Geography- Frozen Kingdom

Vocabulary	active volcano adaptation altitude amphibian animal kingdom Antarctic Circle Antarctic Circumpolar Current Antarctic Peninsula Antarctica aquatic animal archipelago Arctic Basin Arctic Circle Arctic Ocean Arctic region atmosphere base camp behavioural adaptation bird blizzard blubber boreal forest breeding brood pouch camouflage Captain James Cook carbon dioxide carbon footprint carnivore characteristic chordate classification classification key climate climate change commercial fishing compaction coniferous continent crevasse culture cyclone damage deforestation desert desert zone disastrous distress signal dry valley Earth ecosystem environment equator equatorial zone Ernest Shackleton evergreen evolution expedition exploration extinction extreme weather fauna fish fjord flora fossil fuel freezing point freshwater frostbite fur glacial lake glacier global warming greenhouse effect greenhouse gas emissions habitat headwind herbivore herding hibernation horizon hunting hydropower hypothermia ice calving ice cap ice field ice sheet ice shelf iceberg immigrant income incubate indigenous industry inhospitable Inuit invertebrate island journey katabatic wind landmass landscape limitation line of latitude line of longitude mainland malnutrition mammal maritime methane Midnight Sun migration mining modern Mount Erebus native natural reserve natural resource nocturnal nomadic North Pole Northern Hemisphere nutrient overcrowding permafrost physical adaptation phytoplankton plateau polar climate polar day polar night polar region polar zone pollution population precipitation Prime Meridian protection remote reptile rescue research station RMS Titanic Roald Amundsen Robert Falcon Scott salt water scientist sea ice sea level season semi-nomadic settlement snow South Pole Southern Hemisphere Southern Ocean species specimen steamship survival temperate zone temperature terrestrial animal thermal insulator topography tourism traditional tragedy Transantarctic Mountains Tropic of Cancer Tropic of Capricorn tropical zone tundra United Nations vegetation vertebrate voyage warning whaling whiteout wilderness wildlife	**Prior Learning**	<u>Settlements and Land Use</u> There are five main types of land use including agricultural, commercial, recreational, residential and transportation. ● <u>Climate and weather</u> Changes to the weather and climate (temperature, weather patterns and precipitation) can affect land use. ● Countries in the continents of North and South America have contrasting climates, which means that the typical weather conditions can be very different. ● The weather can affect what people do, the natural and built environment.

Know It: essential knowledge

- The Earth has two polar regions: the **Arctic Circle in** the Northern Hemisphere and the **Antarctic Circle** in the Southern Hemisphere.
- **Polar regions** have long, cold winters and temperatures mostly below freezing.
- The weather can be very windy with little precipitation.
- Much of the polar regions is covered with snow and ice all year round. **Polar landscape features include glaciers, ice fields and icebergs.**
- Glaciers are slow-moving masses of flowing ice, formed by the compaction of snow
- **Icebergs are chunks of ice that calve, or break off, from glaciers and ice sheets and float in the sea**. Wind and water erode icebergs into sculptural shapes.
- **The Arctic region consists of the Arctic Ocean and the northern parts of Canada, Alaska, Russia, Finland, Sweden, Norway, Greenland and Iceland.**
- Winter temperatures can reach -55°C and summer temperatures can reach 10°C.
- The Arctic region has a varied landscape including mountains, tundra and boreal forest.
- **It is home to small populations of people and an amazing variety of plants and animals including the polar bear, Arctic fox, Arctic hare and walrus.**
- **The indigenous peoples of the Arctic have inhabited the area for thousands of years.** In the past, they adapted to the cold, harsh conditions by hunting and eating animals native to the area, such as seals, whales and walruses, and using reindeer skins to keep warm. Many lived nomadic lifestyles, following reindeer herds. Today, many indigenous peoples live in permanent settlements and have a modern lifestyle, but some still follow the traditional way of life.
- **Ernest Shackleton (1874–1922) was a British explorer who led an expedition to attempt to walk across Antarctica**. However, his ship became stuck in sea ice and sank. Shackleton and his men managed to survive for 18 months before making their way to safety.
- **The RMS Titanic sank on 15th April 1912.** Four days after leaving Southampton, UK and just 300 miles from its destination of New York, USA, the lookout crew spotted an iceberg in the Titanic's path. The ship collided with the iceberg, damaging its hull. At 2:20am on 15th April, the Titanic began to sink. Although the crew sent distress signals, none of the ships who responded were able to reach the Titanic before she sank. It is estimated that 1500 people were killed and only 700 survived.
- **Human activities such as burning fossil fuels and deforestation are releasing gases into the atmosphere that are causing the temperature of the Earth to rise and its climate to change.** The Arctic landscape and wildlife are at risk due to this change. Scientists are concerned that the rising global temperature is causing the polar ice to melt. If the polar ice melts, sea levels and temperatures will rise, weather patterns will change and the polar regions will be damaged.

Think It:	**RUAH**	**Oracy**	**Discernment**
	1. Demonstrate the concept of polar day and night Respect: Encourage children to listen to peers' ideas about how light affects daily life in polar regions. Understanding: Use role-play where some children act as explorers experiencing 24-hour daylight or darkness. Ask them to explain how it feels and what challenges it brings. Affection: Have children pair up and share feelings about being in extreme light/dark situations, showing empathy. Humour: Encourage creative skits about "sleeping during polar day" or "funny midnight sun adventures" to make learning enjoyable. 2. Answer "How are polar oceans different from other oceans on Earth?" Respect: Have students share facts without interrupting each other, appreciating different viewpoints. Understanding: Use comparison charts to analyze temperature, salinity, ice cover, and biodiversity differences. Affection: Encourage peer support when someone struggles with scientific vocabulary or concepts. Humour: Create a funny "polar ocean vs tropical ocean" comic or dialogue highlighting extreme conditions. 3. Know the six main physical features of a polar landscape Respect: Allow students to take turns presenting a feature, listening attentively to each other. Understanding: Use hands-on models (clay, sand, ice) to show features like glaciers, icebergs, tundra. Affection: Pair students to help each other remember and explain features. Humour: Make silly mnemonics or rhymes to remember features (e.g., "Glaciers glide, icebergs hide"). 4. Explore the four main reasons for climate change Respect: Encourage respectful debate about human impact, emphasizing listening to all opinions. Understanding: Use interactive diagrams showing greenhouse gases, deforestation, fossil fuels, and natural factors. Affection: Discuss how climate change affects people and animals, encouraging empathetic responses. Humour: Create a lighthearted "climate villain" cartoon to make the lesson engaging but informative. 5. Identify similarities and differences between natural polar resources	1. To demonstrate the concept of polar day and night Role-play: Children act as the Earth rotating and tilting around the sun, narrating what happens at different poles during summer and winter. Think-pair-share: Students explain in their own words why polar regions experience long days and nights. Explain to a peer: Children create a simple diagram and verbally explain it to a partner. 2. To answer "How are polar oceans different to other oceans on Earth?" Class debate: "Are polar oceans more important than other oceans?" Jigsaw discussion: Each group studies one difference (temperature, salinity, ice cover, biodiversity) and teaches it to another group. Present findings: Children make short verbal presentations comparing polar oceans to tropical oceans. 3. To know the six main physical features of a polar landscape Memory game with explanation: Children name features (e.g., glaciers, icebergs, tundra) and describe them verbally. Paired teaching: One child names a feature; the other explains what it is and why it is significant. Class "gallery walk": Children present drawings or images of features and talk through them with peers. 4. To explore the 4 main reasons for climate change Group discussion: Each group is assigned a reason (e.g., greenhouse gases, deforestation, fossil fuels, agriculture) and explains it to the class. Cause-and-effect chain: Children verbally link human actions to climate outcomes. Persuasive speech: Children argue which cause is the most critical to address and why. 5. To identify similarities and differences between natural polar resources Venn diagram discussion: Children work in pairs to discuss similarities/differences between resources (e.g., oil, fish, minerals). Mini-presentations: Each child explains a resource's use and its benefits/risks. Panel discussion: Students take roles of stakeholders (scientists, local people, companies) and debate resource use.	1. To demonstrate the concept of polar day and night Predict and reason: Ask students to predict what life would be like during continuous daylight or darkness and justify their reasoning. Compare with other regions: Have them compare the polar day/night cycle with day/night cycles at the equator. Create models: Let students choose or design a model (globe, lamp, diorama) to demonstrate the concept, explaining why their model accurately represents reality. 2. To answer "How are polar oceans different from other oceans on Earth?" Analyze data: Give students temperature, salinity, and wildlife data for polar and tropical oceans and ask them to draw conclusions. Classify differences: Students can categorize differences as physical, chemical, or biological, deciding which distinctions are most significant. Support conclusions with evidence: Encourage them to justify their answers using facts rather than assumptions. 3. To know the six main physical features of a polar landscape Identify and classify: Present images or maps of polar regions and ask students to identify features, explaining their reasoning. Compare significance: Ask them to decide which features have the greatest impact on human or animal life and justify their choices. Create a visual representation: Let students design diagrams or 3D models, discussing why certain features are highlighted. 4. To explore the four main reasons for climate change Evaluate causes: Ask students to weigh natural vs. human-induced causes and discuss which they think has the most impact. Prioritise evidence: Have them rank the four reasons in terms of immediacy or significance, defending their ranking.

	Respect: Promote turn-taking when discussing resources like fish, oil, minerals, and freshwater. Understanding: Use a Venn diagram activity to compare resources. Affection: Encourage noticing how communities depend on these resources and support each other in survival. Humour: Invent funny "resource mascots" that exaggerate characteristics for easier recall. 6. Evaluate how the climate and landscape affect lives of people in the Arctic Respect: Respect indigenous perspectives and traditional knowledge when discussing lifestyles. Understanding: Research daily routines, housing, clothing, and diets adapted to Arctic conditions. Affection: Discuss challenges with empathy, such as isolation or extreme weather. Humour: Invite children to imagine playful "Arctic survival hacks" in a humorous storytelling activity. 7. Critically evaluate Shackleton's Endurance expedition Respect: Encourage listening to multiple accounts of the expedition without immediate judgment. Understanding: Have students create timelines or maps showing key decisions and outcomes. Affection: Explore the teamwork, leadership, and care Shackleton showed his crew, reflecting on human relationships. Humour: Light-hearted "what if" scenarios (e.g., "What if Shackleton had a smartphone?") to engage curiosity while retaining respect for the real story.	6. To evaluate how the climate and landscape affect the lives of people in the Arctic Hot-seating: One child takes the role of an Arctic resident and answers peers' questions about daily life challenges. Problem-solving discussion: Groups discuss solutions for living in extreme cold or remote locations. Storytelling: Children create short narratives showing how weather or ice conditions impact people's lives. 7. To critically evaluate Shackleton's Endurance expedition Debate: "Was Shackleton a hero or lucky survivor?" Think-pair-share: Children discuss what leadership and teamwork qualities helped the crew survive. Timeline narration: Children verbally walk through key events, explaining decisions and consequences.	Predict consequences: Students could infer potential effects of each cause on polar regions specifically. 5. To identify similarities and differences between natural polar resources Compare and contrast: Give students a table of resources (fish, oil, minerals, freshwater) and ask them to identify similarities and differences. Evaluate usefulness: Have students assess which resources are most sustainable or important for humans and justify their reasoning. Discuss ethical implications: Encourage reflection on exploitation vs. conservation of resources. 6. To evaluate how the climate and landscape affect the lives of people in the Arctic Case studies: Present real-life examples (Inuit communities, research stations) and ask students to evaluate how environment shapes lifestyle, economy, and culture. Problem-solving: Pose "What challenges would you face living here?" questions and have students propose solutions. Compare perspectives: Encourage them to discern differences between indigenous ways of life and modern settlements. 7. To critically evaluate Shackleton's Endurance expedition Assess decisions: Have students analyze key choices Shackleton made and evaluate their effectiveness. Identify challenges: Ask students to discern which challenges were most dangerous or difficult to overcome. Form evidence-based judgments: Encourage them to argue whether Shackleton was a successful leader, supporting their view with examples from the expedition.
Prove It: assessment	1. Where is the North Pole located? 2. What is the name of the mountain range that divides East Antarctica and West Antarctica? 3. Name three groups of indigenous people that live in the Arctic. 4. Name four different topographical features you might see in the Arctic. 5. Which places surround the Arctic? 6. Which months of the year are winter in Antarctica? 7. Which polar region is the coldest? 8. Name the two species of flowering plants found in Antarctica.		

Beyond Year 6	Human and physical geography Understand, through the use of detailed place-based exemplars at a variety of scales, the key processes in: ● physical geography relating to: geological timescales and plate tectonics; rocks, weathering and soils; weather and climate, including the change in climate from the Ice Age to the present; and glaciation, hydrology and coasts ● human geography relating to: population and urbanisation; international development; economic activity in the primary, secondary, tertiary and quaternary sectors; and the use of natural resources ● understand how human and physical processes interact to influence, and change landscapes, environments and the climate; and how human activity relies on effective functioning of natural systems		
Lesson Sequence	Lesson 1	Engage	Polar climates
	Lesson 2		Polar day and night
	Lesson 3		Polar oceans – breadth and depth
	Lesson 4		Polar landscapes
	Lesson 5		Climate change
	Lesson 6		Natural resources
	Lesson 7		Indigenous People
	Lesson 8	Develop 2	Case Study - Shackleton
	Lesson 9	Express	Assessment

Show It: geographical skills and concepts	**Fieldwork**	**Human features and landmarks**	**Geographical Change**
	Year 5 Skill Construct or carry out a geographical enquiry by gathering and analysing a range of sources. Ask and answer geographical questions and hypotheses using a range of fieldwork and research techniques. **Year 6 Skill** Ask and answer geographical questions and hypotheses using a range of fieldwork and research techniques. *Fieldwork can help to answer questions about the local environment.*	**Year 5 Skill** Describe and explain the location, purpose and use of transport networks across the UK and other parts of the world. **Year 6 Skill** Explain how humans function in the place they live. *The distribution of and access to natural resources, cultural influences and economic activity are significant factors in community life in a settlement.*	**Year 5 Skill** Describe how the characteristic of a settlement changes as it gets bigger (settlement hierarchy). **Year 6 Skill** Present a detailed account of how an industry, including tourism, has changed a place or landscape over time. *Tourism has had an environmental, social and economic impact on many regions and countries.*
	Settlements and Land Use	**Location**	**Natural and human-made materials**
	Year 5 Skill Describe in detail the different types of agricultural land use in the UK. **Year 6 Skill** Describe the distribution of natural resources in an area or country.	**Year 5 Skill** Identify the location and explain the function of the Prime (or Greenwich) Meridian and different time zones (including day and night). **Year 6 Skill**	**Year 5 Skill** Explain how the topography and soil type affect the location of different agricultural regions. **Year 6 Skill**

	Natural resources include food, minerals (aluminium, sandstone and oil) energy sources (water, coal and gas) and water.	Identify the position and explain the significance of latitude, longitude, equator, Northern Hemisphere, Southern Hemisphere, the Tropics of Cancer and Capricorn, the Arctic and Antarctic Circles, the Prime (or Greenwich) Meridian and time zones (including day and night). *The polar regions experience the largest differences in daylight, as the effect of Earth's tilt is much more pronounced.* *When the Earth tilts towards the Sun it create near-constant daylight, known as polar day or Midnight Sun.* *When the Earth tilts away from the Sun it creates near-constant darkness, known as polar night.* *Latitude and longitude help identify locations in relation to the equator and the Prime Meridian.* *Latitude and longitude are measured in degrees.* *There are five major lines of latitude: Equator (0°), Tropic of Cancer (23.5°N), Tropic of Capricorn (23.5°S), Arctic Circle (66.5°N) and Antarctic Circle (66.5°S).* *The Prime Meridian is the imaginary line from the North Pole to the South Pole that passes through Greenwich in England and marks 0° longitude, from which all other longitudes are measured.*	Explain how the presence of ice makes the polar oceans different to other oceans on Earth. *The polar oceans are significantly colder than other world oceans.*
	Physical Features	**Environment**	**Compare and Contrast**
	Year 5 Skill Identify and describe some key physical features and environmental regions of North and South America and explain how these, along with the climate zones and soil types, can affect land use. **Year 6 Skill** Compare and describe physical features of polar landscapes. *The six main physical features of a polar landscape are: iceburg, glacier, mountain, ice field, tundra and boreal forest.*	**Year 5 Skill** Name and locate the world's biomes, climate zones and vegetation belts and explain their common characteristics. **Year 6 Skill** Explain how climate change affects climate zones and biomes across the world. *Climate change effects the water, temperature, greenhouse gases and weather of a biome.* *The four main causes of climate change are: burning fossil fuels, deforestation, habitat destruction, overpopulation and rearing livestock.*	**Year 5 Skill** Identify and describe the similarities and differences in physical and human geography between continents. **Year 6 Skill** Describe the climatic similarities and differences between two regions. *Climates can be compared by looking at factors including maximum and minimum levels of precipitation and average monthly temperatures.* *Antarctica is the coldest, windiest and driest place on Earth.*