



SPRINGFIELD SECONDARY SCHOOL

End of Year Examination 2022

GEOGRAPHY
SECONDARY 1 EXPRESS

4 October 2022

1 hour 10 minutes

ANSWER SCHEME

Section A: Fieldwork (5m)

- 1 Study Fig. 1, which shows the average daily water consumption per person per day in Singapore.

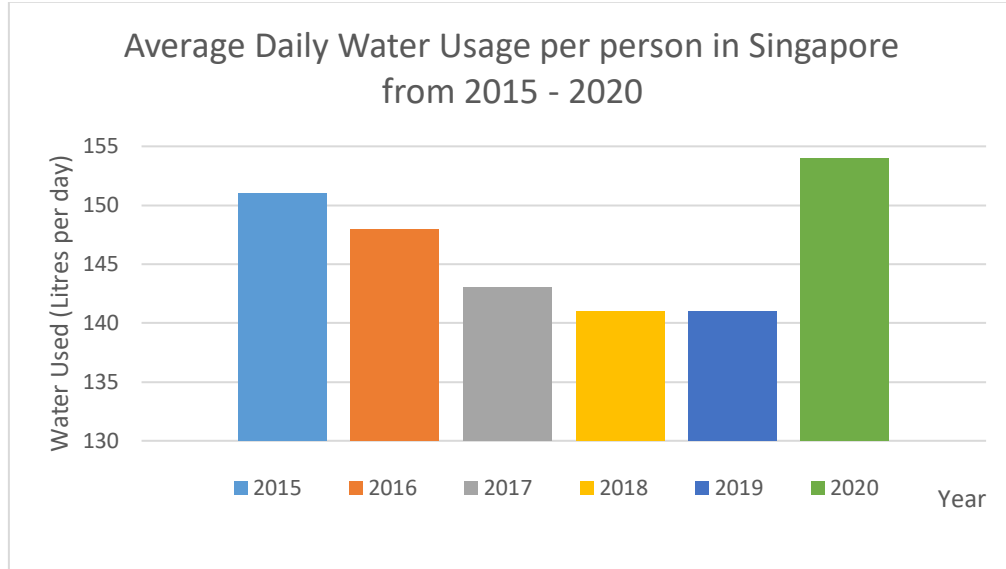


Fig. 1

- a) With reference to Fig. 1, identify the years that had the largest change in the amount of water used per person per day. [1]

2019 - 2020

Award 1m for identifying correct set of years.

- b) With reference to Fig. 1, calculate the mean daily water usage from 2015 to 2020. [1]

146 (148.333) litres/person/day (1)

(Working: $(151 + 148 + 143 + 141 + 141 + 154) / 6 = 146.333$)

Award 1m for accurate calculation with units.

c) Study Fig. 2, which shows a picture of MacRitchie Reservoir in Singapore.

[3]



Fig. 2

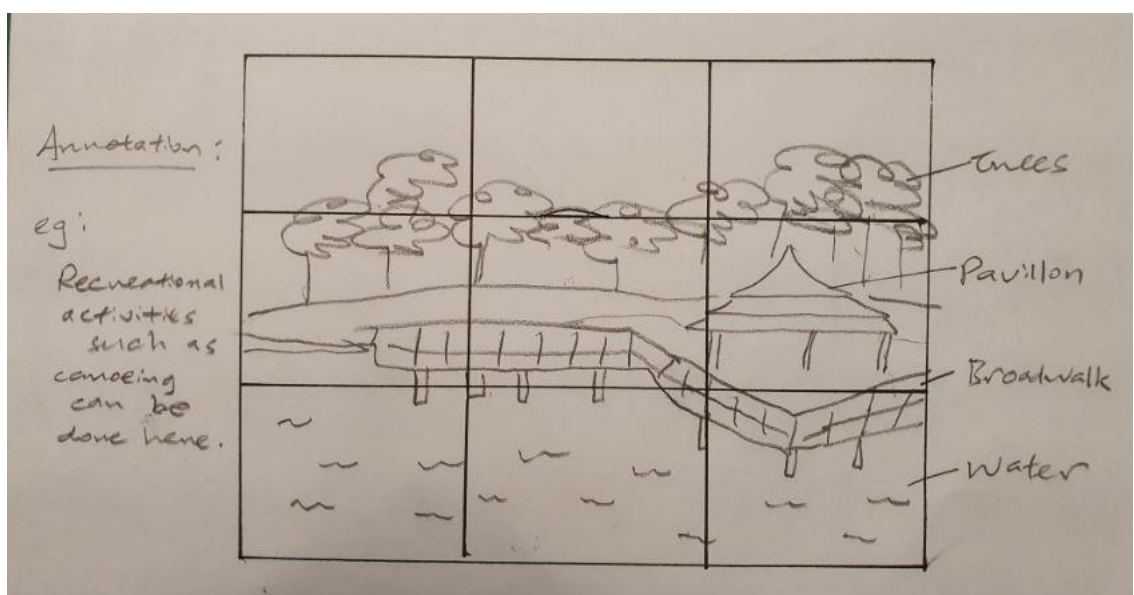
Draw a field-sketch of Fig. 2 with **two** labels and annotations about the usefulness of the reservoir

Award marks for the following points:

- accurate sketch according to figure (1)
- for labels (1)
- annotations of reservoir functions (e.g water storage, recreational activities) (1)

Award 1m for each point, up to 3m

Sample of sketch:



Section B: Data Response / Map Work (10m)

- 2 Study Fig. 3, which shows a topographical map of Mount Erin Area.

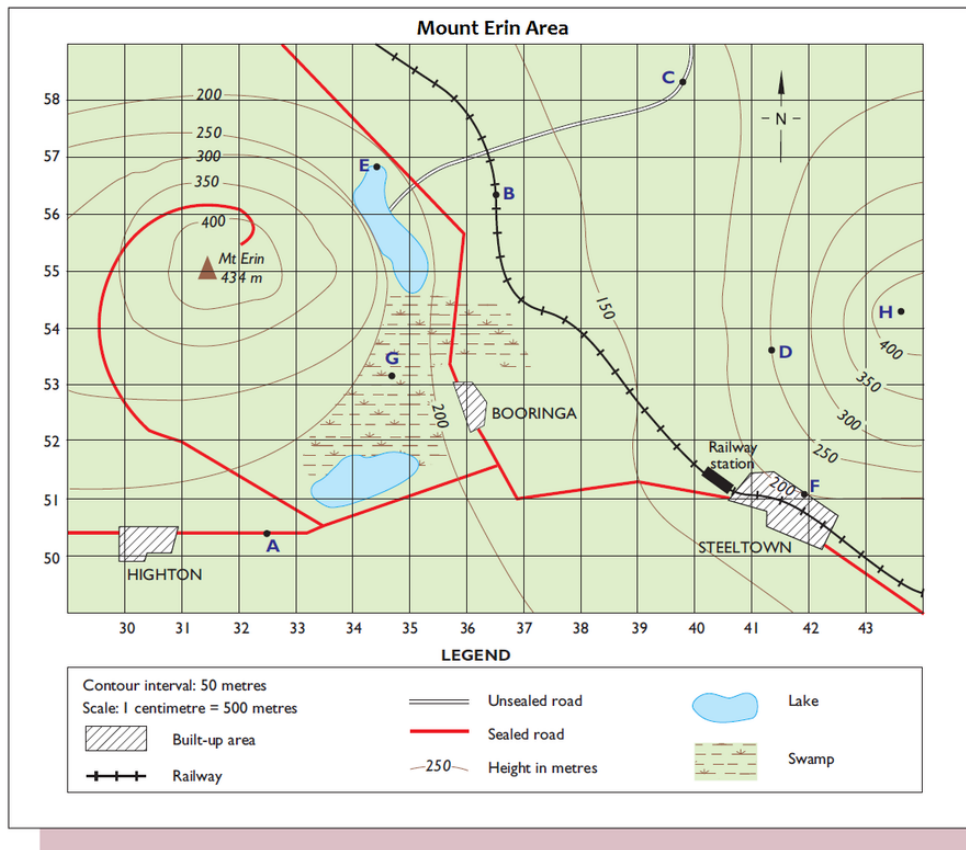


Fig. 3

- a) State the general direction of Highton from Steeltown. [1]

West (1)

- b) What is the 4-Figure Grid Reference of point 'E'? [1]

3456 (1)

- c) State the infrastructure found in grid square 4051. [1]

Railway Station (1)

- d) State if the natural resource found in grid square 3451 is renewable or non-renewable. Explain why. [2]

Possible answers:

- **It is renewable. (1)**
- **This is because the water in the lake will be continually replenished via the water cycle / when it rains. (1)**

Award 1m each, up to 2m

- 3 Study Fig. 4, which shows the global distribution of mangroves.



Fig. 4

- a) Based on Fig. 4, describe where mangrove forests are located. [2]

Possible answers:

- They are located along coastal areas (1)
- in the equatorial region (1)

- b) List **two** characteristics of the climate where mangrove forests are located. [2]

Possible answers:

- The climate has high temperature more than 27°C (1)
- And high annual rainfall more than 1500mm (1)

Answers must include data.

- c) Give **one** reason mangroves require calm water conditions. [1]

Possible answers:

- So that their seedlings are able to take root without being washed away (1) OR
- So that sediments can accumulate which provide nutrients for the plant (1).

Award up to 1m

Section C: Structured Questions (20m)

- 4 a) Fig. 5 shows a diagram of the water cycle.

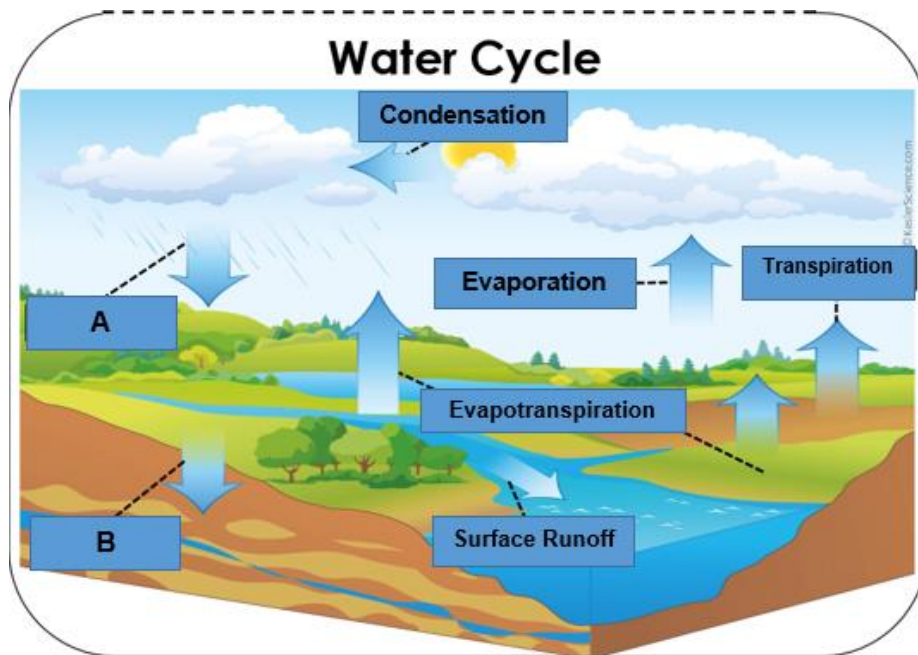


Fig. 5

Based on Fig. 5, give the definition of the process that is occurring at 'A' and 'B'. [2]

A: Water falls as rain or snow if it is cold enough. (1)

B: Water that seeps into the ground may be absorbed by plants or stored as groundwater. (1)

- b) Explain the difference between a flash flood and a river flood. [4]

Possible answers:

- Flash floods are caused by exceptionally heavy rainfall over a short period of time (1).
- The water is not able to infiltrate into the ground, hence it becomes surface runoff which quickly floods low lying areas (1).
- On the other hand, river floods are caused by sustained heavy rainfall (1).
- The water flows into rivers, increasing its height until it overflows the banks, flooding the surrounding area. (1)

c) Identify one domestic and recreational use of water. [2]

- **Domestic: Bathing, cooking, flushing the toilet (1).**
- **Recreational: Fishing, sailing, canoeing (1).**

Award 1m for each point, up to 2 marks.

Accept plausible answers.

d) Explain how desalination helps Singapore to manage its water resources. [2]

Possible answers:

- **Desalination removes the salt content from seawater through advanced membrane technology (1).**
- **This helps Singapore manage our water resources because it increases the amount of usable water sources available (1).**

5 Study Fig. 6, which is a sketch of an adaptation of some plants in a tropical rainforest.



Fig. 6

a) Based on Fig. 6, identify the adaptation shown and explain why trees in the tropical rainforest have this adaptation. [2]

Possible answers:

- **Drip tips (1). So that rainwater can flow off the leaf easily,**
- **preventing growth of fungi and bacteria (1).**

Award 1m for each point, up to 2m

- b) Describe **two** characteristics of the undergrowth layer of a tropical rainforest. [4]
Provide reasons for your observations.

Possible answers:

- ai) It is very dark (1)
- aii) because sunlight is blocked by the thick canopy layer (1).
- bi) The leaves are large (1),
- bii) so as to absorb the maximum amount of sunlight available (1)

Award 1m for each pair of answer, up to 4 marks

- c) Describe and explain **two** possible measures to manage forests sustainably. [4]

Possible answers:

Establishing Protected Areas (1). Enact laws to ensure that people do not damage the forests within these protected areas. (1) Or

Regulate forestry activities (1). Controlled logging is a way to carefully balance between obtaining economic benefit from forests and conserving them. Or

Rehabilitating disturbed areas (1). Reforestation is the planting of new trees to re-introduce at least some of the plant and animal species that were originally in the area. (1) Or

Public Education (1). When people learn more about the importance of forests, they are more likely to take step to conserve and protect them (1).

Award 1m for every measure identified, up to 2 points and 1m more for corresponding description for each point.

Acknowledgements

- Fig. 1 <https://www.bestinsingapore.co/water-consumption-statistics-singapore/>
 Fig. 2 <https://www.archigardener.com/2020/02/marina-barrage.html>
 Fig. 3 <https://fastvoicemedia.de/image-collection/what-is-a-grid-reference.aspx>
 Fig. 4 <http://www.friendsofmangrove.org.my/index.cfm?&menuid=10>
 Fig. 5 <https://www.pinterest.com/pin/545709679846203192/>
 Fig. 6 <https://garden.org/courseweb/course1/week4/page5a.htm>