Climate on arrival

If you suddenly arrived somewhere – what would tell you what the climate was like?

Take your class outside or ask them to look through the window and ask the question, *'If you suddenly arrived somewhere – what clues would tell you what the climate was like?*' This deep question discussion should help your pupils to understand the difference between weather and climate while introducing the idea that your area has its own climate, which differs from the climates in other climate zones across the world.

There are many ways of tackling this question: we need to look for clues that indicate the long-term climate and that are not changed by day to day weather. These might include the following.

- **Latitude:** If it is near mid-day, then shadows are much shorter near the Equator than further away; TV satellite dishes near the Equator lie nearly flat, pointing upwards while, far from the Equator, they are near vertical; the nearer to the Equator you are, the warmer the climate is likely to be.
- **Vegetation mix:** where there is a variety of vegetation, climate is likely to be equable (not very varied) but where there are few vegetation types, climate is more extreme (much more varied, e.g. hotter/colder)
- **Vegetation types:** look for key types of vegetation – for example, palm trees show warm or tropical climates; luxuriant vegetation is likely in the humid tropics; fleshy plants (with thick leaves) are common in dry areas; dry areas usually also have only scattered plants; pine trees are most common in temperate zones (zones between the tropics and arctic regions).
- **Buildings:** buildings with flat roofs, solar panels and air conditioning units suggest a hot climate, at least in the summer; deep rain gutters show heavy rain from time to time; buildings with steeply sloping roofs may have been designed so snow slips off, while snowguards on roofs show thick snow cover during cold winter climates.
- **Park and roadside areas in towns and cities:** in areas with dry seasons, grass areas have water sprinklers and small circular earth dams often surround trees, to preserve water.
- **Clothing:** if people are wearing an assortment of clothes, this might indicate a changeable climate – if they are wearing similar clothes the climate maybe steady; they wear light clothing in warm climates and heavy clothing in cold climates.

Clue-seeking of this type is an important part of scientific and geographical enquiry. It not only encourages the development of critical thinking skills but also can add variety and interest to lessons, particularly to abstract lessons.

Dry area with scattered vegetation, Lipari Islands, Italy.

Palm trees in a warm region, Hollywood, California, USA.

Solar hot water panels in Weihai, Shandong province, China.

Snowguards on a roof in Vienna, Austria.

The back up

Title: Climate on arrival

Subtitle: If you suddenly arrived somewhere – what would tell you what the climate was like?

Topic: Looking for features with a class that might be indicators of the current climate.

Age range of pupils: 10 years upwards

Time needed to complete activity: 10 minutes

Pupil learning outcomes: Pupils can:

- describe features of their local environment, noting not only natural aspects (vegetation) but also human influences (buildings, clothes);
- explain the connections between the clues they have identified and the local climate.

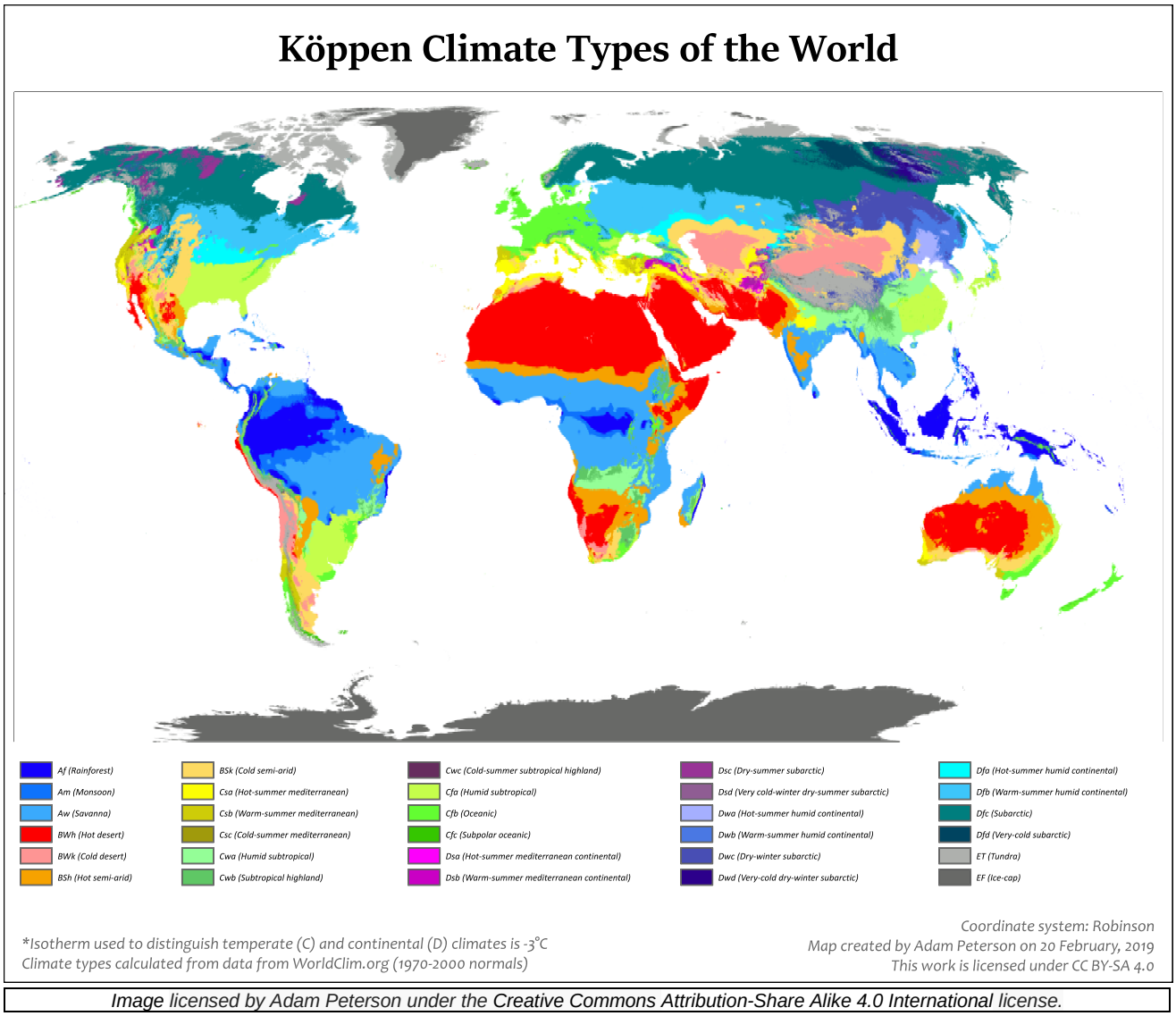
Context:
The definition of climate at https://en.wikipedia.org/wiki/Climate is: '**Climate** is defined as the average state of everyday's weather condition over a period of 30 years. It is measured by assessing the patterns of variation in temperature, humidity, atmospheric pressure, wind, precipitation, atmospheric particle count and other meteorological variables in a given region over long periods of time.' Meanwhile, the definition of weather at: https://en.wikipedia.org/wiki/Weather is: '**Weather** is the state of the atmosphere, describing for example the degree to which it is hot or cold, wet or dry, calm or stormy, clear or cloudy.'

Climate, is therefore the weather averaged over long time periods, such as thirty years.

Climate data can be used to subdivide the Earth into climate zones, as for example in the Worldwide Köppen climate classification below.

Following up the activity:
Ask the class what one could see outside in other climatic zones. If needs be, revise climatic zone teaching with an improvised overview.

Consider how some of the features they have spotted might be altered by climate change.



Underlying principles:

- Climate is dependent on latitude as well as on plate tectonic features including mountain ranges, continental connections and resulting ocean currents.
- Thus climate zones show differing temperature ranges and amounts of rainfall throughout the year.
- Vegetation follows climatic conditions; many plants have developed individual characteristics linked to precipitation and temperature, as have the humans with structures of all sorts (e.g. buildings) and their clothing.

Thinking skill development:
Pupils need first to construct patterns of what climate means in general and what it means for their own locality, before they can look for local evidence; seeking for local clues can involve cognitive conflict, metacognition and bridging skills.

Resource list:

- none

Useful links:
See the climate guide from the Met Office at: https://www.metoffice.gov.uk/climate-guide whilst there is a 'crash course for kids' on weather and climate at: https://www.youtube.com/watch?v=YbAWny7FV3w.

Source: Friedrich Barnikel, Municipal Adolf-Weber-Gymnasium, Munich. Grateful thanks to Chris King of the Earthlearningidea Team.