

Geography Alive: Stage 1 Geography (Topic 1: Features of Places)

| Lesson 4: Factors affecting weather and climate | | |
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| <p>Content focus:</p> <p>In this lesson, students focus on the factors affecting weather and climate. These include latitude, seasonal distances, aspect, altitude, distance from the sea, and mountain barriers.</p> | | <p>Resources:</p> <ul style="list-style-type: none"> • Resource Sheet 1: Factors affecting weather and climate • Worksheet 1: Factors affecting weather and climate |
| <p>Key inquiry questions:</p> <ul style="list-style-type: none"> • What is the relationship between latitude and temperature? • What causes the seasonal variations we have throughout the year? • What is aspect and how does it influence weather? • What is the relationship between altitude and temperature? • How does the distance from the sea affect the weather experienced by a place? • What is the link between ocean currents and weather and climate? • What role do mountain barriers play in the distribution of rainfall? | <p>Outcomes:</p> <p><i>A student:</i></p> <ul style="list-style-type: none"> • describes the relationship between latitude and temperature • explains, in simple terms, how the revolution of the earth around the sun accounts for the seasons and length of daylight hours experienced at a place • describes how aspect, altitude, distance from the sea and ocean currents impact on the weather and climate of a place • explains how mountain barriers impact on the distribution of rainfall. | <p>Lesson sequence:</p> <ul style="list-style-type: none"> • Step 1: Outline to students that there are a number of factors that determine the weather and climate experienced by a place. In the following stages of the lesson contextualise those that are relevant to the place in which the students live. • Step 2: Recap the concept of latitude. Note that lines of latitude circle the earth parallel to the Equator and that all places are located either on, or north or south, of the Equator. Places at higher latitudes are located closer to the North or South Poles than places at lower latitudes. The latter are closer to the Equator. Draw your students' attention to Figure 1 on Resource Sheet 1 and explain that places at higher latitudes experience less intense solar radiation than those closer to the Equator. In other words, the same amount of energy from the sun is spread over a much larger area in higher latitudes than at the Equator. Therefore, temperatures generally decline as you move from lower latitudes to higher latitudes – from the Equator to the poles. • Step 3: With the aid of a light source (for example, a lamp without its shade) and a globe, and Figure 2, demonstrate to students how the revolution of the earth around the sun, combined with the tilt of the earth's axis, results in the occurrence of the four seasons and the shortest and longest hours of daylight. • Step 4: Introduce students to the concept of aspect. Ask students to identify the sunniest (warmest) side of the classroom. In which direction does this side of the classroom face? Explain to students that South and East facing slope in Australia receive less direct energy from the sun than slopes facing North and West. In Australia, ski resorts have been developed on East and South facing slopes because the snow lasts longer on these slopes. • Step 5: Explain to students that places located close to the coast typically have a smaller temperature range than places further inland. Note that water bodies gain and lose heat much more slowly than the land. This, for example, explains why Sydney suburbs close to the coast have lower maximum temperatures and higher minimum temperatures than suburbs in Sydney's west. It is also important to note that rainfall decreases as you move inland. Similar to the example cited above, Sydney's coastal suburbs receive higher rainfall than suburbs in the city's west. • Step 6: Introduce students to the notion that ocean currents vary in temperature and that evaporation is greatest from warm bodies of water. A good inquiry-based question is: Why are deserts located close to the western coasts of Australia, Africa, South America and North America? The dominance of cold ocean currents off these coasts is the answer. These result in low levels of evaporation and rainfall in these regions. • Step 7: Using Figure 3, explain to students that mountain ranges act as a barrier to the inland movement of rainfall. It explains, for example, why places west of the Blue Mountains receive less rainfall than those also the coastal strip of NSW. • Step 8: Ask students to complete Worksheet 1 and then check students' responses for accuracy. |