

# GEOGRAPHY Curriculum

## Intent:

**With these aspirations, our INTENT for the GEOGRAPHY curriculum is for pupils to:**

To ignite curiosity about the world, inspire enthusiastic geographers and create a lifelong love for geography.

Ensure the development of strong locational knowledge and global awareness, deepening their understanding of global places, environments and cultures.

To strengthen geographical skills through practical and virtual fieldwork, developing mapwork, observation and enquiry-based skills.

Ensure the development of cultural understanding and global citizenship by aiding children appreciate diversity and recognise different ways of life, fostering empathy and cultural respect.

To develop deep knowledge of human and physical geography linked to real-world contexts through engaging real-life examples.

To encourage children to think about and question topical world events and form their own opinion of the world.

## Implementation

### **Planning**

At Southway, our geography curriculum is knowledge-rich and engages children through a variety of exciting resources. We follow the progression of knowledge and skills from Oddizzi, an award-winning geography scheme. Our school covers Oddizzi's 'B pathway', which outlines the disciplinary and substantive knowledge and skills to be taught, ensuring coherent and progressive coverage. Teachers use Oddizzi as the foundation for curriculum planning, drawing on other high-quality supplementary resources where appropriate to enrich learning and deepen geographical understanding. 'Geo-jotters' bring lessons to life by allowing children to interact with Oddizzi content and record their learning throughout each unit. Substantive and disciplinary knowledge outlined in the scheme includes locational knowledge; place knowledge; environmental, physical and human geography; and geographical skills and fieldwork. The local area is utilised to enrich opportunities for learning outside the classroom; fieldwork is taught in each year group, for example a traffic survey in Y3 and a visit to the Seven Sisters in Y5. At the beginning of each year, children complete a 'What is Geography?' page where they learn about the discipline and reflect on what geography means to them. 'Sticky Starters' are used as knowledge-retrieval opportunities at the start of each lesson. To support children in learning new knowledge and vocabulary, they use a range of knowledge organisers, atlases and digital resources—such as Google Maps, OS maps and globes—to develop their understanding of place.

### **Recording**

In KS2, children record in a geography book where the date and learning intent (WALT) is recorded for each lesson. Knowledge organisers are used to support retrieval and vocabulary knowledge. Sticky starters enable children to revisit previous learning and at the beginning of the year the children record their understanding of geography based on previous learning. Fieldwork is included in books to show any learning that has taken place, including photos.

### **Assessment**

Teachers use their professional judgement to assess pupils' learning, drawing on both oral and written responses to key enquiry questions. Knowledge retrieval is evaluated in every session through targeted questioning, mini-quizzes, and the use of pre- and post-assessment grids. These grids are completed at the start of each topic, allowing children to record what they already know, and then revisited at the end to show what they have learned and enable clear comparison over time. Teacher assessments linked to the key enquiry question are recorded on Bromcom at the end of each teaching sequence.

## KS1

Medium-term plans and topics make clear links with teaching sequences previously taught in Key Stage 1. Children continue to build on their earlier experiences by advancing their use of resources such as maps, globes and outdoor enrichment activities, strengthening both their substantive and disciplinary geographical knowledge. For example, in KS1 children learn about their local area (Burgess Hill and Ditchling) and the four countries of the UK; this foundation is extended in KS2, where pupils explore a wider range of countries across the world as well as the continents they belong to.

## SEND

Our children with SEND access the geography curriculum through quality first teaching, informed by the OAIP. Lessons are planned and resourced to enable all children to access their learning at an appropriate level, helping them to engage and be challenged. Teachers use a range of methods to support children with SEND including adult or peer support, providing alternative ways of recording for example having a scribe or using an iPad. Children with more complex SEND will access similar content to their peers but at an appropriate level. Some topic-specific vocabulary may be taught to these children prior to a topic starting as a 'pre-teach' session also.

## Impact

By the end of their time at Southway, children will be able to:

- ✓ Have high levels of curiosity and engagement in geography
- ✓ Have strong locational and place knowledge
- ✓ Retain secure geographical vocabulary and concepts
- ✓ Have a clear progression of knowledge and skills across KS2
- ✓ Foster confident map, fieldwork and data-handling skills
- ✓ Develop global citizenship and world awareness
- ✓ Apply geographical knowledge to real-world contexts
- ✓ Be confident in communicating geographical understanding



# GEOGRAPHY Curriculum

## Locational knowledge



### KS2:

Locate the world's countries, using maps to focus on Europe (including the location of Russia) and North and South America, concentrating on their environmental regions, key physical and human characteristics, countries, and major cities

Name and locate counties and cities of the United Kingdom, geographical regions and their identifying human and physical characteristics, key topographical features (including hills, mountains, coasts and rivers), and land-use patterns; and understand how some of these aspects have changed over time

Identify the position and significance of latitude, longitude, Equator, Northern Hemisphere, Southern Hemisphere, the Tropics of Cancer and Capricorn, Arctic and Antarctic Circle, the Prime/Greenwich Meridian and time zones (including day and night)

## Geographical skills and fieldwork



### KS2:

Use maps, atlases, globes and digital/computer mapping to locate countries and describe features studied.

Use the eight points of a compass, four and six-figure grid references, symbols and key (including the use of Ordnance Survey maps) to build their knowledge of the United Kingdom and the wider world.

Use fieldwork to observe, measure, record and present the human and physical features in the local area using a range of methods, including sketch maps, plans and graphs, and digital technologies.

## Place knowledge



### KS2:

Understand geographical similarities and differences through the study of human and physical geography of a region of the United Kingdom, a region in a European country, and a region within North or South America

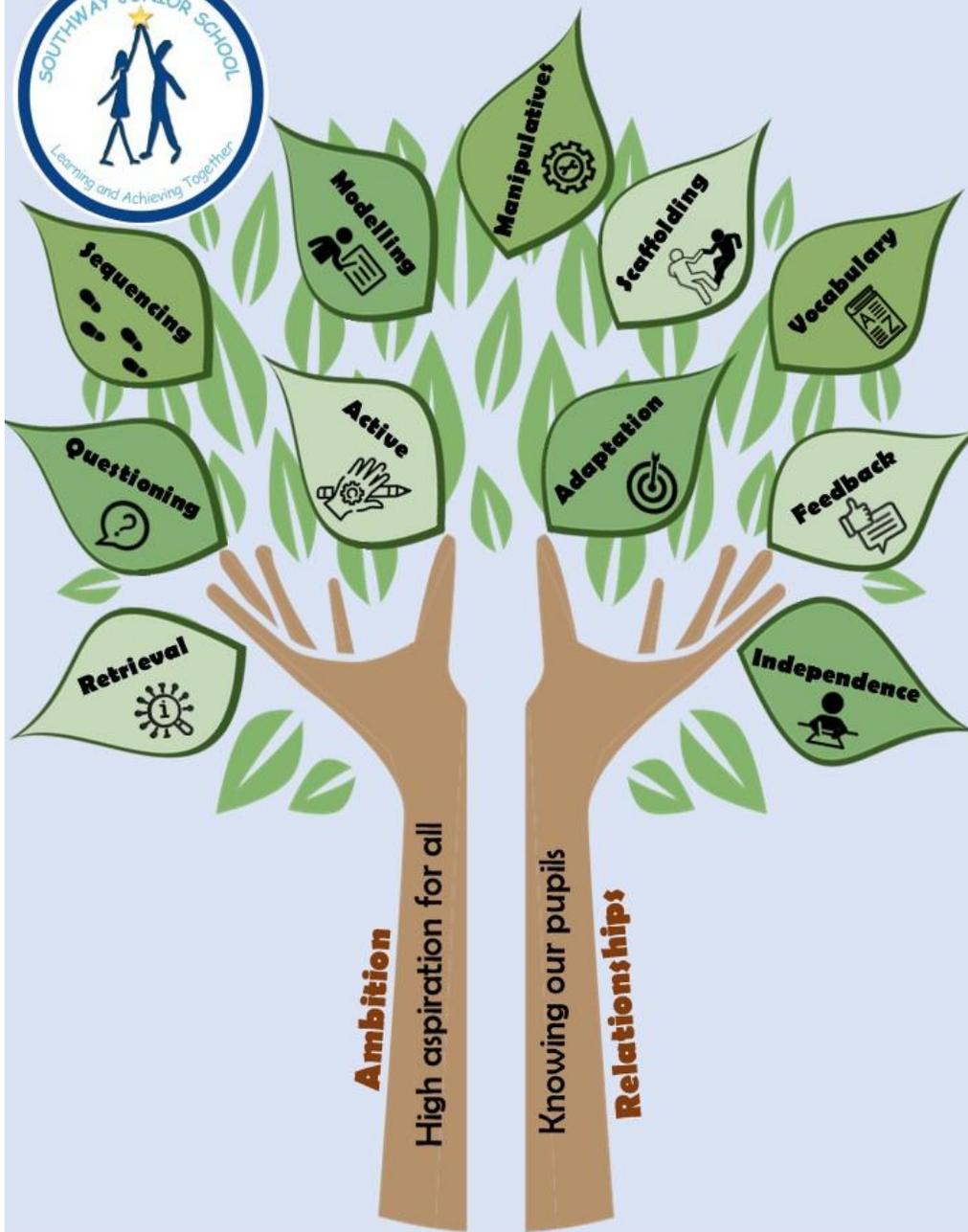
## Environmental, physical and human geography



### KS2:

Describe and understand key aspects of:

- physical geography, including: climate zones, biomes and vegetation belts, rivers, mountains, volcanoes and earthquakes, and the water cycle
- human geography, including: types of settlement and land use, economic activity including trade links, and the distribution of natural resources including energy, food, minerals and water



**Ambition** - high aspiration for all...

**Relationships** - knowing our pupils....

**Sequencing** Carefully planned, building on prior learning towards endpoints

**Retrieval** Revisiting prior learning and make connections...

- Benefits of retrieval practice include:
- Identify gaps in knowledge
- Make connections
- Check for understanding
- Address misconceptions
- Strengthen connections
- Get ready for new knowledge!

**Modelling** - Demonstrating and showing linked to learning.... When planning our lessons, it is important that we not only plan for what our pupils should do but also plan for the errors that our pupils could make (**I do, we do and you do**)

**Vocabulary** - Explicit teaching of new vocabulary, which can be a huge barrier to understanding, should be a fundamental part of our teaching. To ensure inclusiveness, even pre-taught to some learners so that their understanding during a lesson will be greater – use dual coding

**Questioning** Checking pupils' understanding

- Only ask one question at a time. Think about your question – should it be 'open' or 'closed'? Include thinking time – up to 10 seconds.
- If needed, consider clueing rather than giving the final answer.
- Build on prior knowledge by asking: "What do you already know that may be helpful?"
- Focus questions particularly on the learning objective and key vocabulary

**Small Steps** Chunking new and complex learning...According to [cognitive load theory](#), because of the limits of working memory it is very difficult for young children to juggle more than around 4 items in their working memory at any one time.

**Adaptation** Adjusting to meet needs...

**Active** Pupils busy and engaged...avoid too many slides – teach some lessons without – go outside!

**Hands-on** Across the curriculum, resources bring lessons and learning to life, for example in maths using concrete, pictorial, and abstract manipulatives to understand mathematical concepts

**Scaffolding** Temporary prompts, support sentence starters, word banks task plans, writing frames/cartoon strips/ graphic organisers 'Concrete' resources, visuals, modelling examples (**I do, we do, you do**)

**Independence** Time given for practice to develop confidence in knowledge and skills

**Feedback** Giving advice and celebrating success... praise is specific and targeted  
Encourage reflection and monitor progress and adapt.



# GEOGRAPHY curriculum map

Year group	Autumn	Spring	Summer
<b>3</b>	<p><b><u>Where in the world do I live?</u></b>            Significant Places: United Kingdom, Southway Junior School, Burgess Hill</p> <p style="text-align: center;"><b>&amp;</b></p> <p><b><u>Why are our rainforests disappearing?</u></b>            Significant Places: Amazon rainforest (South America), Sherwood Forest (UK)</p>		<p><b><u>What is it like to live in the ring of fire?</u></b>            Significant Places: Ring of Fire, Iceland, Hawaii, Etna, St Helens, Japan, Haiti, Pompeii &amp; Vesuvius (Europe – Italy)</p>
<b>4</b>	<p><b><u>How have people affected the United Kingdom's landscape?</u></b>            Significant Places: United Kingdom, Brighton</p>	<p><b><u>What is the significance of the Amazon?</u></b>            Significant Places: Amazon Basin South America, Manaus, Brazil</p>	<p><b><u>What is the geographical makeup of the continent of North America?</u></b>            Significant Places: North America, The Rockies, Southeast UK, US State (own choice), New York City, Mt St Helens</p>
<b>5</b>		<p><b><u>How diverse is the continent of Europe?</u></b>            Significant Places: United Kingdom, Germany, Europe (including Russia), Mediterranean, Athens</p>	<p><b><u>What is the importance of our rivers?</u></b>            Significant Places: United Kingdom, Seven Sisters, Cuckmere Haven</p> <p style="text-align: center;"><b>&amp;</b></p> <p><b><u>How diverse is the continent of Europe? – Part 2</u></b>            Significant Places: United Kingdom, Mediterranean, Greece, South Aegean, Acropolis</p>
<b>6</b>	<p><b><u>What is mountain life like?</u></b>            Significant Places: UK highest mountains, Mount Everest - Himalayas, World seven summits</p> <p style="text-align: center;"><b>&amp;</b></p> <p><b><u>How does climate vary depending on location?</u></b>            Significant Places: Climate zones around the world (SAVANNAH, ARID OR POLAR)</p>		<p><b><u>What is sustainability and does Southway need to improve?</u></b>            Significant Places: United Kingdom), Local Area, Southway Junior School (UK)</p>

Year group	Autumn	Spring	Summer
Year 3	<p style="text-align: center;"><b>Autumn 1</b> <b>Local Area Study – Burgess Hill/UK</b> <b>Fieldwork</b></p>  <p><u>Me and My World</u></p> <p><b>Where in the world do I live?</b> <b>(***Southway)</b></p> <ol style="list-style-type: none"> <li>1. WALT: Locate and label school features</li> <li>2. WALT: Locate countries and cities in the UK</li> <li>3. WALT: Identify human and physical features in the UK</li> <li>4. WALT: Compare human and physical features in Burgess Hill using fieldwork (Morning trip and 1 double session in school)</li> <li>5. WALT: Identify how the world is divided (including poles, hemispheres, equator and tropic of cancer/Capricorn)</li> <li>6. WALT: use the 8 points of a compass directions</li> </ol> <p><u>Significant Places:</u> United Kingdom, Southway Junior School, Burgess Hill</p> <p><u>Essential vocabulary all to learn:</u> human, physical, equator, features, hemisphere, poles, tropic of Capricorn, tropic of cancer</p> <p><u>Other Key Vocabulary some children might use/learn:</u> key, aerial view, neighbourhood, compass, direction, county, town, farm, village, hamlet, city, commercial,</p>		<p style="text-align: center;"><b>Spring 1 &amp; 2</b> <b>Volcanoes &amp; Earthquakes</b></p>  <p><u>Battles and Bangs</u></p> <p><b>What is it like to live in the ring of fire?</b> <b>(^^^Odizzi) and (**Southway)</b></p> <ol style="list-style-type: none"> <li>1. WALT: Find out about the structure of the Earth</li> <li>2. WALT: Explain what happens at the boundaries between tectonic plates</li> <li>3. WALT: Demonstrate understanding of the features of a volcano</li> <li>4. WALT: Effects of a volcanic eruption</li> <li>5. WALT: Summarise key facts about famous Volcanoes</li> <li>6. WALT: Summarise key facts about famous earthquakes</li> <li>7. WALT: Explain the effects of earthquakes on land and people</li> <li>8. WALT: Identify how to prepare for an earthquake and the help needed afterwards</li> <li>9. WALT: Know the advantages and disadvantages of living by a volcano</li> </ol> <p><u>Significant Places:</u> Ring of Fire, Iceland, Hawaii, Etna, St Helens, Japan, Haiti, Pompeii &amp; Vesuvius (Europe – Italy)</p> <p><u>Essential vocabulary all to learn:</u> ash cloud, fault line, tectonic plate, mantle, crust, lava, magma, core</p>

rural, agricultural, route, ocean, sea, map index,  
location, recreation, retail, transportation, industrial

## Autumn 2 Rainforests



### Me and My World

#### **Why are our rainforests disappearing?**

(\*\*Southway & Oddizzi unit)

1. WALT: Recognise what rainforests are and locate them on a map
2. WALT: Describe the tropical rainforest climate and compare it to our local area
3. WALT: Identify features of rainforest layers
4. WALT: Understand the impact of humans and changes over time on rainforests
5. WALT: Compare a tropical rainforest to a forest in the UK

### Significant Places:

Amazon rainforest (South America)

Sherwood Forest (UK)

### Essential vocabulary all to learn:

rainforest, climate, tropical, habitat, biodiversity, deforestation, conversation, environment,

### Other Key Vocabulary some children might use/learn:

biome, threats, emergent, canopy, understorey, forest floor, logging, weather pattern, season, precipitation, temperate, tourism, latitude, longitude, landscape, biodiversity, indigenous, logging, pollution,

### Other Key Vocabulary some children might use/learn:

natural disaster, tsunami, tornado, tectonic plate, earth, ring of fire, Pacific, pressure, friction, movement, core, surface, famous, crater, dormant, landform, landslide, epicentre, peak, plate, Richter scale, summit, tremor, vent, wave, tidal, scale bar

**Autumn 1**  
**Local Area Study – Brighton/UK**  
**Fieldwork**



Victorian Towns and Twisted Tales  
**How have people affected the United Kingdom’s landscape?**

(^^^Oddizzi)

1. WALT compare and contrast the different countries of the UK (1 hour)
2. WALT explain where I live in the UK and identify the major cities (1 hour)
3. WALT demonstrate an understanding of the physical characteristics in the United Kingdom (1 hour)
4. WALT explain how people have affected the United Kingdom’s landscape (1 hour)
5. WALT summarise the types of industries in which the people of the UK work
6. WALT demonstrate an understanding of the different types of energy sources used in the UK (1 hour)

(\*\*\*Southway)

7. WALT identify human and physical features in Brighton using fieldwork (include comparison to Burgess Hill) – **BRIGHTON TRIP**

Significant Places:

United Kingdom, Brighton

Essential vocabulary all to learn:

**Spring 2**  
**South America**



Mysterious Maya

**What is the significance of the Amazon?**

(+++Grammasaurus 2 lessons)

1. WALT summarise key features of the UK and South East Region
2. WALT demonstrate an understanding of the geography of South American continent

(^^^Oddizzi (5 lessons – don’t do 6<sup>th</sup> from MTP )

3. WALT identify the amazon & consider the significance of its location
4. WALT explain the importance of the Amazon Basin and the Amazon Rainforest
5. WALT understand the threats to the Amazon and why they happen
6. WALT Summarise the human & physical features of Manaus
7. WALT compare the Amazon Basin with South East Brazil and South East England

Significant Places:

Amazon Basin South America, Manaus, Brazil

Essential vocabulary all to learn:

**Summer 1**  
**Local Area Study -**



To Infinity & Beyond

**What is the geographical makeup of the continent of North America?**

(^^^Oddizzi )

1. WALT locate North America on a map including using longitude and latitude
2. WALT locate the USA and explain the origins of its name
3. WALT explain the human and physical geography of The Rockies
4. WALT describe volcanic eruptions of Mt St Helens and the impact on the surrounding area
5. WALT investigate and evaluate features of a US state
6. WALT compare and contrast New York with Brighton

(\*\*\*Southway)

7. WALT identify Prime/Greenwich Meridian and time zones (including day and night)

Significant Places:

North America, The Rockies, South East UK, US State (own choice), New York City, Mt St Helens

Essential vocabulary all to learn:

	<p>Contrast, characteristics, landscape, industry, economic, tourism, energy sources, renewable</p> <p><u>Other Key Vocabulary some children might use/learn:</u> topographical, land-use patterns, natural resources, economic, trade, settlement, rural, agricultural, coastline, development, sustainable development, onshore, off shore</p>	<p>region, topography, terrain, diverse, equatorial, species, continent, biodiverse</p> <p><u>Other Key Vocabulary some children might use/learn:</u> Amazon basin, location, urban, topography, atmosphere, high land, mountains, architecture, urban, shore, Peru, exported, cattle ranch, eco system, food chain, equatorial, river basin, drainage,</p>	<p>Longitude, latitude, Prime meridian, time line, time zone, state, mountainous, mountain range</p> <p><u>Other Key Vocabulary some children might use/learn:</u> North America, climate, weather, equator, impact, eruptions, human, physical, Rocky mountains, landscape, border, state, effects, polar, arid, climate, extreme, tropical, Earth surface, Greenwich Meridian, hydroelectric, attraction, canyon, glacier, peak, icefield,</p>
<p>Year 5</p>		<p style="text-align: center;"><b>Spring 1 Europe</b></p> <div style="text-align: center;">   </div> <p><u>We'll meet again</u> <b>How diverse is the continent of Europe?</b> (**Southway)</p> <ol style="list-style-type: none"> <li>1. WALT: Identify some countries and capitals in Europe (including Russia) (**Southway)</li> <li>2. WALT: Justify how diverse Europe is (^^^Odizzi )</li> <li>3. WALT: Demonstrate understanding of different European countries (**Southway)</li> <li>4. WALT: Evaluate and compare two Geographical features (**Southway)</li> </ol> <p><u>Significant Places:</u> United Kingdom, Germany, Europe (including Russia), Mediterranean, Athens</p> <p><u>Essential vocabulary all to learn:</u></p>	<p style="text-align: center;"><b>Summer 1 &amp; Summer 2 Local Area Study – Rivers Fieldwork – Cuckmere Haven/Seven Sisters</b></p> <div style="text-align: center;">   </div> <p><u>Sea storms and Survival</u> <b>What is the importance of our rivers?</b></p> <ol style="list-style-type: none"> <li>1. WALT: Demonstrate an understanding of the water cycle (^^^Odizzi +Southway**)</li> <li>2. WALT: Demonstrate an understanding of what a river is and why they are important(^^^Odizzi )</li> <li>3. WALT: Identify River Features (**Southway)</li> <li>4. WALT: Demonstrate an understanding of how oxbow lakes are formed (**Southway)</li> <li>5. WALT: Reach an informed conclusion about dams (**Southway)</li> <li>6. WALT: Apply knowledge of grid references to locate river features on an OS Map (**Southway)</li> </ol>

sea, European union, vegetation belt, economic, trade, Europe, world map, land use,

Other Key Vocabulary some children might use/learn:

evaluate, geographical, European, capitals, Mediterranean, oceans, seas

7. WALT: apply geography fieldwork skills(\*\*Southway)

8. WALT: Explain different coastal landforms(\*\*Southway)

9. WALT: make reasoned judgements about how to protect communities from flooding (\*\*Southway)

10. WALT: Explain stages and features of a river and how land use changes from source to mouth, recognise and explain how human activity affects rivers (\*\*Southway) Tray activity

Significant Places:

United Kingdom, Seven Sisters, Cuckmere Haven,

Essential vocabulary all to learn:

Coastal, erosion, meander, flooding, ox-bow, flood defence, dam, water cycle

Other Key Vocabulary some children might use/learn:

symbols, keys, landforms, features, lakes, waterfall, grid references, source, mouth, community, OS Map, fieldwork, coastal, strategies, human activity, impact, formation, salt water, fresh water, precipitation, clouds, groundwater, evaporation, condensation, vapour, droplet, liquid, downhill, flow, stream, channel, tributary, upper course, middle course, lower course, flood plain, confluence, irrigation

**How diverse is the continent of Europe – Part 2**

1. WALT: Explain some key physical and human characteristics of Greece

2. WALT: Compare and contrast two\* / European regions (Aegean islands / South East England) Make notes

3. WALT: Apply knowledge comparing physical features of two regions (Aegean islands / South East England) Write advert

(+++Grammasaurus Unit - 3 lessons – Lessons 4, 8, 11)

Significant Places:

			<p>United Kingdom, Mediterranean, Greece, South Aegean, Acropolis,</p> <p><b>Essential vocabulary all to learn:</b> region, sea, peninsula, mainland, island, government, cultural diversity, terrain</p> <p><b>Other Key Vocabulary some children might use/learn:</b> autonomous, islet, cartographer, language, thermal spring, caldera, scenery, bay, springs, coastline, agriculture, urban, rural</p>
<p>Year 6</p>	<p style="text-align: center;"><b>Autumn 1 Mountains</b></p> <div style="text-align: center;">  </div> <p><u>Frozen in Time</u> <b>What is mountain life like?</b> (^^^Odizzi )</p> <ol style="list-style-type: none"> <li>1) WALT: Describe what a mountain is and locate the worlds 7 summits on a map.</li> <li>2) WALT: Describe the key features of mountains and how formed.</li> <li>3) WALT: Evaluate mountain life on Mount Everest. (GEO JOTTERS)</li> <li>4) WALT: Evaluate mountain life on Mount Everest. (GEO JOTTERS)</li> <li>5) WALT: Explore and locate the UK's highest mountains.</li> </ol> <p><u>Significant Places:</u> UK highest mountains, Mount Everest - Himalayas, World seven summits,</p> <p><u>Essential vocabulary all to learn:</u> Summit, altitude, terracing, formation, sea level, slope, valley, mountain range</p>		<p style="text-align: center;"><b>Summer 2 Sustainability</b></p> <div style="text-align: center;">  </div> <p><u>Blood, Bones &amp; Body Bits</u> <b>What is sustainability and does Southway need to improve?</b> (+++Grammarsaurus – 5 lessons – UK Economy Sustainability - Lessons 2, 3, 4, 5, &amp; 6)</p> <ol style="list-style-type: none"> <li>1) WALT: Understand and explain the UK economy.</li> <li>2) WALT: Develop an understanding of trade links.</li> <li>3) WALT : Explain the differences between renewable and non-renewable energy.</li> <li>4) WALT: Explain and understand food distribution.</li> <li>5) WALT: Analyse how minerals and water are distributed worldwide</li> </ol> <p><u>Significant Places:</u> United Kingdom</p> <p><u>Essential vocabulary all to learn:</u> Economy, sustainability, renewable, food distribution, minerals, generate, export, import</p>

Other Key Vocabulary some children might use/learn:

Himalaya, landform, earth's plates, formation, alpine, avalanche, peak, dome mountain, fire mountain, fault-block mountains, fold mountains, map reference, map index, Ben Nevis, Mount Snowdon, Scafell Pike, fertile, minerals, crops, mountaineers,

**Autumn 2**  
**Climate Zones - Biomes**



Frozen in Time

**How does climate vary depending on location?**

(^^^Odizzi )  
(\*\*\*Southway)

- 1) WALT: Identify different lines of latitude and climate zones.
- 2) WALT: Compare the weather patterns within climate zones.
- 3) WALT: Compare the 6 main biomes of the world.
- 4) WALT: Identify characteristics of different biomes (Savannah, Polar or Desert).
- 5) WALT: Analyse the impact of global warming (bushfires).
- 6) WALT: Analyse the impact of global warming (flooding).
- 7) WALT: Analyse the impact of global warming (Greenland).

Significant Places:

Climate zones around the world (Write about SAVANNAH, ARID OR POLAR ONLY),

Other Key Vocabulary some children might use/learn:

consumption, contaminate, controversial, desalination, disposal, drought, economy, economic activity, fossil fuel, generate, greenhouse gases, industry, industrial land, landfill, manufacture, metallic elements, radioactive, rare earth elements, raw materials, recycle, reduce, refuse, renewable energy, replenish, reservoir, reuse,

**Summer 2**  
**Fieldwork**



Blood, Bones & Body Bits

**What is sustainability and does Southway need to improve?**

(+++Grammarsaurus – Sustainability Fieldwork – Lessons 3 & 4 only)

- 1) WALT: Plan fieldwork
- 2) WALT: Carry out fieldwork

Significant Places:

United Kingdom, Southway Junior School

Essential vocabulary all to learn:

**Audit, survey, analyse, environmental health, sustain, recycling behaviours, data**

Other Key Vocabulary some children might use/learn:

**implement, formulate, reduce, reuse, recycle, refuse, plastic, tidal, pollution, eliminating, presenting, bar graph, pictogram,**

Essential vocabulary all to learn:

Weather patterns, biome, axis, moderate, global warming, greenhouse effect, monsoon, bushfire

Other Key Vocabulary some children might use/learn:

forecast, Arctic circle, Antarctic circle, tropical, ray, energy, sphere, axis, tilted, season, temperate, moderate, dry season, high rainfall, tropics, trends, ocean currents, coral reefs, ice cap, habitat shift, glaciers melting,