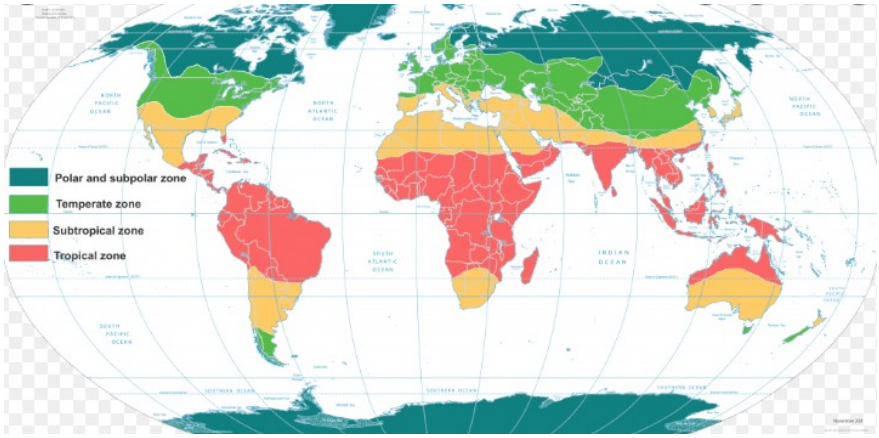
Pipworth Community Primary School Geography Curriculum

Year Three Climate Zones and Biomes
How does the climate effect the world?

This six week unit provides you with a framework for progression, including learning objectives, suggested Oddizzi resources, and clear links to national curriculum to help with topic planning.
Resources are available on Oddizzi.com
https://www.oddizzi.com/teachers/explore-the-world/weather/climate-zones/

https://www.oddizzi.com/teachers/explore-the-world/physical-features/ecosystems/

Core Substantive Knowledge
Climate zones are areas with distinct climates, which occur in east-west direction around the Earth, and can be classified using different climatic parameters. Generally, climate zones are belt-shaped and circular around the Poles.



Equatorial
Lying between the Tropics of Cancer in the northern hemisphere and Capricorn in the south, equatorial climates are home to the world's rainforests, where rainfall and humidity are high. Surprisingly, temperatures are not that extreme, generally 25-35 ℃, and vary little. The hottest months are only two or three degrees warmer than the cooler times of the year. Because these regions are so close to the Equator, the length of day and night hardly varies throughout the year.

Arid
Our deserts - the hottest, driest and most inhospitable places on Earth - are found mainly across the subtropical continents. Here, descending air forms large, almost

permanent areas of high pressure leading to cloud-free skies virtually all year round. Annual rainfall is low and, in some deserts, almost non-existent. No rain has fallen in the Atacama Desert in South America for 400 years. Because they're so dry, the temperature range in our deserts is huge, regularly exceeding 45 °C by day in summer and often falling to below freezing overnight in winter.

Mediterranean

The hot dry summers of the Mediterranean are caused by a seasonal shift of the descending air that also creates our deserts. Low summer rainfall is matched by many months of warm, sunny weather. But, at times, dangerously hot spells of weather engulf the region with fiercely high temperatures of up to 45 °C. In winter, there is more rain and cooler temperatures, but little frost.

Snow

In the higher northern latitudes, vast areas of the continental interior endure long, hard winters with short, bountiful summers, separated by rapid climatic changes during spring and autumn. The landscape here is contrasting. On one hand there is one of the world's largest terrestrial ecosystems - the vast areas of fir and spruce of the Boreal forest. But to the north, where summer temperatures are lower, there is the relatively featureless tundra. Here, the land will not thaw even during the brief summer. Typical summer temperatures are around 15 °C but there could already be frosts by August and ice on lakes by September.

Polar

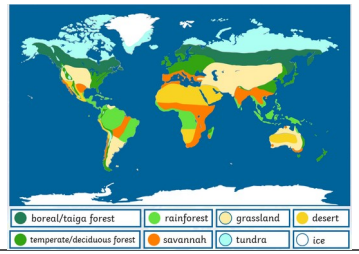
The poles experience the coldest temperatures on Earth but the two poles' climates are different. The Arctic is mostly frozen ocean, while Antarctica is a vast continent of mountains and high plateaus buried under more than 3 km of ice. The Arctic climate is moderated by the relatively warm Atlantic Ocean. Winter temperatures fall to below -60 °C in the coldest regions, while summers range from a few degrees below zero to about 20 °C. Temperatures in the south are colder: winter temperatures often dip below -80 °C. The Antarctic interior is very dry - drier than many deserts. This is because the interior is a long way from the ocean and, as the temperature falls, so does the atmosphere's capacity to hold the water vapour needed to make snow.

Temperate

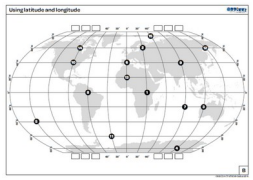
This classification covers a range of climates from near-Mediterranean climates and humid, sub-tropical zones to maritime climates influenced by the oceans - like ours in the UK. The former are mostly found on the western side of continents at 30-45° latitude. Summers can be either hot or warm, but they are always markedly drier than other times of the year. Humid, subtropical climates tend to be in the middle or on the eastern side of continents at 25-45° latitude. Summers here are humid with plenty of rain, but winters are usually dry. Some temperate climates have wet and dry seasons while others have no marked dry season at all. But all have four distinct seasons.

Biomes

A biome is a natural area of plants and animals. The world is divided into many different biomes and they all vary depending on their climate.



Prior Knowledge Children will know continents and oceans of the world. They will have learnt about hot and cold places as. They will know where the Equator is and understand that the world is divided into two hemispheres; Northern and Southern. Children will be able to use a simple atlas, know compass directions: NSEW and use and follow simple maps. **National Curriculum Links** Identify the position and significance of latitude, Equator, Northern Hemisphere, Southern Hemisphere, the Tropics of Cancer and Capricorn and Arctic and Antarctic Circle. Describe and understand key aspects of: physical geography, including: climate zones and biomes. Use maps, atlases, globes and digital/computer mapping to locate countries and describe features studied.	**Vocabulary** Equator Latitude Northern Hemisphere North Pole Southern Hemisphere South Pole Tropic of Cancer/Capricorn Weather Climate: Arid, Mediterranean, Temperate, Tropical and Polar. Biome
Substantive Concepts: Place Space Scale Environment **Second Order Concepts:** Enquiry Similarity and difference Geographical interpretation (sources, evidence and perspectives) Written and oral expression	**Sticky Knowledge** Climate is the average daily and seasonal weather patterns over a long period of time. Weather is short term weather. It happens day to day. Latitude is the distance a place is from the equator and measured in degrees. You are either north or south of the Equator. Climate zones are areas with distinct climates: Arid, Mediterranean, Temperate, Tropical and Polar. The UK is in a temperate zone. The equator receives more sunlight than the poles, so climate varies depending on its distance from the equator. A biome is a natural area of plants and animals. The world is divided into many different biomes and they all vary depending on their climate.

Enquiry Question/Vocabulary	Activities	Resources	Success Criteria
Revisit Prior Learning at beginning of enquiry	**Present children with simple atlases and challenge them to find different places. They should be familiar with using an index and being able to locate the UK and the seven continents and oceans. They need to be reminded of where the Equator lies and the terms Northern and Southern Hemisphere.**		
Concept: environment **KQ1** Why does a place's location in the world affect its climate? **LO:** Identify the different lines of latitude and explain how latitude is linked to climate Success. **Sticky Knowledge** Climate is the average daily and seasonal weather patterns over a long period of time. Weather is short term weather. It happens day to day. Latitude is the distance a place is from the equator and measured in degrees. You are either north or south of the Equator. **Climate** **Weather** **Latitude** **Equator**	**Introduce Knowledge Organiser** Main Teaching Points This lesson looks at the difference between weather and climate, the definition of latitude and how it affects climate. Online Pages: Explore the world - weather and climate - climate -Latitude Climate Zones PowerPoint -Slides 2 to 10 **Whole class activity** Read through the Knowledge Organiser for this topic as a class. Pupils complete the labels on the map and answer the related questions. **Key Questions** • What is the difference between weather and climate? • What do the lines across a world map show? • What is a line of latitude? • How is latitude linked to climate? Give children an atlas and ask them to find the lines of latitude – they could look at which continents and countries they go through. Ask children to locate the tropics of Cancer and Capricorn. Which hemisphere do they lie in? Find the Arctic and Antarctic Circle in the atlas. Practise using lines of longitude and latitude to identify countries). These can all be added to the children's maps (see map below with lines on – children could locate countries identified on a map like this).  How does the shape of the world affect our climate? What if…the Earth was shaped like a cube?	PowerPoint: Climate Zones Knowledge Organiser: Climate Zones Online Page: See Main Teaching Points Online Map: Interactive OddPod map Map Resource: Lines of latitude Atlases	I can define the difference between weather and climate. I can identify different lines of latitude, including the Equator, on a map. I can explain the significance of key lines of latitude, including the Equator.

<table>
<tr>
<td>Concept: environment

KQ2 What is a climate zone?

LO: Locate different climate zones and explore the differences between the Northern and Southern Hemispheres

Sticky Knowledge
Climate zones are areas with distinct climates: Arid, Mediterranean, Temperate, Tropical and Polar.</td>
<td rowspan="2">Retrieval Practice
Give children an atlas and ask them to find the lines of latitude.

2. On which line of latitude are you most likely to:

Find a tropical rainforest?_____ See a polar bear?_____

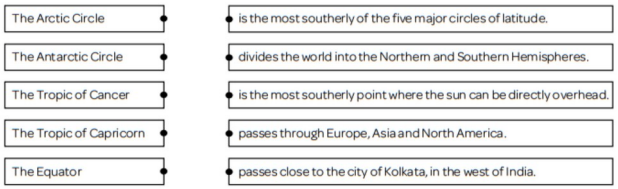
Spot a penguin?_____ Ride a camel?_____

Main Teaching Points
This lesson explores the significance of the Northern and Southern Hemispheres and how the Earth's tilt affects seasons and identifies the different climate zones.
Online Pages: Explore the world - weather and climate - climate - Latitude
Online Pages - Explore the world - weather and climate - climate - The Earth is a sphere
Online Pages - Explore the world - weather and climate - climate - The Earth is tilted
Climate Zones PowerPoint -Slides 11 to 17

Whole class activity
Suggestion: read the guided reading either as a class or individually to give pupils a better understanding of climate zones.
Pupils follow the instructions on the map to shade the different climate zones.
Next, they answer the questions relating to the map.
Looking at the climate zones map on slide 15, which of these climate zones might get bigger and which smaller if the climate got cooler? Children could write a statement to explain their thinking.

Key Questions
• How does the climate vary between the Equator and the Poles?
• What are the main climate zones?
• How do we get our seasons?
• Why do Australians sometimes spend Christmas on the beach?

Quiz
Weather and Climate
What if...the world's climate got slightly cooler every year?</td>
<td rowspan="2">PowerPoint: Climate Zones
Online Pages: See Main Teaching Points
Map Resource: Locating climate zones
Guided Reading Text</td>
<td rowspan="2">I can explain the significance of the Northern and Southern Hemispheres
I can describe the location of different climate zones around the world</td>
</tr>
<tr>
<td>Hemisphere
Axis
Sphere
Season</td>
</tr>
<tr>
<td>Concept: environment</td>
<td>Retrieval Practice</td>
<td>PowerPoint:</td>
<td>I can compare</td>
</tr>
</table>

KQ3 How is the climate in the UK different from that in the tropics? **LO:** Compare temperate and tropical climates **Sticky Knowledge** Climate zones are areas with distinct climates: Arid, Mediterranean, Temperate, Tropical and Polar. The UK is in a temperate zone. **Temperate** **Tropical** **Precipitation** **Temperature**	3. Match up these broken sentences so that they make sense. Use lines to link them.  **Main Teaching Points** This lesson compares temperate and tropical climates by looking at precipitation levels and temperature. Online Pages: Explore the world - weather and climate - climate - Temperate Online Pages: Explore the world - weather and climate - climate - London Online Pages - Explore the world - weather and climate - climate - Tropical Online Pages: Explore the world - weather and climate - climate -Manaus Climate Zones PowerPoint -Slides 18 to 26 **Whole class activity** Pupils study the temperature graphs for London and Manaus and discuss their similarities and differences. Using the information from the graphs, pupils answer the questions. Repeat, using the precipitation graphs and questions. Graphs and answers should be record in pupil work books. **Key Questions** • What sort of climate zone is the UK in? • How does the temperature in London compare with that in Manaus? • How does the rainfall in London compare with that in Manaus? • How might those differences affect the landscape and vegetation of each place? **Vocabulary game** Climate Zones 1 Follow Me Cards and Teacher Notes What if…the UK only had two seasons?	Climate Zones Online Pages: See Main Teaching Points KS2 Activity: Comparing temperate and tropical climates Vocabulary Game	climate data for different locations

<table>
<tr>
<td>Concept: environment

KQ4 How does the climate vary around the world?

LO: Explore weather patterns within a climate zone

Sticky Knowledge
The equator receives more sunlight than the poles, so climate varies depending on its distance from the equator.

Temperature
Precipitation
Temperate
Mediterranean
Tropical
Arid
Polar</td>
<td>Retrieval Practice
Ask children to locate the Equator, lines of longitude and latitude and which climate zones different continents fall into. Locate the UK and ask which climate zone this falls into. Look for lines of latitude, tropics of Cancer and Capricorn and the Arctic and Antarctic circle. Challenge children to find certain places along these lines.

Main Teaching Points
This lesson looks at the temperature and precipitation levels of each climate zone and provides pupils with the opportunity to read and complete their own data.

Online Pages: Explore the world - weather and climate – climate - Tropical - Manaus
Online Pages: Explore the world - weather and climate – climate - Arid - Cairo
Online Pages: Explore the world - weather and climate – climate - Temperate - London
Online Pages: Explore the world - weather and climate – climate - Mediterranean - Seville
Online Pages: Explore the world - weather and climate – climate - Polar – Nuuk

Climate Zones PowerPoint -Slides 27 to 35
Whole class activity
They use the table of data to help them complete the half-finished temperature and precipitation graphs, and answer the questions by analysing the data.
Look at the slides from the next lesson on the PowerPoint (29-33) and discuss how the weather is different for each climate zone.
Children make notes about the different climate in each zone.

<table>
<tr><td>Climate Zone</td><td>Tropical</td><td>Mediterranean</td><td>Arid</td><td>Temperate</td><td>Polar</td></tr>
<tr><td>Typical Climate</td><td></td><td></td><td></td><td></td><td></td></tr>
</table>

Key questions
• Which climate zones are the wettest and driest?
• Which climate zones are the hottest and coolest?
• How does the climate vary between different zones?
• How do the seasons vary between different zones?
What if…you moved to live in the tropics?</td>
<td>PowerPoint: Climate Zones (slides 18-30) Combining two lessons.

Atlases</td>
<td>I can name the 5 different climate zones.

I can say what the climate is like in each zone.</td>
</tr>
</table>

<table>
<tr>
<td>Concept: Place

KQ5 What is a biome?

LO: To know what a biome is and where they are located in the world.

Sticky Knowledge
A biome is a natural area of plants and animals. The world is divided into many different biomes and they all vary depending on their climate.</td>
<td>Retrieval Practice
Provide children with 5 to 6 different countries and ask them to use their atlas to locate which climate zone they fit into. Check children can use an atlas.

This session will spread over two lessons.
What is a biome? Look at PowerPoint to introduce what a biome is. (You don't need to go through all the slides at this stage)
A biome is a natural area of plants and animals. The world is divided into many different biomes and they all vary depending on their climate.

Look at PowerPoint: What is a biome? (start at slide 18)
Look at slide 18 to identify the world's biomes. Where do the fall? Which ones are closest to the Equator? Lines of longitude and latitude?
Ask children to use an atlas to locate the world's biomes. Children can then colour in the biomes and label a key on a world map.

Return to PowerPoint and work your way through each biome – you may want to focus on a couple for each lesson. Ask children to make notes on each biome including the key features of each e.g. You may want to give pupils photographs of each biome so they can pick out the key features for themselves.

<table>
<tr><th>Biome</th><th>Aquatic</th><th>Grassland</th><th>Forest</th><th>Desert</th><th>Tundra</th></tr>
<tr><td>Typical Climate</td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>Plant Life</td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>Animals</td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>Other</td><td></td><td></td><td></td><td></td><td></td></tr>
</table>

More information on biomes can be found here: https://www.oddizzi.com/teachers/explore-the-world/physical-features/ecosystems/
What if…the Earth stopped tilting on its axi?</td>
<td>What is a biome PowerPoint
Atlases showing biomes.

World map sheet to label and colour in the biomes.</td>
<td>I know what a biome is.

I know where they are located in the world.

I can name key features of each biome.</td>
</tr>
<tr>
<td>Biome
Aquatic
Grassland
Forest
Desert
Tundra</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>End of unit assessment activity:</td>
<td colspan="3">Children will produce a piece of writing as a Geographer in order to answer the overall enquiry question and be quality marked by the class teacher.

Scaffolding: This may be broken down into the key questions from each lesson and children may be provided with key vocabulary to use in their writing. Some children may need a scribe to aid them in their writing.</td>
</tr>
</table>