Form 7 Geography

Summer Exam Revision 2021

Location Knowledge

Map 7: Asia

You will need to be able to locate both **physical** and **human features** on a map of **Asia**.

Oceans and Seas
- Pacific Ocean
- Indian Ocean

Rivers
- River Yangtze
- River Ganges

Mountain areas
- Himalayas

Major cities of Asia
- Tokyo (Japan)
- Kabul (Afghanistan)
- Bangkok (Thailand)
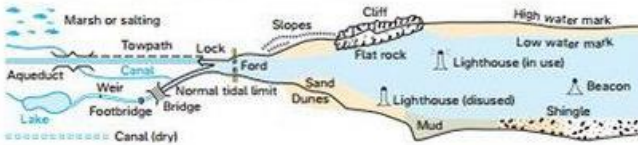- Jakarta (Indonesia)

Ordnance Survey Map Work

You need to be able to;

- Identify **major transport routes**: A roads, B roads, Motorways, train lines.
- Identify features using **6 figure grid** references.
- Identify grid squares using **4 figure grid** references.
- Work out **direction**.
- Use the **symbols** in key to identify features on the map.
- Work out, by looking at **contour lines**, how high the land is.
- Measure **distance** (straight line and actual distance).
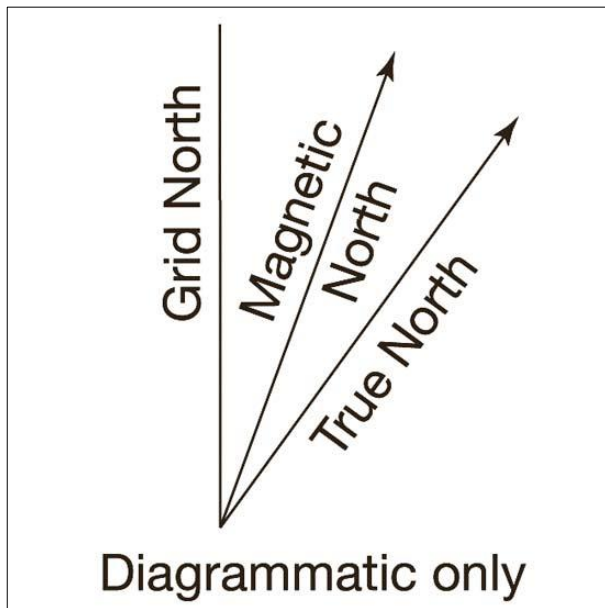
Which direction?

On the OS map you will see the symbol on the left. You should use Grid North as the starting point to working out the direction of a place.
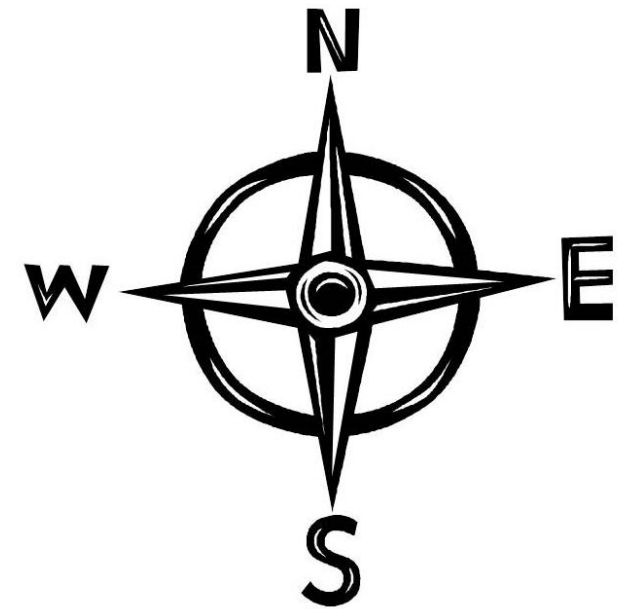
You will usually only need to give a compass direction as a **general direction** and you will **not** need to use degrees.
You should give the direction in two points e.g. NE or SW.
You will not need to be too detailed so don't use NNE, WNW etc.
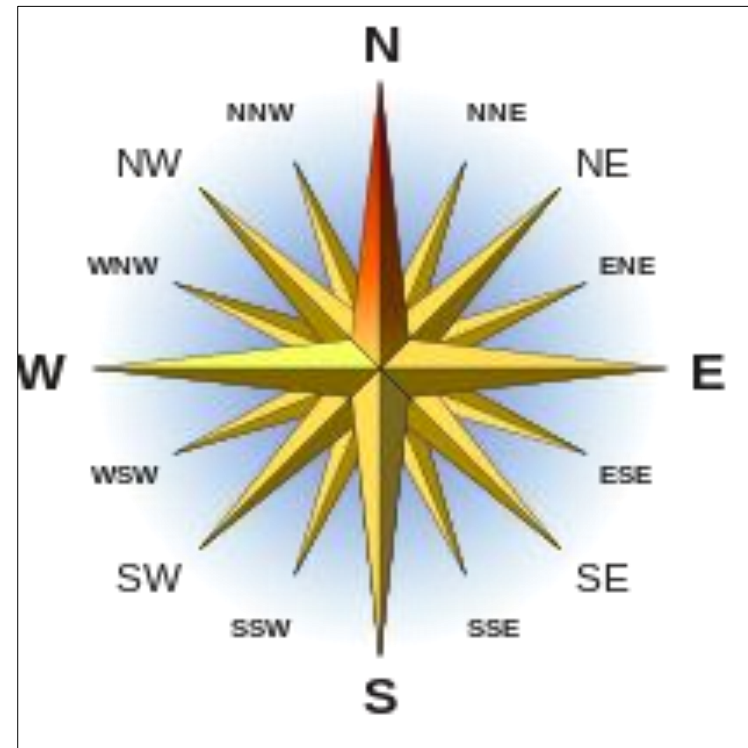
Contour Lines

Hills, slopes and mountains are represented on a map using contour lines. By studying the contour lines you can work out lots about the surrounding terrain including gradients of hills, valleys and steepness of climbs.

How are hills and mountains shown on a map?
A contour is a line drawn on a map that joins points of equal height above sea level. For 1:25 000 scale maps the interval between contours is usually 5 metres, although in mountainous regions it may be 10 metres.
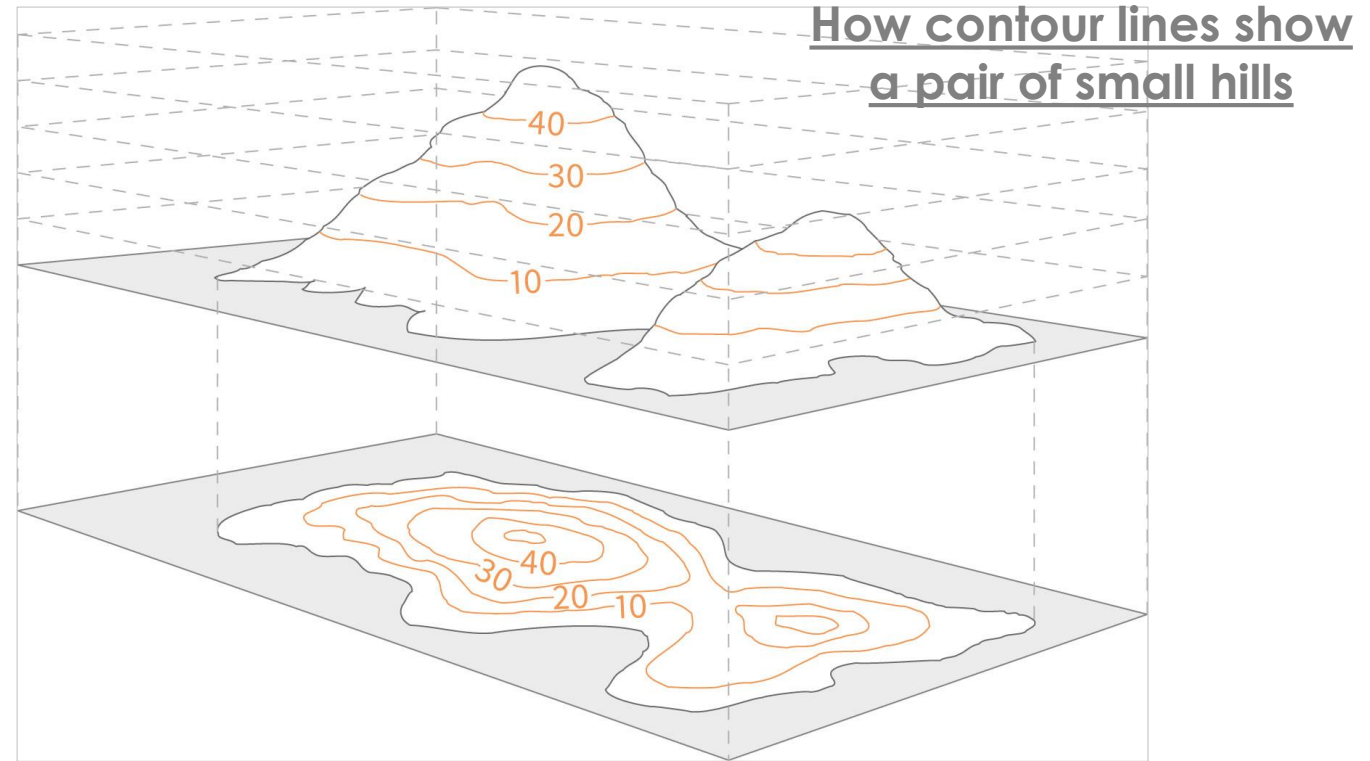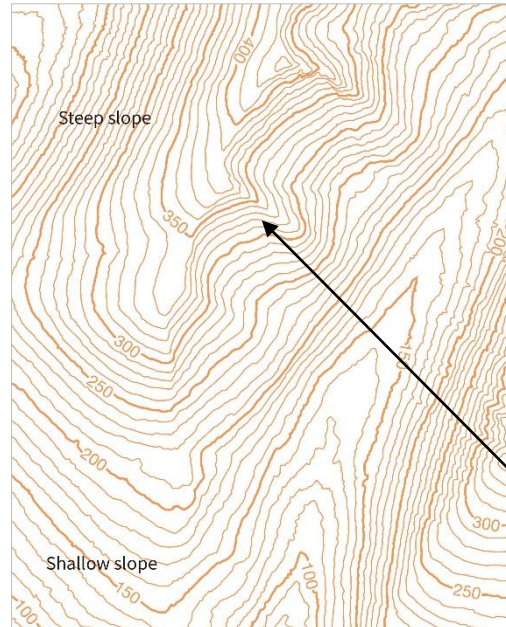
You can see from the picture above the link between the shape of a hill and the contours representing it on a map. Another way of thinking about contour lines is as a tide mark left by the sea as the tide goes out, leaving a line every 5 metres.

Top tip! Remember contour numbering reads up hill – in other words the top of the number is uphill and the bottom is downhill. Also remember the closer contour lines are together, the steeper the slope.

Steep slope

Shallow slope

Measuring Distance on an OS Map

You can measure **straight line distances** on a map with a ruler.

To measure **actual distances** from one place to another you can use a piece of string or a strip of paper.
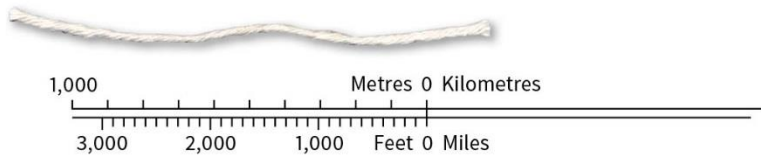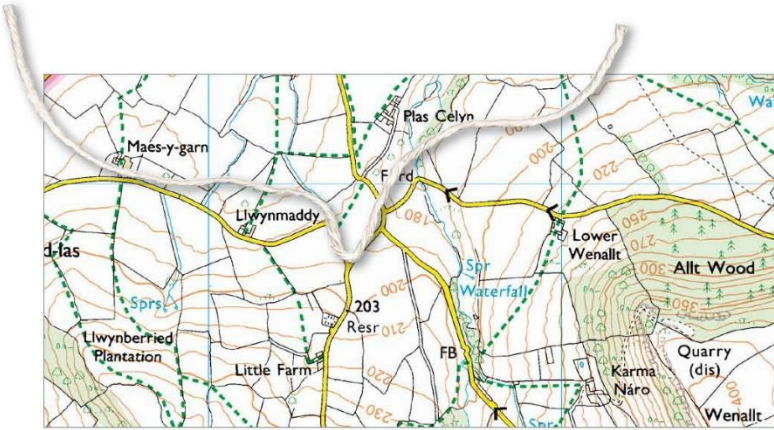
1. Take a strip of paper and place the corner edge on your starting point.
2. Move the paper until the edge follows the route you want to take.
3. Every time the route changes make a small mark on the paper.
4. Repeat this process until you reach your destination.
5. You will be left with a series of marks on your paper.
6. Now place the paper on the scale bar and measure the total distance.

Grid References

Northings (up the stairs) ›
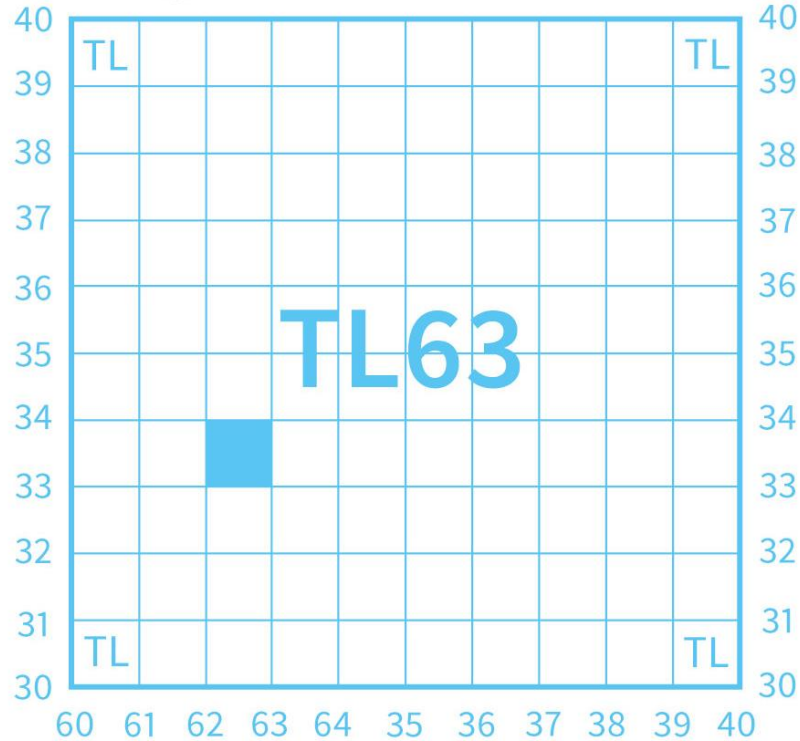
Eastings (along the corridor) ›

It is easy to find a particular place using a grid reference.

- To start, a **four-figure grid reference** is a handy way of identifying any square on a map.
- Grid references are easy if you can remember that you always have to go **along the corridor** before you go **up the stairs**.
- To find the number of a square first use the eastings to go along the corridor until you come to the bottom left-hand corner of the square you want.
- Write this two-figure number down.
- Then use the northing to go up the stairs until you find the same corner.
- Put this two-figure number after your first one and you now have the four-figure grid reference, which looks like the example in diagram: **6233.**

6 figure Grid References
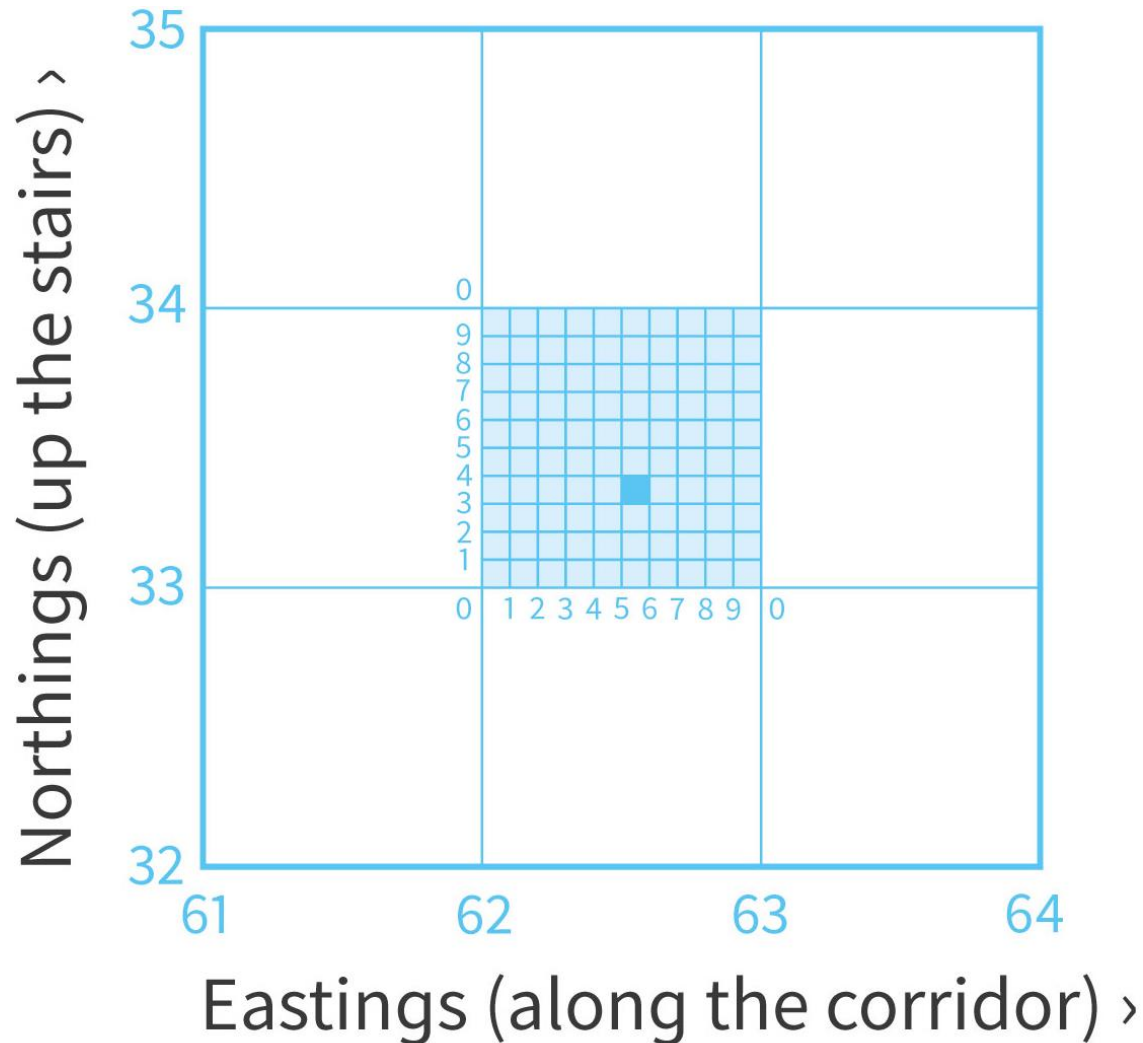
- If you want to pinpoint a more exact place on a map, such as your own house, you will need to use a **six-figure grid reference**.
- First find the four-figure grid reference for the square and write it down with a space after each set of numbers, like this: **62_ 33_**
- Now imagine this square is divided up into 100 tiny squares with 10 squares along each side.
- Still remembering to go along the corridor and up the stairs, work out the extra numbers you need and put them into your four-figure grid reference like this in diagram E: **625 333**.

Weather and Climate

You need to be able to understand what **Convectional Rainfall** is. Look a the different stages in the development of **Convectional Rainfall**. c

Sun heats the land and the air above

Warm air rises, cools and condenses, forming clouds

Rain can then occur

Sea
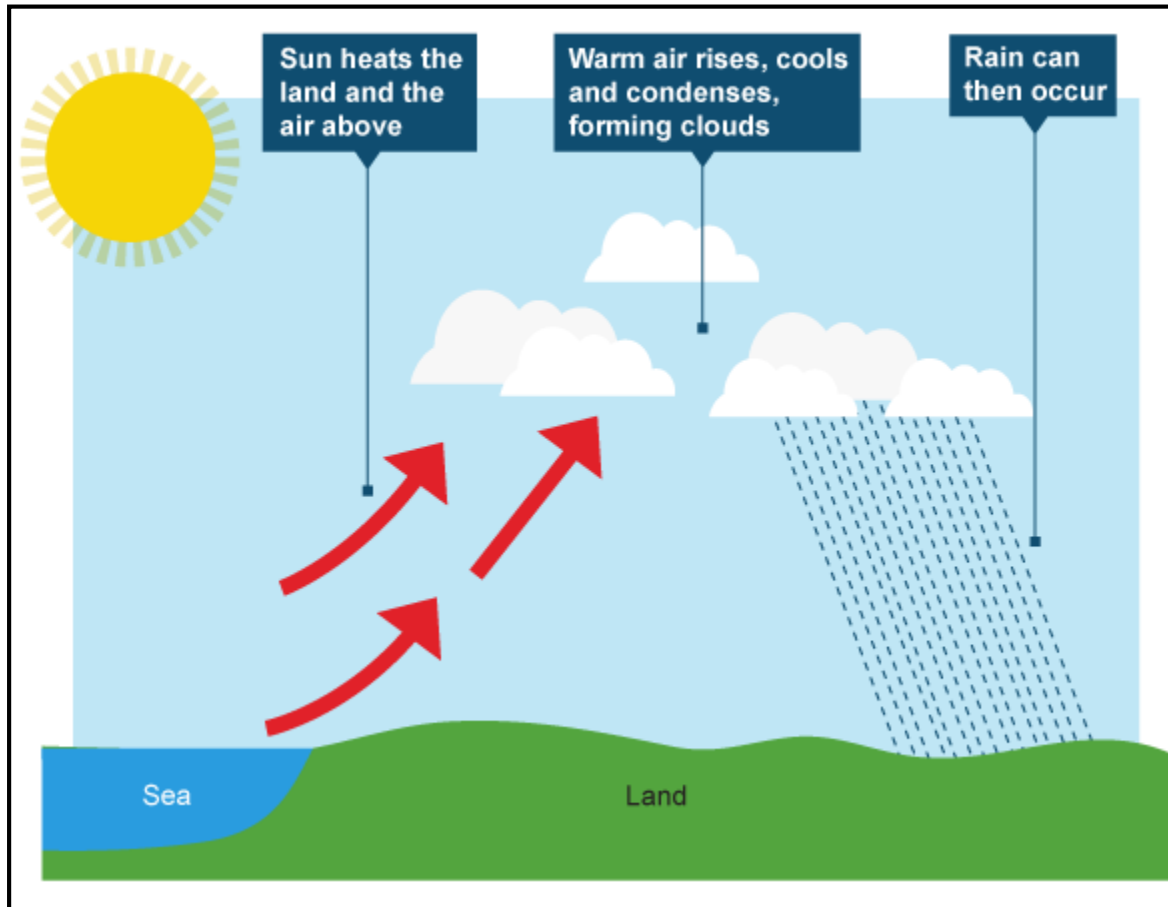
Land

- The sun shines on the ground and heats it up.
- When the land warms up, it heats the air above it.
- This causes the **air to expand** and **rise**.
- As the air rises it **cools and condenses**.
- Water droplets form and can become cumulonimbus clouds.
- If this process continues then rain will fall.

This type of rainfall is very common in **tropical areas** but also in areas such as South East England during **warm sunny spells**.

Which types of rainfall commonly affect Britain?

You need to be able to draw an annotated diagram of **Relief Rainfall. Relief Rainfall** is common on the west of the UK due to the warm moist air coming in over the sea which is then forced to rise over mountainous areas.

Relief rainfall

- Prevailing winds bring warm, moist air to the western British Isles.
- Air is forced to rise over high areas.
- Air cools and condenses.
- Clouds form and it rains.
- Air descends on the other side of the mountains.
- It warms up and therefore becomes drier.

Warm, moist air is forced to rise over high areas

Air cools and condenses, forming clouds

Rain shadow

Sea

It rains

Air descends, warms and becomes drier
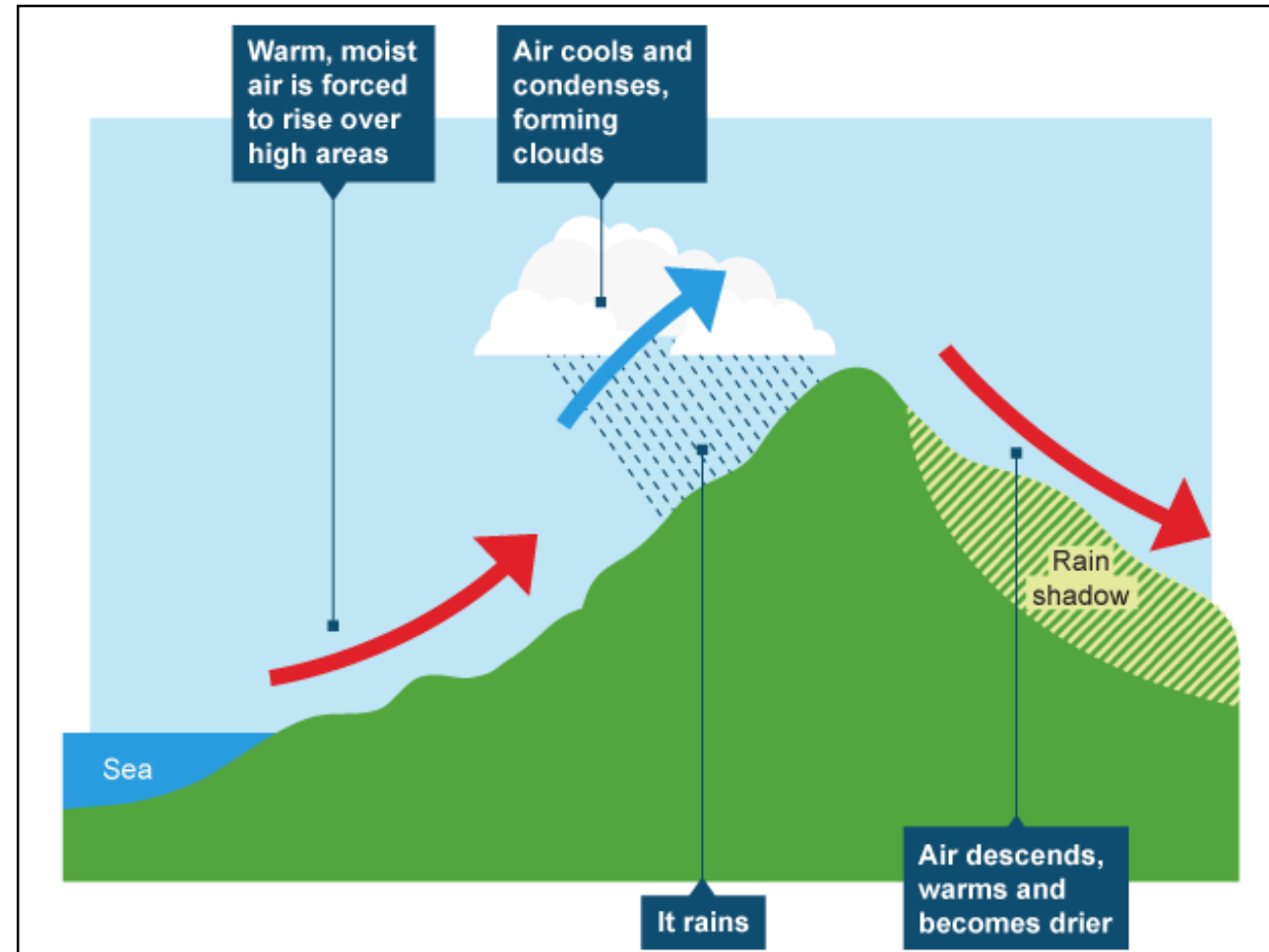
Climate Graphs

Climate graphs show the **typical monthly rainfall and temperatures** for a location. You need to make sure that you read the rainfall and the temperature off the correct axis. Here is an example of a climate graph of **Manilla in the Phillippines**. This country has a **tropical climate**.

Temperature is shown as a line graph (red).

peak rainfall

Rainfall is shown as a bar graph (blue).

rainfall axis

Temperature axis

months of the year

Average Rainfall (mm)

Average Temperature (°C)

450
400
350
300
250
200
150
100
50
00

30
29
28
27
26
25
24
23
22
21
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J F M A M J J A S O N D

Manila
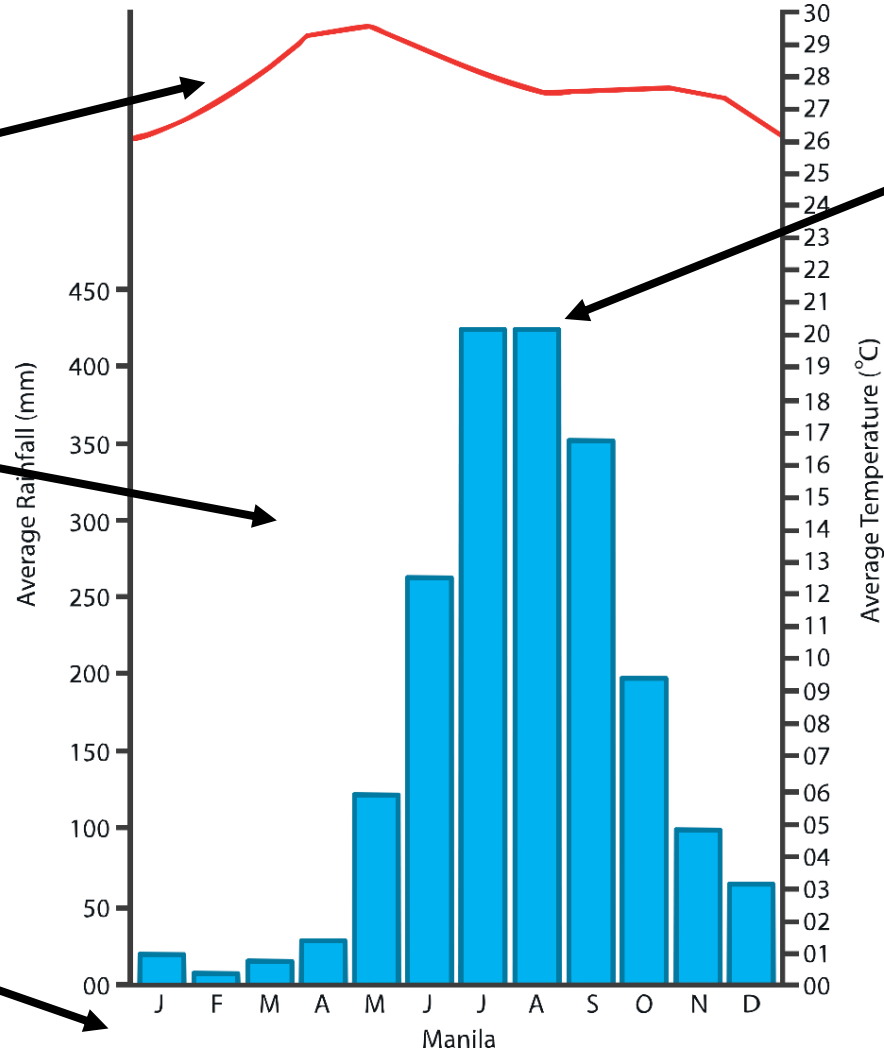
Abrasion

This is the process by which the bed and banks are worn down by the river's load.

The river throws these particles against the bed/banks.

Hydraulic Action

This process involves the force of water against the bed and banks.

Solution

This is the **chemical action** of river water.

The acids in the water slowly **dissolve** the bed/ banks.

Attrition

Material (**the load**) carried by the river bump into each other and so are **smoothed and broken down** into smaller particles.

Rivers and Coasts

Processes of River Erosion

What landforms occur in the upper course of the river? (2)

Key Ideas

- **Erosion** is the main process operating in the upper course of a river.
- The direction of erosion is **vertical**.
- There are **four** main types of erosion – hydraulic action, attrition, abrasion and corrosion.
- Valleys are **v-shaped** with **interlocking spurs.**
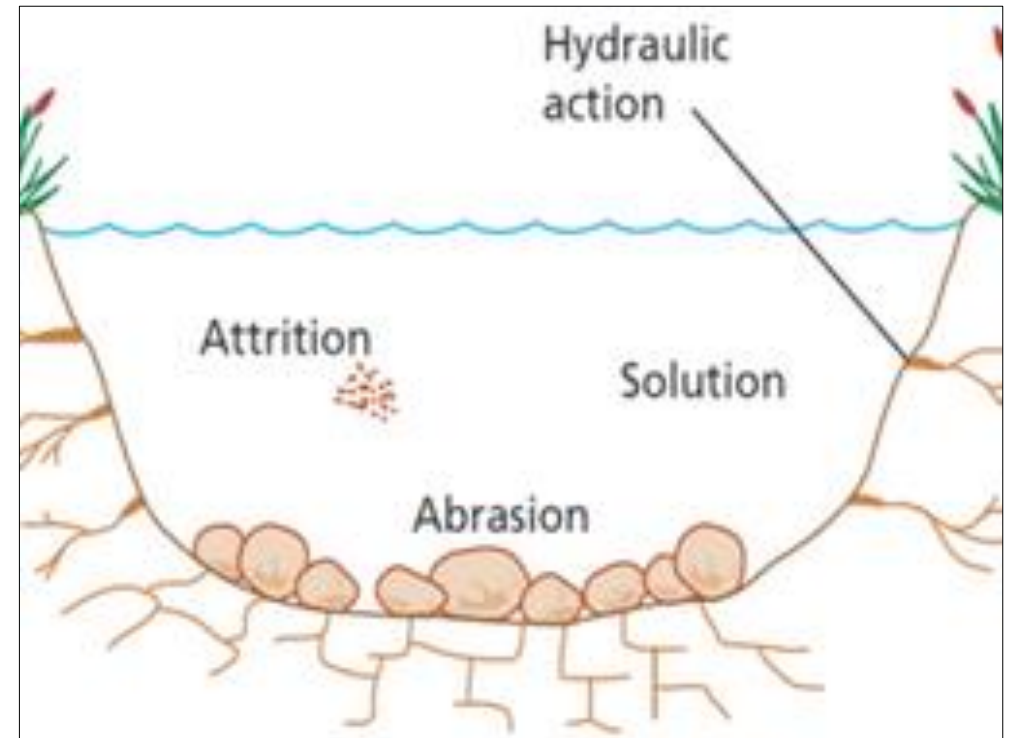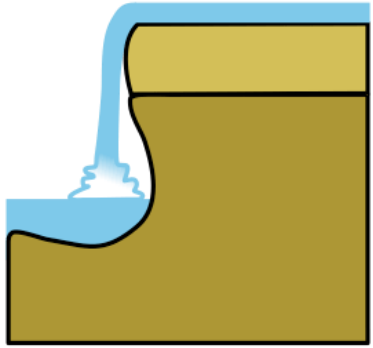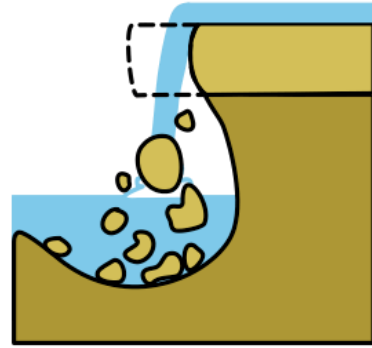- **Waterfalls** are formed where a river meets a band of less resistant rock. **Plunge pools** and **gorges** are features associated with the formation of waterfalls.
- **Rapids** are smaller scale features formed where finer bands of varying resistance of rock are found.
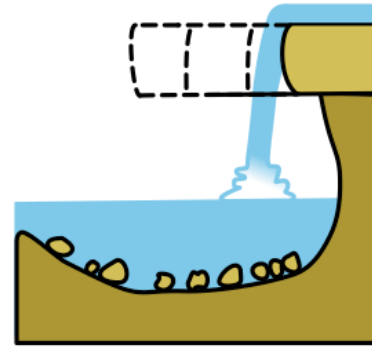
1. Waterfalls typically form in the upper stages of a river. They occur where a band of hard rock overlies a softer rock. Falling water and rock particles erode the soft rock below the waterfall, creating a plunge pool.
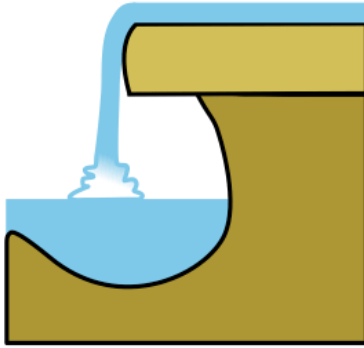
2. The soft rock is undercut by erosional processes such as hydraulic action and abrasion creating a plunge pool where water and debris swirl around eroding the rock through corraision further deepening it and creating an overhang.

3. Hard rock overhang above the plunge pool collapses as its weight is no longer supported.

4. Erosion continues and the waterfall retreats upstream leaving behind a gorge.

Waterfall retreats

Hard rock

Overhang

Ridges of hard rock create an uneven slope. This creates **rapids**.

Plunge pool

Steep-sided **gorge** develops as waterfall retreats

Fallen rocks

Soft rock

Hard rock

Coastal Deposition Processes

- Waves approach a beach at an angle of 45 (**swash**)

- This is due to the prevailing **wind** direction

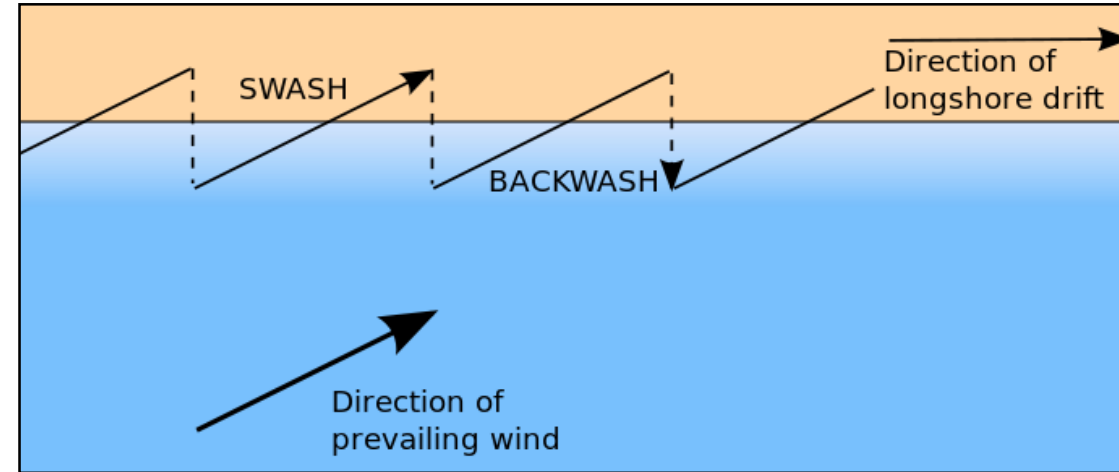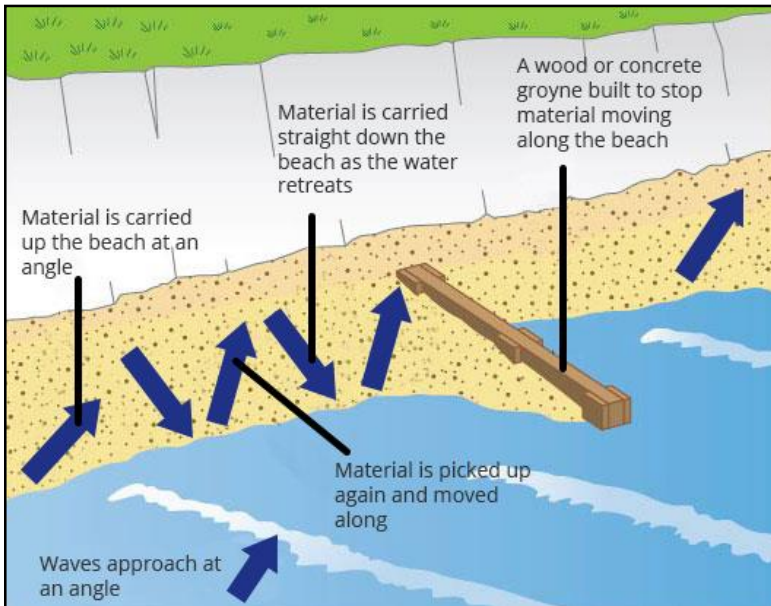- Waves return at right angles (**backwash**)

- This process moves sediment along a beach until there is a barrier or a break in the coastline.

- The process is called **Longshore Drift**.

SWASH

BACKWASH

Direction of longshore drift

Direction of prevailing wind

How can the coast be protected from Longshore Drift?

A wood or concrete groyne built to stop material moving along the beach

Material is carried straight down the beach as the water retreats

Material is carried up the beach at an angle

Material is picked up again and moved along

Waves approach at an angle

- Building wooden barriers called **groynes** helps to trap sand.
- The means the sand stays on the beach and isn't washed down the coast.
- The best way to protect a coastline is a wide sandy beach.
- Further down the coast, erosion can be worse where there are no groynes (see picture to left)

Erosion of a Headland

Original shape of headland

Headland

4. Stack

3. Arch

5. Stump

1. Crack

2. Cave

Wave-cut platform exposed at low tide
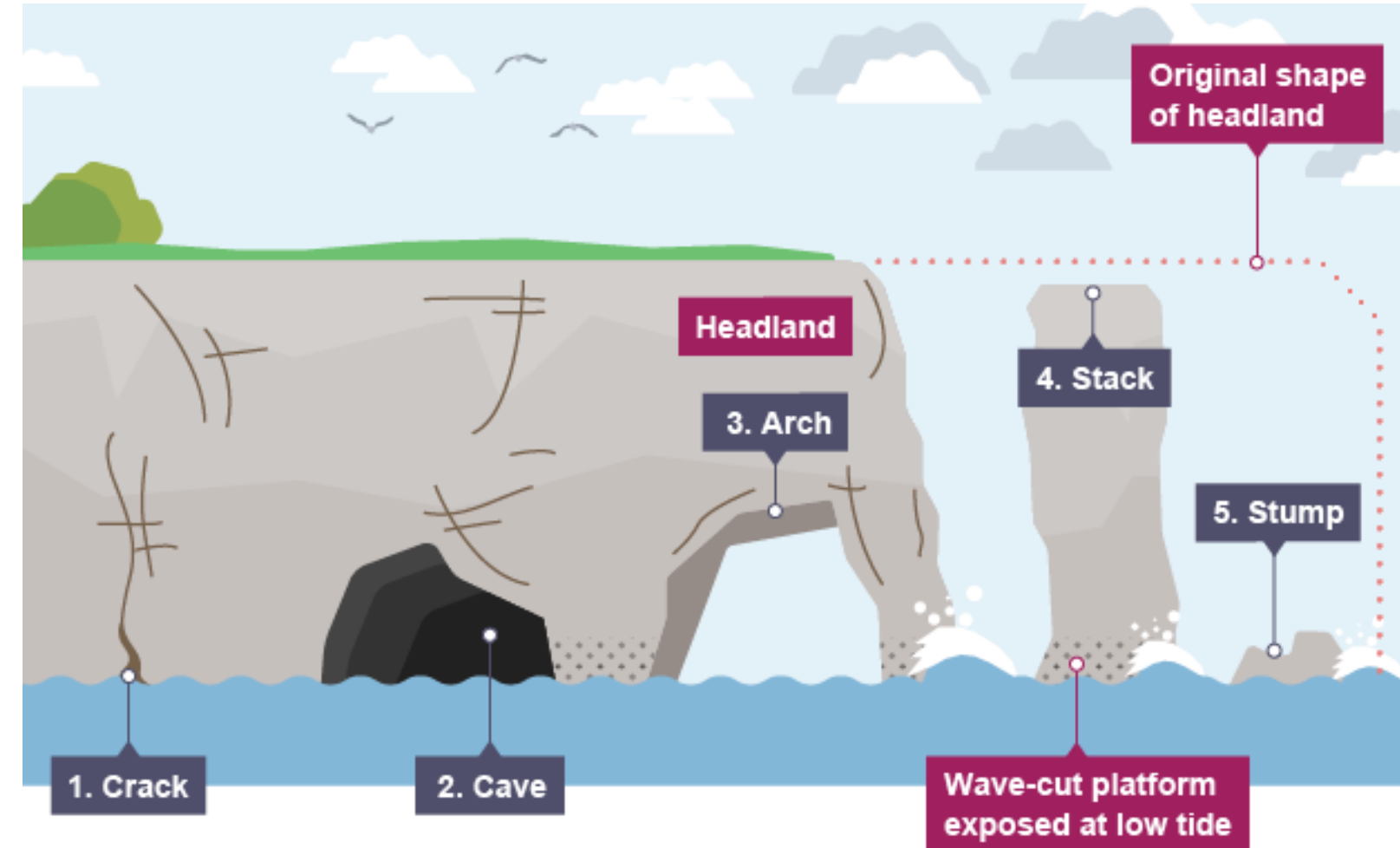
1. **Cracks** are widened in the headland through the erosional processes of **hydraulic action** and **abrasion**.

2. As the waves continue to grind away at the crack, it begins to open up to form a **cave**.

3. The cave becomes larger and eventually breaks through the headland to form an **arch**.

4. The base of the arch continually becomes wider through further erosion, until its roof becomes too heavy and collapses into the sea. This leaves a **stack** (an isolated column of rock).

5 The stack is undercut at the base until it collapses to form a **stump**.

Population and Settlement

Sparsely populated · Moderately populated · Densely populated
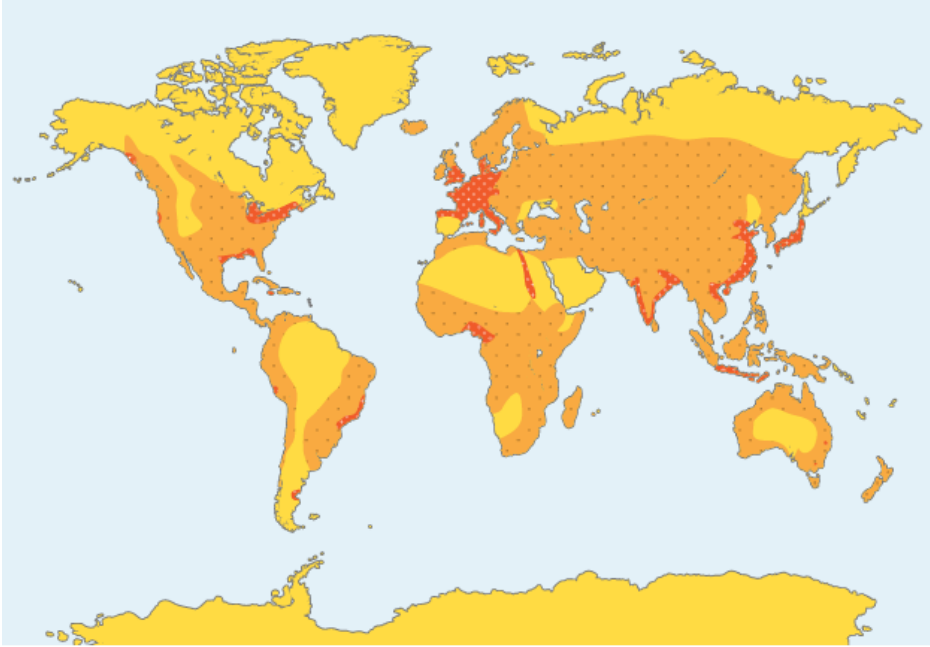
- **Population distribution** is the spread of people across the world, i.e. where people live.

- **Population density** is the number of people living in a particular area – usually 1 square kilometre – and can be written as total population/land area.

The **population** of the world is now **7.8 billion people**, the vast majority of whom live in the developing world. The world's population is spread unevenly across the globe with concentrations of large numbers of people living in the same area.

Until the time of Napoleon, there were less than 1 billion people on Earth at any one time. Since the Second World War, we have been adding a billion people to the global population every 12-15 years. Our population is more than double today what it was in 1970.
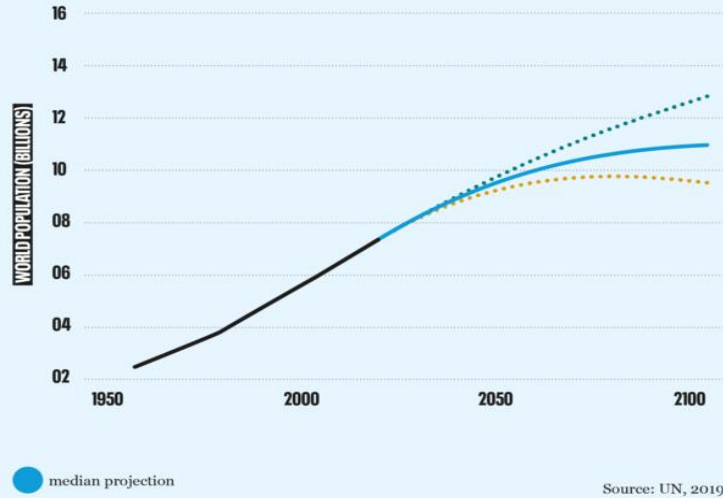

HUMAN POPULATION GROWTH

WORLD POPULATION (BILLIONS)

YEAR: 1050 1150 1250 1350 1450 1550 1650 1750 1850 1950 2017
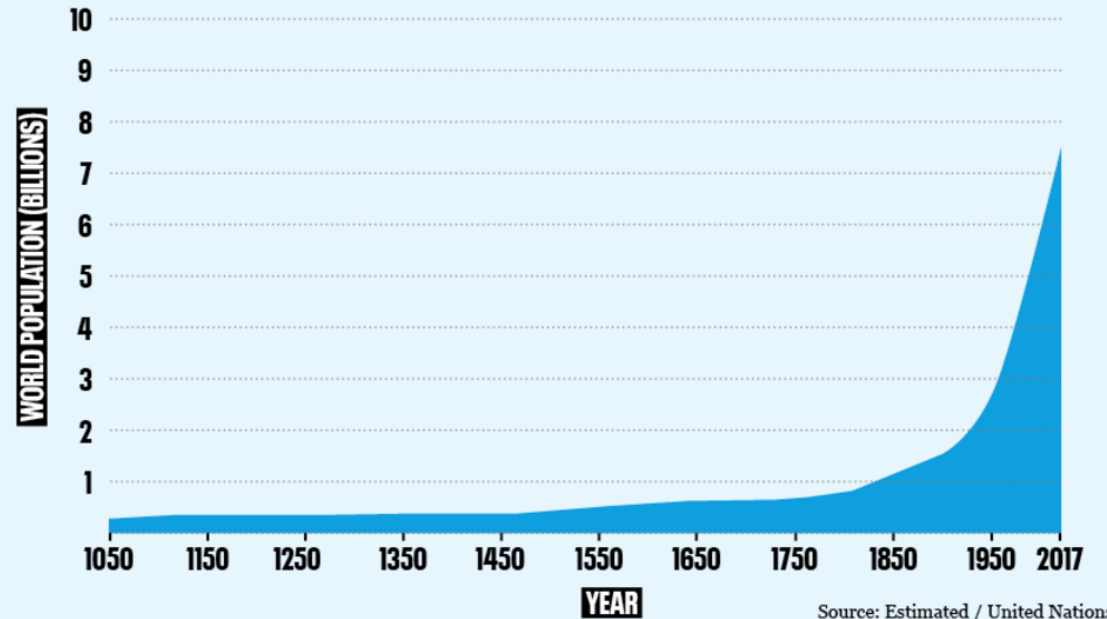
Source: Estimated / United Nations

World Population Growth

UNITED NATIONS POPULATION PROJECTIONS TO 2100: 95% CERTAINTY RANGE

median projection

Source: UN, 2019

Every two years, the United Nations makes **projections** for future population growth. Its latest median projection is a population of **9.7bn in 2050** and **10.9bn in 2100**. Because many factors affect population growth, it makes a range of projections depending on different assumptions.