



**GCSE**

C112U20-1A



**TUESDAY, 17 NOVEMBER 2020 – MORNING**

**GEOGRAPHY B – Component 2**

**RESOURCE FOLDER**

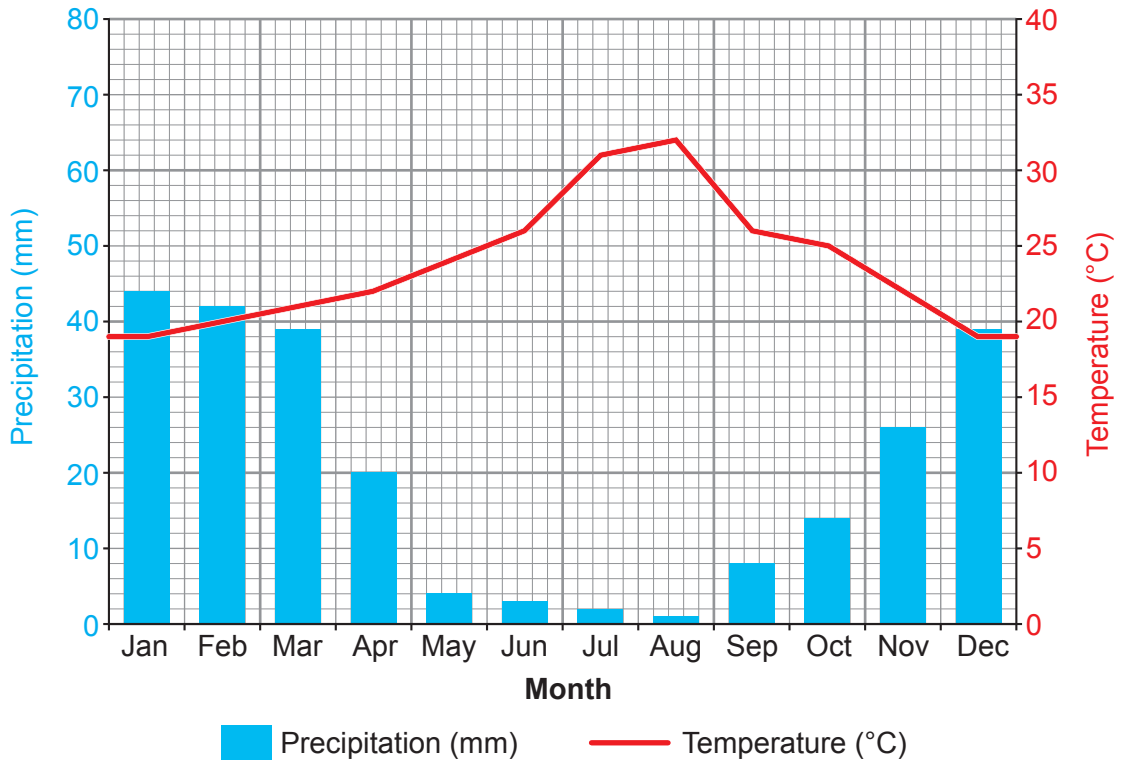
This folder is for use with questions in Component 2.  
This folder need not be handed in with your answer booklet.

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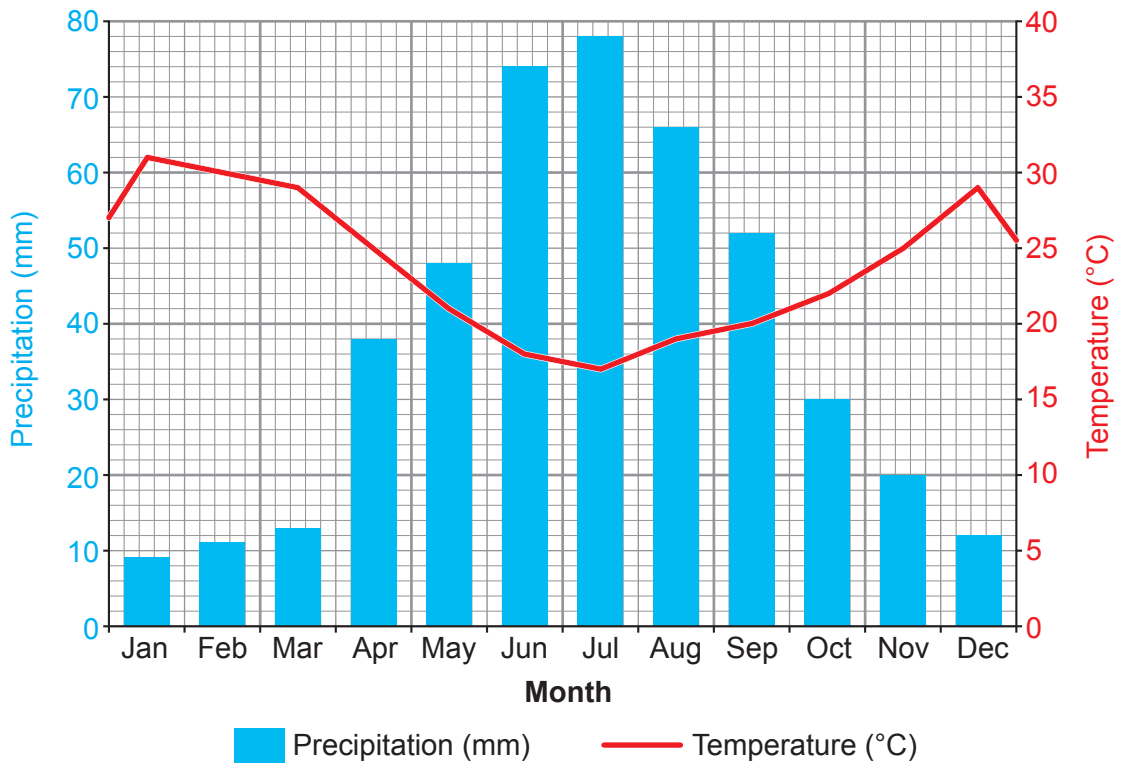
**Figure 1**  
The location of 4 cities with a Mediterranean climate.



**Figure 2**  
The Climate of San Diego, USA



**Figure 3**  
The Climate of Perth, Australia



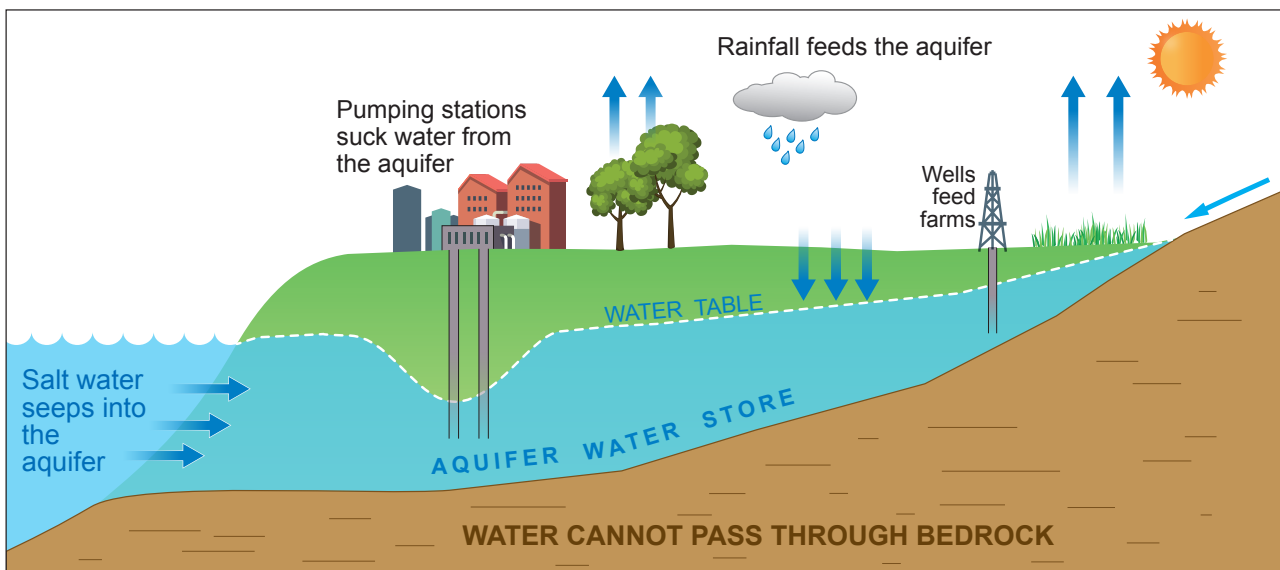
## Strategy 1: Using underground water stores (aquifers)

### Fact Box

- San Diego and Perth use underground water stores (aquifers) to supply fresh water.
- Large pumping stations send water to farms, industries and to households.



A pumping station near Perth abstracting water from underground stores



There are positive and negative effects of taking water from underground stores

#### Positive

- ✓ The water quality is very high.
- ✓ The temperature of the water is cold, which is ideal for farms and industry.
- ✓ The aquifer store can supply huge quantities if rainfall throughout the year is sufficient to top it up.

#### Negatives

- ▶ Over abstraction can cause the aquifer store to be contaminated by salt water seeping into it.
- ▶ Large-scale abstraction causes wells on surrounding farms to dry up and damages ecosystems.
- ▶ Aquifer stores take many decades to recover if they are over-exploited.

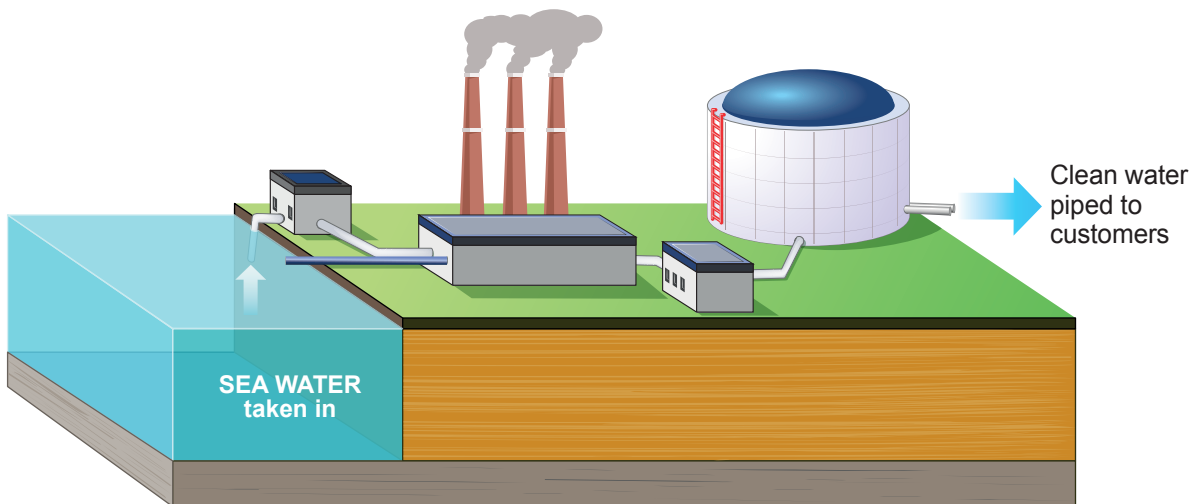
## Strategy 2: Build Desalination Plants (Factories that remove salt from sea water)

### Fact Box

- San Diego and Perth have spent large amounts of money building desalination plants.
- Many High Income Countries (HICS) use this method if water shortages are severe.
- A coastal location is essential.



A desalination plant on the coast.



### There are positive and negative effects of using desalination plants

#### Positive

- ✓ Large quantities of high quality water can be produced quickly.
- ✓ They reduce the need to use groundwater supplies and surface reservoirs.
- ✓ The ocean provides an endless supply of water.

#### Negatives

- ▶ The cost of building **and** running desalination plants is very high.
- ▶ At the seawater intake, large numbers of fish and fish eggs are killed.
- ▶ A huge amount of energy is required to produce fresh water. Burning fossil fuels such as coal, oil and gas generate the energy needed.

### Strategy 3: Persuade people to use less water

#### Fact Box

- Local authorities in both Perth and San Diego try to persuade people to use less water.
- Local authorities can encourage households to use less water.
- Local authorities can force people to use less water.

Authorities can ban the use of hose pipes (for gardens and washing cars) when demand exceeds supply in the dry season.



Households are encouraged to collect grey water (used water) to water gardens.

Those caught breaking the rules face heavy fines. Social media is used to name and shame the culprits.

Households are encouraged to buy new water saving washing machines and dishwashers. They cost more than standard machines.

### There are positive and negative effects about persuading people to use less water

#### Positive

- ✓ Water use does go down.
- ✓ It is cheap and has wider environmental advantages as people are more aware of sustainable living.
- ✓ Households can save money.

#### Negatives

- ▶ To catch people using water when bans are in place requires policing.
- ▶ Heavy fines and 'name and shaming' leads to tension amongst neighbours.
- ▶ Using grey water (used water) requires expensive plumbing and storage to be installed.

## Strategy 4: Stop the future growth of 'thirsty' Industries

### Fact Box

- Some industries use huge amounts of water – they have a high 'water footprint' and are 'thirsty' industries.
- For this reason, the authorities in Perth and San Diego have restricted their growth by refusing future planning applications.



Farms growing almond and avocado crops use huge amounts of water in the area surrounding San Diego.



Multinational companies (MNCs) mine a rock called bauxite that they use to make a metal called aluminium. Both activities use huge amounts of water.

### There are positive and negative effects of stopping the future growth of 'thirsty' industries

#### Positive

- ✓ There will be more water supplies for homes, farming and other 'non-thirsty' industries.
- ✓ Lowering the demand for groundwater (to supply almond and avocado farms) will protect the aquifer and slow down salt water contamination.
- ✓ The demand for new desalination plants will be reduced.

#### Negatives

- ▶ Refusing to grant future planning permission for these thirsty activities will mean that the companies decide to move to other locations, perhaps in different countries.
- ▶ If MNCs leave there will be more unemployment in the area.
- ▶ Local authorities will also lose tax revenues, so they have less to spend on education, health and transport.