For Key Stage 3

Teacher’s Handbooks
This Teacher’s Handbook offers at-a-glance support for the fifth edition of Nelson Key Geography Foundations. Each page supports a double-page spread in the pupil book and provides:

- an easy-to-follow lesson overview
- clear learning objectives, learning outcomes and key vocabulary
- skills builders to stretch pupils of all abilities and deliver a key criterion of the National Curriculum Programme of Study
- differentiation suggestions for end-of-unit enquiries to aid assessment
- photocopiable student checklists
- answers to the activities.

Designed to be flexible and easily integrated, this handbook works alongside the pupil book to help deliver exciting, relevant and up-to-date lessons that engage all of your pupils.

Also available:

Pupil Books
The pupil books offer a comprehensive and successful approach to Key Stage 3 Geography, providing:

- clear progression through each topic
- a highly visual and accessible approach
- introductory spreads to stimulate interest in each topic.

Printed on paper produced from sustainable forests.

The accompanying Kerboodle course offers comprehensive support to each of the pupil books and provides a wealth of classroom and skills-led assessment materials.

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How might you observe and record the weather?

About this spread
This spread will help pupils to understand what weather is, what elements make up the weather, and how the weather can be observed and recorded. The weather is free and easily accessible, so this is a perfect opportunity for pupils to do some fieldwork – collecting and processing their own data. It might be possible for pupils to observe and record the weather in each lesson for the duration of the unit and record the results as a classroom display.

Learning objectives
On this spread pupils should learn:
- what weather is
- about the different elements of weather
- how some elements of weather are measured and recorded.

Skills builder
Help pupils to learn how to describe the weather. Firstly, they need to identify the main elements of the weather (temperature, precipitation, wind, cloud type and cover, visibility and general weather). Then they need to choose key words to describe the weather conditions. They should be using words such as: hot, warm, cool, cold; sunny, cloudy, dull, overcast; calm, light breeze, gusty wind, gales, etc.

Show them a weather report from the TV, listen to an example from the radio or look at the BBC or Met Office websites. They can then construct sentences to describe the weather.

Further discussion suggestions
- What’s the strangest/most unusual weather you’ve ever experienced?
- Why does the direction from which the wind blows have an important influence on our weather?

Answers to activities
1 Weather is the condition of the atmosphere over a short period of time. It is made up of different elements including temperature, precipitation, wind speed and direction, cloud type and cover, and visibility. It is about how hot, cold, wet, dry, windy, calm, cloudy or sunny it is.

2 a and b

3 • Temperature is measured using a thermometer.
• Wind direction is measured using a wind vane.
• Wind strength is measured using the Beaufort scale.
• Cloud cover is measured in eighths.

4 Pupils should sketch each of the cloud types in photos D. The descriptions linked to each cloud type are:
- Cumulonimbus: huge towering clouds that often give showers.
- Cumulus: dome shaped clouds with dark flat bases.
- Stratus: low grey shapeless cloud that forms in layers.
- Cirrus: high clouds that are wispy, light and featherlike.

5 a and b
Pupils should record the weather in the same format as in table J.

6 a and b
Pupils should record the weather for the week using the same format as in table J.

7 If the wind is coming from the west, the weather is likely to be cloudy with the likelihood of rain. It will be quite mild. If the wind is coming from the south, the temperatures will be quite high for the time of year. Winds from the east are likely to bring cold weather, especially in the winter. Northerly winds will keep the temperatures down and there is an increased chance of snow.
How can local features affect temperature and wind?

About this spread
This spread looks at how specific site conditions can affect the weather in a small area, such as around the school. Pupils will know there are differences, but they should be encouraged to think about what they are and what might cause them. They should recognise that our way of life and the environment both affects, and is affected by, weather and climate at a local scale.

Learning outcomes
By the end of this spread pupils should be able to:
- describe how site conditions, such as aspect, shelter, physical features and other factors can influence temperature, local wind speed and direction
- describe places at school that have different microclimates.

Key vocabulary
- microclimate
- aspect

Answers to activities
1 a, b and c
Responses will depend on your individual school.

2

<table>
<thead>
<tr>
<th>Aspect</th>
<th>Local weather conditions</th>
<th>Surface</th>
<th>Microclimate</th>
<th>Physical features</th>
<th>Shelter</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Direction in which a place is facing</td>
<td>Dark surfaces warm up most</td>
<td>Climate conditions of a small area</td>
<td>Can affect both temperature and wind</td>
<td>Reduces the effect of wind</td>
</tr>
</tbody>
</table>

3 Aspect
Hotter classrooms on sunny side of school.
Cooler classrooms due to shade and effect of wind.
Cool and windy in shade and facing wind.

Shelter
Play area sheltered from wind.
Cool in trees with less wind.

Others
Play area warmed by dark tarmac surface.
Some warmth from building.
Cool around edge of lake.

4 a and b
The results will depend on the layout of the school, the time of day, the season the year and the weather conditions at the time that the temperature readings were taken. The following results were taken in September and December.

<table>
<thead>
<tr>
<th>Time</th>
<th>North facing</th>
<th>South facing</th>
<th>Weather conditions</th>
</tr>
</thead>
<tbody>
<tr>
<td>December</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9 a.m.</td>
<td>−3 °C</td>
<td>−2 °C</td>
<td>Clear, cold and frosty</td>
</tr>
<tr>
<td>Midday</td>
<td>0 °C</td>
<td>3 °C</td>
<td>Clear and sunny</td>
</tr>
<tr>
<td>3 p.m.</td>
<td>1 °C</td>
<td>3 °C</td>
<td>Clear and sunny</td>
</tr>
<tr>
<td>June</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9 a.m.</td>
<td>10 °C</td>
<td>12 °C</td>
<td>Raining</td>
</tr>
<tr>
<td>Midday</td>
<td>8 °C</td>
<td>15 °C</td>
<td>Windy and cloudy</td>
</tr>
<tr>
<td>3 p.m.</td>
<td>8 °C</td>
<td>17 °C</td>
<td>Sun with some cloud</td>
</tr>
<tr>
<td>Average</td>
<td>4 °C</td>
<td>8 °C</td>
<td></td>
</tr>
</tbody>
</table>

The north-facing side of the school was colder than the south. The temperature went up from 9 a.m. reaching its highest at 3 p.m. It was warmer in June, even though it was cloudy compared with the clear conditions in December.

The north-facing side was facing away from the sun and was therefore in shade. The sun was low in the sky in December and therefore, even though it was clear, the temperatures did not rise very much, especially on the north side. In June the effect of the sun on the temperature was most marked on the south-facing side in the afternoon.
What is Britain’s weather?

About this spread
This spread defines climate and describes the main differences in temperature and rainfall across Britain. Temperatures decrease northwards in summer and eastwards in winter. This is because the sun has a greater effect in the south than the north in summer, while the North Atlantic Drift raises winter temperatures in the west. Rainfall is roughly the same all year, but is greatest in the west. This is because mountains and moist westerly winds combine to bring most rain to western areas.

Learning objectives
On this spread pupils should learn:
● why temperature varies across Britain
● that rainfall varies considerably across Britain.

Skills builder
One of the outcomes of this spread is that pupils should be to identify patterns on maps. Using the maps of temperature and rainfall will enable them to do this. Work with pupils to help them to see the patterns.
● The map of summer temperatures shows a clear gradation in temperature from cooler in the north to warmer in the south.
● In winter, temperatures are colder in the east and milder in the west.
● The map of average annual rainfall shows that the west of Britain is far wetter than the east.
● The cooling effect of the Irish Sea can be seen in summer.
● The warming effect of the Irish Sea can be seen in winter.

Further discussion suggestions
● Why do many people retire to the south-west of England?
● Which part of the United Kingdom would you go to if you wanted to go skiing?
● Which part of the United Kingdom has the biggest difference in temperature between summer and winter?

Answers to activities
1 Weather is the day-to-day condition of the atmosphere. Climate is the average of weather conditions (measured over a period of 30 years).
2 a Summers in Britain are warmer than winter. The warmest weather is in the south and temperatures get lower (decrease) towards the north.
   b Winters in Britain are colder than summer. The warmest weather is in the west and temperatures get lower (decrease) towards the east.
3 Reasons for temperature differences include: wind direction, ocean currents, latitude, height, distance from the sea.
4 a Three wettest towns (wettest first): Fort William (2,000 mm), Glasgow (1,560 mm), Keswick (1,480 mm).
   Three driest towns (driest first): London (510 mm), Newcastle (630 mm), Norwich (650 mm).
   b The map shows that places in the west of Britain are much wetter than the east. The wettest place on the map is Fort William in north-west Scotland. It has 2,000 mm of rainfall a year. The driest places are in the east. London is the driest place shown on the map with 510 mm of rainfall a year.
5 b Pupils’ maps should match descriptions and locations on their map as follows.
   A  Mild summers, cold winters, dry.
   B  Warm summers, mild winters, quite wet.
   C  Warm summers, cold winters, dry.
   D  Warm summers, mild winters, dry.
   c Area A has mild summers, mild winters and is wet all year because:
      • it is at a high latitude (in summer the sun warms the south more than the north)
      • this is an area of predominantly high land, and temperatures decrease with height (e.g. summers are cooler than if land were low-lying)
      • the North Atlantic Drift helps to stop temperatures falling in the winter
      • the prevailing wind is from the south-west and brings rain all year.
   d and e Responses will depend on which area of the country you are located in. Pupils should use the reasons in diagram C to explain the climate.