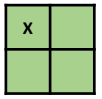
# Revision Checklist – Whose Rainforest? 1

| | Revised for homework? (1) | Revised for homework? (2) | Revised in lesson? |
|---|---|---|---|
| Ecosystems, biotic components, abiotic components, biomes. | | | |
| Distribution and climate of tundra and hot desert biomes. | | | |
| Distribution and climate of tropical rainforests. | | | |
| Structure of tropical rainforests. | | | |
| How plants are adapted to tropical rainforests. | | | |
| Geographical skills. | | | |

| Coordinates | OS maps | Grid references | Distance | Percentages | Averages | Writing tips | Revision tips |
|---|---|---|---|---|---|---|---|
|  |  |  |  | % |  |  |  |

# Knowledge Organiser – Whose Rainforest? 1

## Ecosystems and Biomes

| Core Knowledge | Revision Questions |
|---|---|
| An ecosystem is made of plants, animals, soil, water, and climate. There are links between the parts of an ecosystem. | What is an ecosystem? |
| Living parts of an ecosystem are called biotic components. For example, plants and animals. | What are biotic components? Give examples. |
| Non-living parts of an ecosystem are called abiotic components. For example, soil and water. | What are abiotic components? Give examples. |
| Some ecosystems are small-scale. For example, a pond. | |
| Some ecosystems are large-scale. For example, tropical rainforests, hot deserts, and tundra. They are called biomes. | What is a biome? Give examples. |
| Different biomes have different plants, animals, and climate. | What makes one biome different from another biome? |
| Biomes are distributed in belts across the globe, parallel to the lines of latitude. This is because latitude affects the amount of solar heat energy received. Hot biomes are distributed closer to the Equator. Cold biomes are distributed closer to the poles. | Describe the distribution of biomes.<br>Explain the distribution of biomes. |

# Knowledge Organiser – Whose Rainforest? 1

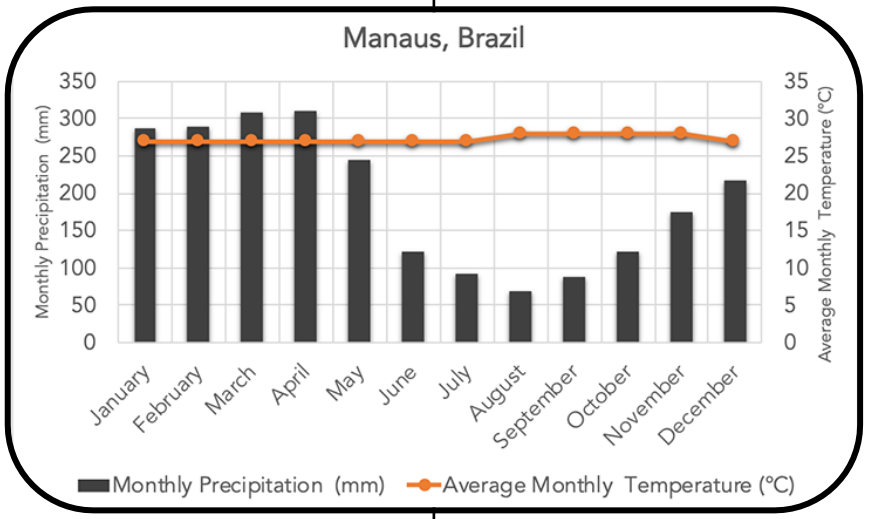
## Hot Desert and Tundra Biomes

| Core Knowledge | Revision Questions |
|---|---|
| **Hot Deserts** | |
| Hot deserts cover 20% of the Earth's land. They are distributed between 15° and 30° north and south of the Equator. | Describe the distribution of hot deserts. |
| Day temperatures are very high in hot deserts. However, night temperatures are low. There is very little rainfall. | What is the climate like in hot deserts? |
| **Tundra** | |
| Tundra is distributed in the Arctic Circle, between 60° and 70° north of the Equator. There are very small areas of tundra in the southern hemisphere because there is not much land at the latitudes needed for tundra to form. | Describe the distribution of tundra. |
| Tundra is cold and dry. | What is the climate like in tundra? |

# Knowledge Organiser – Whose Rainforest? 1

## Climate Graphs

| Core Knowledge | Revision Questions |
|---|---|
| Climate graphs show temperature and rainfall for each month. | What do climate graphs show? |
| Temperature is shown as a line. Rainfall is shown as bars. | What is shown by the line? What is shown by the bars? |
| Climate graphs have three axes: rainfall, temperature, and month. The months are shown on the x axis. | How many axes do climate graphs have? What do they show? Which does the x axis show? |
| Temperature data is plotted in the middle of each month. | Where is temperature plotted? |



# Knowledge Organiser – Whose Rainforest? 1

## Distribution and Climate of Tropical Rainforests

| Core Knowledge | Revision Questions |
|---|---|
| Tropical rainforests are distributed in a belt around the Equator called the equatorial zone. This is between the Tropic of Cancer and Tropic of Capricorn. | Describe the distribution of tropical rainforests.<br>Where is the equatorial zone? |
| Temperatures are very high. Average temperature throughout tropical rainforests is 27°C. This is because solar heat energy is concentrated in a small area at the equator. | Are temperatures high or low in tropical rainforests? Why? |
| There is heavy rainfall. Some parts of tropical rainforests experience over 2000 mm of rainfall per year. This is because high temperatures cause lots of water to evaporate. This means that there is lots of warm, rising water vapour. This means that there is lots of water vapour condensing into clouds. | Is there lots of rain or little rain in tropical rainforests? Why? |
| High temperatures and rainfall allow lots of plants to grow quickly and tall in tropical rainforests. This creates many habitats for animals. This means that although tropical rainforests only cover 6% of Earth's land, they contain more than half of Earth's species of plants and animals. | What percentage of species are located in tropical rainforests? Why? |

# Knowledge Organiser – Whose Rainforest? 1

## Structure of Tropical Rainforests

| Core Knowledge | Revision Questions |
|---|---|
| Tropical rainforests have 4 different layers. Each layer has different plants. This is called the structure of tropical rainforests. | Describe the structure of tropical rainforests. |
| **Emergent Layer** | |
| The emergent layer is the tops of the tallest trees in the rainforest. They can be up to 60 metres tall. As they are not blocked by other trees, emergents' leaves can absorb large amounts of sunlight. This means that they can do lots of photosynthesis. For example, the Kapok tree. | What is the top layer called? How high is it? Why is it so high? |
| **Canopy Layer** | |
| The canopy layer is where the upper parts of most trees are found. Their branches and leaves spread out and intertwine to create a rainforest "roof", preventing lots of sunlight reaching the layers below. It is between 20 and 40 metres above the ground. | How tall is the canopy? |
| Leaves, branches and flowers in the canopy are habitats for insects, arachnids, birds and mammals. Over 50% of all animals live in the main canopy layer. | Which animals live in the canopy? |

# Knowledge Organiser – Whose Rainforest? 1

## Structure of Tropical Rainforests

| Core Knowledge | Revision Questions |
|---|---|
| **Under Canopy Layer** | |
| Beneath the canopy is the under canopy layer. It includes the trunks of tall trees, as well as their lowest branches. The under canopy receives limited sunlight as it is blocked by the canopy above. | Why is the under canopy darker than the canopy? |
| Young, short trees called saplings wait here for old, tall trees to die. This means that there is a gap in the canopy for them to grow into. | Which plants grow in the under canopy? Why? |
| **Shrub Layer** | |
| The shrub layer is very dark. Ferns grow close to the ground here. They have large leaves to maximise photosynthesis because sunlight is limited. During heavy rain this layer can flood. | Why is the under canopy very dark?<br>Why do plants in the shrub layer have large leaves? |
| The forest floor (ground) is damp due to frequent heavy rain. On top of the soil is a layer of rotting leaves and dead animals called 'litter'. High temperatures in tropical rainforests cause the litter to decompose (rot) into nutrients very quickly. | What is litter?<br>Why do leaves and dead animals rot quickly in tropical rainforests? |

# Knowledge Organiser – Whose Rainforest? 1

## Adaptations in Tropical Rainforests

| Core Knowledge | Revision Questions |
|---|---|
| Plants and animals need sunlight, nutrients and water to survive. | What do plants need to survive? |
| Adaptations are physical features or behaviours of a plant or animal that help it survive in specific conditions. | What is an adaptation? |
| Some plants and animals would not be able to survive in tropical rainforests because of the high temperatures and high rainfall. Plants and animals that do live in tropical rainforests are adapted to survive high temperatures and high rainfall. | What conditions do plants need to survive in tropical rainforests? |
| High temperatures and high rainfall allow lots of plants to grow quickly and tall in tropical rainforests. Emergents have large, thick buttress roots to stop them falling over. This means that they can grow taller than other trees. This means that they can absorb more sunlight. This means that they can maximise photosynthesis. | How are emergents adapted to survive in tropical rainforests? |
| The canopy is a rainforest "roof“ that prevents lots of sunlight reaching the layers below. Vines called lianas loop around tree trunks and branches. This means that they can easily reach the canopy without having to wait for a gap to grow into. This means that they can absorb more sunlight and maximise photosynthesis. | How are lianas adapted to survive in tropical rainforests. |

# Knowledge Organiser – Whose Rainforest? 1

## Adaptations in Tropical Rainforests

| Core Knowledge | Revision Questions |
| --- | --- |
| The shrub layer is very dark. Ferns grow close to the ground here. They have large leaves to absorb as much sunlight as possible to maximise photosynthesis.<br><br>If leaves absorb too much water they will die and rot. In tropical rainforests, leaves have a waxy, waterproof coating to reduce the amount of water they absorb. If water gathers on top of a leaf, it can snap off the plant. In tropical rainforests, leaves have pointed ends called drip tips. They help gravity pull water off the leaf, reducing the risk of water gathering on the leaf. | How are ferns adapted to the shrub layer?<br><br>How are leaves adapted to help plants survive in tropical rainforests? |