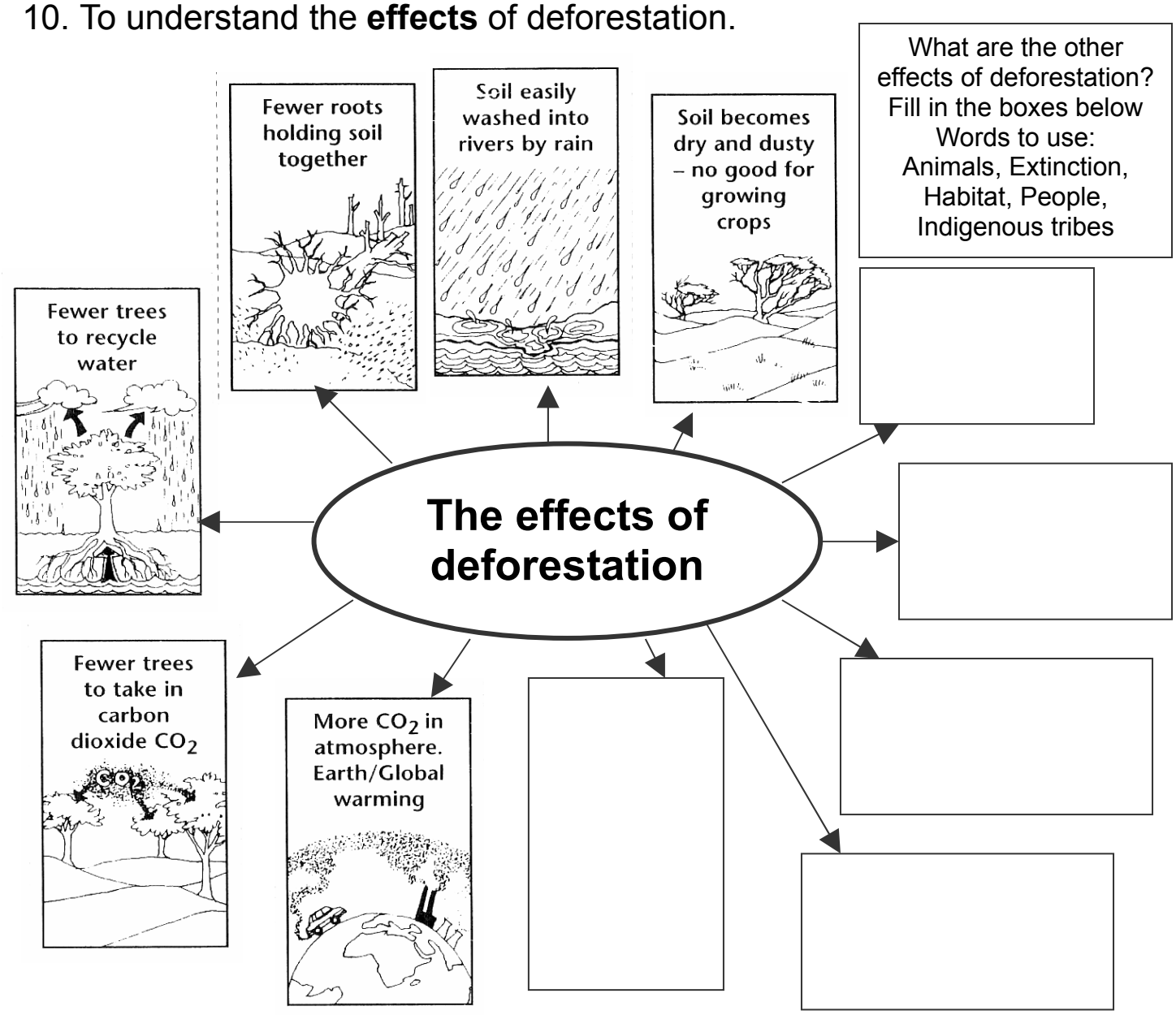
1 .....

2 .....

3 .....

(3 marks)

10. To understand the **effects** of deforestation.



EXAM QUESTION: Describe the effects of deforestation on the environment.

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.....*(4 marks)*

(Extra space) .....

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.....

11. To understand the hazards and opportunities that exist in a Tropical Rainforest.

Write down some of the hazards and opportunities found in a Tropical Rainforest. *(Check your textbook for ideas)*

Hazards	Opportunities

HOT DESERTS

EXAMPLE OF A HOT DESERT:……

Add the missing words: less, 250, 30°C, precipitation,

Hot deserts are defined as areas with an average annual _____of _____than _____millimeters per year.
They have an average temperature of_____, but can reach as high as 50°C.

12. To be able to describe the distribution of hot deserts

Example exam question:

Describe the distribution of hot deserts *(hint: Look at the map on page 8 to help you)*

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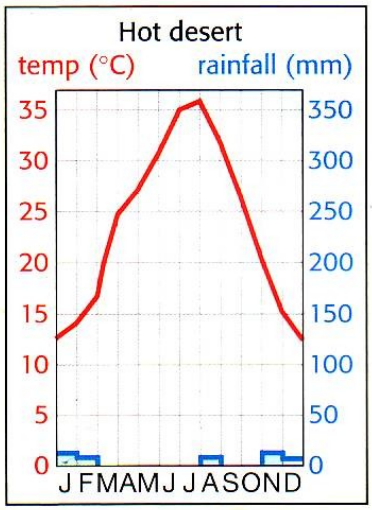
(3 marks)

13. To be able to describe the climate in hot deserts



Look at the climate graph →
Describe the climate in hot deserts

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Word to use:
Temperature
rainfall

14. To be able to describe the soil in hot deserts

Complete the description of desert soils:
Words to use: soak, fertile, sandy, humus

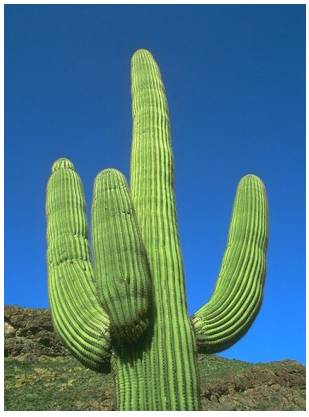
Desert soils tend to be……or stony, with little organic matter and……due to the general lack of dense vegetation. Soils are dry but can……up water rapidly after rainfall. Evaporation draws salts to the surface, often leaving a white residue on the ground. Desert soils are not particularly……

15. To be able to describe the vegetation in hot deserts

READ THIS INFORMATION: **Vegetation:** Plants have to cope with very little water in the hot desert. Species such as cacti have evolved to reduce water loss to a minimum. Their waxy skins and spiky leaves reduce transpiration, whilst their thick stems act as an excellent water store.

Other plants have evolved extensive, deep root systems that search out the last drops of water underground, whilst others have all their roots very close to the surface in an attempt to capture all available rainwater.

Due to lack of water plants are often found widely spaced apart. Many plants have seeds that only germinate when the rains come. They can lie dormant for years, and then burst into life with the rains.



Describe how the vegetation has adapted to a desert environment.

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……*(4 marks)*

16. To understand the hazards and opportunities that exist in a Deserts.

Write down some of the hazards and opportunities found in a Tropical Rainforest.
(Check your textbook for ideas)

Hazards	Opportunities

Comparing Ecosystems: Complete the summary table below

	Name of ecosystem	**Tropical rainforest**	**Hot Desert**
LOCATION	Name two continents where this ecosystem is found		
	Name two countries where this ecosystem is found		
	Name the latitude where this is found		
CLIMATE	What is the typical climate?		
SOIL	What is the soil like in this ecosystem?		
VEGETATION	What typical plants exist here? What adaptations do they have?		
ANIMALS	What type of animals live there? What type of adaptations do they have?		

17. To know a case study of a Hurricane.

Read the information below and fill out the table below. You will also need to research the response (how people dealt with the distruction) to the Hurricane.

Case Study: Hurricane Katrina

- Hurricane Katrina formed as a tropical depression over the south eastern Bahamas on August 23rd 2005.
- The storm made landfall over Florida on the morning of August 25th 2005.
- The storm had weakened, but it rapidly intensified after entering the warm waters of the Gulf of Mexico. By August 28th it had reached its peak strength with maximum sustained wind speeds of 280km/h.
- The hurricane made its second landfall at 6.10am on August 29th 2005 causing widespread devastation.
- Katrina maintained hurricane strength well into Mississippi, but weakened thereafter, finally losing hurricane strength 240km inland.

Effects of Hurricane Katrina - Florida
- Florida escaped the worst of the effects
- Governor Jeb Bush declared a state of emergency on August 24th
- Shelters were opened
- Evacuation orders (mostly voluntary) were ordered
- Schools were closed
- 14 people lost their lives

Effects of Hurricane Katrina - New Orleans
- Unprecedented damage occurred
- On August 29th an 8.5m storm surge breached the levees around New Orleans
- Most of the city subsequently flooded
- Total economic damage caused is estimated at $81.2 billion
- Confirmed death toll of 1,836 (with 705 additional people listed only as missing)
- A disaster area 233,000km2, an area almost as large as the UK, was created
- FEMA was heavily criticised following their handling of the crisis
- Most roads into and out of the city were blocked
- Many residents were trapped in the city and some argued that they were prevented from leaving the city by the police (poor black people were deliberately kept away from affluent white areas)
- Looting and crime rates rocketed
- The Superdrome in the city sheltered a large number of people
- Accusations of racism have occurred following the governments handling of the crisis

Background facts	Impacts/ Effects	Responses