

Sample Worksheets For Fieldwork At Birmingham Botanical Gardens



Introduction

These sample worksheets have been designed so that you can select from them in order to create your own booklet.

Differentiation can be achieved either by:

- increasing or decreasing the number of tasks included in the booklet.
- selecting worksheets which describe the same task but are designed to be more or less demanding.
- have extension activities.

We are keen to develop materials which offer the greatest assistance for you to meet the needs of pupils at your school. Any comments you may have about these worksheets would therefore be appreciated.



Name: _____

Class: _____



Fieldwork

At

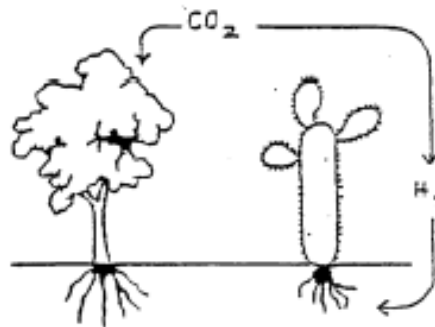
Birmingham Botanical Gardens

The Value of Plants



Cultural

Recognition of plants in our lives reflected through religion, festivals and story-telling.



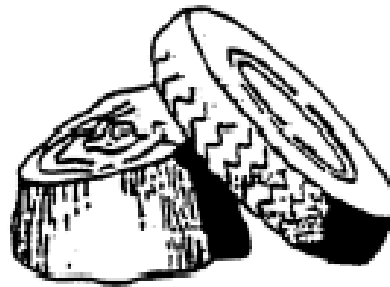
Life Support

Plants provide oxygen, protect soils and regulate water cycles in all environments from dry desert to wetlands.



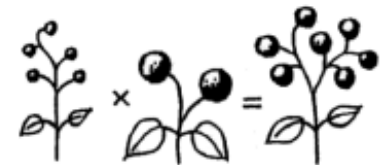
Habitat

Plants can provide living spaces for many species of animal as well as other plants.



Raw Materials

Plants provide us with industrial materials and chemicals.



Genetic Store

Cultivated varieties can be improved by breeding with wild Varieties.



Decorative

Beautiful plants enhance our lives.



Food

Plants provide many different foods for humans as well as other animals.



Medicines

'Green' medicine has been used for thousands of years.

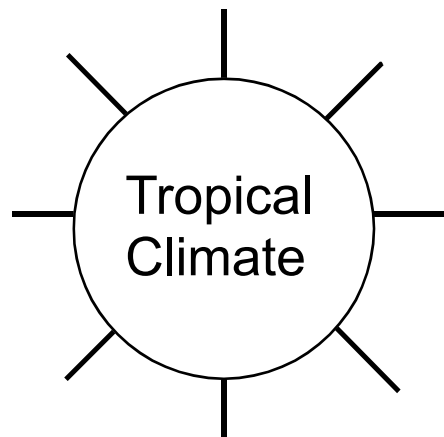
The Tropical House

Setting the scene:

- Rainforests do not have seasons like ours. The weather stays the same, and the trees keep their leaves (evergreen).
- Rainforests cover about 8% of the world's land and contain a large variety of plant and animal life.
- A "typical" 5 square kilometres of rainforest contains up to 1 500 species of flowering plants. The whole of the UK has only 1 443 different plant species.

Climate

Fill in the '*spider diagram*' with eight words which describe how you feel in a tropical climate.



Is it?

hot warm cool

Cold sticky humid

dry wet damp

bright dull dark

comfortable uncomfortable

musty

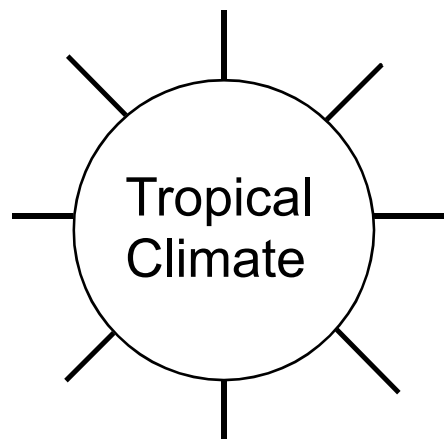
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Climate

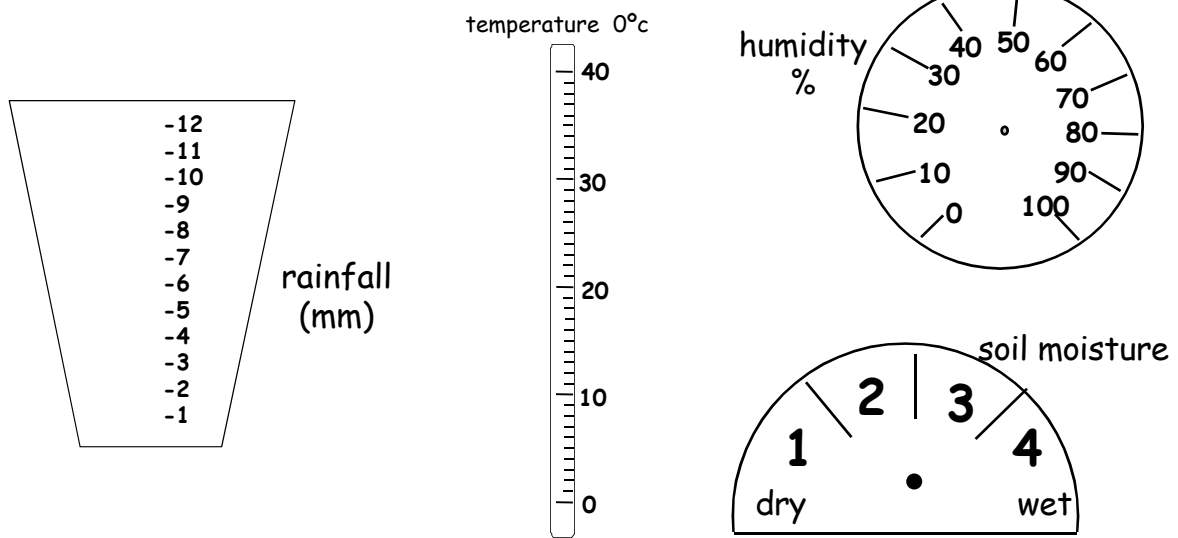
Fill in the 'spider diagram' with eight words which describe how you feel in a tropical climate.



Use the words to help you describe the climate in the rainforest.
Write 2-3 sentences.

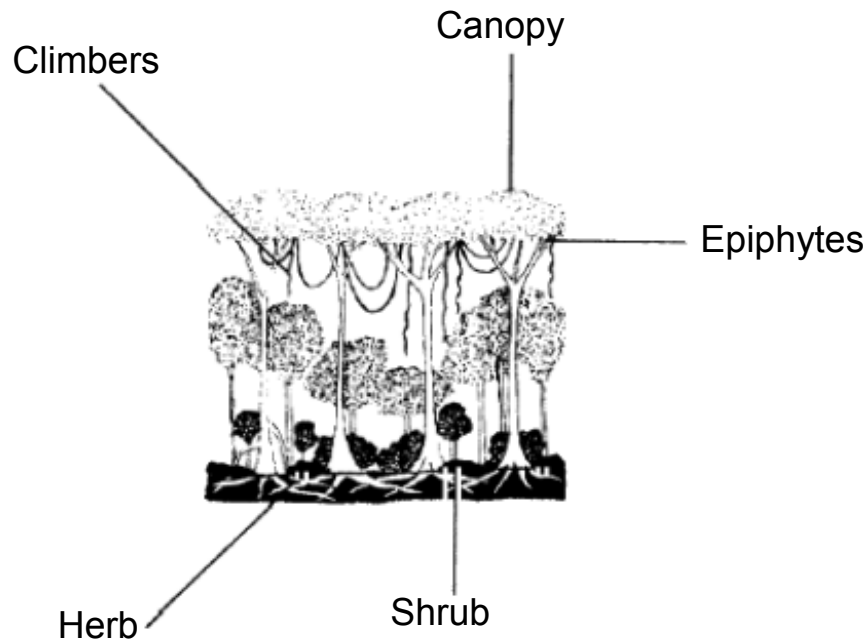
Climate Measurement

Fill in the measurements:



Structure of the Rainforest

On the diagram below, write the names of plants that are examples of each



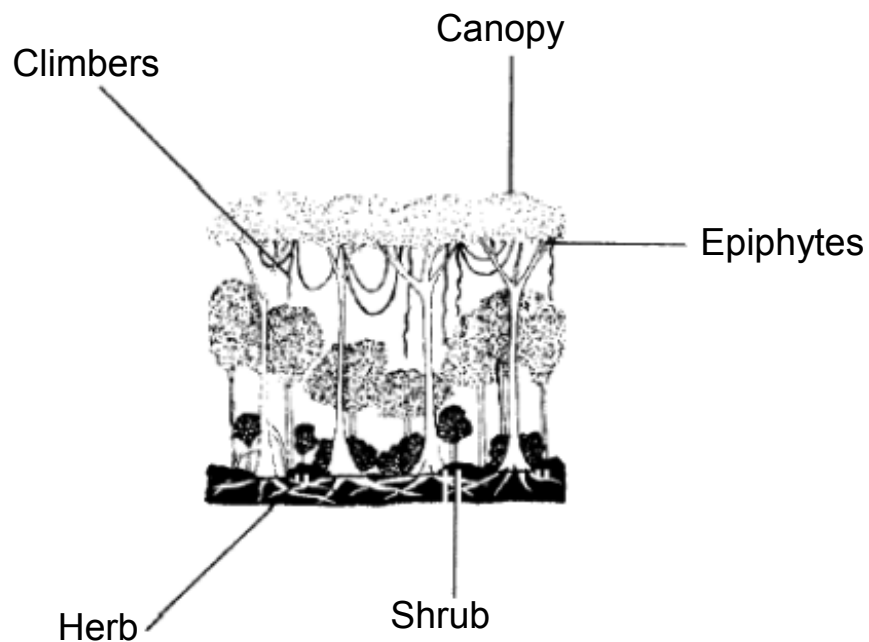
Climate Measurement

Fill in the table of measurements:

Temperature ⁰ C	Rainfall mm	Humidity %	Soil moisture <i>units</i>

Structure of the Rainforest

On the diagram below, write the names of plants that are examples of each layer of the Rainforest.

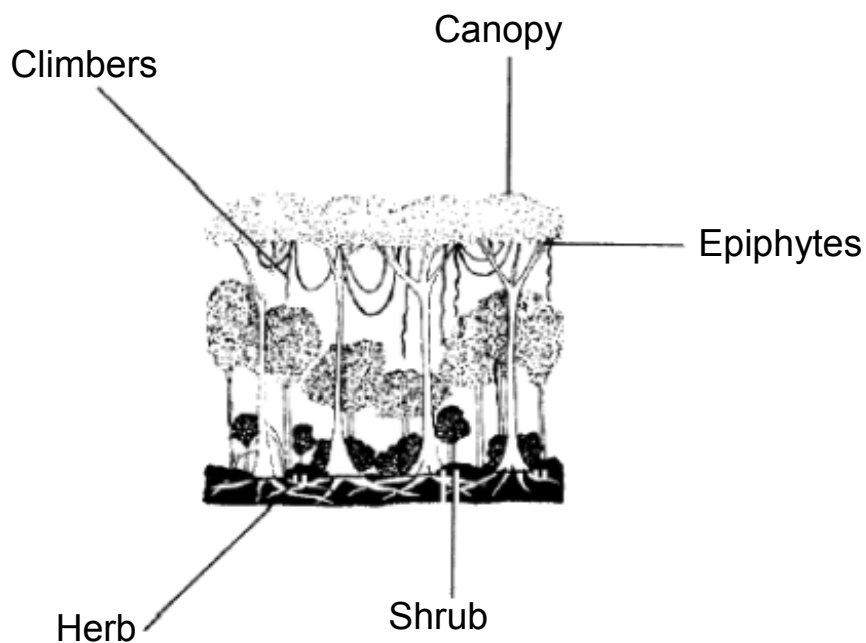


Climate Measurement

In the space below, construct and complete a table of measurements for temperature, rainfall, soil moisture and humidity. Don't forget the units.

Structure of the Rainforest

On the diagram below, write the names of plants that are examples of each layer of the Rainforest.



Adaptations

The plants have special features to help them cope with the conditions found in the various parts of the rainforest.

REMOVING WATER

FEATURE	EXAMPLE
Drip tip to shed water	

STAYING UPRIGHT

FEATURE	EXAMPLE
Prop roots	

LIVING IN LOW LIGHT

FEATURE	EXAMPLE
Large leaves	
Different colours on leaves	

CLIMBING

FEATURE	EXAMPLE
Twining around branches	
Tendrils to hold onto branches	
Aerial roots returning to ground for water	

LIVING ON TREES (EPIPHYTES)

FEATURE	EXAMPLE
Water tanks to collect rain	
Aerial roots to absorb water vapour	

FLOATING ON WATER

FEATURE	EXAMPLE
Hairs on leaves to trap bubbles of air	
Arm bands' on leaf stalks	

Adaptations

The plants have special features to help them cope with the conditions found in the various parts of the rainforest.

Using your observations, **try to explain how**

....Epiphytes collect water when they live on trees?

....Water lettuces stay afloat? **Clue:** feel the leaves and observe them as you push them under the water.

....larger leaves on herb layer plants ensure a better rate of survival?

Adaptations

Using your observations, **try to explain how**

....holes in the leaves of climbing plants help them to survive?

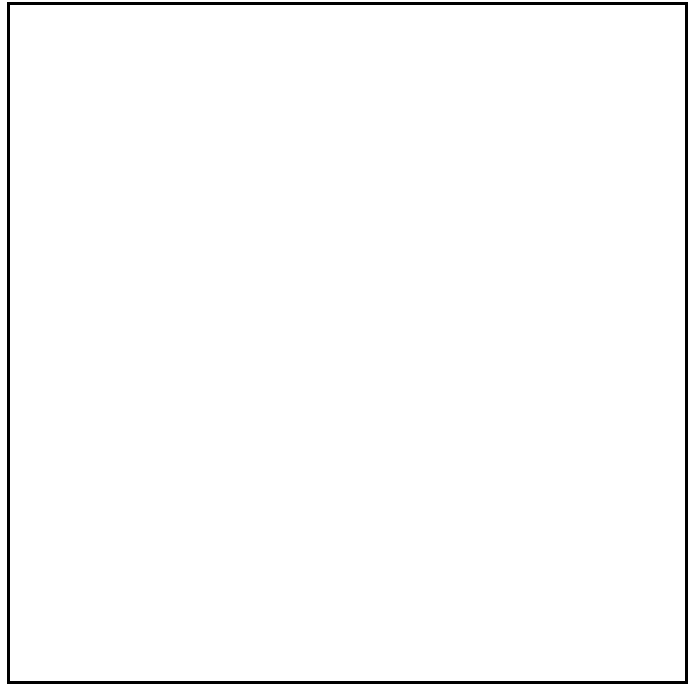
....climbing plants hold on to branches?

....Banyan trees spread their branches over large areas without falling over?

Adaptations

The leaves of Rainforest plants are designed to get rid of water as soon as possible. This is done by having **waxy surfaces**, **water channels** and pointed ends called 'drip tips'.

Draw a leaf in the box and label the parts used to get rid of water using the words in **bold** above.



Economic Plants



Lots of plants from the tropical regions of the world can be used for food, medicines or raw materials.

Fill in the table below to identify a range of products. The symbols on the green labels will help you.

Name of Plant	Country of origin	Product

THE MEDITERRANEAN HOUSE

Setting the Scene:

•The conditions in this house are not kept the same throughout the year because a Mediterranean climate has warm wet winters and hot, dry summers.

•This may be ideal for summer holidays but it is very difficult for plants which have to cope with a summer drought.

Citrus Plants

Most of the Mediterranean plants in this house give us citrus fruits. Find examples to fill in the table below:

Name of Plant	Country of origin	Product

Name a feature that helps the plant::

• Not to lose water from its leaves: _____

• To protect itself : _____

•
•



Name two other economic plants growing in this climate:

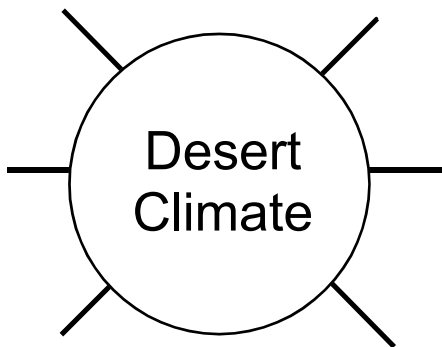
THE ARID HOUSE

Setting the Scene

- This climate creates places which are difficult to live in so the plants living in deserts have very special features.
- Desert climates have very bright sunlight, strong winds, high day-time and low night-time temperatures.
- Rainfall is less than 250mm per year and only falls during a few weeks each year

Climate

Fill in the spider diagram with words which describe how you feel in a desert climate.



Is it?

hot warm cool

Cold sticky humid

dry wet damp

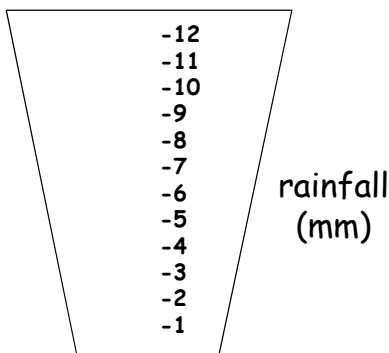
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comfortable uncomfortable

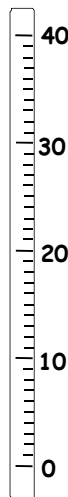
musty

Climate Measurement

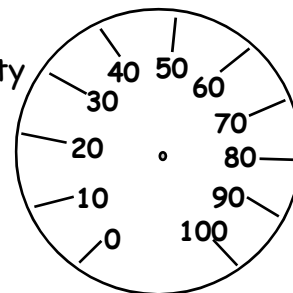
Fill in the measurements



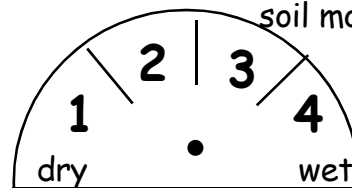
temperature 0°C



humidity %



soil moisture



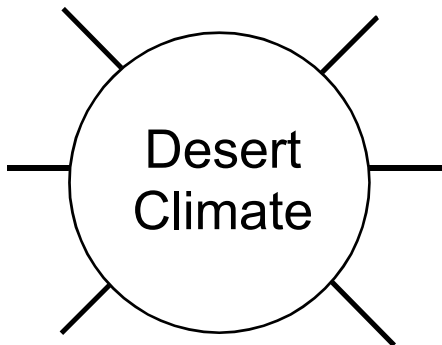
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Fill in the table of measurements:

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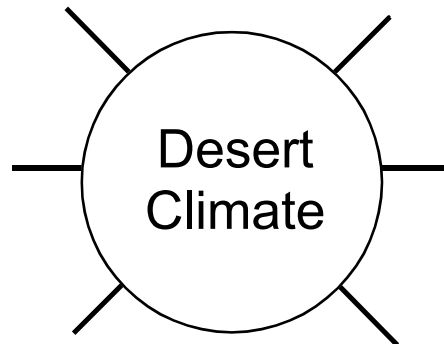
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Climate

Fill in the spider diagram with words which describe how you feel in a desert climate.



Use the words to help you describe the climate in the desert.
Write 2-3 sentences.

Climate Measurement

In the space below construct and complete a table of measurements for temperature, rainfall, soil moisture and humidity. Don't forget the units.

THE ARID HOUSE

Adaptations

All desert plants which store water are called **SUCCULENTS**.

They also have a range of other ways of surviving:

Ways of saving water

FEATURE	EXAMPLE
Thick cuticle (skin) and waxy coating	
Ridges	
No leaves	
No stem	

Protection from the sun

FEATURE	EXAMPLE
Growing upright	
Hairy	

Protection from animals

FEATURE	EXAMPLE
Thorns or prickles	
Bitter sap	

THE ARID HOUSE

Choose one plant to draw and label it with the features it has to survive in the desert.

Economic Plants



There are useful plants in deserts but only a few.
Fill in the table below:

Name of Plant	Country of origin	Product



Echinocactus grusonii



Ferocactus emoryi

Additional Activity

Choose one plant from any of the climates you have seen today. Make a detailed drawing and description of this plant, including the country/ies it grows in, products, adaptations etc.

Name of plant. _____

Glossary

Adaptation	Any feature of a plant which helps it to survive in its environment.
Canopy	The “roof” made from the branches of trees.
Climate	A way of describing the typical weather conditions of a place.
Environment	All the conditions which affect the place where a plant lives e.g. light, water, other living things.
Epiphytes	Plants which grow on other living things. Unlike parasites, they do not harm their hosts by taking food or water from them.
Habitat	The place where a certain plant may live. Usually a description of the kind of environment there.
Herb	A plant which does not have a woody stem for support so it usually is not very large.
Humidity	The amount of moisture (water vapour) in the air.
Hygrometer	The equipment used to measure humidity.
Succulent	A plant which stores water in leaves or stem to help it live in desert climates.
Weather	The conditions such as temperature, rainfall and humidity in a place at that time.