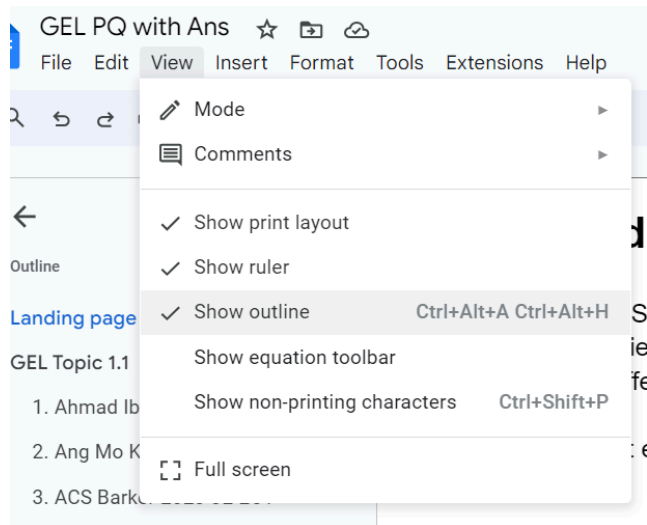


Landing page

View > Show Outline to navigate



Schools used:

1. Admiralty Sec
2. Ahmad Ibrahim Sec
3. Ang Mo Kio Sec
4. Anglican High school
5. ACS Barker
6. Assumption English school
7. Bartley Sec
8. Beatty Sec
9. Bedok Green
10. Bedok South
11. Bedok View
12. Bendeemer Sec
13. Boon Lay Sec (Locked)
14. Bowen Sec
15. Broadrick Sec
16. Bukit Batok Sec
17. Bukit Panjang Govt High
18. Canberra Sec

Bowen Sec 3E Elective has LDQ on GEL (9m)

“To achieve environmental sustainability, designing energy-efficient buildings and landscapes is more effective than having facilities that support recycling.”

To what extent do you agree with this statement? Explain your answer.

GEL Topic 1.1

Topic 1.1 What is the relationship between people and nature in their neighbourhoods?

1. Ahmad Ibrahim Sec Sch 2023 EOY

Study Fig. 1.2, which shows elephants crossing a railway in a forested area.



Fig. 1.2

With reference to Fig. 1.2, describe how local communities and nearby nature areas can negatively affect each other. [3]

①
local comm
↓
nature
↓
Nature
↓
comm.

Award 1 mark for each description of negative affect, to a max of 3 marks.

Award injury or deaths from elephant-train collision once only

Award 1 additional mark for further development of each description, where applicable.

Possible responses:

The local community affecting nature areas negatively

- Passing trains may not stop in time and **kill or injure** the elephants. [1 mark]
- Building a railway track across the forested area **fragments/ shrinks/ destroys their habitat**, forcing elephants to **venture out** for food or shelter [1 additional mark]
- **Locals may feed the wildlife** that ventured into their communities. Such irresponsible actions **negatively change wildlife feeding habits**, may upset their natural diet or cause them to associate humans with food. [1 additional mark]
- As elephants venture into unfamiliar human territory, they **may attack people** when they feel **threatened or provoked**, **injuring locals**. [1 additional mark]
- The weight of the passing train may worsen **soil compaction**, which prevent rainwater from infiltrating the surface. **higher surface runoff** can result in **more soil erosion**, this will stunt and **damage vegetation** which depend on soil for nutrients. [1 additional mark]
- The passing rail can result in **noise pollution**, which **stresses** wildlife and may **disrupt their communication** and reduce breeding during mating season. [1 additional mark]

Nature areas affecting the local community negatively

- Elephant-train collision could cause trains to derail, **disrupt train schedule**, cause delay in transportation of people and good, and incur economic losses. [1 mark]
- The elephants might attack people in self-defence when they are provoked or threatened [1 additional mark]

→ May limit development

2. Ang Mo Kio 2023 3E EOY

Figure 1 (Insert) shows endangered hawksbill turtle hatchlings emerge from monitored nest at East Coast beach.

Critically endangered hawksbill turtle hatchlings emerge from monitored nest at East Coast beach





A hawkbill turtle hatchling being checked by a conservation team member from the National Parks Board near the hatching.

With reference to Figure 1, explain ^{process} how people can bring benefit to nature. [4]

- ① People may contribute to activities that protect, conserve and restore natural habitats and species. [1m]

elaborate. { The turtle hatchlings' nest is closely monitored by NParks and the turtle hatchlings are being checked and monitored after birth, leading to greater protection and survival of the species. Improvement of endangered status, encouraging the restoration of biodiversity. } [1m]

- Such conservation projects can also help to raise awareness on the intrinsic value of nature and help encourage the protection and preservation of the habitat in order to protect the health of animals such as the hawkbill turtle. ②

Award 1 mark for each explanation of, to a maximum of 2 marks.

Award 1 additional mark for further development of the explanation, where applicable.

3. ACS Barker 2023 3E EOY

Study Fig. 3 (Insert), which shows wild boars in an urban area.



With reference to Fig. 3, explain how local communities and the wildlife can negatively affect each other. [2]

- Wild boars may attack humans causing physical harm
- Wildlife may encroach into human homes, causing damage to properties
- Human development may encroach / destroy their natural habitat resulting in wildlife invading local communities

Accept other plausible answers.

4. Assumption English School 2023 3P EOY

Study Fig. 2.1, which shows a news article on Dover Forest in Singapore

The Housing Development Board (HDB) announced revised plans for the 33ha Dover Forest: Keeping half of Dover Forest as nature park a win for all



SINGAPORE - The Housing Board's decision to safeguard part of Dover Forest as a nature park is a win for nature groups, nature, and Singaporeans alike, said conservation experts and Dover residents.

Nature Society (Singapore) president Shawn Lum said, "Dover Forest is for everyone - residents of the new HDB estate (to be launched in 2022), residents who live in the vicinity of Dover Forest, and people all over Singapore who will be able to discover a beautiful, life-giving, restorative, and accessible nature space."

Describe the possible benefits of nature that can be enjoyed by people. [4]

- Nature areas ***such as Dover Forest*** will be able to provide a space for recreation for ***nearby residents***.
 - As a designated ***nature park***, there will likely be community activities to promote the importance of environmental protection.
 - Walking paths and/or trails will also likely be present for the NParks to manage human traffic within the park/ mitigate deterioration to the natural environment.
- The ***lush greenery*** will be able to help regulate surrounding air.
 - The trees will be able to replenish oxygen levels/ provide fresh air through photosynthesis.
 - The extensive canopy can also provide shade and cooling air (reducing the effect of urban heat island).

Any 4 @ 1 mark each

Accept the use of example(s) to elaborate point

5. Assumption English School 2023 3E EOY

With the use of example(s), explain how people bring benefits to nature. [4]

- Local communities can collectively raise awareness about the value of nature areas through encouraging positive behaviour that does not damage nature.
- Local communities can also organise or participate in conservation efforts. :
 - ***E.g., The NParks Citizen Science initiative, Dragonfly Watch, trains participants to identify different dragonfly species at their assigned sites. This results in greater protection of the species by raising awareness of their importance in the environment.***
- Clean-up programmes to remove pollutants from the environment help restore natural habitats and provide a healthy environment for species to survive.
 - ***E.g., The waterways clean-up programme organised by the Waterways Watch Society creates opportunities for schools to pick up trash from the Marina Reservoir.***

Any 4 @ 1 mark each

Accept other plausible answers

Reserve 1 mark for use of example(s) (*in bold italics*)

6. Bartley Sec 2023 3E EOY

Study Fig. 1, which shows a news extract on the increase in otter population in Singapore.

Slippery, hungry, sometimes angry: Singapore struggles with ‘unparalleled’ otter boom

The otter population has been rebounding since the 1980s when Singapore started cleaning up its waterways. Their numbers are rising partially because otters face no significant danger from other predators.

Fish populations have also increased as waterways have become less polluted and provided plentiful food. Now, otters are an increasingly common presence on urban streets as they claim more territory for themselves.

“They’re not afraid, and the bolder otter families just walk right past us,” said N Sivasothi, a senior lecturer in biological sciences at the National University of Singapore. “There isn’t a place in Singapore where you’d be completely isolated from otters. Living in our city in nature means we coexist with wildlife like otters and get to observe them in our midst.”

Singapore’s smooth-coated otter population has more than doubled since 2019, with roughly 17 families fishing for tilapia in waterways, sleeping under bridges and

ravaging private fish ponds – and on rare occasions, attacking people in public parks.
--

With reference to Fig. 1 and your own knowledge, explain the increase in human-otter encounters in Singapore and describe how it could affect people. [4]

Award 1 mark for each explanation what had led to an increase in human-otter encounters up to maximum of 2 marks.

Award a maximum of 1 additional mark for further development of each explanation, where applicable.

Award 1 mark for each description on how increase human-otter encounter could affect people up to a maximum of 3 marks.

Reason for increase human-otter encounter:

- Lack of predators and plentiful food due to cleaner waterways had led to an increase in population of otters in Singapore (thus increase possibility of human-otter encounter) [1m]
- Urban expansion had resulted in shrinking of natural habitats thus otters venture out of nature areas in search of food/ there isn't a place that is totally without otters [1m] had also resulted in otters becoming not 'afraid' as they have adapted to living near humans [additional mark]

How people could be affected

- Opportunities to observe otters can enhance mental health for local communities.
- Otters may attack people when they feel threatened.
- Otters may venture into homes of residents, eating the fishes that are reared

7. Beatty Sec 2023 3E EOY

Fig 1.1 (Insert) shows Bishan-Ang Mo Kio Park before and after the revamp under Public Utilities Board's (PUB) Active Beautiful and Clean (ABC) Waters Programme. [5]



With reference to Fig 1.1, explain how the changes made to the park's river would benefit the community and the environment.

- The removal of the concrete riverbanks makes it easier and more convenient for residents/ park goers to interact with the nature. Eg: going down to the river to observe the wildlife in the rivers.
- .../ This will allow opportunities for the residents to bond with their family and friends.
- The beautification of the parks entices and encourages more residents to exercise, spend time relaxing, taking walks in the parks.
- .../ maintaining physical and mental well-being.
- The increase in plants/ vegetation helps to increase the amount of CO₂ that can be absorbed by the trees and contribute to efforts to fight climate change.
- .../ with more trees and vegetation, the air may be cleaner as plants have the ability to absorb pollutants in the air.
- The increase in the vegetation encourages more biodiversity to thrive in the area. Eg: butterflies, birds.

(4@1m each. Award 1m for each explanation. Award a max of 1 additional mark for further development of explanation.)

8. Bedok Green Sec 2023 3P EOY

Study Fig.1 which shows a poster from NParks Biodiversity Watch.

Garden Bird Watch

8 – 16 April 2023

Do you love birdwatching, or have you always wanted to get involved in citizen science? Join us for the NParks Garden Bird Watch organised as part of the Community in Nature (CIN) Biodiversity Watch series and help us learn more about our birds!



For one morning between 8 to 16 April 2023, volunteers will carry out a bird survey at a designated site within our parks. The data collected will give us a better understanding of the distribution of birds in Singapore and contribute towards better park management and conservation measures.



Anyone aged 12 and above is welcome, regardless of level of experience! New volunteers are required to watch an online theory training video **AND** a 1-hour practical session.

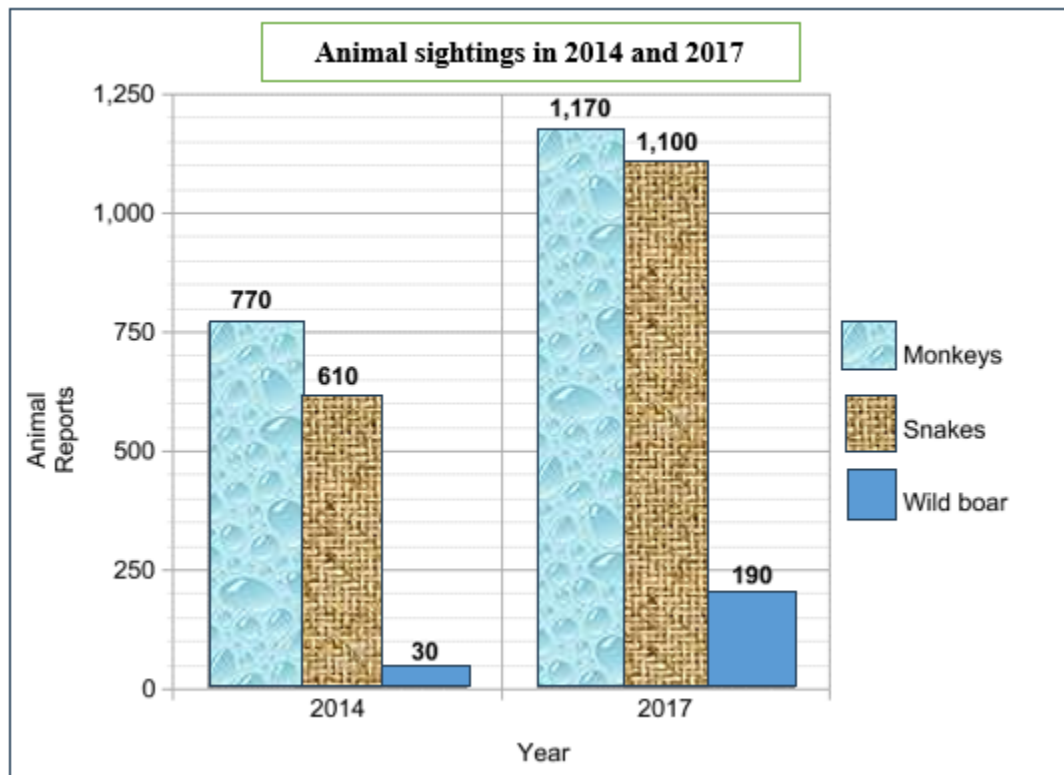
Visit us at
www.nparks.gov.sg/birdwatch
for more
information!



(a) Using information from Fig. 1 and studies you have made, explain how community activities can bring benefits to nature. [3]

- Community activities can help to promote the importance of environmental protection by raising awareness and encouraging positive behaviour that does not damage nature.
- An example is the Garden Bird Watch organised by NParks where volunteers will have a chance to learn more about birds in nature through an online theory training video and a practical session.
- Community activities such as these also help in conservation efforts where the data collected can help the organisation have a better understanding of the distribution of birds in Singapore so that they can improve management and conservation measures.

9. Bedok Green Sec 2023 3P EOY

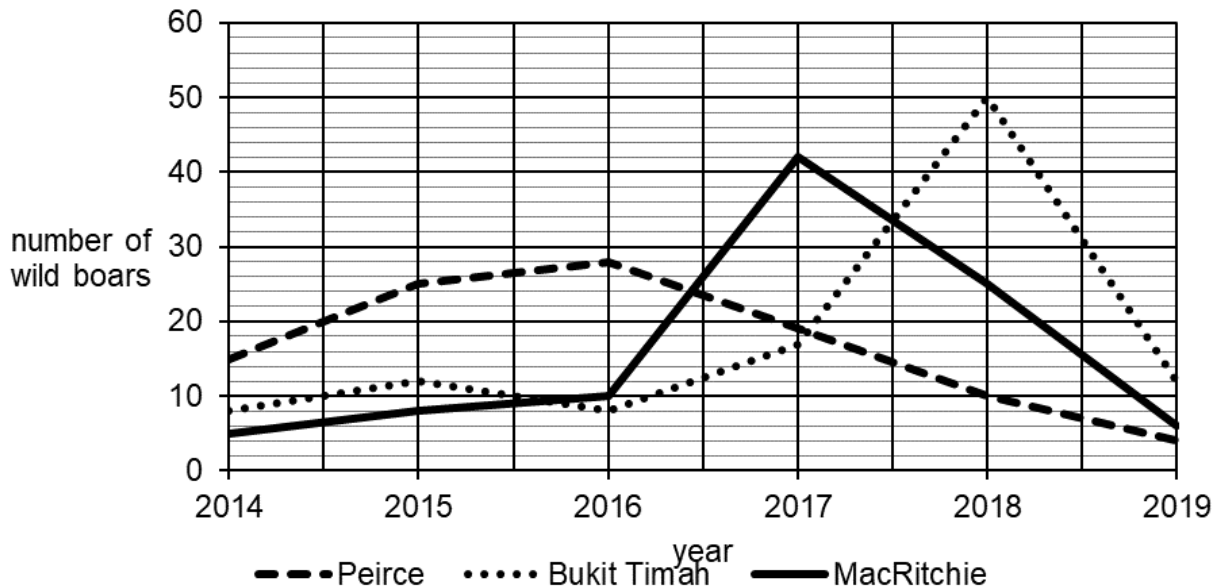


With reference to Fig. 2 describe the changes in the number of animal reports and suggest reasons for the changes. [4]

- In general , there has been an increase in the number of animal reports from 2014 and 2017.
- There were more reports for all monkeys, snakes and wild boar in 2017 compared to 2014 with the largest increase being snakes with an increase of 490 reports.
- Across the years, the highest number of reports were of monkeys
- This could be happening due to the following reasons:
 - o Increase in the speed of urban expansion
 - o People's growing interest in outdoor recreation and
 - o increased greening efforts by the government which brings nature back into the city.

10. Bedok Green Sec 2023 3P EOY

Study Fig. 1, which shows the number of wild boars in three nature areas in Singapore



Overall, Significant, Anomaly. 11

(a) Using Fig. 1, describe the trends of wild boar populations in Singapore. [3]

Key pointers: Use of figures, descriptive trend words, dates

- [Overall] All three locations experienced similar trend of an initial increase in 2014 before an eventual decrease in 2019. [1m] For e.g.Peirce.... DATA
- [Significant, highest] In Bukit Timah experienced the largest increase in 2018, where numbers of wild boar hit 50 from 8 in 2014.
- [Anomaly] In 2014, Peirce was the nature area with the highest number of wild boars, this had decreased in 2019, with the least number of wild boars accounted for.
- Bukit Timah and MacRitchie experienced the largest increases in 2018 and 2017 respectively, while Peirce experienced a small increase in 2016.
- Moderate increase from 15 to 28 wild boars for Peirce between 2014 to 2016, then a decrease from 28 to 4 in 2019. Peirce has the lowest number of wild boars in 2019.
- In MacRitchie, there was a small increase from 5 to 10 between 2014 to 2016, then a sharp rise to 42 in 2017, before decreasing to just 6 in 2019.
- In Bukit Timah, the number of wild boars fluctuated between 2014 to 2017, between 17 to 8, before a sharp increase to 50 in 2018. This is followed by a sharp decrease to just 12 in 2019.
- The increase in population of wild boar at Peirce happened most progressively from 2014 to 2016, with a corresponding gentle decrease from 2016 to 2019.

(b) Explain why human-wildlife attacks have been increasing in Singapore. [3]

Key points: increased proximity / lack of education on how to handle wildlife

- Urban expansion causes the destruction of wildlife habitats / forests [1]. Hence, wildlife will venture out of nature areas in search of food / shelter [1]. This increases the possibility of human-wildlife attacks in Singapore.
- Growing interest in outdoor recreation means people spend more time in nature areas [1]. This increases the possibility of human-wildlife attacks in Singapore.
- Greening efforts by the state means nature areas are near or within urban areas [1], thus increasing the possibility of human-wildlife attacks in Singapore.
- People are not educated on how to react to wildlife, hence they might unintentionally provoke [1] the wildlife into attacking them.

11. Bedok View Sec 2023 3P EOY

Study Fig. 1.1, which shows two excerpts, A and B, about the impacts of constructing the Cross Island Line through the Central Catchment Nature Reserve.

Impacts of constructing the Cross Island Line through the Central Catchment Reserve

Excerpt A

The Minister for Transport announced further measures to tackle the congestion problem on Singaporean roads. Significant among the steps announced was the decision to construct the Cross Island Line. It would connect Changi in the East to Jurong Industrial estate in the West of the island nation.

The current commute on public transport between the two locations takes close to two hours during peak hours. The line was expected to drastically reduce the travel time from the east to west and concurrently ease the pressure on the rest of the public transport network.

Excerpt B

An important concern of the proposed Cross Island Line (CIL) was that one section of it passes through Central Catchment Nature Reserve (CCNR) which holds a significant portion of Singapore's remaining primary forest coverage.

With the construction of the CIL, the drilling and deforestation will make the topsoil susceptible to erosion. It could also lead to the fragmentation of ecologically connected

areas, permanent loss of habitats for critically endangered wildlife such as the Sunda pangolin and Raffles' banded langur and increase the likelihood of these animals being disturbed or injured by traffic during construction.

Fig. 1.1

With reference to Fig. 1.1, describe the disadvantages people and nature may bring to each other. [4]

Award 1 mark for each point of description.

Award a maximum of 1 additional mark for further development of each description, where applicable.

Award a maximum of 2 marks if no reference is made to Fig 1.1.

- Nature may bring disadvantages to people as environmental protection may limit development. For instance, if the building of the CIL cannot proceed, Singapore's road congestion problem will continue, and the public transport network will be strained and cannot be expanded.
- In protection of the CCNR, some Singaporeans may feel that it is done at the expense of their needs. Without the building of the CIL, Singaporeans commuting from the East to West for work or school would take close to two hours at peak time, instead of having the travel time drastically reduced.
- However, in building the CIL, it would bring disadvantages to the CCNR as construction of the railway line would require drilling and deforestation, damaging the primary forest and causing soil erosion when rain washes away loose soil particles.
- The building of the CIL would also disturb the wildlife through the permanent loss of their habitats and from them potentially being injured by traffic during construction.
- As some of the wildlife such as the Sunda pangolin and Raffles' banded langur are already critically endangered, the disturbance could cause more challenges to their survival and lead to their extinction in the CCNR. [1 additional mark]

12. Bowen Sec 2023 3N EOY

Fig. 1 shows the impacts of urban expansion in Europe.



With reference to Fig.1, describe the environmental impacts of urban expansion. [3]

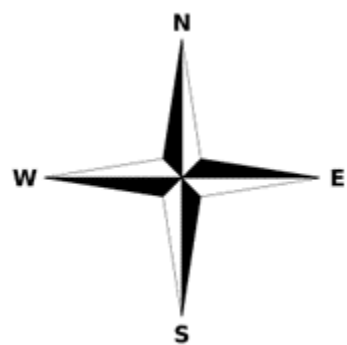
Accept any 3 points, with at least one point from Fig. 1.

Accept other plausible answers.

No.	Concept	Exemplar
1	Fig. 1 – Damaging vegetation	Vegetation in foreground is removed and damaged.
2	Fig. 1 – Disturbing wildlife	When vegetation in the foreground is removed, wildlife lose their natural habitat and will eventually die or migrate.
3	Fig. 1 – Soil erosion	Construction vehicles trample the topsoil, leading to soil compaction. The compacted soil prevents rainwater from infiltrating the surface, leading to higher surface runoff and increased soil erosion as seen in the center foreground
4	Pollution	The construction process of buildings in the foreground will result in air pollution. Water pollution may occur when rain washes the construction debris into nearby water bodies.

13. Admiralty Sec 2023 3N EOY

Study Fig. 1, which shows the distribution of African Elephant sightings, in the African continent.



Describe the distribution of African Elephant sightings in the African continent, as shown in Fig. 1. [3]

Award 1 mark for each description of how the African elephant sightings are distributed

- E: There is an uneven distribution of African elephant sightings in Africa. [1]
- G: Most of the African elephants were sighted in Central / Southeast Africa. [1]
- S: Some of the African elephants were sighted in West Africa / No African elephants were sighted in North Africa [1]

GEL Topic 1.2

Topic 1.2 How do people acquire a sense of place in their neighbourhoods?

1 Ang Mo Kio Sec 3E EOY 2023

Evaluate media's role in the representation of places. [2]

(+) It can be effective when media representations agree with how we feel about places in our neighbourhood add new layers of meanings to these places by revealing interesting information about them, thus enhancing our sense of place.

(-) It can be ineffective when we respond defensively to media content that challenges our sense of place, thus resulting in the dismissal of these contents, perceiving them as distortions or untruths.

Award 1 mark for each advantage and disadvantage, to a maximum of 2 marks

2. ACS Barker 3P EOY 2023

Study Fig. 3, which shows a group of participants and volunteers actively involved in mixing paints and executing the artwork for a Community Mural Project in Queenstown, Singapore.



Using Fig. 3, suggest how the Community Mural Project could affect the residents' sense of place within their neighborhood. [4]

- Fig. 3 shows a mural that is likely to reflect the history of the neighborhood. [1] By visually representing the community's heritage and values, it fosters a sense of pride and belonging among residents. [Additional 1 Mark]
- They serve as a visual narrative of the community's history, allowing residents to connect with their past and appreciate the journey that has shaped their neighborhood. [1]
- The creation of the mural itself often involves the active participation of community members, volunteers, and local residents. This collaborative effort strengthens social bonds and promotes a sense of ownership and engagement in the neighborhood's development. [1]
- The mural adds an aesthetic and visually pleasing element to the neighborhood. [1] This can transform previously dull or neglected spaces into attractive ones, making residents feel more positively about their surroundings. [additional 1 mark]

Will accept negative sense of place.

3. Assumption English School 3P EOY 2023

Study Fig. 2.2 (Insert), which shows an article on a colourful void deck in Bishan, Singapore.

Block 112 HDB Void Deck at Bishan Street 12 – A cosy corner with a community garden and rescued food distribution

Nothing says kampong spirit like a community coming together to create something special for its residents. The Green Hub at Block 112, Bishan Street 12, is a great example of that spirit. The community hub is made up of a makeshift garden with plants such as eggplant bushes and mini succulents. Old appliances like water flasks and kettles donated by residents have been repurposed as planters.

Apart from growing their own fruits and vegetables, there's also a community fridge with free items like grapes and cookies that residents can take as they please. These food items have been donated by residents and food rescue groups to cater to those in the community rather than letting it expire and go to waste.

While you're there, browse through their community library with a "take one, leave one" policy, located just behind the Green Hub.

It has a seating area with a swing, so residents can chill while they dive into different literary adventures for free.

With the help of Fig. 2.2, explain how residents living in the same block may achieve a strong sense of place. [4]

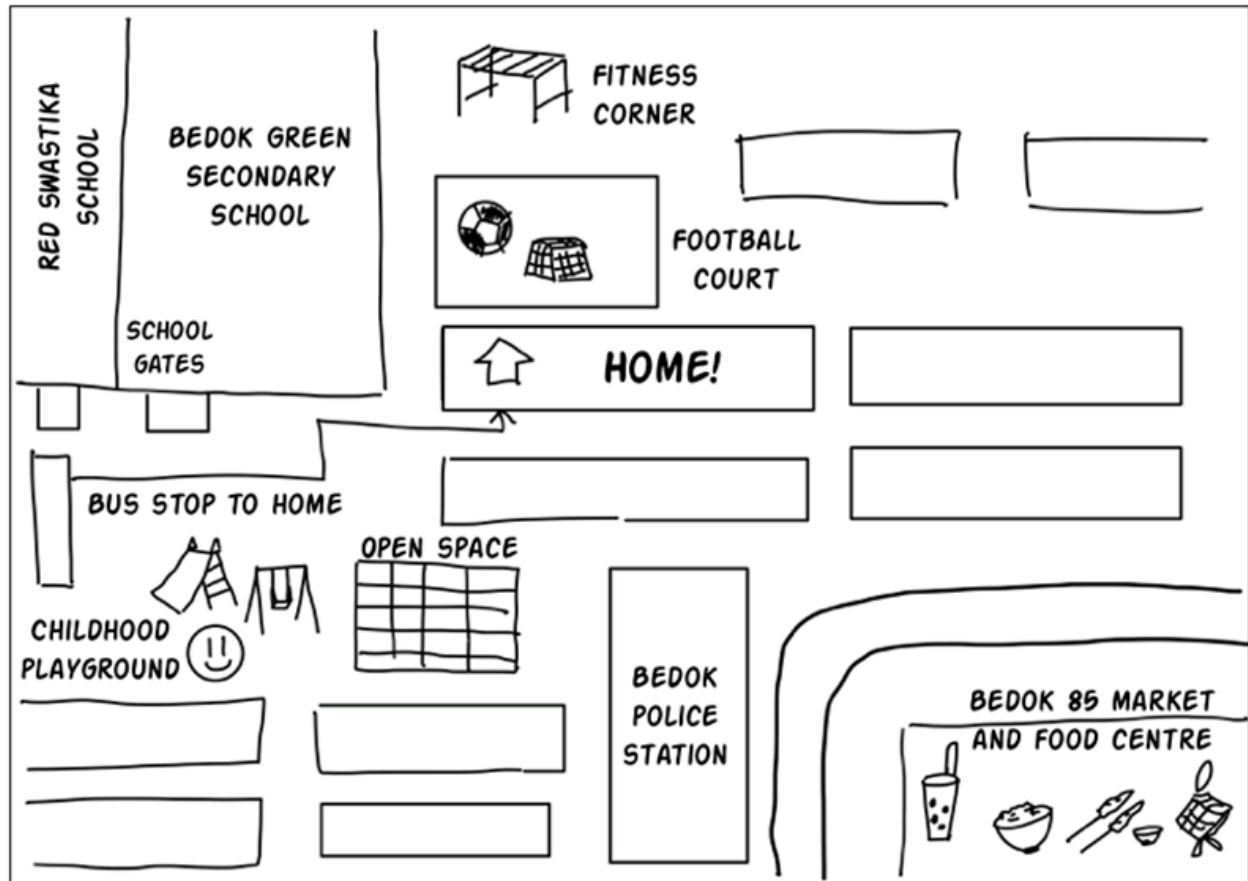
- Sense of place is developed when people associate meanings and memories with locations.
 - When residents spend time at the **community hub**, their interactions with one another encourage positive experiences.
 - It could be **repeated encounters** such as **gardening together at the makeshift garden** to help create meanings and memories.
 - The colourful decorations **such as festive props, their own appliances donated for repurposing** that enable them recall the character and features of places, helping us to create meanings and memories of them.
- It could also originate from significant or memorable events that took place at the void deck.
 - **The void deck includes a seating area with a swing, etc.** that are eye-catching, making the place highly visible and easy for most people to remember.

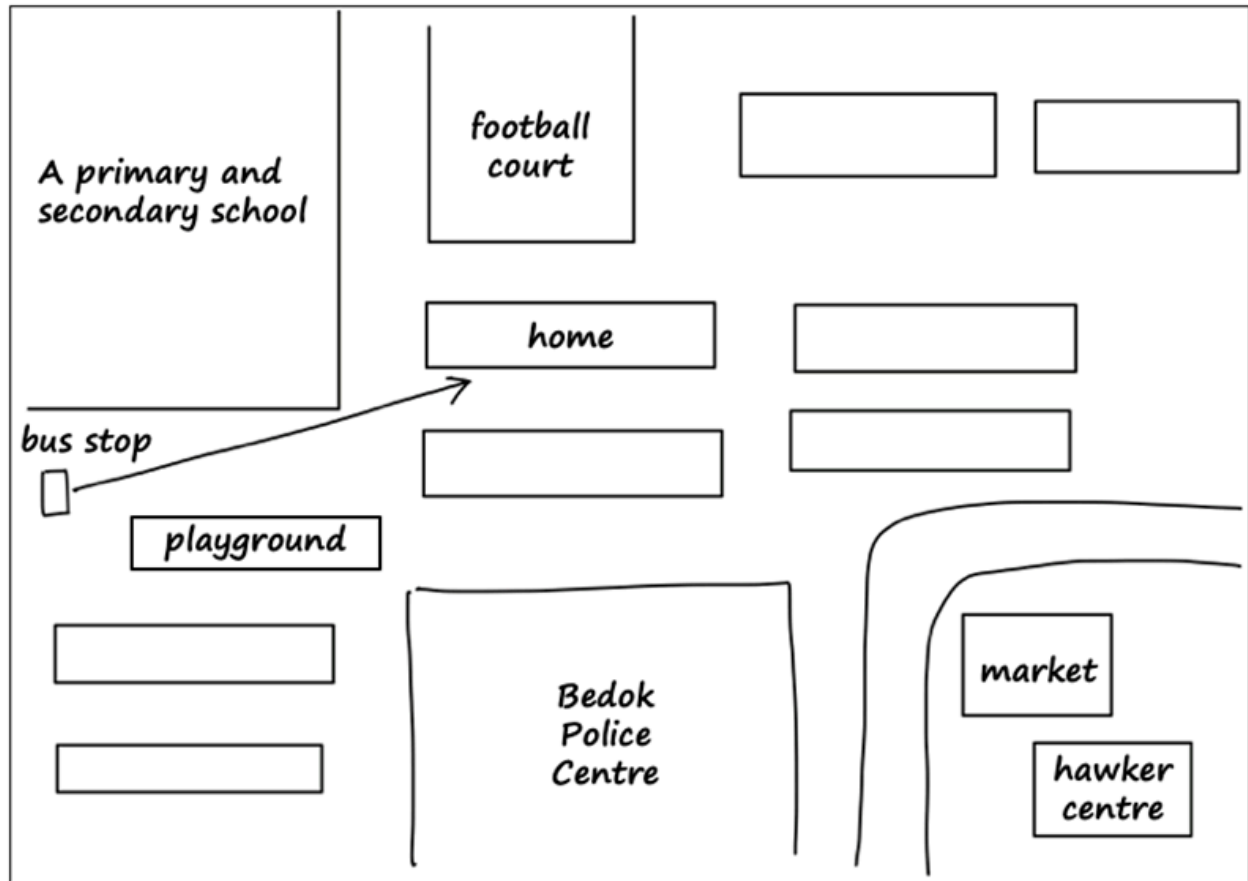
Any 4 @ 1 mark each

Accept the use of example(s) from the article to elaborate point

4. Bedok Green 3E EOY 2023

Study Fig. 4, which shows two mental maps drawn by two people who live at the same HDB block in Bedok

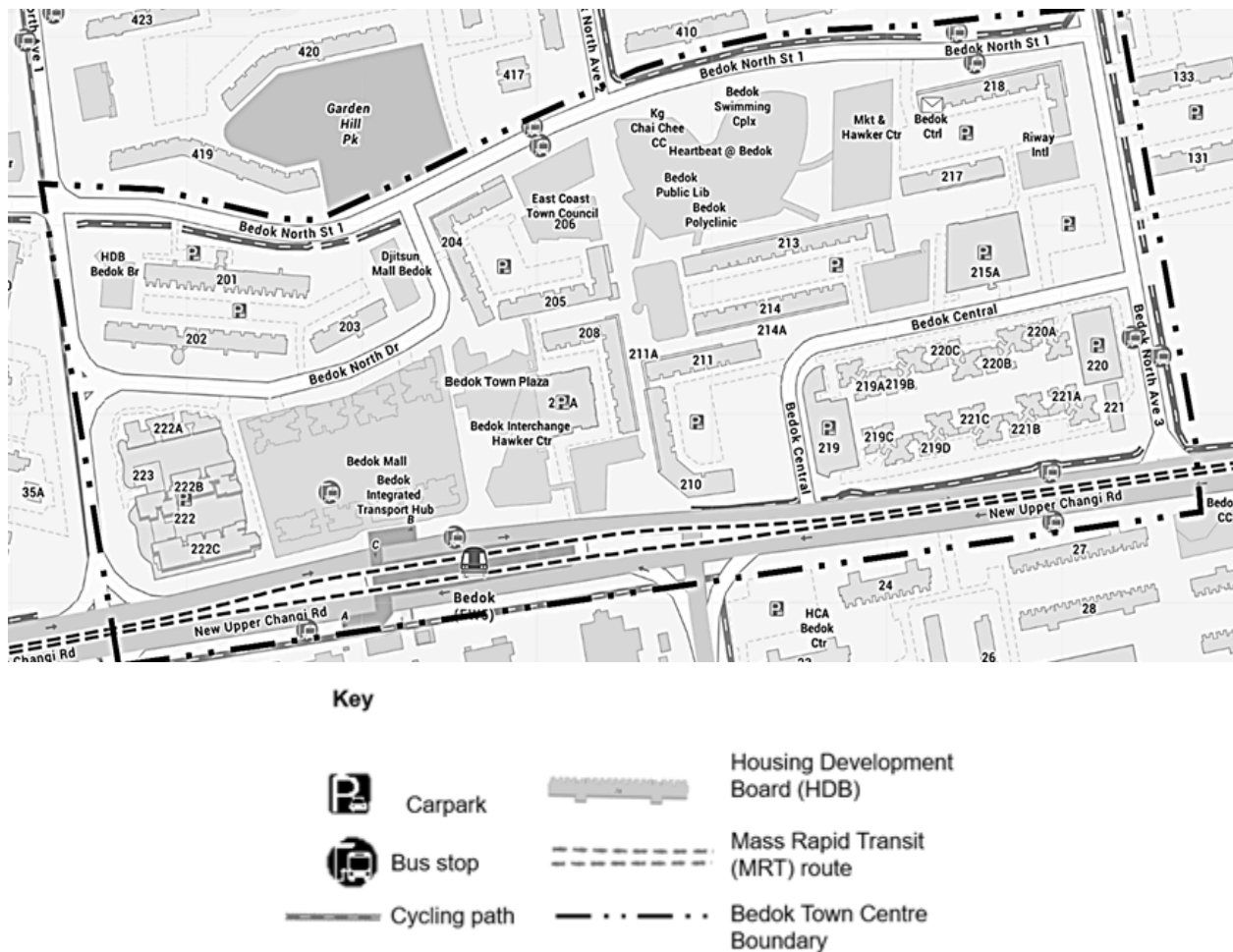




Does Person X or Person Y have a stronger sense of place towards Bedok? Explain your answer using details from Fig. 4. [4]

- Person X has a stronger sense of place towards to Bedok. [1]
- Person X can remember specific names of places / has more details as compared to Person Y, such as the name 'Bedok Green Secondary School' [1], which means that Person X is much more familiar with places in Bedok. This suggests that Person X has more frequent encounters [1] with these places, thus developing a stronger sense of place.
- Person X has drawn their memories / has strong positive feelings of happiness more clearly, such as their childhood playground and expressed with a smiley face. [1] This can indicate a strong happy memory and a sense of attachment to the place [1]. Person Y has not drawn any symbols or words to indicate their memories of Bedok.

5. Bedok South Sec 3N EOY 2023



With reference to Fig. 1, and any other information you have studied, explain how residents living near Bedok Town Centre may acquire a sense of place in their neighbourhood. [4]

Award 1 mark for identification that a sense of place is acquired with repeated encounters or gathering places.

Award a maximum of 1 mark for further development of point.

- Residents' repeated encounters with objects and people along familiar paths during travel helps them acquire a sense of place.
 - Shops/ food stalls that are located within Bedok Town Centre.
- OR
- The path that people travel during their daily commute.
- OR
- Sounds that people encounter when they pass through places in the Town Centre.

- A sense of place may also be acquired at gathering places.

6. Bedok View Sec 3E EOY 2023

Study Fig. 1, which shows the National Day Parade celebration at Padang, Singapore.



With reference to Fig. 1, describe how sense of place is created. [4]

Award 1 mark for each complete point.

Award a maximum of 1 additional mark for further development of each explanation, where applicable.

- Sense of place is created by having significant events such as the National Day Parade, as shown in Fig.1 where the citizens of the country celebrate the nation's independence.
- Sense of place is also created having the significant event at a local landmark the Padang, which serves as a symbolic and historical place.
- Such highly visible sites allows Singaporeans to remember such locations to be associated with positive memories such as attending the NDP parade.
- It is also created through the gatherings and interactions between the people who are viewing the Parade, making it a memorable event for them.

7. Broadrick Sec 3E EOY 2023

Study Fig. 1.5, which shows an Instagram post capturing the festive decorative lights and projections at Geylang Serai during the Hari Raya Aidilfitri celebration.



(a) Using Fig. 1.5, discuss how the visual elements of the Instagram post influence people's perception of Geylang Serai. [4]

Visual elements

- The post showcases beautiful decorative lights and projections, [1]
- emphasizing the visual appeal of the place [1] / create a picturesque and festive atmosphere [1] / suggests that Geylang Serai is a vibrant and lively place to visit

during the Hari Raya Aidilfitri celebration. [1]

- The image of an empty road [1]
- suggests Geylang Serai is a peaceful environment [1]
- A person is crossing the road in a carefree manner [1]
- This conveys a sense of safety and ease [1]

Any 2 pairs of description.

Award a maximum of 2m for each pair of description.

(b) Using Fig. 1.5, explain how the Instagram post could influence people's decisions to visit Geylang Serai and highlight potential issues that may arise if their expectations differ from the actual experience. (Contradictions) [4]

People's decisions to visit Geylang Serai: 2m

- Given the positive portrayal of Geylang Serai, viewers may be drawn to visit based on the aesthetics presented in the post. [1]
- The cultural and festive aspects of the post can attract individuals interested in experiencing diverse cultural traditions and festivities, reinforcing positive SOP. [1]

Potential issues: 2m

- There may be contradictions in their sense of place and perceived impressions of the place. For instance, if there is overcrowding issues, it may lead them to form negative perceptions of the place. [1]
- The ambience may vary from what was portrayed especially if people visit after the festive period is over. As a result, it may affect their sense of place as the memories created do not align with their expectations. [1]

8. Bukit Panjang Govt High 3E EOY 2023

Study Fig. 1.1, which shows a photograph of Singapore's Marina Bay area, with the statue of the Merlion.



Using Fig. 1.1, explain how the place shown in the photograph evokes a sense of place for Singaporeans.

Award 1 mark for each explanation, to a maximum of 4 marks.

Award a maximum of 1 additional mark for further development of each explanation, where applicable.

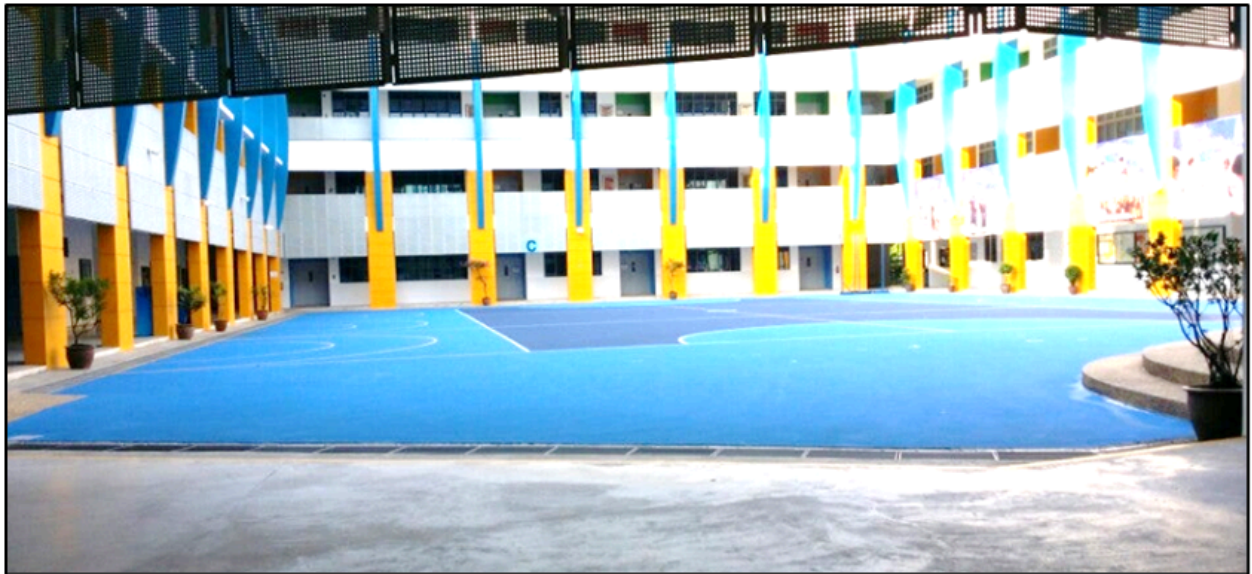
Possible responses include (max 4m):

- The Merlion gives Singaporeans a sense of national identity [1m]. The merlion/lion is a national symbol, and can be found on our crest/ flags / banners around the country [1m].
- Marina Bay Sands represents Singapore's modernity [1m]. The structure is very tall and difficult to build, which requires advanced technology and engineering [1m].
- Marina Bay Sands evokes a sense of prosperity for Singaporeans [1m]. It is a very expensive structure / it has a shopping mall with many luxury brands housed within [1m].
- The Merlion / MBS is very iconic/significant landmark [1m]. They are very unique and when people see this view, they will instantly recognise Singapore [1m].
- The place in Fig. 1.1 represents recreational space for Singaporeans [1m]. The Merlion area is a park where people go to relax and take photographs / cycle [1m]
- Fig. 1.1 shows a place of beauty / with beautiful landscapes [1].
- a place of fond memories because they have spent time with family and friends there / +1m if give specific details of time spent that results in "fondness"
- A place of achievement / celebration [1m], because of National Day Parade or celebration held there, which celebrates Singapore's independence, or how far we

have come as a country.
Accept other plausible answers.

9. Admiralty Sec 3E EOY 2023

Study Fig. 2, which shows the parade square in a Secondary School.



With reference to Fig. 2, explain two ways in which students from Admiralty Secondary School can acquire a sense of place in their school. [4]

Repeated encounters with objects and people [1]

- Students have vivid memories of the parade square as it is a venue for them to assemble every Friday for flag-raising ceremony [1]
- Students repeatedly encountering classmates and schoolmates at the parade square for flag-raising ceremony every Friday [1 additional mark]

Significant or memorable events at the parade square [1]

- Parade square is a venue for various school programmes and activities such as the annual ADSS Mass Dance / National Day Ceremony [1]

Award [2m] for 2 ways & [2m] for explanation of each way

GEL Topic 1.3

Topic 1.3 What is the relationship between locations in a neighbourhood?

1 Ahmad Ibrahim Sec EOY 2023

Describe the differences between precincts and towns in Singapore. [3]

- Difference in terms of **spatial hierarchy**:
 - Precincts are nested within towns.
 - Precincts are at a smaller spatial hierarchy than towns. [1 mark]
- Difference in terms of **residential units**:
 - Precincts contain about 400 to 800 residential units,
 - while towns serve more than 8,000 residential units. [1 mark]
- Difference in terms of **facilities**:
 - Precincts provide small-scale facilities that are often near to serve residents, such as playgrounds, fitness corner, precinct pavilion and community gardens. Towns provide large-scale/ wide range of facilities such as integrated transport hub, library, polyclinics, sports complex which residents must travel to access them. [1 mark]

2 Ang Mo Kio Sec 2023 3E EOY

Describe the characteristics of a precinct. [2]

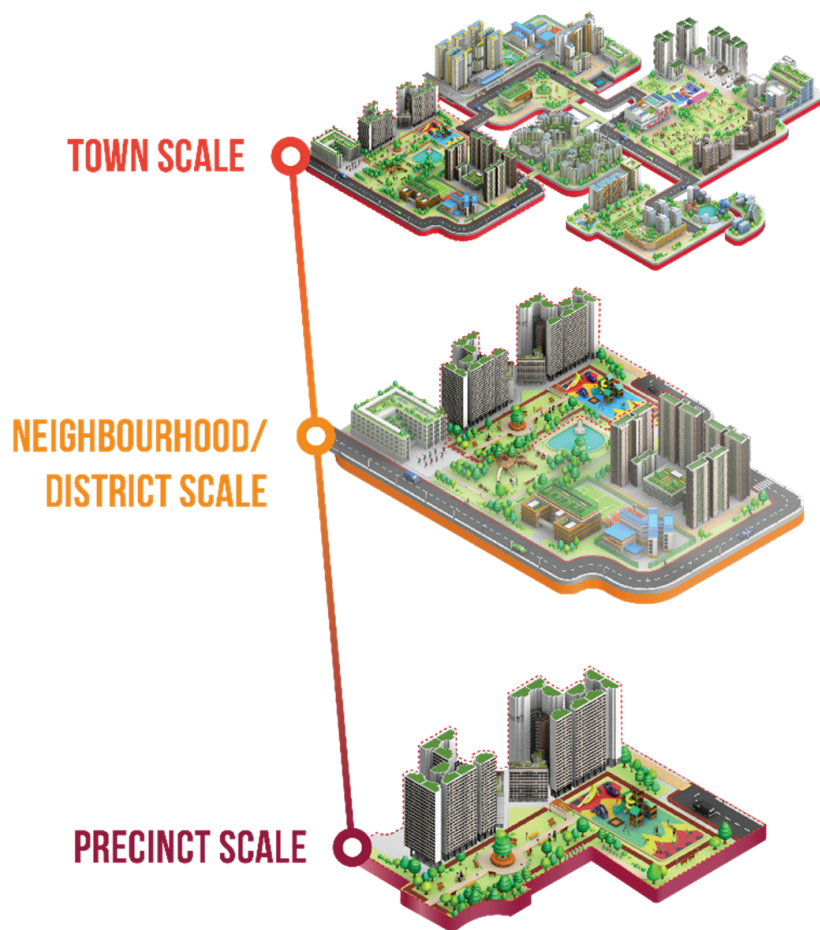
- Made up of between 400 and 800 residential units.
- Facilities are of close proximity; serving residents' everyday needs e.g. children playground, covered linkways.
- Within the neighbourhood.

Award 1 mark for each description of, to a maximum of 2 marks.

Award 1 additional mark for further development of the description, where applicable.

3 ACS Barker 3E EOY

Study Fig. 1 (Insert), showing the spatial hierarchy between precinct, neighbourhood and town.



Using Fig. 1, describe the differences between precinct and town.

- Precinct has fewer number of units and housing blocks compared to town
- Town has more facilities to cater to the needs of larger population size
- Town has a well-connected transport network that covers a larger scale compared to town

Accept other plausible answers. (Additional 1m for elaboration)

4 Assumption English 3E EOY

Describe the ways to classify a region. [3]

- Regions can be classified according to environmental characteristics – nature and manmade.
- Regions can be classified according to human characteristics – commercial region vs residential region.

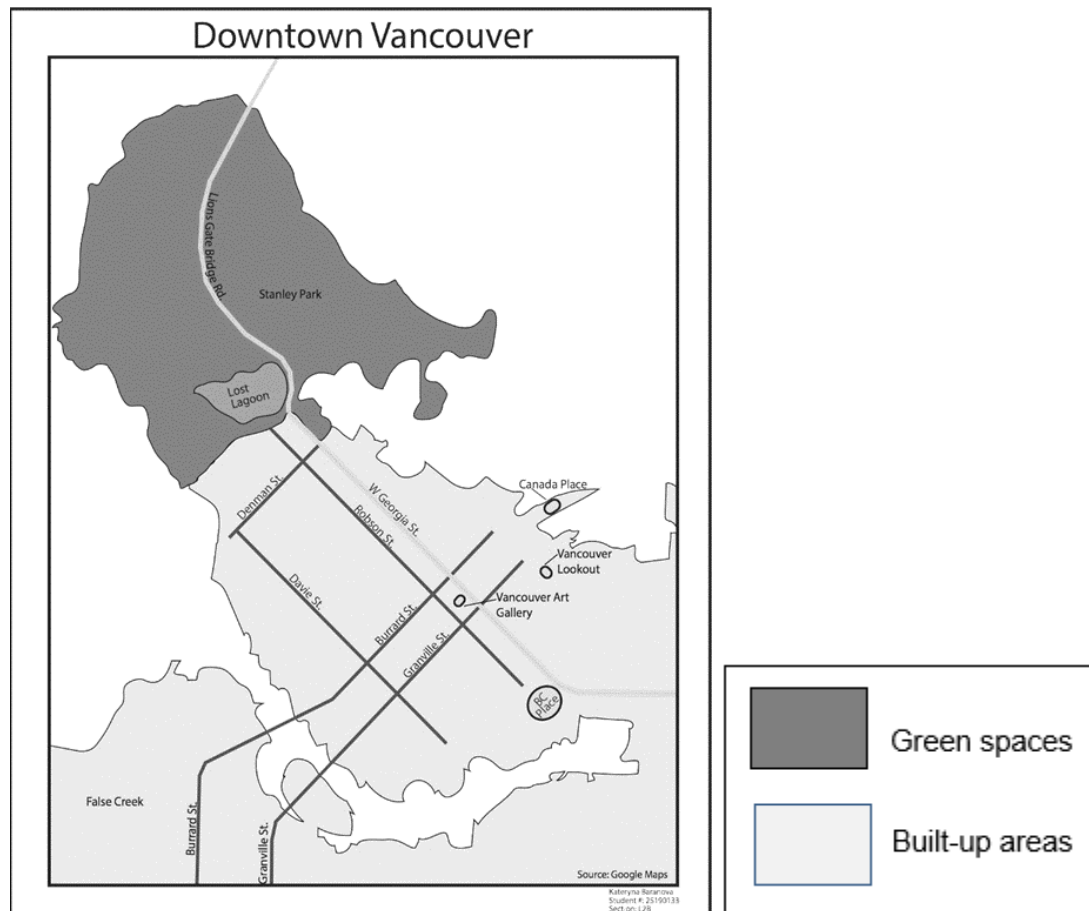
- Regions can be classified according to geographical location – western regions vs eastern regions.

3 @ 1 mark each

Max. 1 mark for mere listing

5. Bartley Sec Sch 2023 3P EOY

Fig. 1.2 is a map showing land use in downtown Vancouver, a city in Canada.



With reference to Fig. 1.2, describe how downtown Vancouver can be classified into regions according to environmental characteristics. [3]

Award 1m per relevant point inclusive of compass directions. Reserve 1m for reference to figure.

- Northwest Vancouver consists of green spaces such as Stanley Park.
- Southeast Vancouver consists of built-up areas with buildings like the Vancouver Art Gallery.

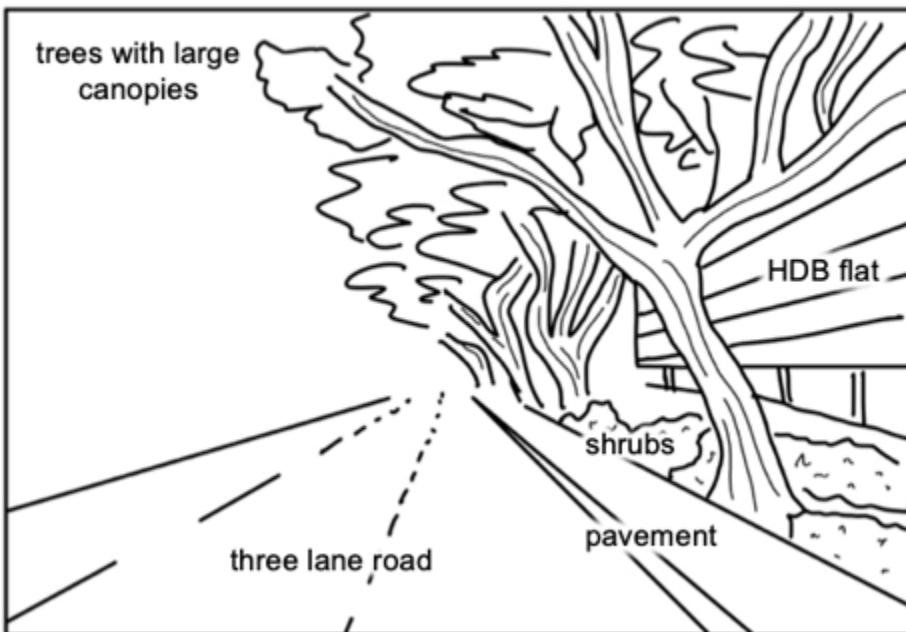
6. Bedok Green 2023 3E EOY

Study Fig. 2, which shows a map of trees in an area of Bedok, and Fig. 3, which shows a sketch of the trees along the road.



Key

● tree



(a) State the spatial arrangement of trees in Fig. 2. [2]

- The trees are arranged in a **linear arrangement** / in a line
Not accepted: geometric shape (too vague)
- Relatively spaced out along the pavement in Bedok.

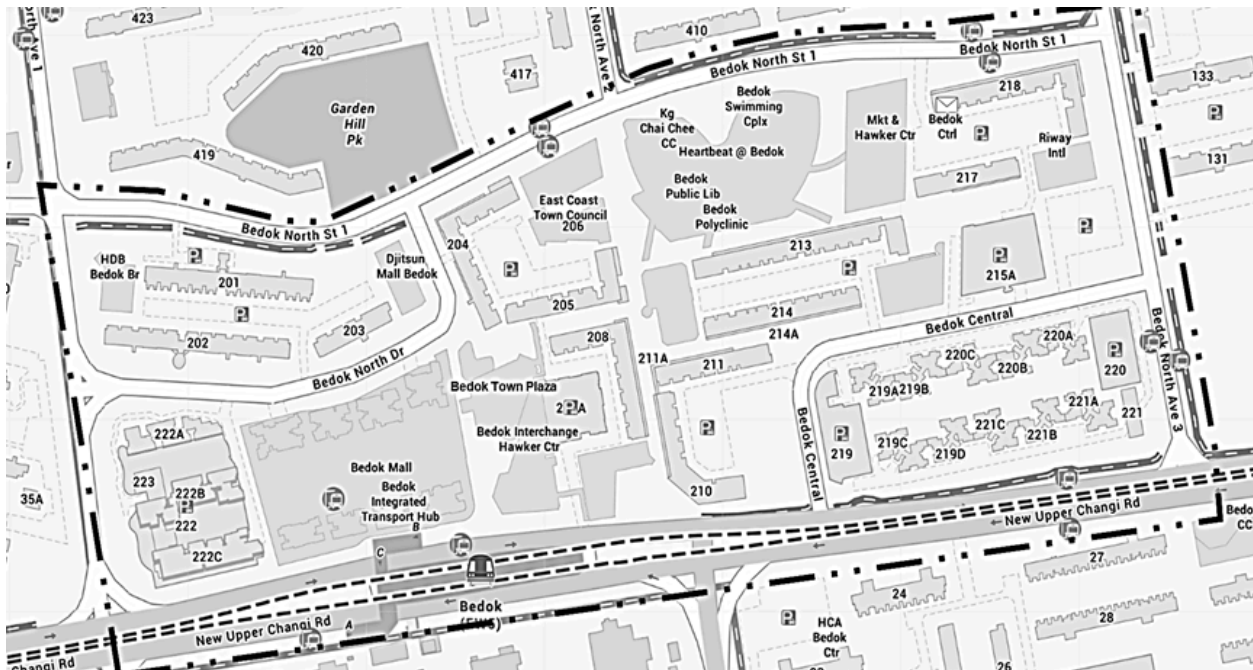
(b) Using Fig. 2 and 3, explain the ecosystem services provided by these trees and the benefits of the spatial arrangement as stated in 1(b)(i). [4]

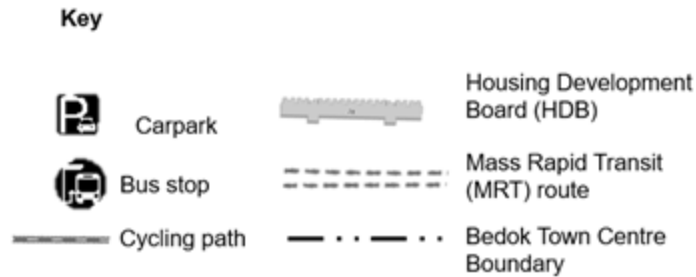
- The trees provide **regulating services** [1] by using their large canopies to

Choose 1 below (1m for describing the ecosystem service, 1m for spatial link)

- block the sunlight / provide shade to reduce temperatures [1]. When placed in a linear arrangement, it extends the shade along the pavement / road so that people walking along the pavement would get enough shade [1]
- block the noise from the road so that residents in the HDB flat would not experience noise pollution / quieter and more peaceful [1]. The linear arrangement ensures that the entire HDB flat would experience less noise pollution [1]
- block the air particles / air pollution from the cars on the road from reaching the people living in the HDB flat [1]. The linear arrangement ensures that the entire HDB flat would experience less air pollution [1]
- The trees provide **supporting services** [1] through soil formation when micro-organism and physical processes decompose organic matter for the shrubs under the large trees. [1]

7. Bedok South Sec 3N EOY 2023





(a) (i) Describe the spatial distribution of bus stops in Fig. 3. [1]

Award 1 mark for any point.

- Bus stops are located at regular intervals on the road.
- Bus stops can be found on opposite sides of the road.
- There are bus stops located in the integrated transport hub.

(a) (ii) Provide reasons for the spatial distribution of bus stops in Fig. 3. [1]

- Bus stops are located at regular intervals to allow residents to travel easily from one location to another.
- Bus stops are found on opposite sides of the road to serve different routes.
- Bus stops are located in the integrated transport hub for convenience of commuters to access shops located there.

(b) With reference to Fig. 3, explain how Bedok Town Centre serves as a commercial and social hub. [4]

Award 1 mark for showing understanding of how Bedok Town Centre serves as a commercial and social hub.

Award a maximum of 1 mark for further development of point.

- Businesses/retail shops will locate their offices/shops in the town centre
- Being near to the integrated transport hub, it reduces travel time for their workers.
- The Bedok Polyclinic will serve the medical needs of people living in the area.
- The convenience of town centres can attract visitors from other towns, making it viable for large shopping malls to be located there.
- There are large gathering places in Bedok Town Centre for residents.
- The market and hawker centres serve as a place where people will meet for meals.
- The swimming complex is where residents can come together to exercise.

- The public library serves as a place where residents can gather to read.
- Bedok Town Plaza serves as a space where residents can gather for activities.

8. Bedok View Sec 3E EOY 2023

Describe how the features in a precinct serve the residents and create connections between them. [3]

Award 1 mark for each complete point.

Award a maximum of 1 additional mark for further development of each explanation, where applicable.

- A precinct consists of facilities that are often within close proximity to serve the needs of the residents.
- These facilities such as children's playgrounds, community gardens and covered linkways are located near to each other, enhancing the convenience and accessibility.
- Precincts also have facilities such as bus stops that are spread out in regular intervals to ensure that most residents in the precinct can have easy access.
- These bus stops serve as connection points between precincts, bringing residents from one precinct to another.

9. Broadrick Sec 3E EOY 2023

Study Figs 1.2 and 1.3, which show neighbourhoods in Singapore which were built at different times.

The first completed flats at Marsiling in 1973



HDB flats launched at Tengah in 2023



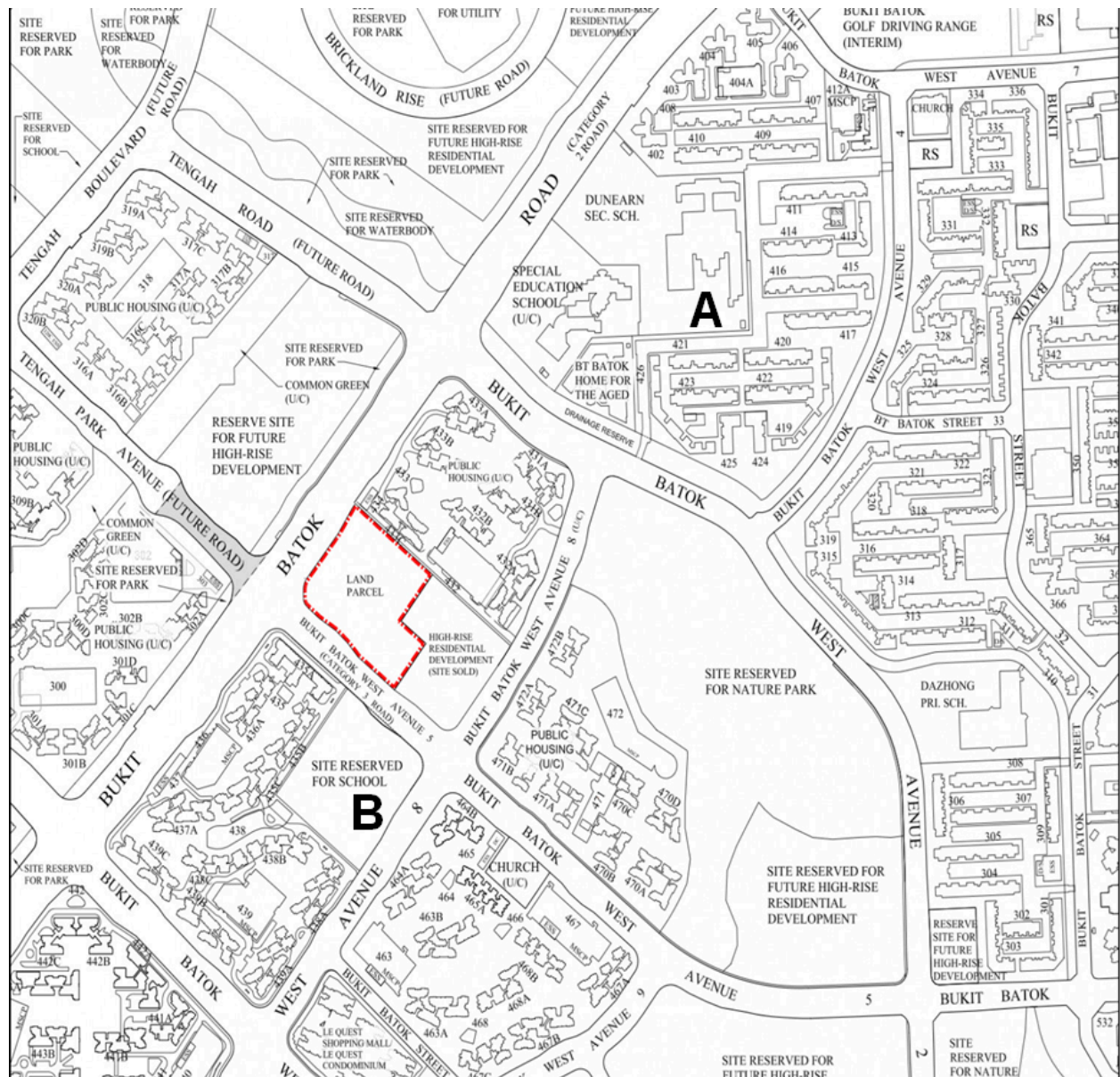
Using Figs. 1.2 and 1.3, describe the differences between the two neighbourhoods. [1]

- 1973 - built in a rectangular or block-like design while 2023 - more modern and diverse architectural styles [1]
- 1973 – limited amenities, 2023 – more amenities to cater to diverse needs, eg. Community club [1]
- 1973 – less green spaces, 2023 – more green spaces and rooftop gardens [1]

Any 2 observable differences between the two neighbourhoods will be accepted.

10. Bukit Batok Sec 2023 3E EOY

(a) Study Fig. 1.1, which shows two neighbourhoods, A (northeast of the map) and B (southwest of the map) separated by Bukit Batok West Avenue 2 and enclosed by Bukit Batok Road, in Bukit Batok New Town



With reference to Fig. 1.1, compare neighbourhoods A and B. [4]

[Max: 4 at least 2 similarities & 2 differences]

Similarities:

- Both A & B have public housing blocks which are built close together. [1]

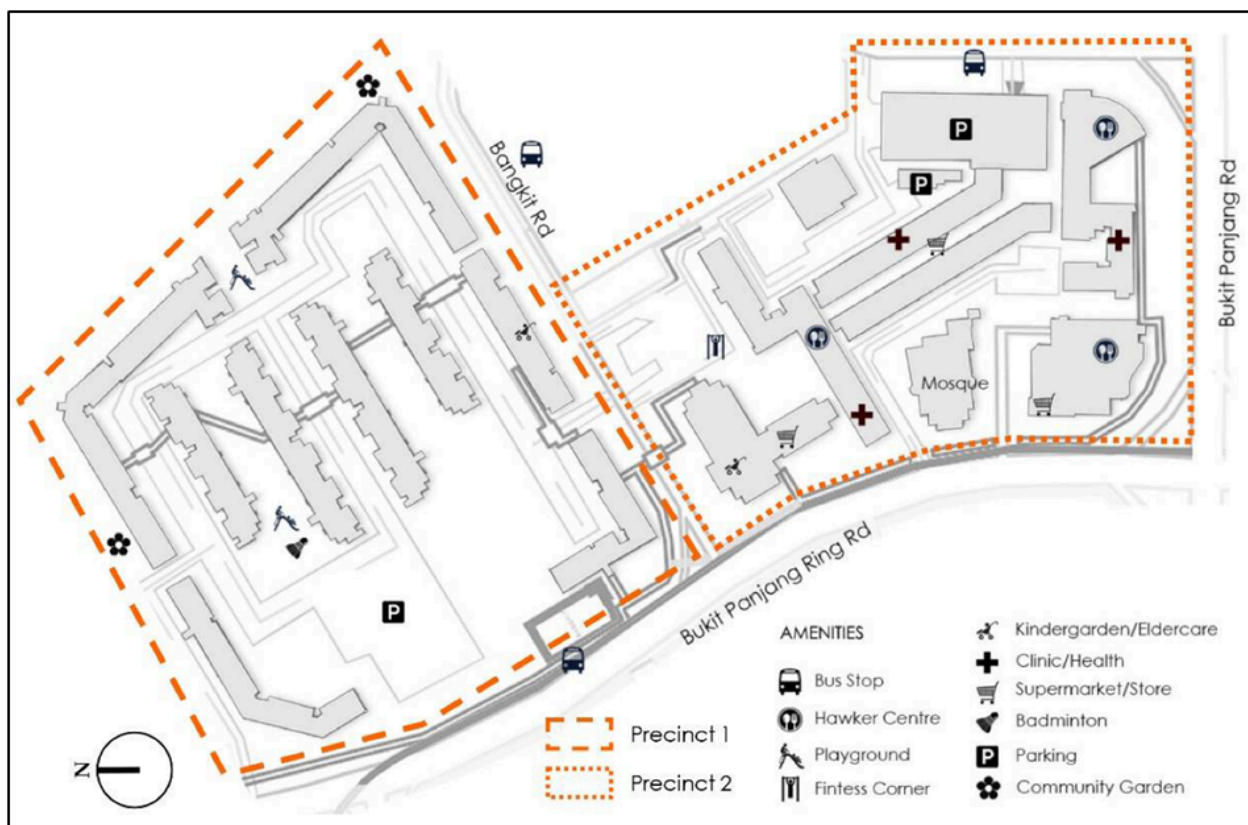
- Both A & B have a site reserved for future residential high rise building development although A has a smaller site area than B. [1]
- Both A & B have a site reserved for Nature Park although B has a much larger site area than A. [1]
- Both A & B appear to be similar in physical size. [1]

Differences:

- A has more facilities than B [1]
- Eg A has 3 existing schools eg Dunearn Sec etc while B has no school but has a site reserved for it. [1]
- A has a home for the aged & a church whereas B has none but has a church. [1]
- A has no condominium & shopping mall whereas B has Le Quest shopping mall. [1]
- A appears to be an old neighbourhood almost fully built up whereas B is a new neighbourhood with ongoing development projects. [1]
- A appears to have rectangular public housing blocks whereas B has blocks with random shapes.

11. Admiralty Sec 2023 3E EOY

Study Fig. 3, which shows two precincts in the Bangkit Neighbourhood, Singapore.



Using Fig. 3, compare Precinct 1 and Precinct 2 in the Bangkit Neighbourhood. [4]

Similarities

Both precincts have basic facilities/amenities that serve the residents [1]

- Both precincts have 1 kindergarten/eldercare [1]
- Both precincts have recreational facility (Precinct 1 – badminton court and Precinct 2 – fitness corner) for its residents [1]

Differences

Precinct 2 has more facilities/amenities than Precinct 1 [1]

- Precinct 2 has 3 supermarkets or stores while Precinct 1 has none [1]
- Precinct 2 has 3 hawker centres while Precinct 1 has none [1]
- Precinct 2 has 3 clinics while Precinct 1 has none [1]
- Precinct 2 has 1 religious building, mosque while Precinct 1 has none [1]
- Precinct 2 has 2 parking while Precinct 1 only 1 parking [1]

Award [1m] for 1 similarity & [1m] for explanation of the similarity

Award [1m] for 1 difference & [1m] for explanation of the difference

GEL Topic 1.4

Topic 1.4 How are neighbourhoods organised in Singapore?

1 Anglican High Sch 3P EOY

Study Fig. 1.4, which shows a map of Punggol Town with its 10 districts (also known as neighbourhoods).



With reference to Fig. 1.4 and your own knowledge, explain how town planning is carried out in Singapore. [3]

1m for each explanation, up to 2 additional marks for additional elaboration

- Town planning serves residents and provides for nature at different/distinct **levels** of the precinct, **neighbourhood and town** (concept of hierarchy must be present)
 - o **Examples of allocation of land use:** Land in each town is mostly allocated for **housing, industrial and commercial development**. Remaining land is set aside for **roads, schools, parks** and other essential facilities. (any 2)
 - o Planners also ensure that the facilities at the precinct, neighbourhood and town

spatial hierarchies **enable each town to be self-sufficient** and provide employment opportunities.

- For example, the town center is located near the different districts for easy access/convenience for residents

- Town planning creates **connections and synergies** across precincts, neighbourhoods and towns (concept of time or coordinating on national scale)

- Connections and synergies help **achieve sustainability**

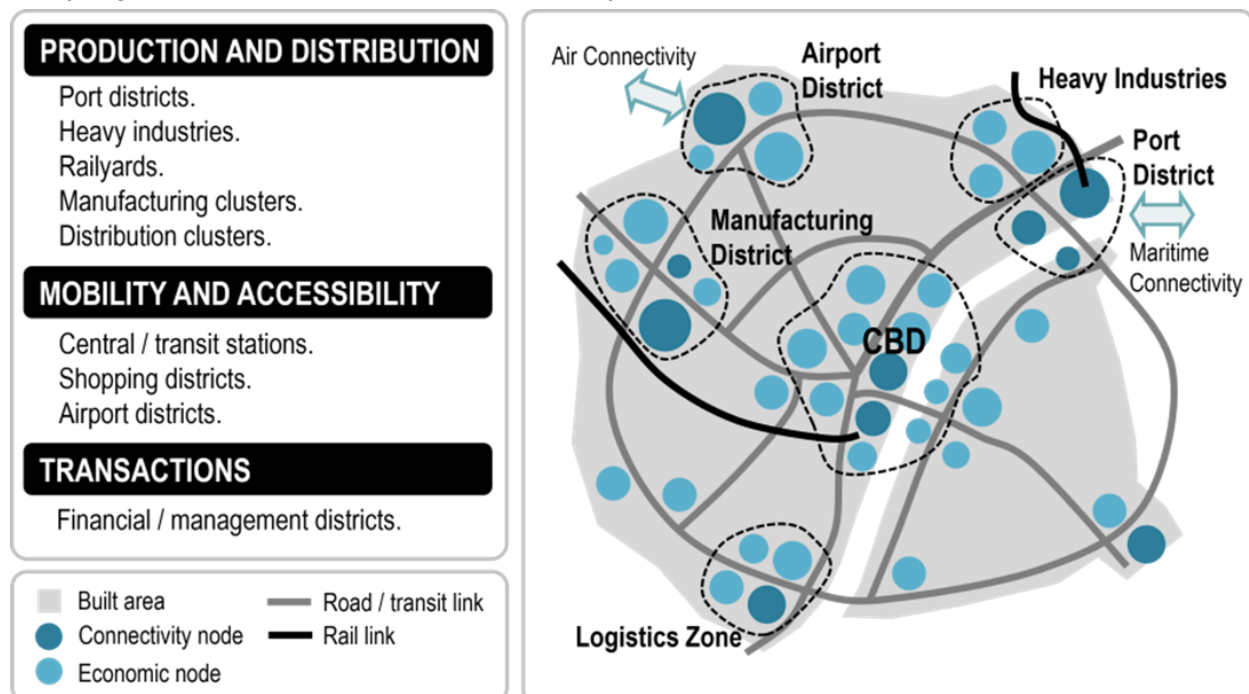
- Long-term plans at the national level seek to achieve this by optimising scarce land resources to **cater to the diverse needs** of current and future generations

- In Singapore, the **Urban Redevelopment Authority (URA)** coordinates the long-term planning for Singapore, which involves **multiple stakeholders and agencies**.

- The **Long-Term Plan** (formerly known as Concept Plans) **maps out land uses** and infrastructure needs in Singapore over the next **50 years**, where plans are reviewed every ten years

2. ACS Barker 3E EOY 2023

Study Fig. 5 (Insert), which shows an urban city.



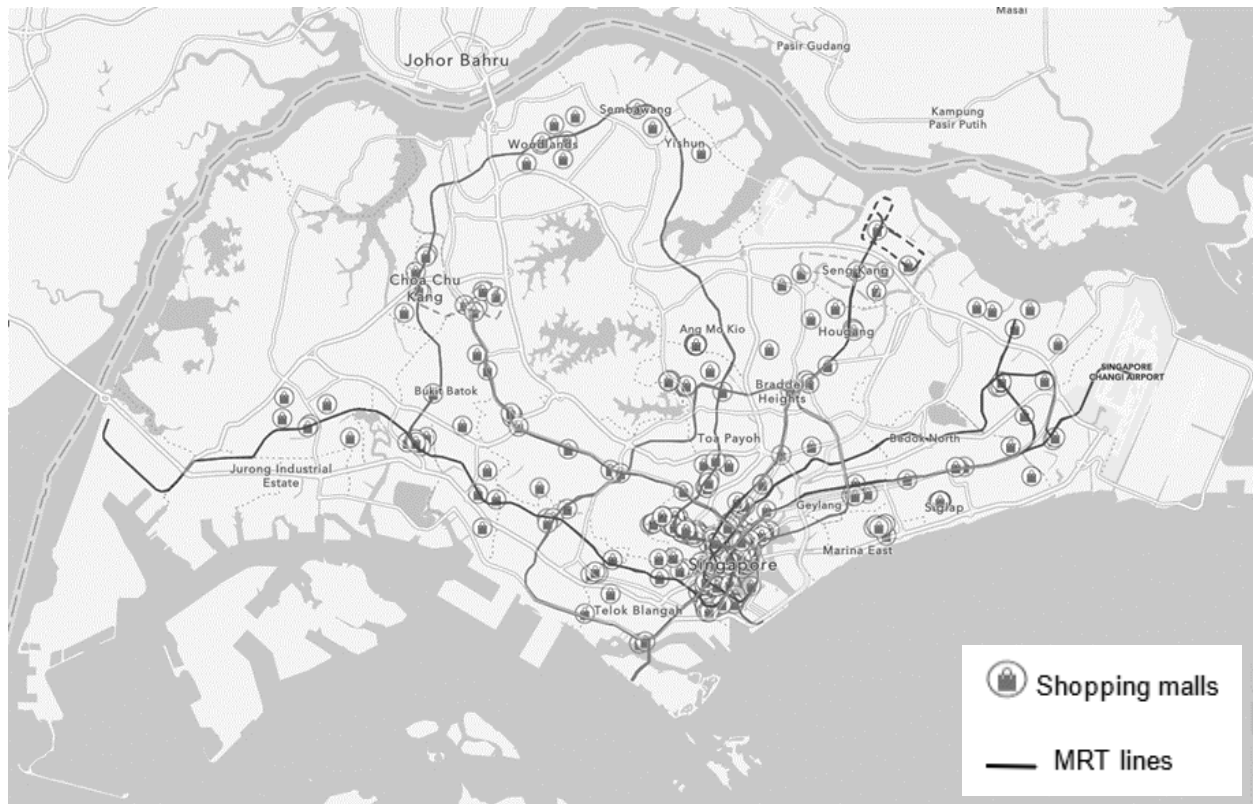
Using Fig. 5, describe the spatial patterns and associations shown.

- The geometric layout of the road and transit link are in circle and lines.
- Heavy industries are located near the port district to facilitate movement of goods for imports and exports.

- Manufacturing plants are located within the manufacturing district and away from CBD.
- The inter-connectedness of the road and transit links allow ease of movement of people, goods and services.

Reserved 1 mk for pattern and association

3. Bartley Sec 3E EOY 2023



With reference to Fig. 1.3, describe and explain the spatial association between shopping malls and MRT lines in Singapore. [4]

Award 1m per relevant point for description. Reserve 1m for reference to figure:

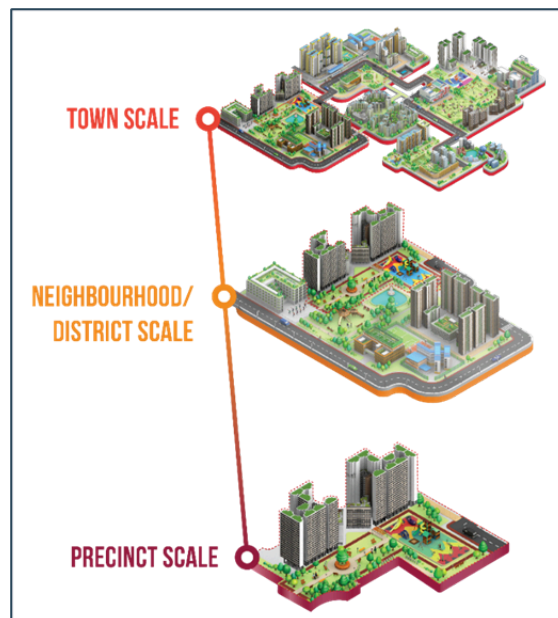
- Shopping malls are generally located along MRT lines. [1]
- The greatest density of shopping malls is found in the South, which is also where the greatest density of MRT lines are. [1]
- However, there are some shopping malls not located near MRT lines, such as in Marina East. [1]

Award 1m per relevant point for explanation:

Shopping malls are located near train stations to make them more accessible to the people via public transport. [1]

4. Bedok Green Sec 3P EOY 2023

Fig. 3 shows the different scales in town planning.



Using examples that you have studied suggest the considerations that planners need to take into account when planning a town. [4]

- Town planning needs to serve residents and also provide for nature at a precinct, neighbourhood and town level.
- An example would be Tengah where at a town level, a dedicated network will be able to enable each town to be self-sufficient in terms of facilities and provide employment opportunities.
- Many of the facilities and services also complement each other for example at a neighbourhood level, residents will have opportunities to farm together at community gardens
- Town planning should also create connections and synergies across precincts, neighbourhoods and towns with long-term plan maps which maps out land use, infrastructure needs as well as diverse needs over competing land use.

5. Bedok South Sec 3E EOY 2023

Study Fig. 2 (Insert), which shows information about Tengah, an upcoming HDB town in Singapore.

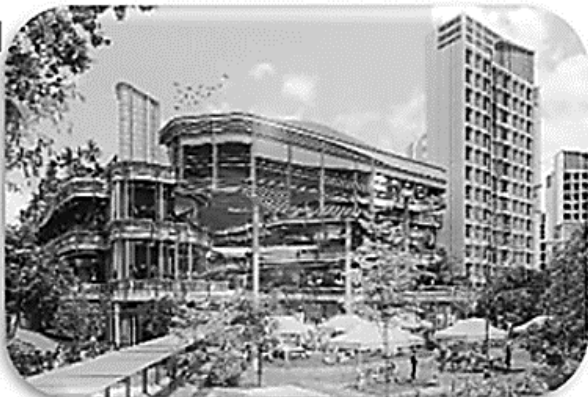
Features of Tengah



Residential blocks are strategically arranged to allow for natural ventilation and proper wind flow.



Residents have opportunities to grow and harvest organic produce at community gardens.



Each district in Tengah will have its own neighbourhood centres complete with amenities such as schools, clinics and a wide range of shops.



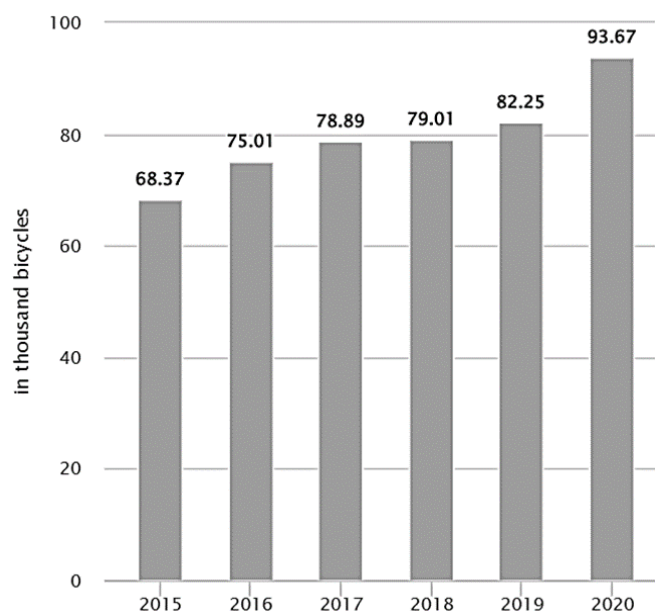
Roads will run beneath the town centre, freeing up spaces at the ground level for walking and cycling.

Using Fig. 2, explain how the town planning makes Tengah a sustainable urban neighbourhood. [3]

- The town planning in Tengah serves residents and provide for nature at precinct , neighbourhood and town levels.
- At the precinct level, the HDB blocks are arranged in a way to allow for wind flow which will lower temperatures, hence reducing energy consumption.
- At the neighbourhood level, residents will have opportunities to farm together at community gardens, promoting regular interactions/ promoting environmental sustainability by lowering carbon footprint as they are able to grow their own vegetables.
- At the neighbourhood level, each district is equipped with amenities which makes it convenient for residents to meet their needs without having to travel far, hence transportation costs for residents are lowered.
- Also, residents can take up employment at these shops or services , earn income and increase their standard of living.
- At the town level, residents are able to travel conveniently and safely by foot or by cycling as roads for vehicles are built underground.
- Accept any other plausible points
- Any 3 points @ 1 mark each

6. Bedok View Sec 3N EOY 2023

Study Fig. 1.3, which shows the number of bicycle sales in Singapore from 2015 to 2020



Using Fig. 1.3, suggest how Singapore's town planning can better serve residents. [2]

Award 1m for each suggestion, and a maximum of 1 additional mark for further development of answer, where applicable.

Award max 1m if Fig. 1.3 is not referenced in the answer.

- Based on Fig. 1.2, bicycle sales have increased by 25.3 thousand bicycles (from 68.37 thousand to 93.67 thousand), which means that there are a higher number of cyclists in Singapore.
- Town planning can set aside more land for shared pathways, cycling paths and green corridors to facilitate the use of bicycles.
- There could be a dedicated network that enables residents to travel conveniently and safely by bicycles and areas for them to park their bicycles near town centres when they travel within the neighbourhood and towns.

7. Bowen Sec 3E EOY 2023

Fig. 1 shows an example of spatial association.



Identify the purpose of the spatial associations shown in Fig. 1 and explain other roles of spatial associations in urban neighbourhoods. [4]

No.	Concept	Exemplar
1	Train station and bus interchange	Bus interchanges are always located next/near to a train station so that it is convenient and much easier

	(Fig. 1)	for residents to switch from one mode of transport to another.
2	Stairs and ramp (Fig. 1)	Ramp is located next to the stairs to allow easier access for residents on wheelchair or those with strollers
3	Playground and fitness corner	Children's playgrounds are often located near adult or elderly fitness corners to allow the adults to supervise their young children, while being able to carry out their own activities.
4	Hawker centre and wet market	Wet markets and hawker centres located next to each other to increase the convenience for food and drink stall owners to buy their supplies from the market. OR At the same time allows people working in the market to enjoy affordable meals at the hawker centre. OR It provides convenience to residents who need to buy both raw and cooked food, attracting more customers to both the market and hawker centre

GEL Topic 2.1

Topic 2.1 What are sustainable urban neighbourhoods?

1 Ahmad Ibrahim Sec 2023 3E EOY

Study Fig. 1.3 which shows a community event in a neighbourhood



Explain how the community event shown in Fig. 1.3 supports the environmental and social sustainability of urban neighbourhoods. [3]

Award at least 1 mark for environment and social sustainability, respectively.

Award 1 mark for each explanation on environmental sustainability, max 2m

Award 1 mark for each explanation on social sustainability, max 2m

Possible responses:

Environmental sustainability

- The community event encourages residents to reduce waste/ reduce the need to buy/ recycle. [1 mark]

- The event allows large/sufficient number of recyclables to be collected and processed in an economically viable manner through the secondhand market. [1 mark]
- By minimising waste, we reduce the amount of trash that needs to be incinerated, thus prevents pollution and reduces greenhouse gases emitted [1 additional mark]
- Waste minimisation reduces the amount of waste sent to landfills, extending the lifespan of our landfill, so that we can use it longer [1 additional mark]
- When people buy less, they reduce extraction of natural resources to produce these goods. [1 additional mark]

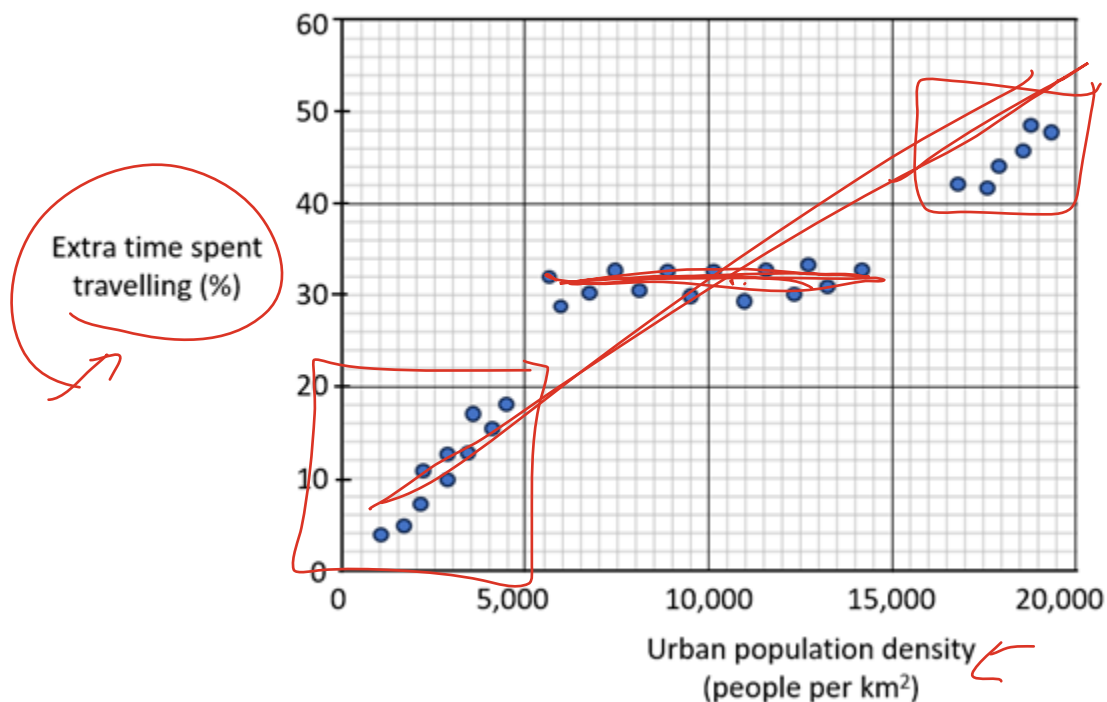
Social sustainability

- Such community events bring people together to interact, encouraging residents to have foster positive relationships [1 mark]
- the free market allows like-minded people who cares for the environment to gather, share tips on zero-waste, and build a shared identity [1 additional mark]
- Donors and volunteers of this programme may feel proud of their efforts promote community contribution and cohesiveness, they bond and create memories, which help cultivate their sense of belonging.

2 Ahmad Ibrahim 2023 3E EOY

Study Fig. 1.1, which shows urban population density and the extra time spent travelling due to traffic congestion in selected urban areas.

Relationship between urban population density and extra time spent travelling



Describe the relationship between urban population density and the extra time spent

travelling shown in Fig. 1.1. [3]

Award 1 mark for description of relationship.

Award 1 additional mark for evidence. Award 1 additional mark for anomaly

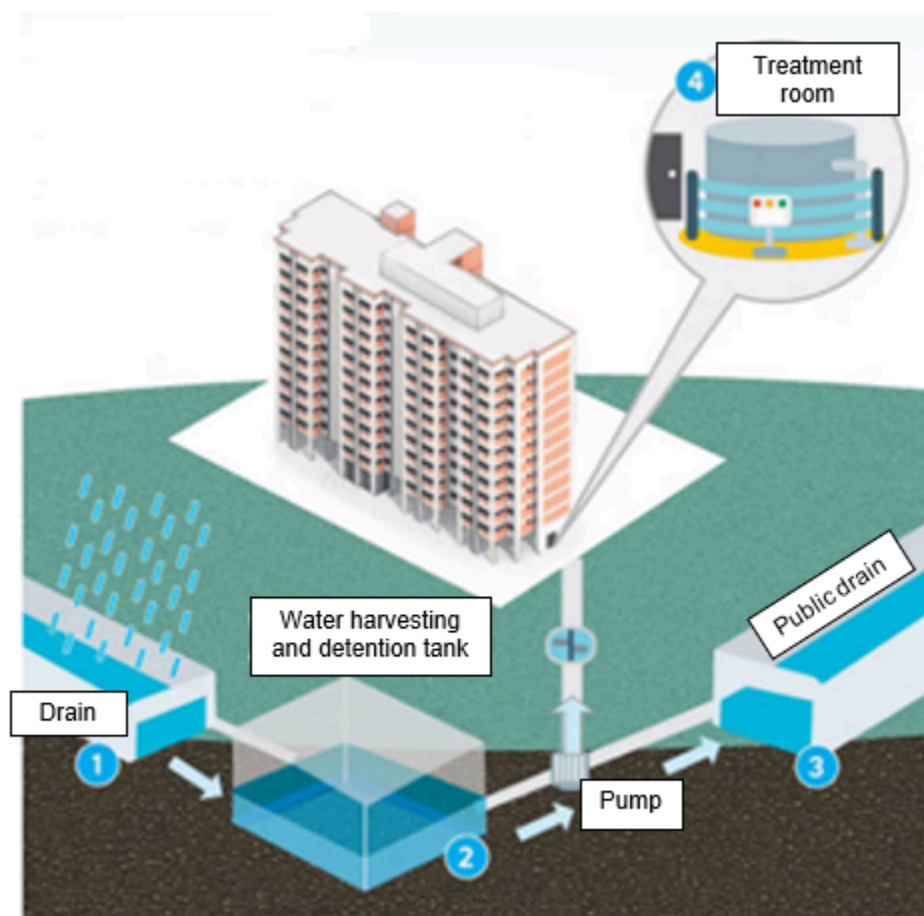
extra time spent
negative r/s
urban pop

Possible responses:

- [Overall] In general, there is a **positive** relationship. The **higher** the urban population density, the **more** extra time spent travelling. [1 mark]
- For example, when population density **increased from 1,000 to 4,500 people** per km², extra travelling time **increased from 4% to 18%**.
- [Significant] The steepest increase happens from 1000 to 4500 people per km², where extra time spent travelling increases from 4% to 18%.
- [Anomaly] However, when population density increases from 5,500 to 14,300 people per km², extra time spent remains relative constantly, ranging between 28% and 34%. [1 mark]

3 Ang Mo Kio Sec 2023 3P EOY

Fig. 1 (Insert) shows water harvesting being carried out at a HDB block.



Using Fig. 1, suggest how water harvesting is done in the HDB block and explain its importance to environmental sustainability. [4]

Award 1 mark for suggesting how each step works, to a maximum of 3 marks.

Award 1 mark for explaining the link between the water harvesting and environmental sustainability.

Award additional mark for further development on the environmental sustainability

Possible responses include:

1. Stormwater is collected in an underground harvesting tank via runoff from the drain.
2. Collected water will be pumped to the treatment room and public drain.
3. Collected stormwater is discharged at a slower rate into the public rain, to reduce flood risk.
4. Water will be treated before it is recycled for non-potable uses such as the washing of common areas and watering of plants decks of housing blocks. (max. 3 marks)

Outcomes and links to environmental sustainability:

Overall, water consumption is reduced.

This will lead to more resources for future generation (max. 2 marks)

4 AMK Sec 2023 3E EOY

Explain how urban neighbourhoods can achieve both economic and social sustainability. [4]

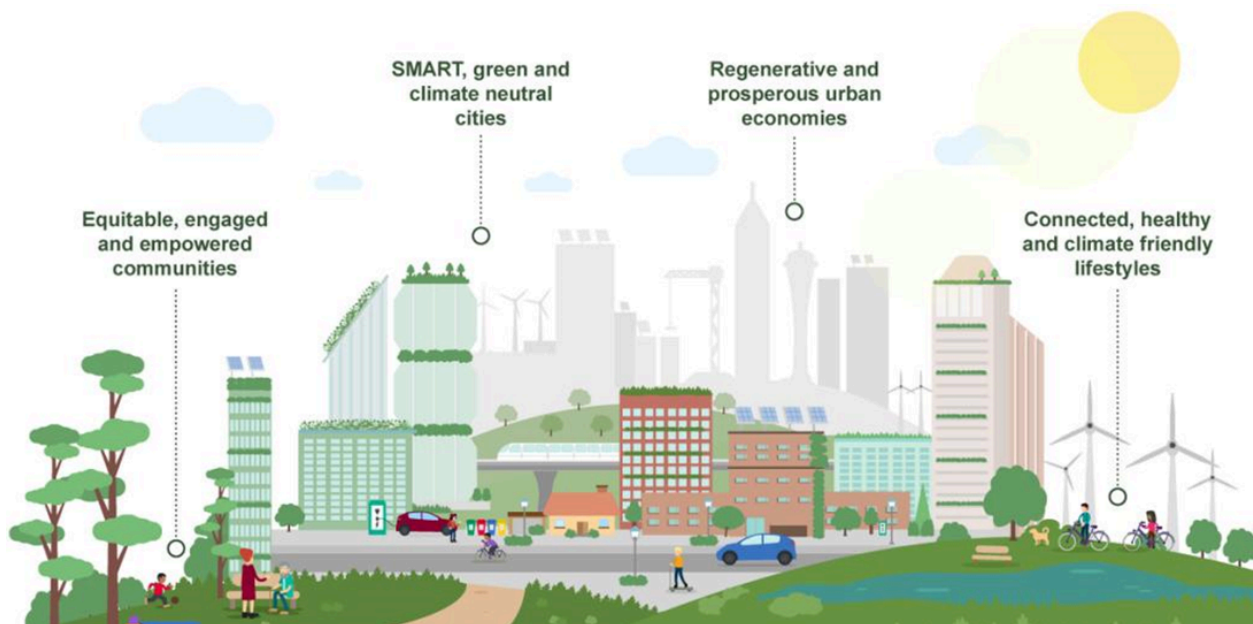
- Economic sustainability is achieved by ensuring that a neighbourhood has a high enough population density, which helps to support local businesses and keep transport and infrastructure costs low.
- For example, residents can also take up employment at these shops, earn income and increase their standard of living.
- Buildings and objects are located close to one another hence residents need not travel far, keeping transportation costs low.
- Transport infrastructure is located close to one another hence keeping cost of transport infrastructure low.
- Social sustainability is achieved by ensuring residents feel included and have a sense of shared identity.
- This can be fostered by having shared community spaces to promote regular social interactions.
- For example, the Residents' Network was set up in Singapore to promote neighbourliness and community cohesiveness amongst residents.

Award 1 mark for each explanation of social sustainability, to a maximum of 2 marks.

Award 1 mark for each explanation of economic sustainability, to a maximum of 2 marks.

5. ACS Barker 2023 3E EOY

Study Fig. 4 (Insert), which shows a sustainable urban city.



With reference to Fig. 4, describe how this urban city aims to achieve social and environmental sustainability.

- The nature park provides space for residents to engage in physical activity or to learn about wildlife.
- The trees in the nature park take in CO₂ and give out O₂, helping in reducing the temperature in the area and hence reducing the impacts of climate change.
- The residents adopt alternative modes of transport (eg. cycling) to reduce carbon emissions and hence air pollution.
- Buildings tap on alternative sources of energy (eg. wind), cutting down on fossil fuel burning, to reduce air pollution.

Reserve 1 mk for social and sustainability sustainability

Accept other plausible answers.

6. Assumption Eng Sch 2023 3P EOY

Outline how social sustainability may be encouraged amongst residents living in close proximity to one another. [3]

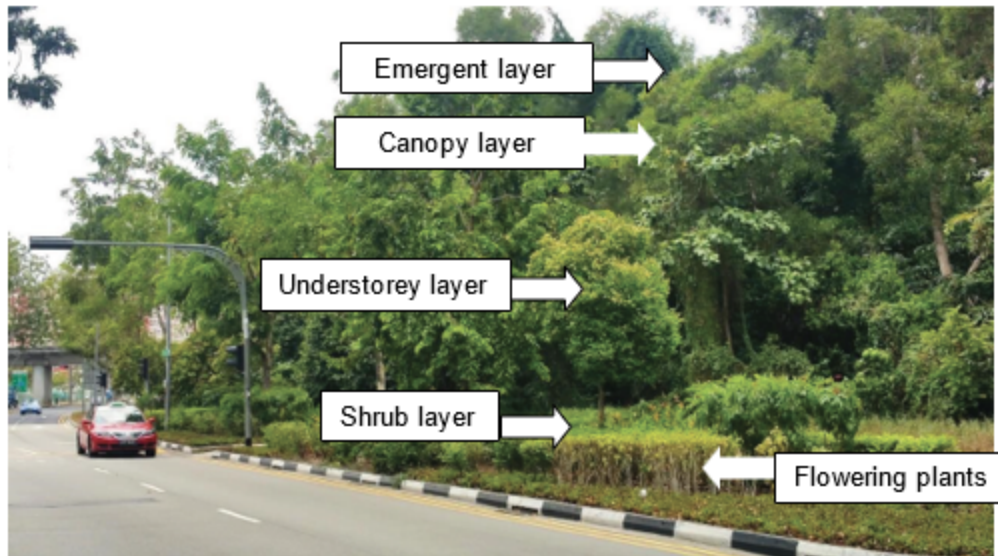
- Social sustainability is achieved by ensuring that residents feel included and have a sense of shared identity.
 - **E.g.** Residents in Bishan can take as they please from the community fridge with free items like grapes and cookies.
- This can be fostered by having shared community spaces to promote regular social interactions.
 - **E.g.** The residents in Bishan grow their own fruits and vegetables using repurposed planters.
 - The presence of a community library/ common seating space in the void deck encourages residents to hang around and interact with one another.
 - **E.g.** Amenities at the central of housing blocks, such as **coffeeshops**, that encourage residents to gather together for casual conversations and/or enjoying food together.
- An adequate neighbourhood structure may also help facilitate challenges faced by residents.
 - **E.g.** Food items donated by residents and food rescue groups to cater to those in the community rather than letting it expire and go to waste.
 - **E.g.** in Singapore, a few **Residents' Networks (RN)** are set up in each neighbourhood to promote neighbourliness and community cohesiveness amongst residents and residents are encouraged to join the network.

Any 3 @ 1 mark each

Accept the use of example(s) from the article or otherwise to elaborate point(s)

7. Assumption English Mo Kio Sec 2023 3P EOY

Study Fig. 1.1, which shows a Nature Way found in Pasir Ris, Singapore.



With reference to Fig. 1.1, explain how Nature Ways help the neighbourhoods to achieve environmental sustainability. [3]

- Nature Ways are routes following roadsides that are planted with specific trees and shrubs to facilitate the movement of animals like butterflies and birds between two green spaces.
- They are designed to replicate the ***natural structure of forests*** through planting of variety of vegetation.
- They re-create habitats like those found in natural forests for birds and animals.
- Greenery along these routes are also enriched with ***flowering plants*** that attract butterflies and support their breeding.

8. Bartley Sec 2023 3P EOY

Fig. 1.4 is a poster of a community event organised by the Residents Committee in Serangoon, a neighborhood in Singapore.



SERANGOON FAMILY LIFE CHAMPIONS PRESENTS



Serangoon Family Movie Night



Purchase your
tickets online



**10 JUNE 2023, SAT
6PM TO 9PM**

Joining Us

MS CHAN HUI YUH, PBM

Adviser to Alljunied GRC Grassroots Organisations

Event Highlights:



Popcorn &
Cotton Candy



Bouncy Castle



Fringe Activities



**OPEN FIELD @
S'GOON NTH AVE 1**

SCREENING SOON



RATING: PG

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For more information, kindly contact: 6285 8833



Serangoon



US@Serangoon
theserangooncc

(i) With reference to Fig. 1.4, explain how community events can help neighborhoods achieve social sustainability. [3]

Award 1m per relevant point. Reserve 1m for reference to figure.

- Community events help promote social interactions between residents [1]
- They allow residents to feel included and have a sense of shared identity. [1]
- The family movie night in the poster will allow children and parents living in the neighbourhood to get to know each other over a movie screening and other fun activities. [1]

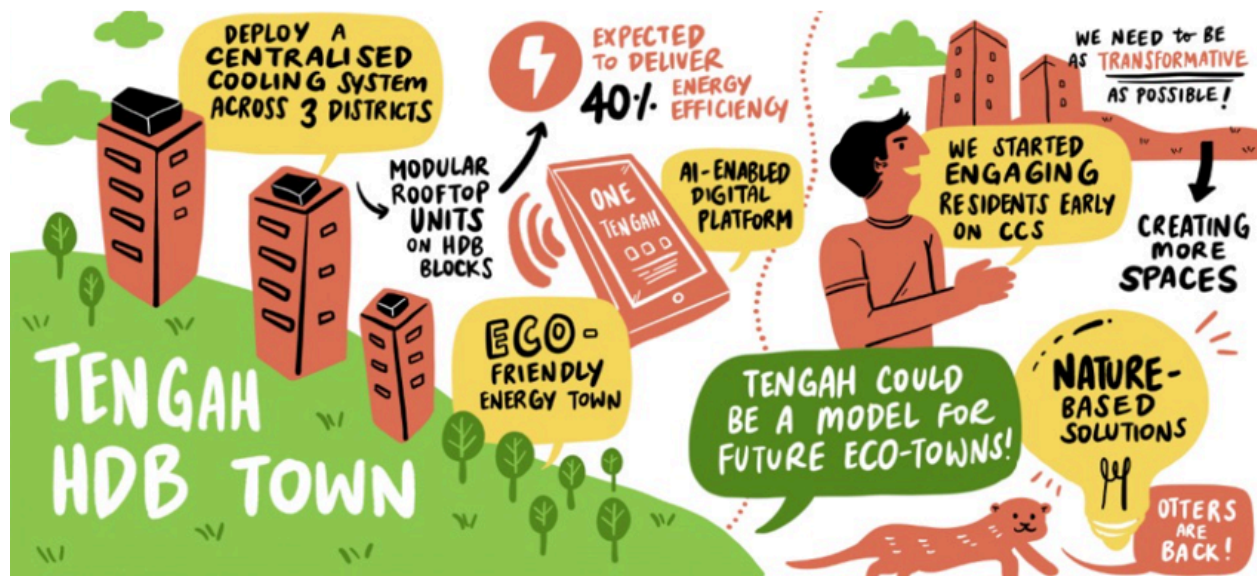
(ii) Describe one limitation of such community events in helping neighbourhoods achieve social sustainability. [2]

Award 1m per relevant point, and 1m for further elaboration.

- Not all residents participate in community events [1], which may limit the effectiveness of them in helping residents to get to know one another. [1]
- Community events may not be held frequently [1], hence they may not be sufficient for residents to get to know each other well. [1]

9. Bedok View Sec 2023 3E EOY

Study Fig. 2, which shows an infographic of Tengah HDB Town, Singapore.



*Centralised cooling system (CCS): an eco-friendly and efficient cooling technology in homes

*Modular rooftop units: Rooftop systems for air-conditioning in high buildings

*AI-enabled digital platform: Artificial Intelligence system to improve users' interaction

Using Fig. 2, explain how a town can be environmentally and socially sustainable. [4]

Award 1 mark for each complete point.

Reserve 1 mark for environmental and social sustainability.

Award a maximum of 1 additional mark for further development of each explanation, where applicable.

Environmental sustainability:

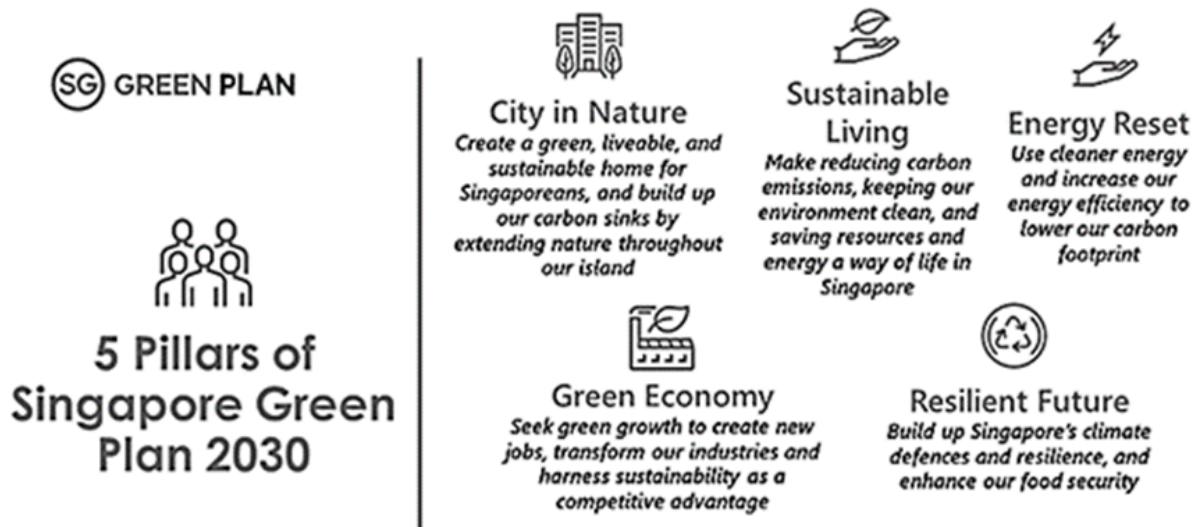
- A town can be environmentally sustainable by having features installed in the neighbourhoods that help to reduce carbon footprint. For instance, in Tengah HDB Town, the neighbourhood installed a centralised cooling system across 3 districts that helps to deliver 40% energy efficiency.
- A town can be environmentally sustainable by having nature-based solutions that integrates nature and people in the neighbourhood. For instance, it aims to create a positive relationship between people and nature through the building of green spaces and trees in Tengah HDB Town as well as making it conducive for others to live alongside.

Social sustainability:

- A town can be socially sustainable by involving the residents in the place-making of their neighbourhood. For example, in Tengah HDB Town, residents are engaged in conversations to allow their opinions and needs to be aired.
- A town can be socially sustainable by providing ample common spaces for community events and interactions to take place in order to create a sense of place.
- A town can be socially sustainable by tapping on technology through AI-enabled digital platform where residents can have one-stop access to information of their neighbourhood to further strengthen community bond and resilience in times of crisis.

10. Bedok View Sec 2023 3N EOY

Study Fig. 1.5, which shows information about the Singapore Green Plan 2030



Describe the ways in which the Singapore Green Plan 2030 supports environmental sustainability in a neighbourhood. [4]

Award 1m for each description and a maximum of 1 additional mark for further development of answer, where applicable.

- One way is the protection of nature through creating a green, liveable, and sustainable home for Singaporeans.
- This includes protection of nature for nature, wildlife to thrive in our urban spaces and human-wildlife coexistence can be fostered.
- Another way is through encouraging sustainable living through amenities and facilities in a neighbourhood that support waste minimisation and recycling.
- This could include recycling facilities like blue recycling bins to encourage residents to  recycle.
- Lastly, the use of cleaner energy through energy-efficient design approaches for buildings and landscapes supports environmental sustainability.
- Smart technology and eco-friendly features that are energy efficient can be installed for environmental sustainability.

11. Canberra Sec 2023 3E EOY

Study Fig. 3 which shows the focus areas of the HDB Green Towns Programme in Singapore.



With reference to Fig. 3, explain how the various focus areas contribute to environmental sustainability. [4]

Award 1 mark for each explanation, to a maximum of 4 marks. Award a maximum of 1 additional mark for further development of each explanation, where applicable.

Possible responses include:

1. Reducing energy consumption:

- Installation of solar panels across HDB blocks helps to generate sufficient energy to meet the energy demand for the common services (e.g. lifts, lights and water pumps). [1] This generates more clean energy and helps to reduce carbon emissions, thereby reducing greenhouse gases which contribute to global warming. [Additional 1 mark]
- Installation of smart LED lighting at common areas (e.g. void decks and carparks), which can automatically adjust the luminosity of the LED lights depending on the motion detected. [1] When there is no motion, the lights will dim automatically, thus conserving energy. In this way, the use of Smart LED lighting can reduce energy used for lighting by up to 60% compared with conventional LED lighting. [Additional 1 mark]

2. Recycling rainwater:

- Installation of Urban Water Harvesting System (UWHS) to harvest rainwater for non-potable uses like washing of common areas to reduce overall water consumption. [1]

3. Cooling HDB Towns:

- The application of cool coatings is applied on building facades, roofs, and pavements. Surfaces treated with cool coatings absorb less heat during the day. [1] As a result, they emit less heat at night, leading to a cooling effect on the environment. This helps reduce energy consumption. [Additional 1 mark]
- HDB has provided a myriad of green spaces in every housing development so that residents can enjoy greenery at their doorsteps. The greenery also helps to cool and enhance the liveability of our estates.[1] HDB will introduce greenery to the top decks of more

Multi-Storey Carparks (MSCPs), by repurposing them for urban farming, skyrise greenery or for community gardening. [Additional 1 mark]

AO1

GEL Topic 2.2

Topic 2.2 What ecosystem services are found in urban neighbourhoods?

1 Ang Mo Kio Sec 2023 3P EOY

Describe the ecosystem services that can be provided in an urban neighbourhood. [4]

Award 1 mark for each description of an ecosystem service to a maximum of 4 marks

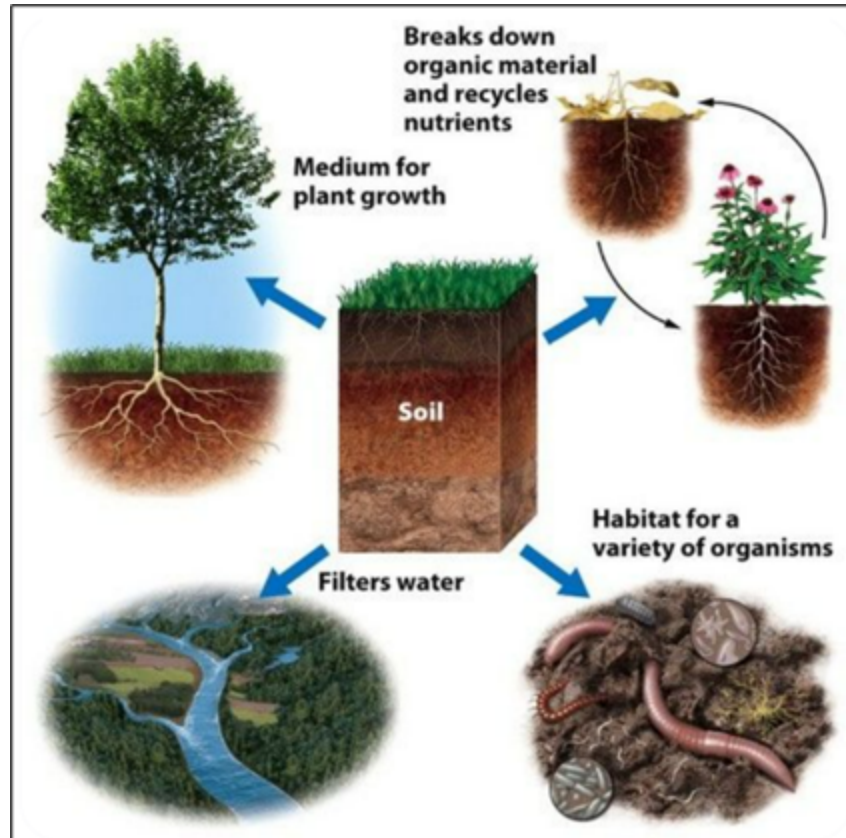
Award a maximum of 1 additional mark for further development of each description, where applicable.

Possible responses include:

- Supporting services with variety of plants that are habitats for insect pollinators like bees.
- Regulating service by slowing down storm water run off.
- Trees around a lake in the park will help to maintain good air quality.
- Cultural service: Grassy banks or areas of open spaces can allow for the local community to carry out recreational activities like running.
- Recreational experience enhanced by aesthetics of the lake, or river around the area like in Bishan Park.

2. AMK Sec 3E EOY 2023

Figure 3 shows a diagram about a supporting ecosystem



With reference to Figure 3, explain what a supporting ecosystem is. [3]

- Refers to services that are necessary for the functioning of all other ecosystem services.
- Soil is formed when micro-organisms and physical processes decompose organic matter and break them down into smaller particles.
- Soil provides habitats for billions of organisms, contributes to biodiversity.
- Soil acts as water filter by trapping sediments and pollutants in the water.
- Soil formation, as a supporting ecosystem service, ensures that human activities such as agriculture can take place.

Award 1 mark for each explanation of, to a maximum of 2 marks.

Award 1 additional mark for further development of the explanation, where applicable.

3. Anglican High School 2023 3P EOY

Study Fig. 1.2 which shows a photograph of a mangrove forest in Bintan, Indonesia



With reference to Fig. 1.2, explain how mangrove forests may provide cultural and provision ecosystem services for a community. [4]

Award 1 mark for each explanation of each ecosystem service.

Award a maximum of 1 additional mark for further development of each explanation, where applicable.

At least one of each type of ecosystem services must be included for full 4m

- Mangrove forests provide cultural services for people **by allowing tourism/ recreational tours** to take place. [1]
 - During these tours/boat trips, people can learn more about mangroves. [1 additional mark].
 - Stress-relieving as a recreational activity [1 additional mark].
- Mangrove forests provide provisioning services/ **by providing food** for community [1]
 - Such as fishes in the river/firewood using bark of mangrove trees [1 additional mark].
 - providing safe breeding space/nurseries in dense root network [1 additional mark].
- Mangrove forest **provide fuel** [1]
 - that can be used as firewood [1 additional mark]

4. Assumption English Mo Kio Sec 2023 3E EOY

Study Fig. 1.2, which shows a photograph of Bukit Timah Nature Reserve.



With reference to Fig. 1.2, describe the cultural and supporting services provided by the nature reserve. [4]

Cultural services

- Stress-relieving activities/ recreational activities such as **hiking, running** etc, improving people's physical and mental health.
- Aesthetic experiences from admiring natural objects such as **trees**, plants etc.fostering social belonging, strengthening sense of place.
- Educational opportunities e.g. geography students engage in fieldwork. improving appreciation on the value of nature.

Supporting services

- During photosynthesis, plants absorb carbon dioxide and release oxygen so that all other ecosystem can function.
- Soil formation as a result of decomposition of leaves ensures that human activities such as agriculture can take place.
- Animals like wild bees play a significant role in crop pollination which is vital as it ensures that crops are able to reproduce to provide food for animals and humans.

4 @ 1 mark each

Accept other plausible answers

Reserve 1 mark for making reference to figure (*in bold italics*)

Max 1 mark for mere listing of activities

5. Bartley Sec Sch 2023 3P EOY

Fig. 1.1 shows a group of friends exercising in Central Park, a large park in New York City, USA.



(a) With reference to Fig. 1.1, identify and describe two regulating ecosystem services that Central Park provides. [4]

Award 1m for identifying and 1m for describing. Reserve 1m for reference to figure.

Any 2 well described:

- Regulate local climate [1] – the trees in the park help to lower surface and air temperatures by providing shade for the joggers [1]
- Regulate air quality [1] – the trees in the park remove pollutants from the atmosphere providing fresh air for the joggers [1]
- Regulating water quality [1]- the vegetation removing pollutants through infiltration

(b) Explain how regularly exercising in Central Park helps people build a sense of place. [2]

Award 1m per relevant point, up to a maximum of 2m:

- Regular visits to Central Park allow people to have repeated encounters with objects and people at that location. [1]
- People can also build positive memories when exercising with friends. [1]
- This makes Central Park meaningful to them which deepens their sense of place. [1]

6. Beatty Sec Sch 2023 3P EOY

Describe one ecosystem service found in urban neighbourhoods. [2]

Provisioning ecosystem services

- It refers to the provision of resources from ecosystems such as food, water, and wood. The supply of food is one of the most important provisioning services provided by nature to people and it can be obtained through means such as agricultural activities and fisheries.
- These provisioning services, such as the supply of fresh water and food, are also found in an urban neighbourhood ecosystem. For instance, food may be grown from refers to any urban agricultural activities and urban farming initiatives.

Regulating ecosystem services

- It refers to the benefits obtained from the regulation of various ecosystem processes. This includes services such as regulating the climate, outbreak of diseases, and flood occurrences. The regulation of these processes make it possible for ecosystems to function and for life to be sustained. All these ecosystem processes work together to ensure that the ecosystems are functional, clean, sustainable, and resilient to changes.
- These regulating services are also available in an urban neighbourhood, including microclimate regulation, flood mitigation as well as air and water quality control.

Cultural ecosystem services

- It refers to the provision of benefits people obtain from ecosystems including aesthetic experiences, educational opportunities, and recreational activities.
- The presence of green spaces can provide many cultural ecosystem services such as aesthetic appreciation and opportunities for stress-relieving activities. When residents engage in these activities, it may improve their physical and mental health and foster their social belonging and group identity. As a result, one's sense of place can also be strengthened.

Supporting ecosystem services

- It refers to services that are necessary for the functioning of all other ecosystem services, including soil formation, pollination, and photosynthesis.
- For instance, soil is formed when micro-organisms and physical processes decompose organic matter and break them down into smaller particles. Soil is essential for the health of all terrestrial ecosystems as it provides habitat for billions of organisms, contributes to biodiversity, and acts as a water filter. Hence, soil formation, as a supporting ecosystem service, ensures that human activities such as agriculture can take place.

- These supporting ecosystem services are also available in an urban neighbourhood. One key supporting service is pollination which is vital to many animals and people. Wild bees play a significant role in crop pollination (see Figure 9), which ensures that the crops are able to reproduce to provide food for animals and humans.
- Another important supporting service is photosynthesis. When plants photosynthesise, carbon dioxide is absorbed and oxygen is released. Photosynthesis is responsible for producing and maintaining the oxygen content of the Earth's atmosphere. This ensures that all other ecosystem services can function.

(2@1m each)

7. Bedok GreenSch 2023 3P EOY

Fig. 5 shows an area that can be commonly found in many estates.



NEE SOON SOUTH ZONE C RC ROOFTOP GARDEN POTLUCK

Sat, 4 Jun, 2022, 4:30 PM - 6:30 PM (GMT+8.0)

Blk 813 Yishun Ring Road, MSCP

Singapore 761813

Share this event



Join us for some yummy food at Blk 813 Yishun Ring Road MSCP Rooftop Garden for a POTLUCK party with our community gardeners. Feel free to bring some food and drinks along to share with your neighbours.

Let's enjoy the kampong spirit and the joy of gardening!

In Yishun, you will find community gardens in Singapore, built atop a HDB car park. The rooftop of a multi-storey carpark in Yishun has been turned into a community garden by the Rooftop Farming interest group made up of some 18 residents in Nee Soon South Zone D. Ong Chun Yeow is one of several estate residents with a garden allotment, growing lots of leafy greens like purslane, swiss chard, and amaranth, herbs, galangal, as well as fruiting vegetables like bitter melon, okra and tomatoes.

Suggest how this area can contribute towards the different types of ecosystem services in a neighbourhood. [6]

1m for identifying the ecoservice, 1m for elaboration and evidence from article

- Provisioning ecoservices
 - o Tangible resources that people can get from the ecosystem such as the plants and vegetables like swiss chard, herbs bitter melon provide a source of food for the residents in the area.
- Regulating ecoservices
 - o The vegetation cover on rooftops can help cool down areas of the residential block and to promote lower surface and air temperature.
- Cultural ecosystem services
 - o These are the intangible benefits such as educational opportunities and

recreational activities for residents who are able to foster better social relationships such as using the space to meet up with fellow residents (Potluck party with community gardeners)

8. Bedok South Sec Sch 2023 3E EOY

Study Fig. 1, which shows photographs of Bishan-Ang Mo Kio Park.



With the help of Fig. 1, describe the regulating and cultural ecosystem services that can be found within this park. [4]

Regulating ecosystem services

- Ang Mo Kio Park can regulate the local climate by lowering the surface and air temperatures by providing shade to residents
- The vegetation cover in the park can regulate water flows and reduces surface runoff by retaining water in the soil.
- The trees in the park regulates local air quality by removing pollutants from the atmosphere.

Cultural ecosystem services

- The Bishan-Ang Mo Kio Park can provide residents with aesthetic experiences from natural objects such as lush vegetation, ponds, gardens, river plains, and plenty of open green spaces.
- The park also provides opportunities for stress-relieving activities which may improve people's physical and mental health and foster social belonging and group identity,

thus strengthening their sense of place.

- Walks in the park may improve people's physical and mental health and foster social belonging and group identity, thus strengthening their sense of place.
- 4 points @ 1 mark each
- A complete answer consists of points for both regulating and cultural ecosystem services.

A maximum of 3 marks will be awarded if answer covers only 1 ecosystem service.

9. Canberra Sec Sch 2023 3E EOY

Study Fig. 2 which shows a community garden at the top deck of a multi-storey car park in a HDB estate



Using Fig. 2, explain how the community garden may provide ecosystem services for a neighbourhood. [4]

Award 1 mark for each explanation, to a maximum of 4 marks. Award a maximum of 1 additional mark for further development of each explanation, where applicable.

Possible responses include:

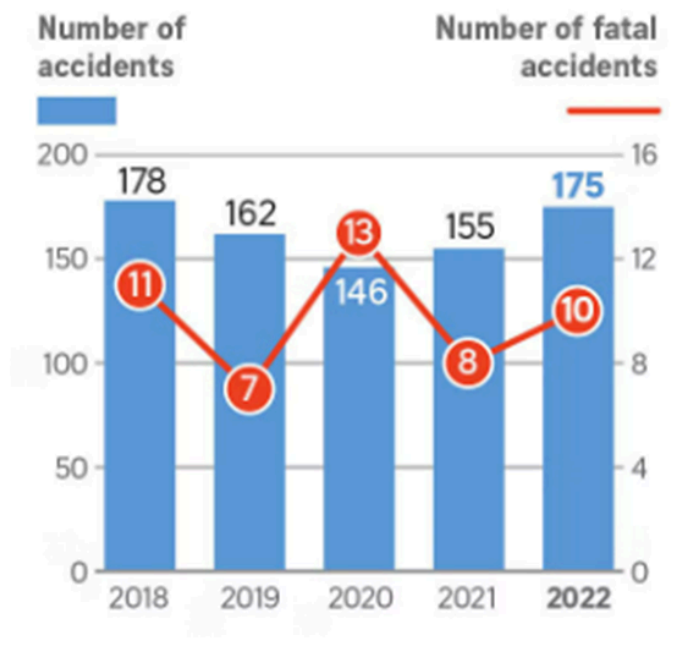
- Plants may provide regulating services for people as the surrounding air is purified through photosynthesis. [1] During photosynthesis, plants absorb carbon dioxide from the atmosphere and give out oxygen. [Additional 1 mark]
 - The variety of plants on rooftop gardens facilitate pollination, enhancing the neighbourhood's biodiversity. [1]
 - The community garden may provide cultural services as gardening together may foster group identity, thus strengthening their sense of place. [1] Residents may also gain aesthetic experiences from the presence of green spaces in the community garden. [Additional 1 mark]
 - The community garden may provide provisioning services as food may be provided as edibles are planted in the garden. [1]
- [Accept other plausible answers]

GEL Topic 2.3

Topic 2.3 What are common hazards in urban neighbourhoods?

1 Ang Mo Kio Sec 2023 3P EOY

Fig. 2 (Insert) shows the statistics of drink driving in Singapore.



(a) Describe the changes in the number of accidents from 2018 to 2022. [3]

Award 1 mark for each description of the changes with evidence.

Possible responses include:

- There is an overall decrease from 2018 to 2022 from 178 to 175 accidents.
- Initially, there is a steady decrease from 178 accidents in 2018 to 146 accidents in 2020.

However, the number started to increase again after 2020 to 175 accidents in 2022, almost similar to 2018.

(b) With reference to Fig. 2 (Insert) and studies you have made, describe the damaging impacts of traffic and air pollution hazards. [4]

Award 1 mark for each description of the impacts with evidence from Fig. 2.

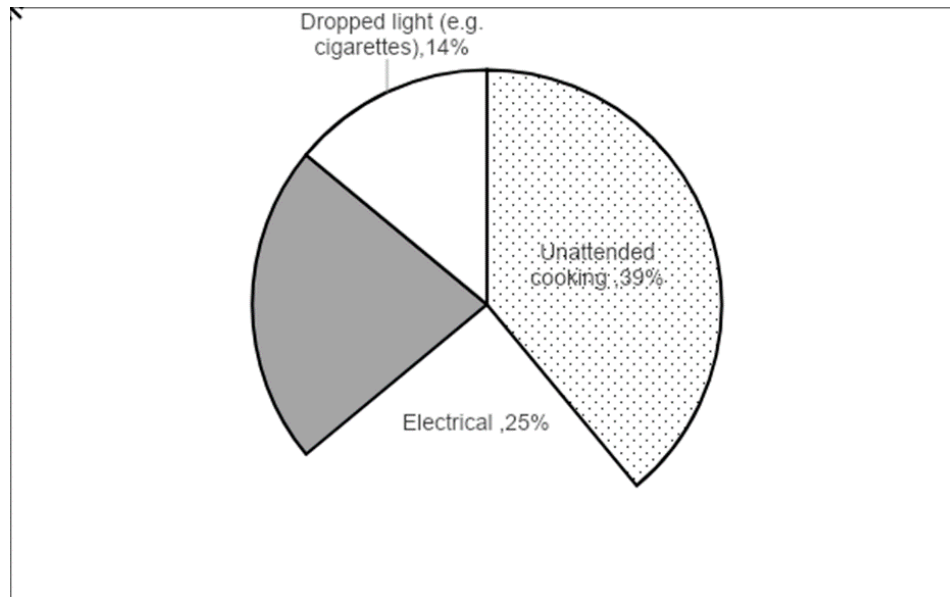
Award 1 mark for each description of the impacts of air pollution hazard, to a maximum of 2/3 marks.

Possible responses include:

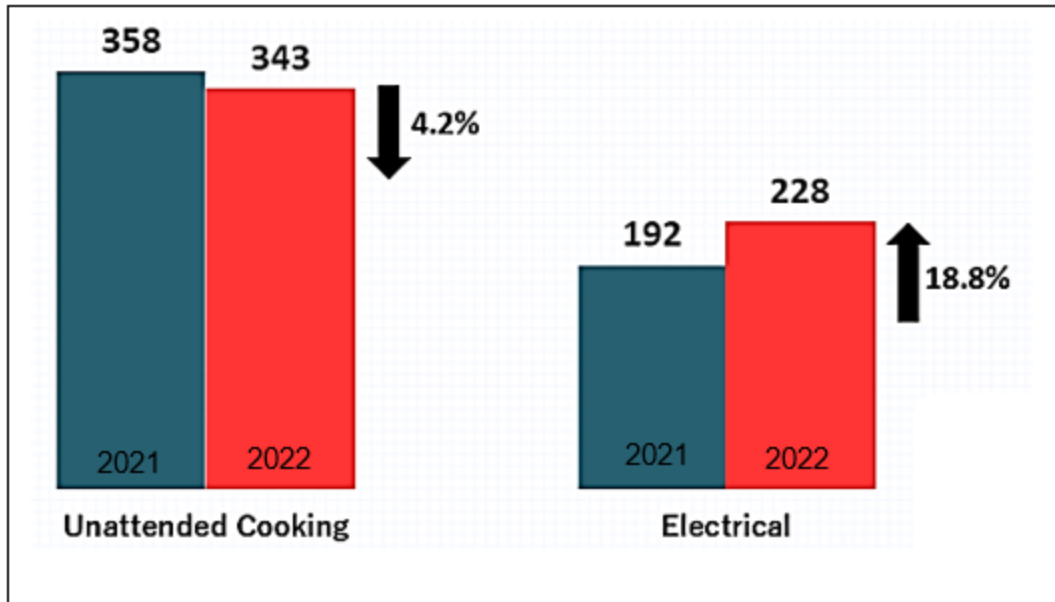
Traffic hazards:

- People may suffer serious injuries when involved in a traffic accident, which may lead to fatal accidents like in Fig. 4. There were 13 fatalities in 20220 even though it is the lowest number of accidents.
- Elderly pedestrians and motorcyclists are the ones with the highest percentage of traffic accidents resulting in injuries or death.
- **Air pollution hazards:**
- Respiratory infections, heart diseases and lung cancer.
- PM 2.5, also know as particulate matter such as soot, smoke, dust and liquid droplets measuring less than 2.5 micrometers in diameter, may be produced in the urban neighbourhoods.
- High levels of exposure to nitrogen dioxide may lead to higher risks of asthma in children.

2. Bartley Sec 2023 3E EOY



Trend in top two causes of fires in residential buildings in 2021 and 2022



Using Fig. 2 and 3, comment on the causes of fires in residential buildings in Singapore in 2022.

Award 1m for each description.

Award a maximum of 1 additional mark for further development of each description where applicable

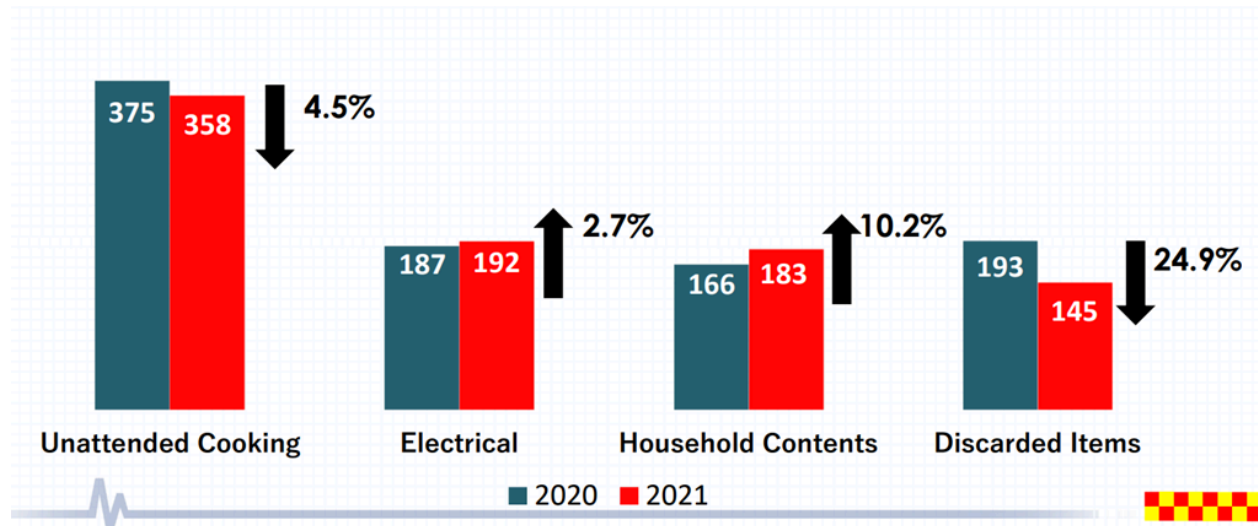
Reserve 1m for reference to Fig.

Reserve 1m for reference to Fig. 2

- The top cause for fires were due to unattended cooking [1m] at 39% [1 additional mark]
- In 2022, fires caused by dropped light was the lowest % [1m] 14% of residential fires were caused by dropped light [1 additional mark]
- Compared to 2021, there was a rise in fires caused by unattended cooking while there was a drop in electrical fires in 2022. [1m] Fires caused by unattended cooking dropped by 4.2%/ 15 cases while fires due to electrical causes rose by 18.8%/36 cases [1 additional mark]

3. Beatty Sec 2023 3E EOY

Study Fig. 1.1 (Insert), which shows the changes in the causes of residential fires between 2020 and 2021 in Singapore.



Using Fig. 1.1, compare the changes in the causes of residential fires between 2020 and 2021. [3]

- Both fires caused by unattended cooking and discarded items decrease from 2020 to 2021.
- From 375 to 358 (4.5%) for unattended cooking and 193 to 145 (24.9%) for discarded items.
- However, fires caused by electrical and household contents increased from 2020 to 2021.
- From 187 to 192 (2.7%) for electrical and 166 to 183 (10.2%) for household contents.

4. Bedok Green Sec 2023 3E EOY

Fig. 4 shows a hazard that is commonly found in urban areas

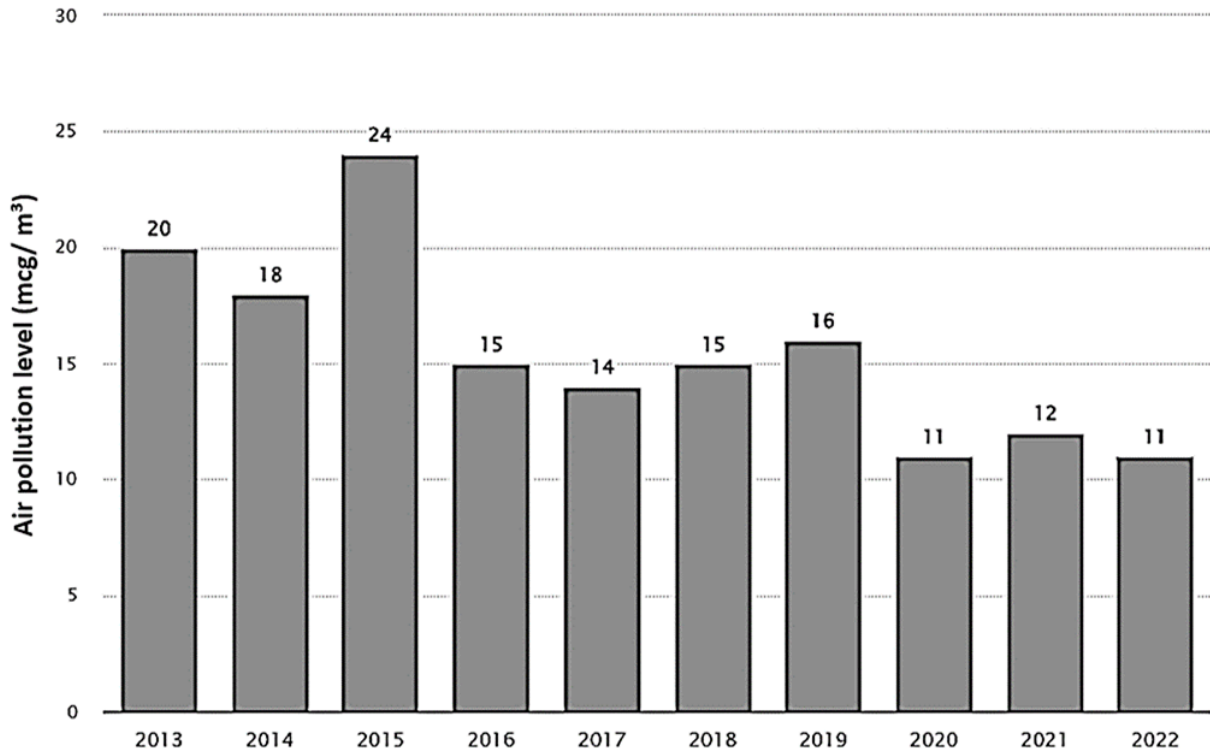
Number of drink-driving accidents and red-light violations and accidents

Year	Drink-driving accidents		
2017		150	
2018		176	
2019		162	
Year	Red-light running violations		
2017		46 599	
2018		53 910	
2019		60 693	

- (i) Identify the type of hazard shown in Fig 4. [1]
- Traffic hazards
- (ii) Describe the changes in the hazard shown in Singapore from 2017 – 2019. [3]
- Most of the traffic hazards are due to red-light running violations
 - The number of drink-driving accidents increased in 2018 from 2017 but fell again in 2019.
 - The number of red-light running violations have steadily increased over the years from 46 599 in 2017 to 60 693 in 2019.

5. Bedok South Sec 2023 3E EOY

Study Fig. 3, which shows the annual air pollution level of particulate matter (PM2.5) in Singapore from 2013 to 2022.



*mcg-microgram

(a) With reference to Fig. 3, describe the trend in the annual air pollution level of particulate matter (PM 2.5) in Singapore from 2013 to 2022. [3]

- From 2013-2014, air pollution level decreased from 20 mcg/ m³ to 18 mcg/ m³ before increasing to 24 mcg/ m³ in 2015.
- From 2015 to 2016, the air pollution level decreased from 24 mcg/ m³ to 15 mcg/ m³. Then air pollution level increased slightly to 16 mcg/ m³ in 2019.
- From 2019 to 2020, air pollution level decreased from 16 mcg/ m³ to 11 mcg/ m³. It increased slightly to 12 mcg/ m³ before dropping slightly, to 11 mcg/ m³.

3 points @ 1 mark each.

(b) Explain how air pollution could affect people living in cities. [3]

- PM 2.5 (particulate matter) such as soot, smoke, dust and liquid droplets produced by vehicles or burning vegetation, can enter the bloodstream and lodge deep into lungs.
- This can cause lung functions to decline and cause diseases such as lung cancer and other respiratory infections.
- High levels of exposure to nitrous oxide, released in areas of high vehicle traffic can lead to higher risks of asthma in children.
- Smog, formed by the combination of smoke and fog can reduce visibility on the roads, and may cause traffic accidents, posing a safety risk to people.

Any 3 points @ 1 mark each

6. Bedok View Sec 2023 3E EOY

Describe two common hazards in urban neighbourhoods and how they can be sustainably managed. [4]

Award 1 mark for each complete point.

Reserve 2 marks each for describe and sustainable management.

Award a maximum of 1 additional mark for further development of each explanation, where applicable.

Describe:

- Fire hazards are common in urban neighbourhoods. Common causes include unattended cooking and faulty electrical appliances and wiring which can ignite nearby flammable materials, resulting in a fire.
- Air pollution is another common hazard in an urban neighbourhood. Common causes include burning vegetation which result in carbon dioxide and other pollutants being released into the atmosphere, causing air pollution.
- Accept description of traffic hazards.

Sustainable management:

- Disaster risk management strategies can be adopted to prevent new risks from happening, reduce existing risks and manage disaster risks. It can focus on improving residents' emergency preparedness to respond to such hazards.
- They can be managed by strengthening relationships among residents and raising their awareness of potential hazards. Residents are encouraged to get to know their neighbours so that they can depend on one another during an emergency, thus building community resilience.
- Environmental stewardship can also be practised through volunteerism among neighbourhood residents to share knowledge with others about the importance of healthy ecosystems so that they are more aware of responsible actions to protect the natural environment.

7. Bendeemer Sec 2023 3E EOY

Fig. 3 (Insert) shows a view of an oil refinery off the coast in Singapore.



(a) Identify the hazard shown in Fig. 3. [1]

[Award 1 mark for correct identification]

- Air pollution

(b) Explain how the hazard shown in Fig. 3 may impact people in Singapore.[2]

[Award 1 mark for each point]

- Air pollution caused by industries could gravely affect the health of people.
- Prolonged exposure to polluted air may result in people developing heart diseases and lung cancer.
- Polluted air could quickly blanket a large part of the city, causing respiratory infection.

8. Broaderick Sec 2023 3E EOY

Describe the negative consequences of air pollution hazards in urban neighbourhoods.

- Air pollution can lead to respiratory infections, heart diseases and lung cancer [1]

(Any 2)

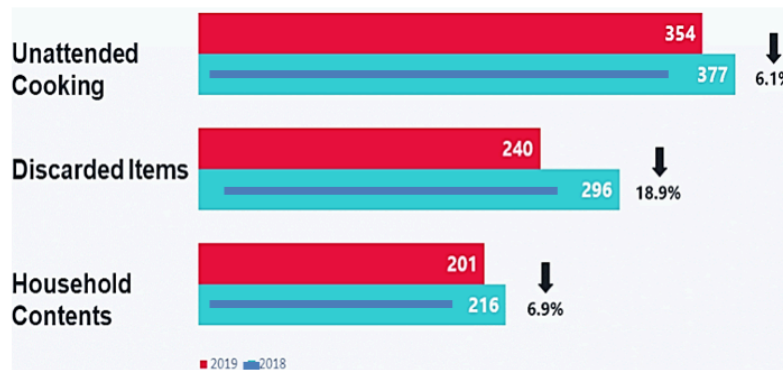
- High levels of exposure to nitrogen dioxide may lead to higher risks of asthma in children. [1]

- PM2.5 may also cause lung function decline in older adults [1]

Any two points.

9. Bukit Batok Sec 2023 3E EOY

Study Fig. 1.2 which shows fire cases with three different causes in residential areas in Singapore between 2018 and 2019.



Describe and account for the changes in the causes of fire in residential areas between 2018 and 2019. [4]

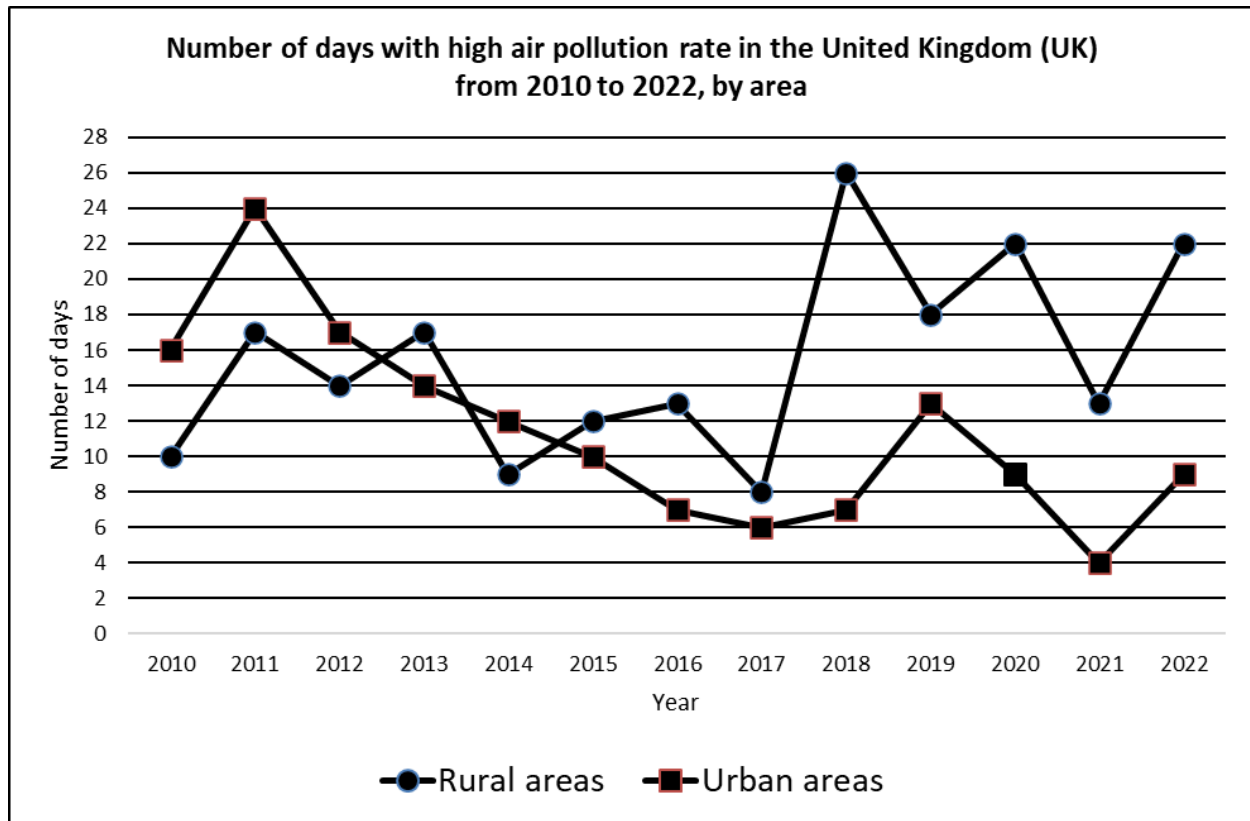
[Max: 4; 2 for describe & 2 for any 2 reasons]

[1 for general, 1 for data, 2 for reasons]

- **Generally, fire cases by all 3 causes declined between 2018 & 2019. [1]**
 - **Eg discarded items as the cause, declined by highest percentage (18.9%), followed by household contents (6.9%) & unattended cooking (6.1%). [1]**
 - **Due to Town Councils on educating residents on how to minimise incidence of fires taking place. [1] OR**
 - **Due to SCDF conducting Community Emergency Preparedness Programme (CEPP) that educates public on actions to be taken to reduce fire risks eg not leaving discarded items in common corridors. [1]**
- AND**
- **Due to community resilience in that residents are more aware of fire safety and taking actions to prevent & reduce fires from taking place. [1]**

10. Canberra Sec 2023 3E EOY

Study Fig. 1 which shows the number of days with high air pollution rate by areas in the United Kingdom from 2010 to 2022.



(a) Describe the trends in the number of days with high air pollution rate from 2010 to 2022 shown in Fig. 1. [3]

Award 1 mark for each description, to a maximum of 3 marks. Award a maximum of 1 additional mark for further development of each description, where applicable.

Possible responses include:

- Generally, the number of days with high air pollution in urban areas decreased. [1] In urban areas, the number of days with high air pollution decreased from 16 to 9 from 2010 to 2022. [Additional 1 mark]
- Generally, the number of days with high air pollution rate in rural areas increased. It increased from 10 days in 2010 to 22 days in 2022. [Additional 1 mark]
- From 2011 to 2012, the number of days with high air pollution rate decreased in both urban and rural areas. [1]
- From 2017 to 2018, the number of days with high air pollution rate in rural areas increased significantly while in urban areas, it increased slowly. [1]
- The change in number of days with high pollution in urban areas from 2011 to 2018 is gradual, while that for rural areas is fluctuating. [1]

(b) Describe the impacts of living in areas with high rates of air pollution. [3]
Award 1 mark for each description, to a maximum of 3 marks. Award a maximum of 1 additional mark for further development of each description, where applicable.

Possible responses include:

- Short-term effects, which are temporary, include illnesses such as pneumonia or bronchitis. [1] They also include discomfort such as irritation to the nose, throat, eyes, or skin. Air pollution can also cause headaches, dizziness, and nausea. [Additional 1 mark]
- Long-term effects of air pollution can last for years or for an entire lifetime and this includes heart disease, lung cancer, and respiratory diseases such as emphysema. [1] Air pollution can also cause long-term damage to people's nerves, brain, kidneys, liver, and other organs. [Additional 1 mark]
- People react differently to different types of air pollution. Young children and older adults, whose immune systems tend to be weaker, are often more sensitive to pollution. [1] Conditions such as asthma, heart disease, and lung disease can be made worse by exposure to air pollution. [Additional 1 mark]

Part (c) from Canberra Sec 3N EOY 2023

(c) Explain how disaster risk management helps to reduce the impact of residential fires. [3]

- People's preparedness in responding to house fires could be improved through specialised programmes that train them to use tools or equipment effectively in the event of house fires [1 mark]. An example is the Singapore Civil Defence Force's hands-on workshop on using fire extinguishers to prevent fires from spreading, which reduces the negative impacts of fires [1 additional mark].
- People's preparedness in responding to house fires could be improved by organising residents to pool their resources and act before emergency services arrive [1 mark]. An example is the Community First Responders volunteers who help put out minor fires in the neighbourhood using available resources [1 additional mark].
- The negative impact of residential fires may also be reduced by reducing the neighbourhood's exposure to fire hazards through public education that discourages behaviours that may result in house fires [1 mark].
- The vulnerability of people and properties to fire hazards could be reduced through insurance schemes that provide financial aid following house fires [1 mark].

GEL Topic 2.4

Topic 2.4 How to build sustainable urban neighbourhoods?

1. Ang Mo Kio Sec 2023 3P EOY

With example(s), explain how community resilience is developed in an urban neighbourhood. [5]

Award 1 mark for each explanation of how community resilience is developed.

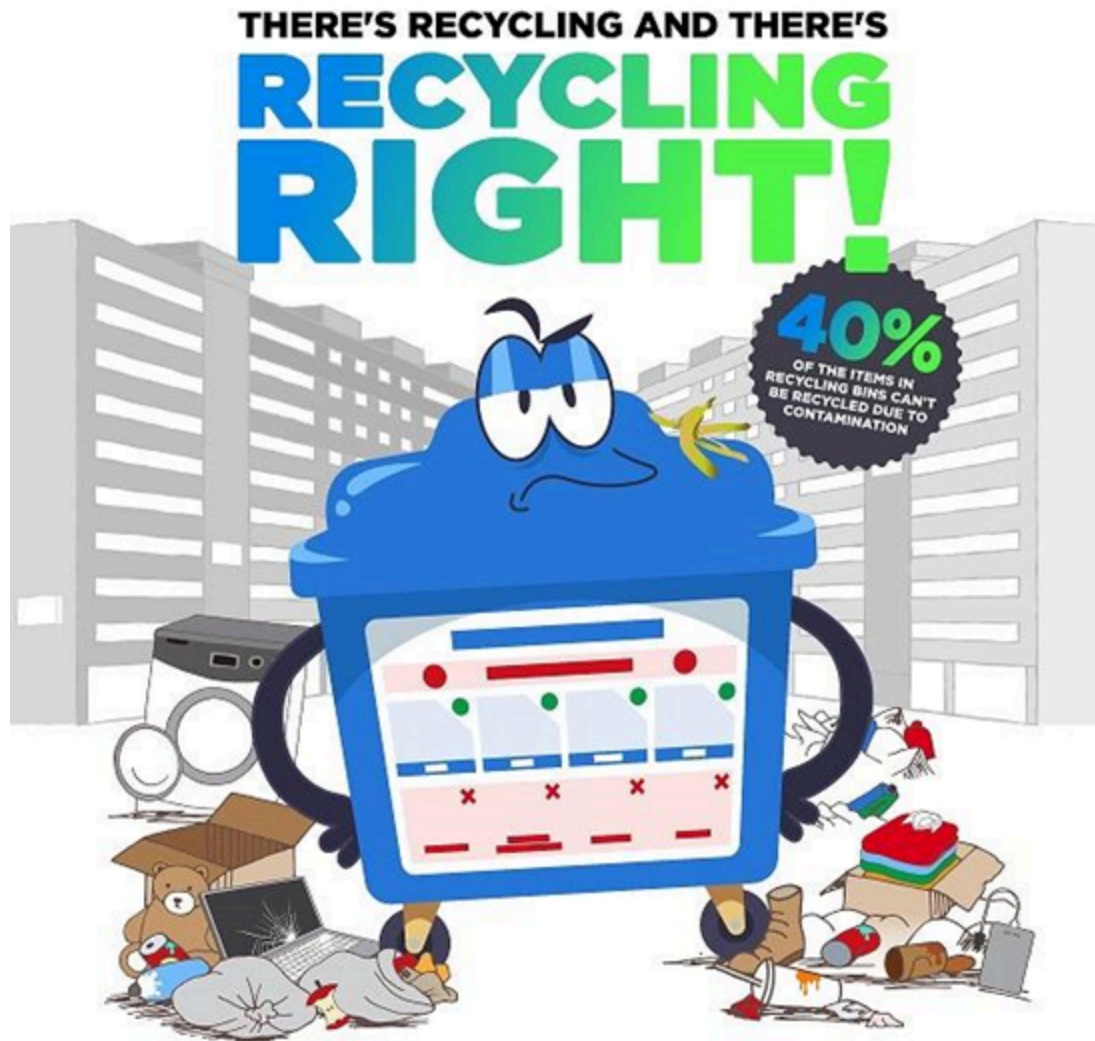
Award an additional mark for example given, with explanation.

Possible responses include:

- Strengthening relationship among residents and raising their awareness of potential hazards.
- PA organizes a wide range of community activities aimed at fostering positive relationships amongst residents living in the neighbourhood.
- Throughout the COVID-19 pandemic, residents come together to provide assistance to others in need (eg. mask and food distribution)
- Developing resident's ability to organize themselves and equip themselves with resources to resist, adapt and recover from a disaster.
- CFRs volunteers are important in supporting the government in search and rescue operations, relief work as well as educating public on simple first aid and basic firefighting.

2. Ang Mo Kio Sec 2023 3P EOY

Fig. 3 (Insert) shows a poster put up by NEA on recycling.



With reference to Fig. 3, explain how this is part of environmental stewardship that is developed in an urban neighbourhood.

Award 1 mark for each explanation of how environmental stewardship is developed based on Fig. 3 together with evidence, to maximum of 2 marks.

Award an additional mark for further development based on other details/points connected to environmental stewardship, to a maximum of 3 marks.

Possible responses include:

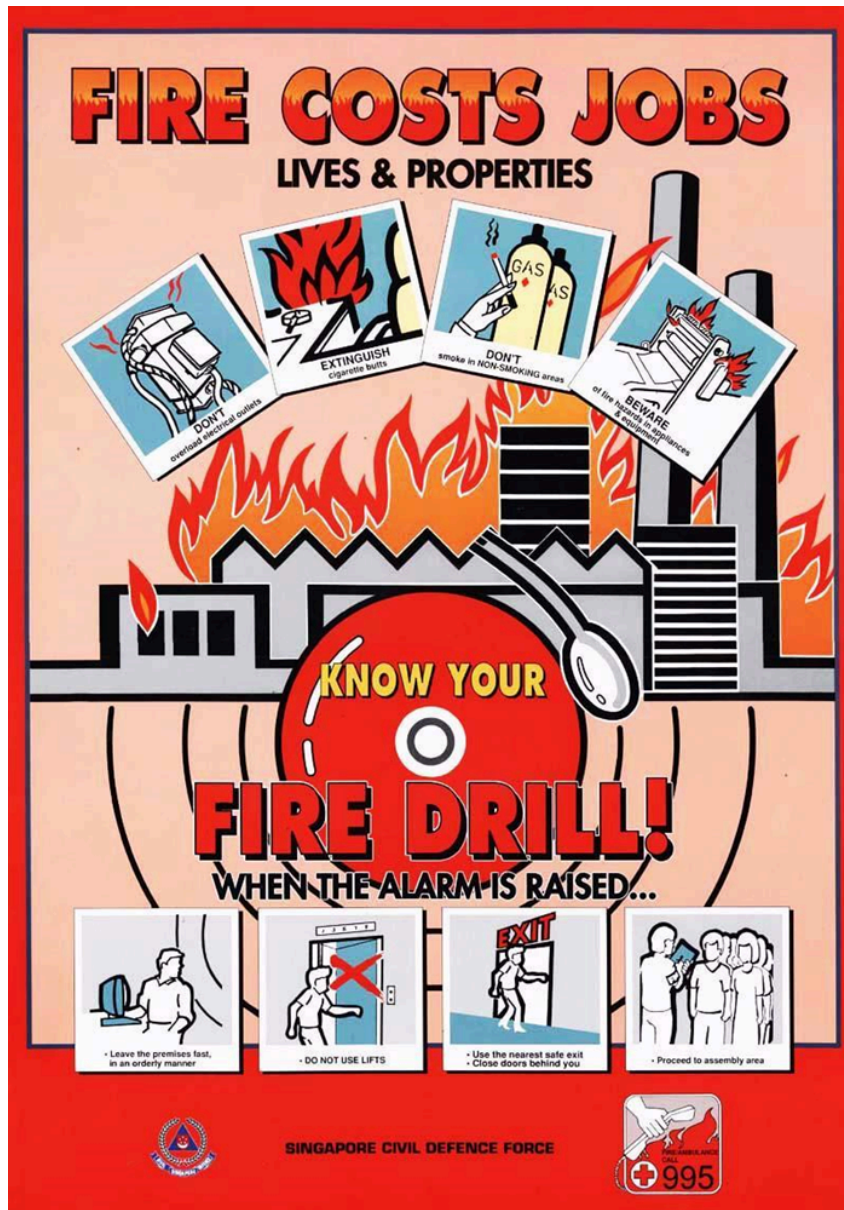
- The figure shows the blubin and the way people are not using the recycling bin

correctly.

- With 40% of items not able to be recycled due to contamination, this is a concern as Singaporeans are not recycling correctly.
- NEA is educating/ raising awareness among Singaporeans on how and what they should recycle.
- This is part of environmental stewardship as it involves the partnership of public and private sectors.
- Different stakeholders come together to steward the environment.
- Residents play a vital role in the proper recycling of their waste,
- Private stakeholders provide recycling facilities. Overall, enhancing and sustaining environmental stewardship.

3. Anglican High Sch 2023 3P EOY

Study Fig. 1.3, which shows a poster on fire safety.



Using Fig. 1.3, explain how the impact of fires may be reduced through reducing vulnerability and exposure as part of risk management. [2]

1m for each explanation

Reducing vulnerability:

- People's **preparedness** in responding to fires could be improved through **fire drills** [1 mark].

Reducing exposure:

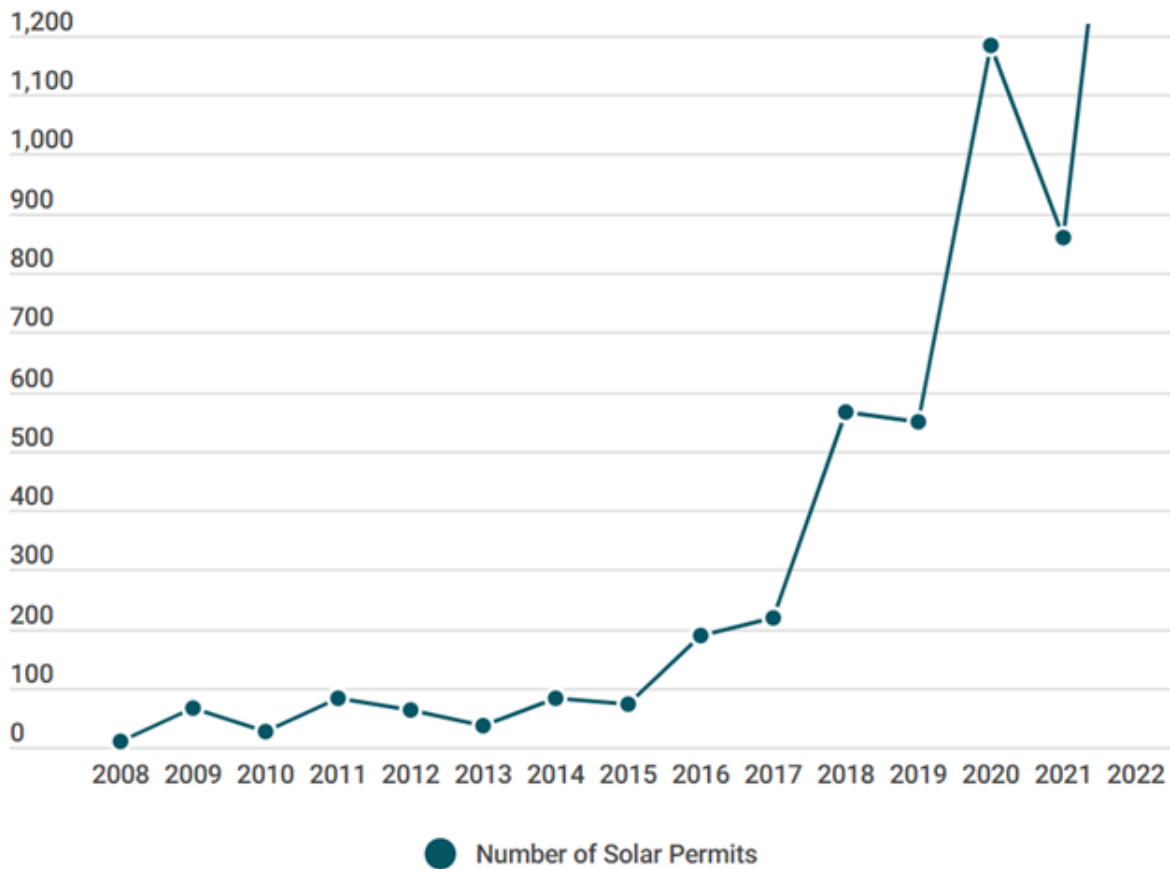
- People's exposure to fire hazards could be reduced through **public education** that **discourages behaviours/situations** that could result in fires [1 mark].

4. ACS Barker EOY 3P EOY

Study Figs. 1 and 2, which shows a community-led project to teach the community how to install outdoor solar panels in Sunnyside Neighbourhood, Southern Houston, Texas, USA and the number of households installing rooftop solar panel in Houston.



Houston Solar Permits



**A Solar Permit is an authorisation from the local government to allow homeowners to install solar panels*

Using Figs. 1 and 2, explain how initiatives like this can contribute to the sustainability and community resilience of a neighbourhood. [4]

- One of the primary benefits of renewable energy projects is their ability to reduce carbon emissions. [1] Solar panels generate electricity without burning fossil fuels, thereby mitigating greenhouse gas emissions. This contributes to a cleaner, more sustainable neighborhood environment. [Additional 1 mark]
- By harnessing solar energy a renewable resource, neighbourhoods can reduce their dependence on external energy sources. [1] This energy independence enhances community resilience, as the community is less susceptible/vulnerable to disruptions in the broader energy grid. [Additional 1 mark]

- Community-led renewable energy projects create job opportunities, both during the construction phase and for ongoing maintenance and operations. [1] This can stimulate the local economy and improve residents' livelihoods. [Additional 1 mark]
- Initiatives like these often foster community engagement and education. [1] Residents become more aware of their energy consumption and the benefits of renewables, leading to more sustainable behaviours'. [Additional 1 mark]

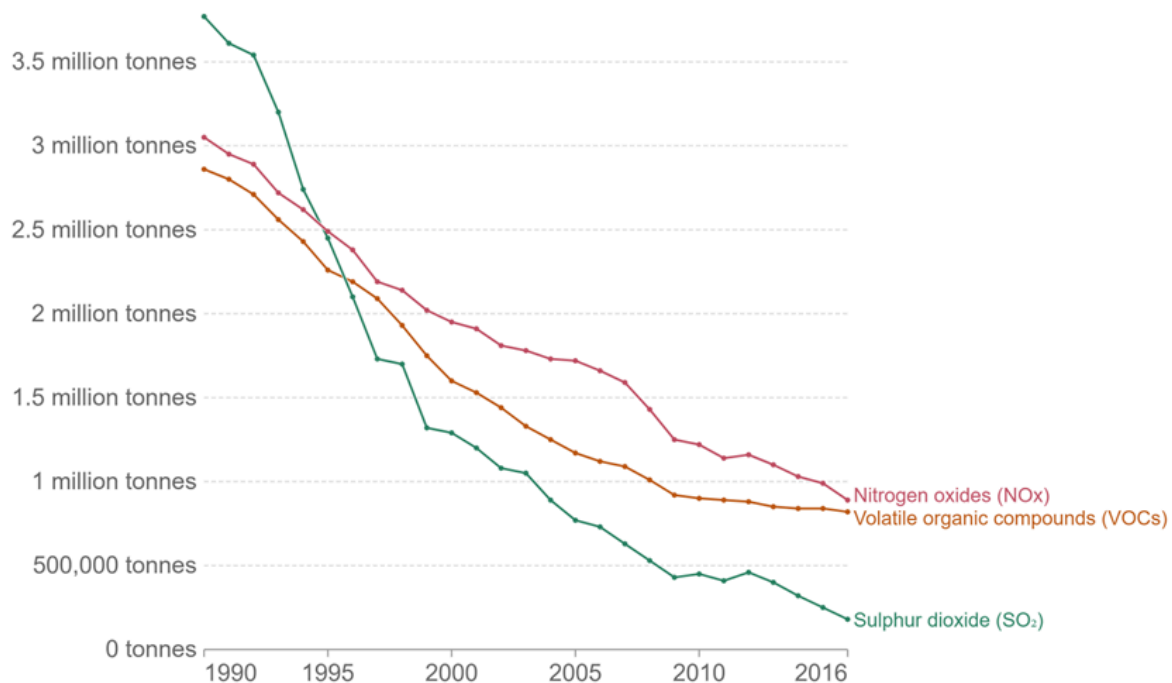
5. ACS Barker 2023 3P EOY

Study Figs. 4 and 5, which show air pollutant emissions in United Kingdom from 1990 to 2016, and the death rate from air pollution in United Kingdom from 1990 to 2016.

Air pollutant emissions, United Kingdom, 1990 to 2016

Annual emissions of nitrogen oxides (NO_x), non-methane volatile organic compounds (VOCs) and sulphur dioxide (SO₂) measured in tonnes per year. This is measured across all human-induced sources.

Our World
in Data



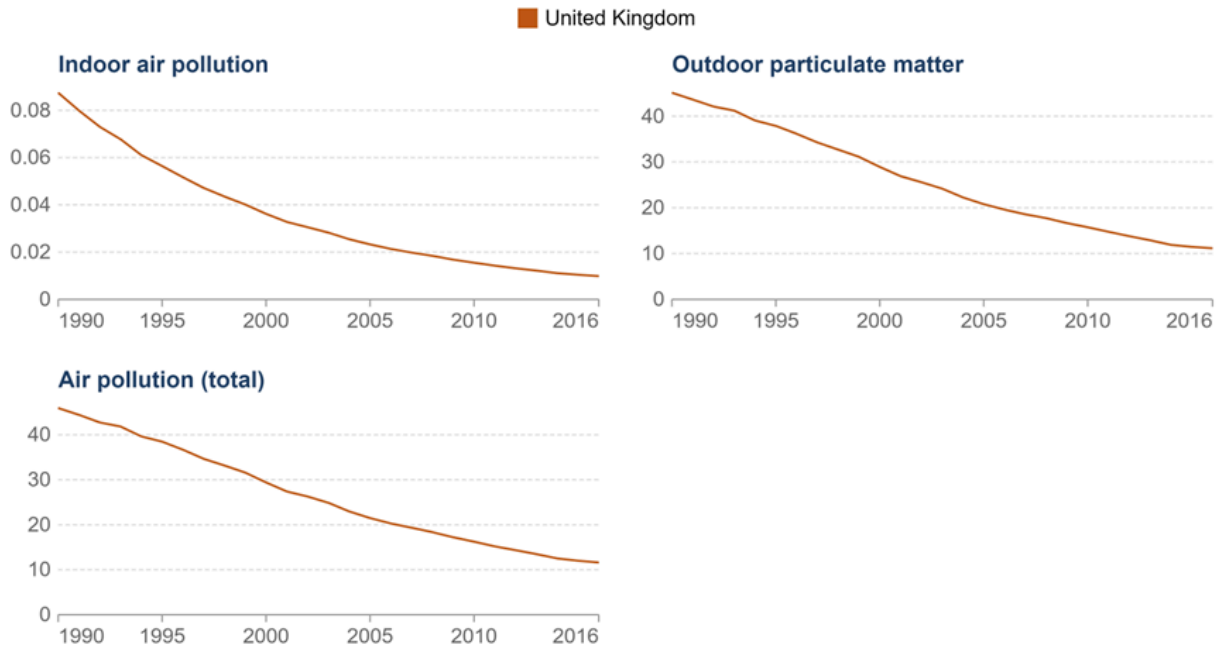
Source: UK DEFRA; US EPA

OurWorldInData.org/outdoor-air-pollution • CC BY

Death rate from air pollution, United Kingdom, 1990 to 2016



Death rates are given as the number of attributed deaths from pollution per 100,000 population. These rates are age-standardized, meaning they assume a constant age structure of the population: this allows for comparison between countries and over time.



Source: IHME, Global Burden of Disease (2019)

OurWorldInData.org/air-pollution • CC BY

(a) Using the data from Figs. 4 and 5, describe the relationship between air pollutant emissions in the United Kingdom from 1990 to 2016 and the death rate from air pollution during the same period. Support your answer with data from Figs. 4 and 5. [3]

- Fig. 4 shows a consistent decrease in air pollutant emissions from 1990 to 2016. For VOCs and NO_x, they decrease from 3 million tonnes to less than 1 million tonnes. For Sulphur dioxide, it decreased from 3.5 million tonnes to less than 500,000 tonnes. [1]
- Fig. 5 illustrates a corresponding reduction in the death rate from air pollution over the same period. The death rates from air pollution decreased from 40 per 100,000 populations to 10 per 100,000 populations. [1]
- This suggests a positive correlation between lower pollutant emissions and a lower death rate due to air pollution. [1]

(b) Explain how effective disaster risk management strategies can play a significant role in reducing the impact of air pollution on both short-term and long-term scales.[4]

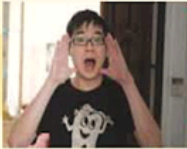
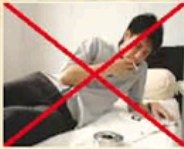
- Disaster risk management involves establishing early warning systems and

emergency response plans. [1] These systems can include air quality monitoring to detect hazardous pollution levels during and after disasters, such as wildfires. [Additional 1 Mark]

- Preparing communities for potential disasters includes addressing air pollution sources. [1] For example, in wildfire-prone areas, creating firebreaks and conducting controlled burns during safe conditions can reduce the risk of uncontrolled fires that release harmful smoke and particulate matter. [Additional 1 mark]
- Disaster risk management plans should account for the potential health impacts of air pollution following a disaster. This may involve setting up medical facilities, distributing masks, or advising vulnerable populations to stay indoors during episodes of poor air quality. [1 mark]
- Managing disaster risk involves long-term planning and preparedness. This includes zoning regulations, land-use planning, and building codes that consider air quality impacts and aim to reduce exposure to pollution sources. [1 mark]
- Disaster risk management should also include public awareness campaigns about the risks associated with air pollution during and after disasters. [1 mark]

6. Assumption Eng Sch 2023 3P EOY

Study Fig. 2.3 (Insert), which shows a campaign poster issued in response to a common hazard in urban neighbourhoods.

What to do if there is a fire	Fire safety tips at home	Fire safety tips at home
 Don't Panic. Alert others by shouting "Fire!"	 Do not use faulty electrical appliances, wiring or insulators.	 Do not smoke in bed.
Evacuate everyone. 	Keep fire starter items like matches and lighters away from children. Educate them about the dangers of fire. 	Extinguish lighted materials like matches and cigarette butts completely before disposal. 
 Close the door to contain the fire.	 Do not leave combustible materials near a heat source. Keep cooking areas free from grease and combustibles.	 Do not leave irons or lighted materials unattended when in use.
Turn off the gas mains, if possible. Call 995 	Never leave cooking unattended. 	Use an extension socket with the safety mark instead of overloading electrical outlets. 
 Fight fire if you can but do not undertake undue personal risk.	 Keep common corridors and staircases free from obstruction or combustible materials. Blocked passageways can hinder smooth evacuation in times of fire, endangering lives.	 Do not make unauthorised connections of gas and electrical extensions and points.



(a) Briefly describe the common hazard as shown in Fig. 2.3. [2]

- Fire hazard/ Household fires
- Can happen due to unattended cooking/irons, faulty wiring and/or overloaded electrical outlets, etc.
- Can cause economic losses and/or potential injuries, such as **smoke inhalation**.

Any 2 @ 1 mark each

Accept any other acceptable example(s) from fire safety tips in poster

(b) Explain how disaster risk management strategies shown in Fig. 2.3 could help reduce the impact of hazards. [3]

- People's exposure to fire hazards could be reduced through public education that discourages behaviours that could cause household fires.
- People can become more prepared/ aware of how to respond to hazards such as household fires.
 - **E.g. Singapore Civil Defence Force's education campaigns on Fire Safety at home** teaches the correct handling/usage of fire extinguishers to prevent fires from spreading.
- People can also learn to pool their resources and act as first responders before emergency services arrive.
 - **E.g. the Community First Responders volunteers who help put out small fires in the neighbourhood using available resources.**

Any 3 @ 1 mark each

Accept the use of example(s) to elaborate point

7. Bartley Sec 2023 3P EOY

Describe how both agencies and residents are involved in managing fire hazards in neighbourhoods in Singapore. [4]

Award 1m per relevant point:

- Agencies such as the Singapore Civil Defence Force (SCDF) are involved in responding to large fires in neighbourhoods.
- However, residents are also involved as Community First Responders (Fire).
- These volunteers are alerted to minor rubbish chutes and bins fires within their immediate vicinity through an app.
- They can also be involved in educating the public on basic firefighting.
- This helps SCDF optimise its emergency resources to attend to other higher priority cases.

8. Bartley Sec 2023 3E EOY

Study Fig. 4, which shows the myResponder(Fire) Application that was launched by the Singapore Civil Defence in 2015. Individuals who download this application will be alerted if there are fire incidents near them.



With reference to Fig. 4, suggest how the launch of myResponder(Fire) Application can help to reduce the impact of residential fires. [2]

- Those who downloaded the app would be alerted to minor fires and can therefore quickly proceed to the location to help put out minor fires.
- Minor fires could be extinguished quickly before arrival of SCDF thus reducing property damages
- Uploaded pictures would help inform SCDF regarding the incident – so that SCDF can prepare for fire more effectively.

9. Beatty Sec 2023 3P EOY

Fig. 1.2 shows students participating in an environmental programme in a school.



Explain how the activity shown in Fig. 1.2 is an example of environmental stewardship.

[4]

- Environmental stewardship refers to the actions taken by individuals, or groups, to protect, care for or responsibly use the environment to pursue environmental and/ or social outcomes.
- The activity is done by a school. The photograph shows a group of students from a school collecting plastics in an effort to send them for recycling.
- The school in doing so, is volunteering to do their part/ taking action for the environment by reducing plastic waste thus reducing the need to make new plastics from raw materials which in turn reduces the releases less greenhouse gases and reduces the amount of plastic waste going to the landfills.
- Students are also educated on the importance of recycling plastics and will influence family members and friends to do the same. This habit of recycling can become a lifelong one and will help reduce waste in the long run. / As such, the programme can be sustainable in the long run as it influences and changes habits of students when they are young.

- There is the ability to share the knowledge of what plastics can be recycled and how to recycle then to the students who might also bring the message home to their family. This creates environmental awareness of how their action can help the earth.

(4@1m each)

10. Beatty Sec 2023 3P EOY

Evaluate if a small population size helps urban neighbourhoods in building community resilience. [4]

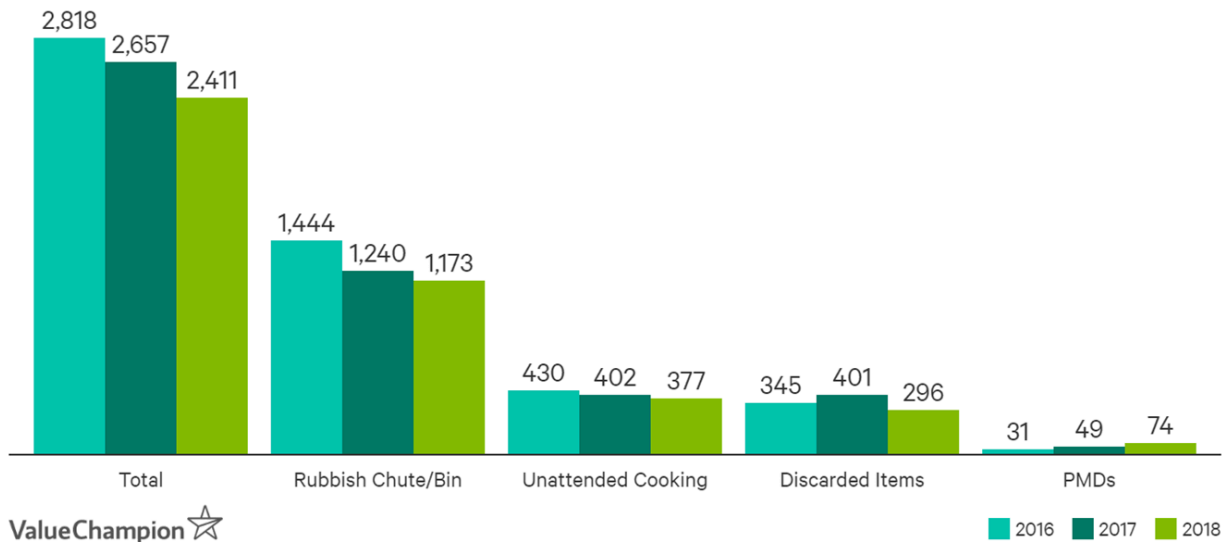
Award 1 mark for each explanation of how a small population size helps or does not help urban neighbourhoods in building community resilience, to a maximum of 4 marks. Award a maximum of 1 additional mark for further development of each explanation, where applicable. Possible responses include:

- Small neighbourhoods are likely to develop a strong community spirit because people tend to interact more [1 mark].
- .../This can be seen during the Covid pandemic when residents in small neighbourhoods help each other with their grocery shopping [1 additional mark].
- People in small neighbourhoods tend to enjoy closer relationships facilitating decision-making that could help them to recover from disasters [1 mark].
- .../For example, the residents can collectively agree on not placing bulky items along common corridors and walkways [1 additional mark].
- People in small neighbourhoods tend to trust each other, thus they are likely to turn to each other during an emergency, organising themselves to manage the hazard [1 mark]
- However, smaller neighbourhood may lack the necessary contributions that larger neighbourhood can afford.
- .../with a larger number of people working together, many strategies can be accomplished within a shorter period of time.

11. Bendeemer Sec 2023 3E EOY

Fig. 4 shows the causes of reported residential fires in Singapore between 2016 to 2018.

Reported Residential Fires in Singapore by Cause 2016-2018



(b) Describe the trend of the causes of reported residential fires in Singapore between 2016 to 2018. [3]

[Award 1 mark for each point]

- The **total number of reported** residential fires in Singapore has decreased from 2818 to 2411 between 2016 to 2018.
- The causes of reported residential fires due to **rubbish chute/bin, unattended cooking and discarded items have all decreased** by 271, 53 and 49 respectively.
- The cause of **reported residential fires have increased for PMDs** from 31 to 74.
- Cause of reported residential fire due to **Rubbish chute/bin has the highest percentage decrease** of about 18.8%.
- Cause of reported residential fire due to **unattended cooking has the lowest percentage decrease** of about 12.3%.

(b) Explain how managing disaster risks could reduce the impacts of residential fires. [3]

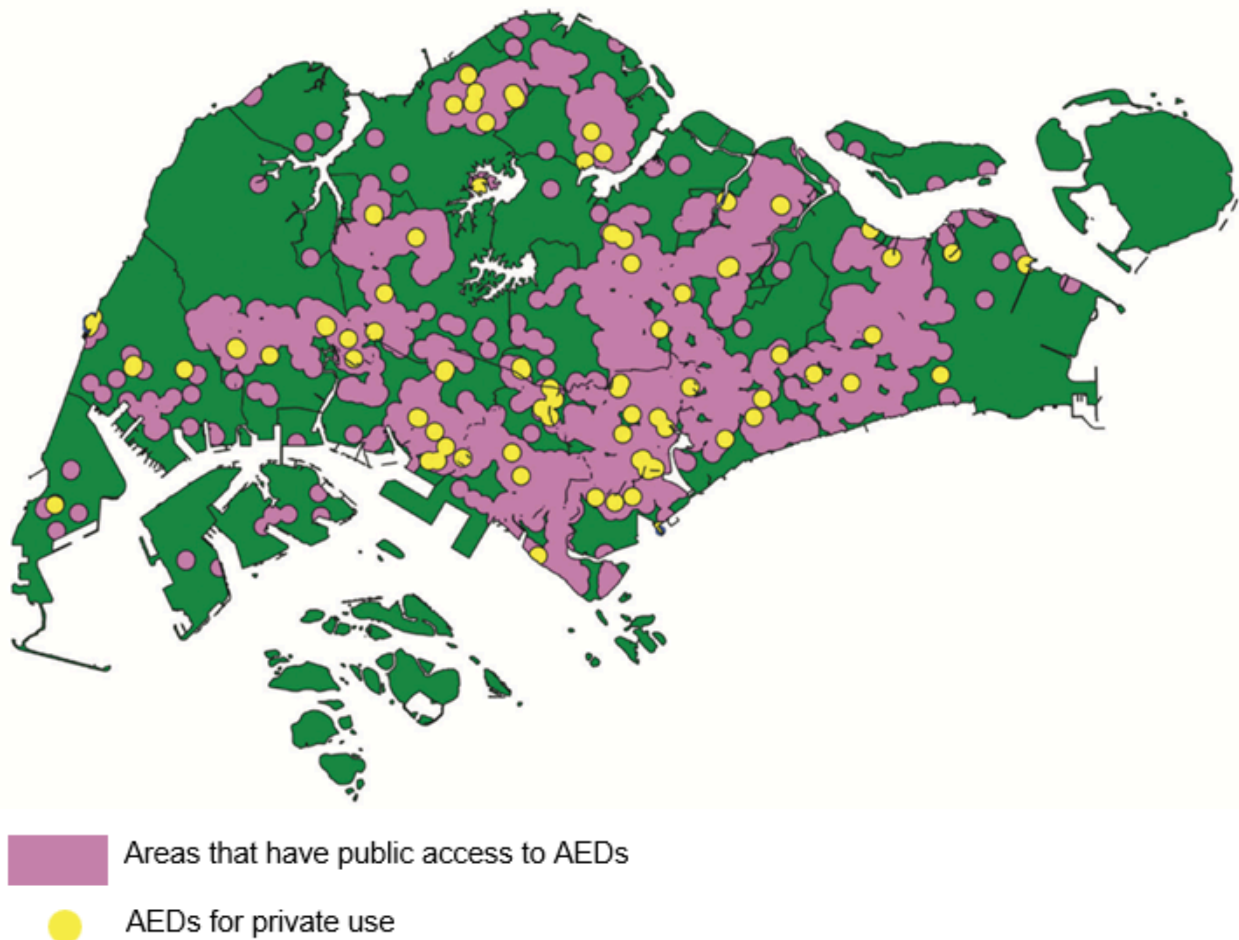
[Award 1 mark for each point]

- People's preparedness in responding to house fires could be improved through specialised programmes that train them to use tools or equipment effectively in the event of house fires.
- An example is the Singapore Civil Defence Force's hands-on workshop on using fire extinguishers to prevent fires from spreading.
- People's preparedness in responding to house fires could be improved by organising residents to pool their resources and act before emergency services arrive.

- An example is the Community First Responders volunteers who help put out minor fires in the neighbourhood using available resources.
- A neighbourhood's exposure to fire hazards could be reduced through public education that discourages behaviours that could result in house fires.
- The vulnerability of people and properties to fire hazards could be reduced through insurance schemes that provide financial aid following house fires.

11. Beatty Sec 2023 3N EOY

Study Fig. 1.4 (Insert), which shows the Automated External Defibrillators (AEDs) locations in Singapore.



Describe the spatial pattern of public access to AEDs in Singapore.[3]

- Areas with public access to AEDs in Singapore are mostly concentrated on the Southern and northeastern parts of Singapore.
- There is a smaller area of public access to AEDs at the Northern part of

Singapore.

- Public AEDs cannot be found on the offshore islands and in the Northwestern and Eastern part of Singapore.



Montfort Secondary School

Geography
GEL Cluster

Name: _____ ()

Class: _____

Date: _____

GEL CLUSTER

TOPIC 1 PRACTICE QUESTIONS



Cluster: GEL

Topic 1.1: Thinking Geographically

- 1 Study Fig. 1, which shows elephants crossing a railway in a forested area.



Fig. 1

With reference to Fig. 1, describe how local communities and nearby nature areas can negatively affect each other.

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- 2 Study Fig. 2, which shows endangered hawksbill turtle hatchlings emerge from monitored nest at East Coast beach.



A hawksbill turtle hatchling being checked by a conservation team member from the National Parks Board near the hatching.

Fig. 2

With reference to Fig. 2, explain how people can bring benefit to nature.

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3 Study Fig. 3, which shows wild boars in an urban area.



Fig. 3

With reference to Fig. 3, explain how local communities and the wildlife can negatively affect each other.

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- 4 Study Fig. 4, which shows a news article on Dover Forest in Singapore.



Fig. 4

Based on Fig. 4, describe the possible benefits of nature that can be enjoyed by people.

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- 5 With the use of example(s), explain how people bring benefits to nature.

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- 6 Study Fig. 5, which shows a news extract on the increase in otter population in Singapore.

Slippery, hungry, sometimes angry: Singapore struggles with ‘unparalleled’ otter boom

The otter population has been rebounding since the 1980s when Singapore started cleaning up its waterways. Their numbers are rising partially because otters face no significant danger from other predators.

Fish populations have also increased as waterways have become less polluted and provided plentiful food. Now, otters are an increasingly common presence on urban streets as they claim more territory for themselves.

“They’re not afraid, and the bolder otter families just walk right past us,” said N Sivasothi, a senior lecturer in biological sciences at the National University of Singapore. “There isn’t a place in Singapore where you’d be completely isolated from otters. Living in our city in nature means we coexist with wildlife like otters and get to observe them in our midst.”

Singapore’s smooth-coated otter population has more than doubled since 2019, with roughly 17 families fishing for tilapia in waterways, sleeping under bridges and ravaging private fish ponds – and on rare occasions, attacking people in public parks.

Fig. 5



With reference to Fig. 5 and your own knowledge, explain the increase in human-otter encounters in Singapore and describe how it could affect people.

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.....[4]

- 7 Study Fig. 6, which shows the number of wild boars in three nature areas in Singapore.

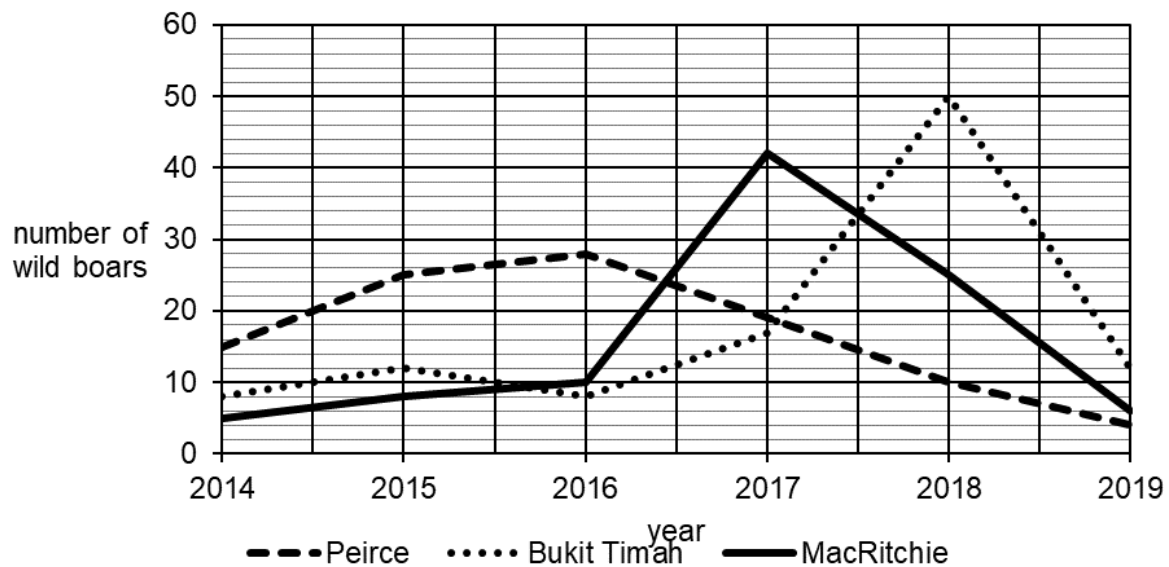


Fig. 6



(a) Using Fig. 6, describe the trends of wild boar populations in Singapore.

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(b) Explain why human-wildlife attacks have been increasing in Singapore.

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Cluster: GEL

Topic 1.2: A sense of place in the neighbourhood

- 1 Study Fig. 1, which shows volunteers actively involved in mixing paints and executing the artwork for a Community Mural Project in Queenstown, Singapore.



Fig. 1

Using Fig. 1, suggest how the Community Mural Project could affect the residents' sense of place within their neighborhood.

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2 Study Fig. 2, which shows an article on a colourful void deck in Bishan, Singapore.

Block 112 HDB Void Deck at Bishan Street 12 – A cosy corner with a community garden and rescued food distribution

Nothing says kampong spirit like a community coming together to create something special for its residents. The Green Hub at Block 112, Bishan Street 12, is a great example of that spirit. The community hub is made up of a makeshift garden with plants such as eggplant bushes and mini succulents. Old appliances like water flasks and kettles donated by residents have been repurposed as planters.

Apart from growing their own fruits and vegetables, there's also a community fridge with free items like grapes and cookies that residents can take as they please. These food items have been donated by residents and food rescue groups to cater to those in the community rather than letting it expire and go to waste.

While you're there, browse through their community library with a "take one, leave one" policy, located just behind the Green Hub.

It has a seating area with a swing, so residents can chill while they dive into different literary adventures for free.

Fig. 2

With the help of Fig. 2, explain how residents living in the same block may achieve a strong sense of place.

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- 3 Study Fig. 3 and Fig. 4, which shows two mental maps drawn by two people who live at the same HDB block in Bedok.

Person X mental map

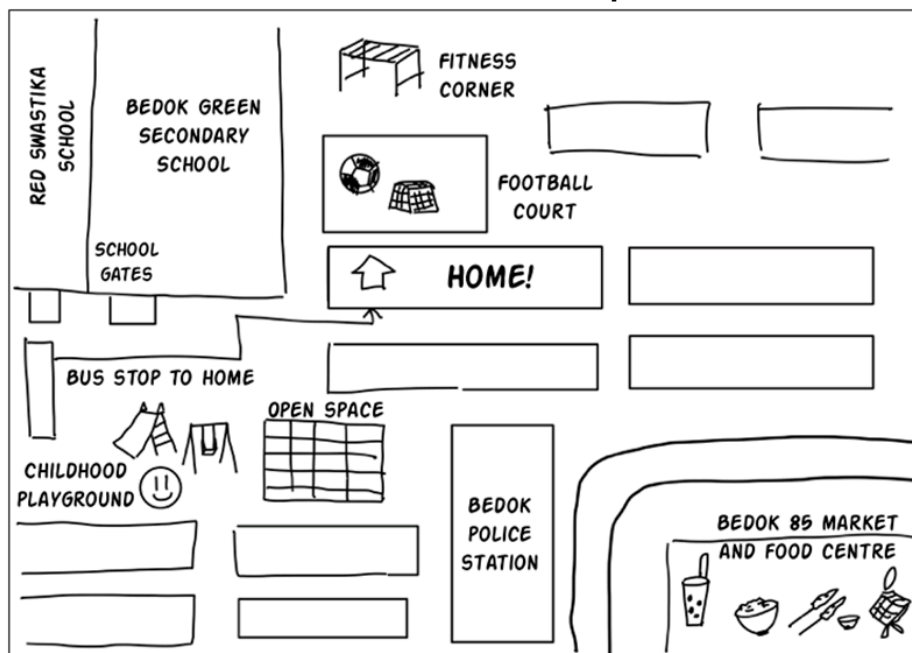


Fig. 3

Person Y mental map

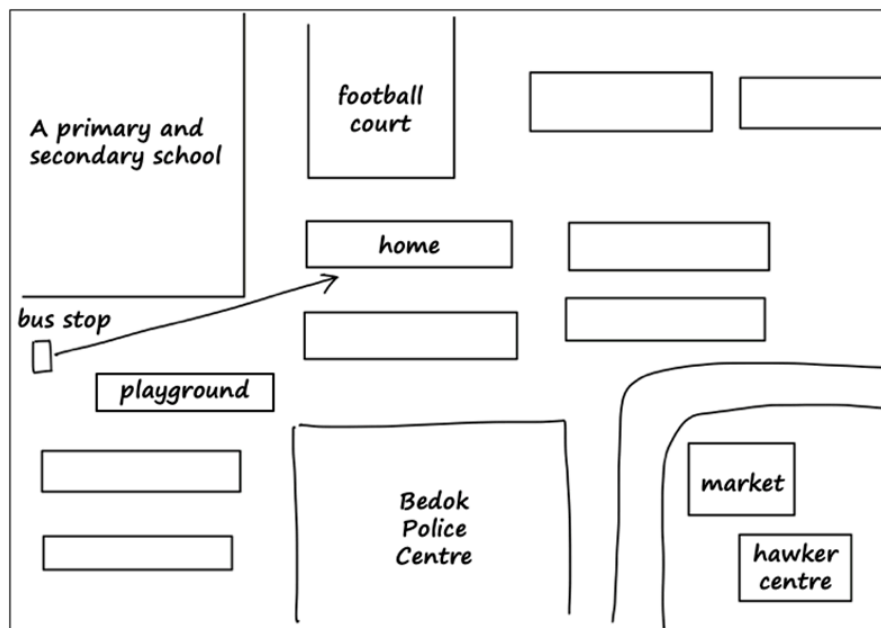


Fig. 4

Does Person X or Person Y have a stronger sense of place towards Bedok? Explain your answer using details from Fig. 4.

[4]

4 Study Fig. 5, which shows Bedok Town street map.



Fig. 5



With reference to Fig. 5, and any other information you have studied, explain how residents living near Bedok Town Centre may acquire a sense of place in their neighbourhood.

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- 5 Study Fig. 6, which shows an Instagram post capturing the festive decorative lights and projections at Geylang Serai during the Hari Raya Aidilfitri celebration.



Fig. 6



Using Fig. 6, explain how the Instagram post could influence people's decisions to visit Geylang Serai and highlight potential issues that may arise if their expectations differ from the actual experience.

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.....[4]

6 Study Fig. 7, which shows the National Day Parade celebration at Padang, Singapore.



Fig. 7



With reference to Fig. 7, describe how sense of place is created.

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7 Evaluate media's role in the representation of places.

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Cluster: GEL

Topic 1.3: Relationship between locations in a neighbourhood

- 1 Study Fig. 1, showing the spatial hierarchy between precinct, neighbourhood and town.

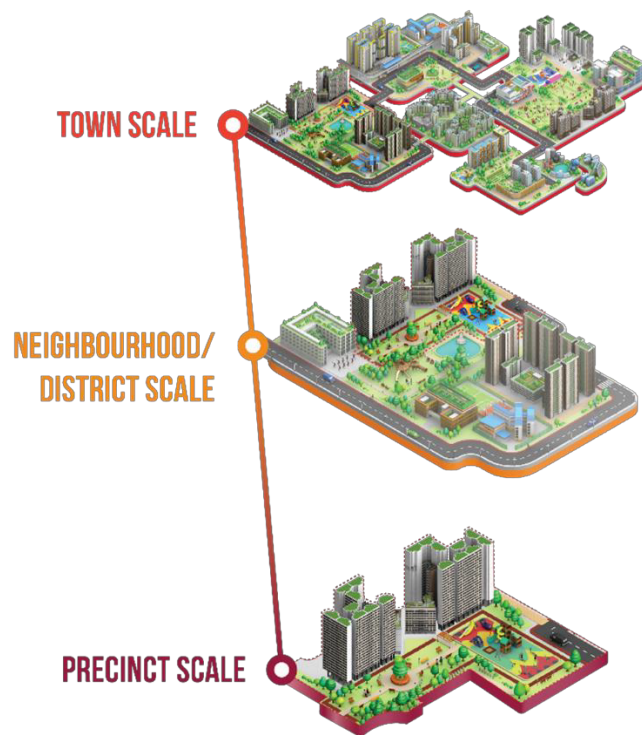


Fig. 1

Using Fig. 1, describe the differences between precinct and town.

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- 2 Study Fig. 2, which shows a map showing land use in downtown Vancouver, a city in Canada.

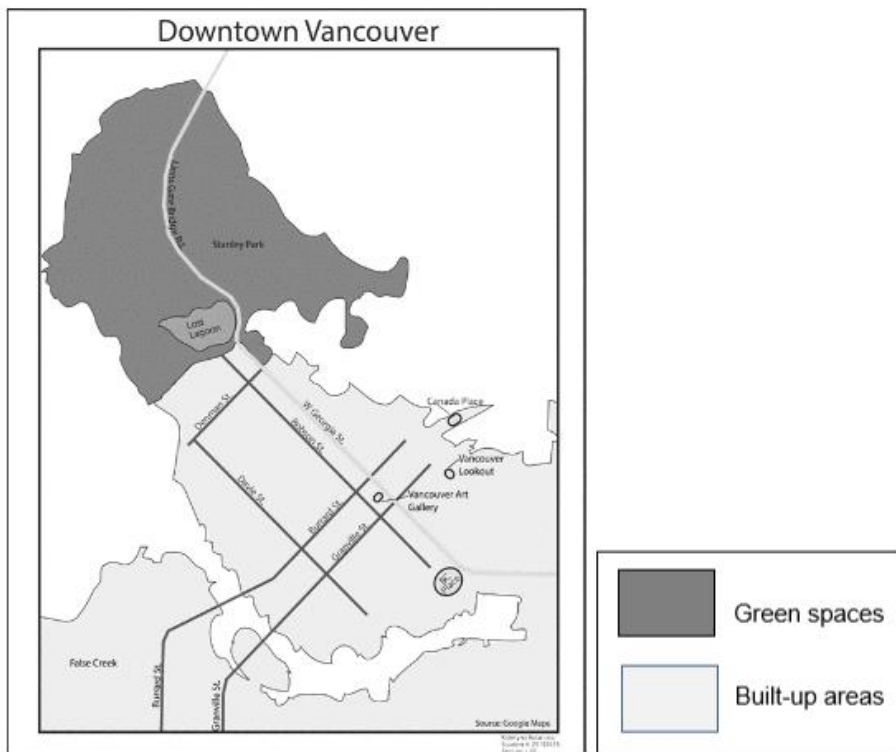


Fig. 2

With reference to Fig. 2, describe how downtown Vancouver can be classified into regions according to environmental characteristics.

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- 3 Study Fig. 2, which shows a map of trees in an area of Bedok, and Fig. 3, which shows a sketch of the trees along the road.



Fig. 2

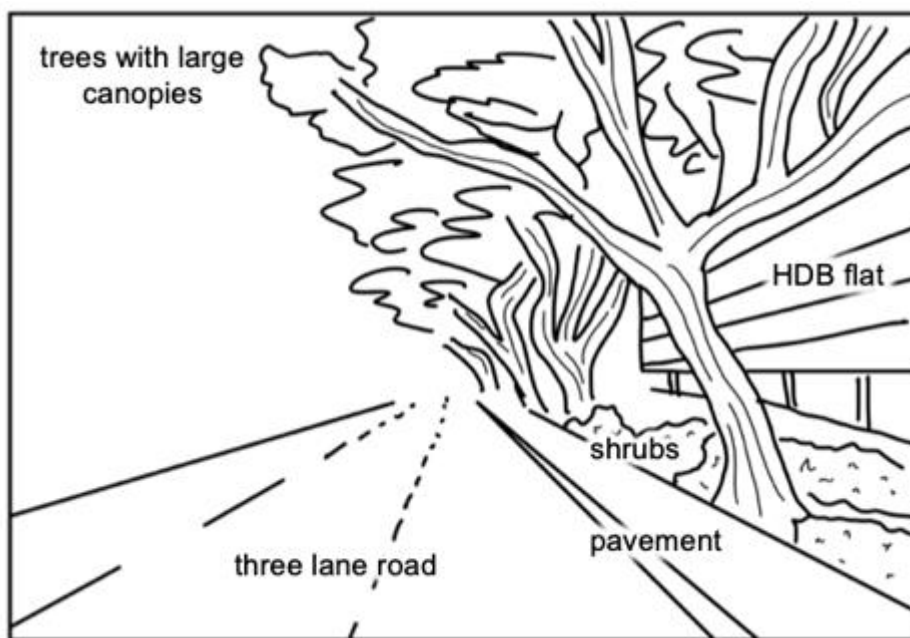


Fig. 3

(a) State the spatial arrangement of trees in Fig. 2.

.....[2]

(b) Using Fig. 2 and 3, explain the ecosystem services provided by these trees and the benefits of the spatial arrangement as stated in (a).

[4]

4 Study Fig. 4, which shows Bedok Town street map.

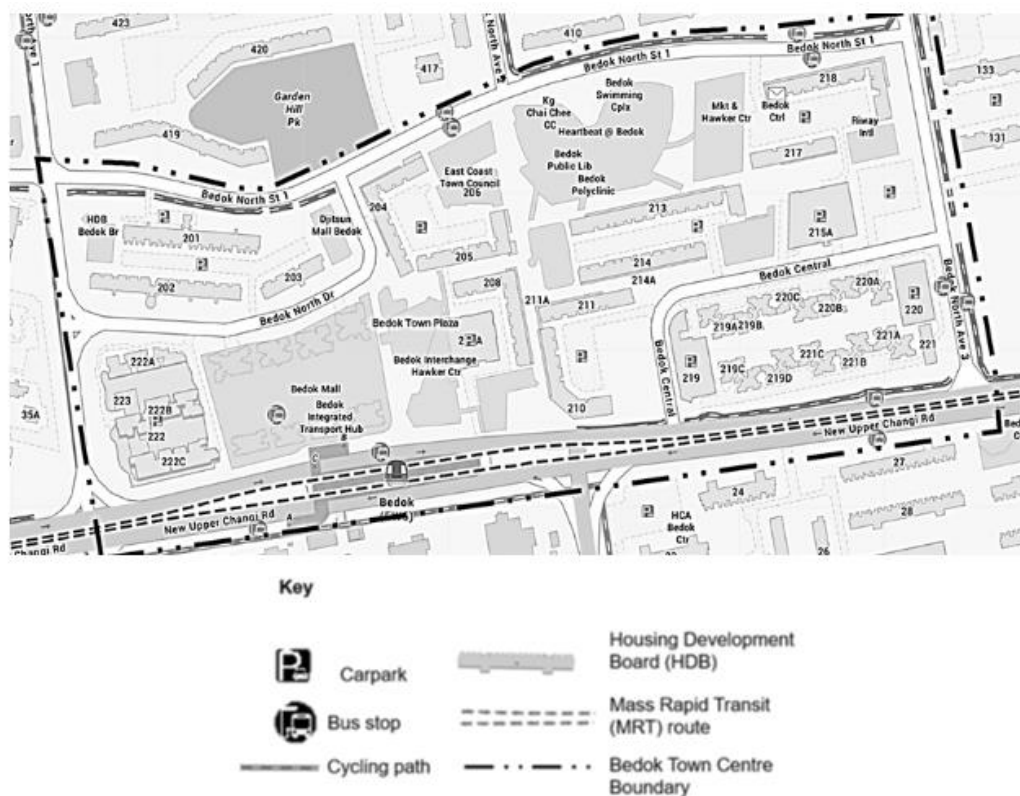


Fig. 4



(a) Describe the spatial distribution of bus stops in Fig. 4.

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(b) Provide reasons for the spatial distribution of bus stops in Fig. 4.

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(c) With reference to Fig. 4, explain how Bedok Town Centre serves as a commercial and social hub.

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- 5** Describe how the features in a precinct serve the residents and create connections between them.

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- 6** Describe the differences between precincts and towns in Singapore.

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- 7** Describe the ways to classify a region.

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Cluster: GEL

Topic 1.4: Organisation of neighbourhoods in Singapore

- 1 Study Fig. 1, which shows a map of Punggol Town with its 10 districts (also known as neighbourhoods).

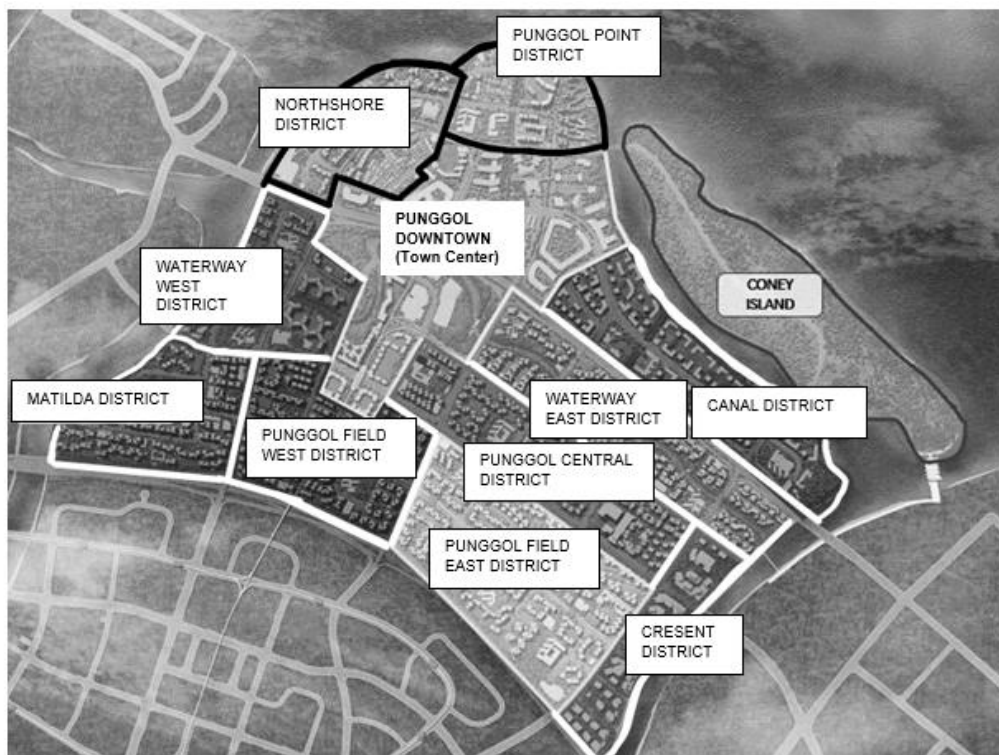


Fig. 1

With reference to Fig. 1 and your own knowledge, explain how town planning is carried out in Singapore.

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2 Study Fig. 2, which shows an urban city.

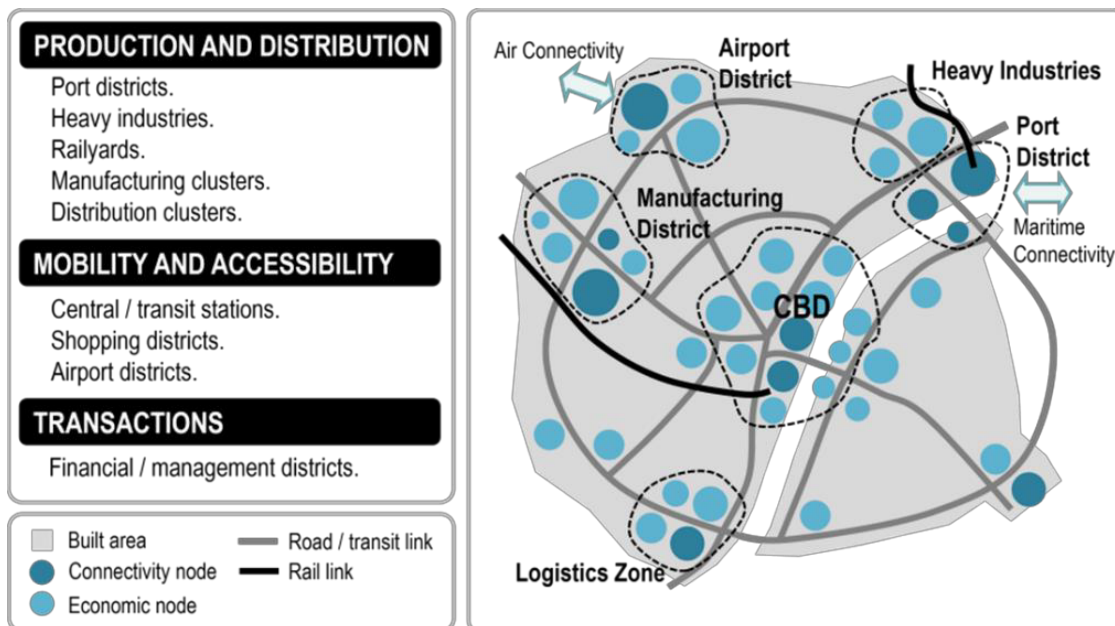


Fig. 2

Using Fig. 2, describe the spatial patterns and associations shown.

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3 Study Fig. 3, which shows the distribution of shopping malls in Singapore.

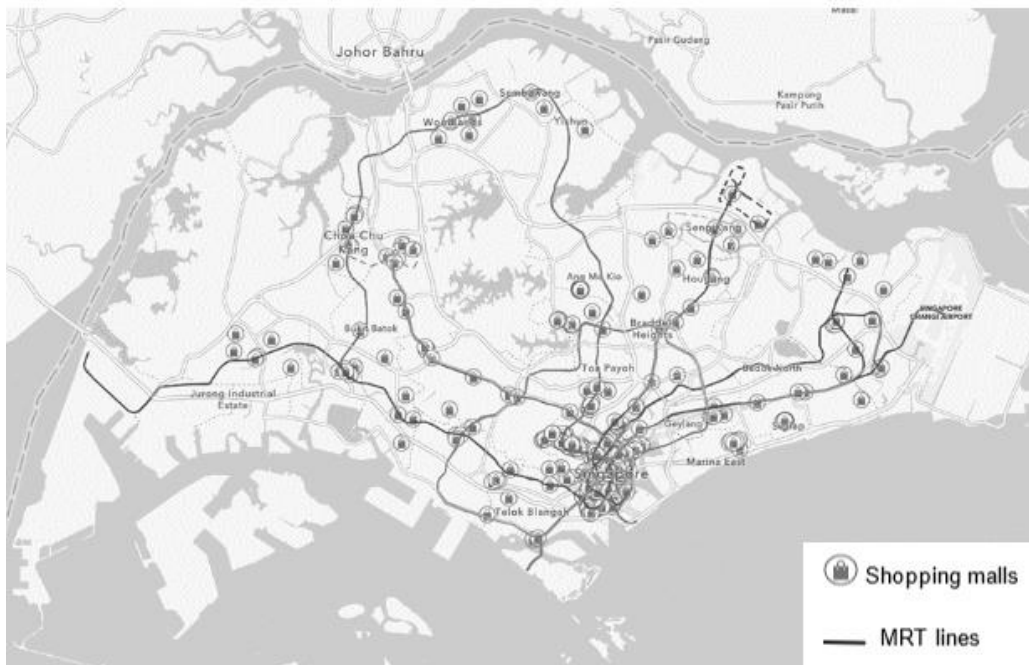


Fig. 3

With reference to Fig. 3, describe and explain the spatial association between shopping malls and MRT lines in Singapore.

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4 Study Fig. 4, shows the different scales in town planning.

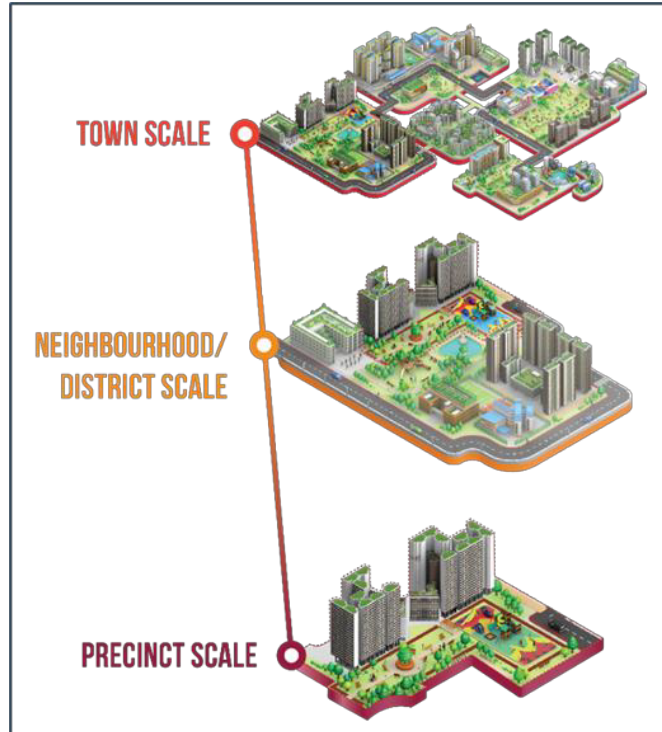


Fig. 4

Using examples that you have studied and Fig. 4, suggest the considerations that planners need to take into account when planning a town.

[4]

- 5 Study Fig. 5, which shows information about Tengah, an upcoming HDB town in Singapore.

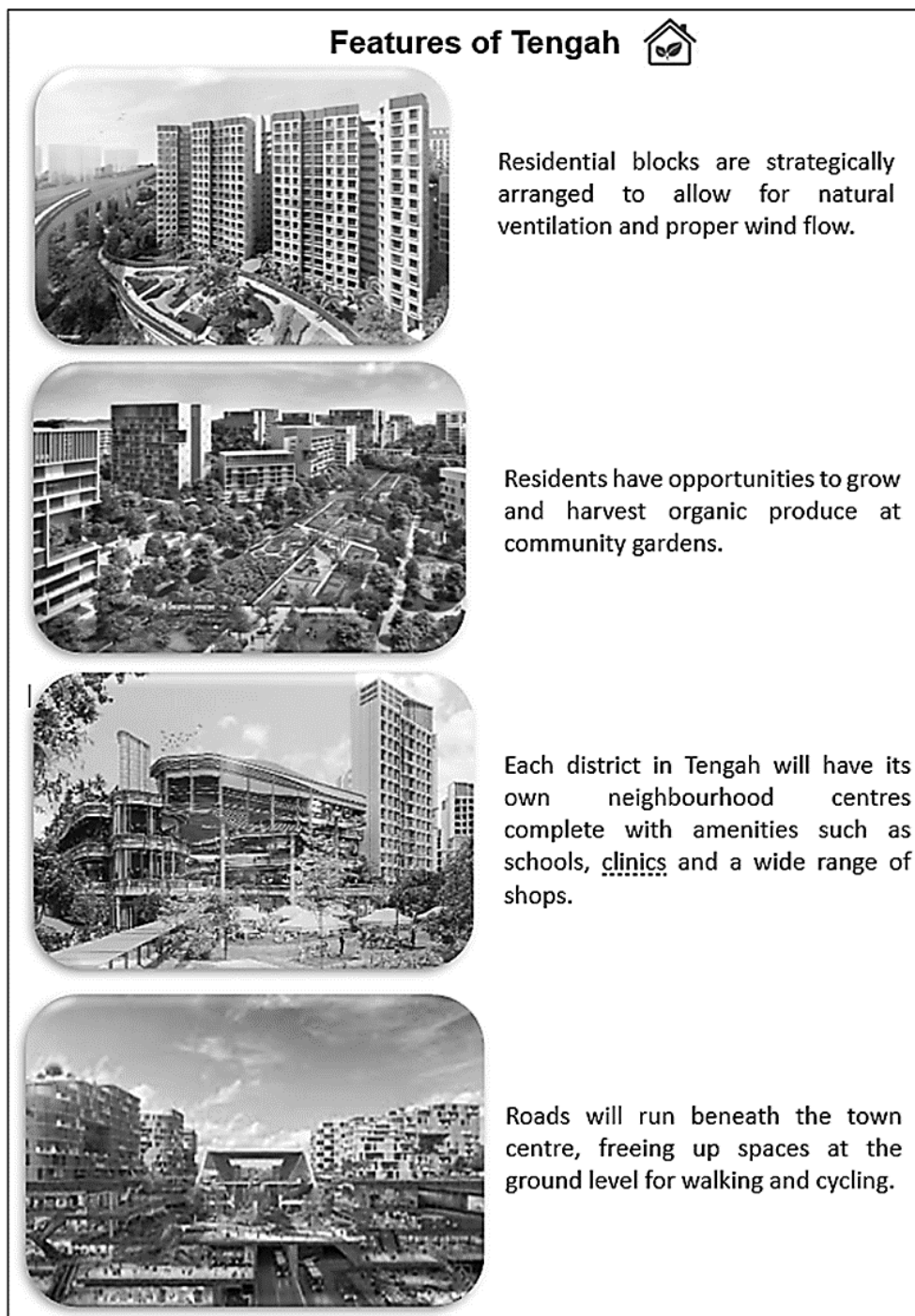


Fig. 5



Using Fig. 5, explain how the town planning makes Tengah a sustainable urban neighbourhood

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- 6** Study Fig. 6, which shows the number of bicycle sales in Singapore from 2015 to 2020.

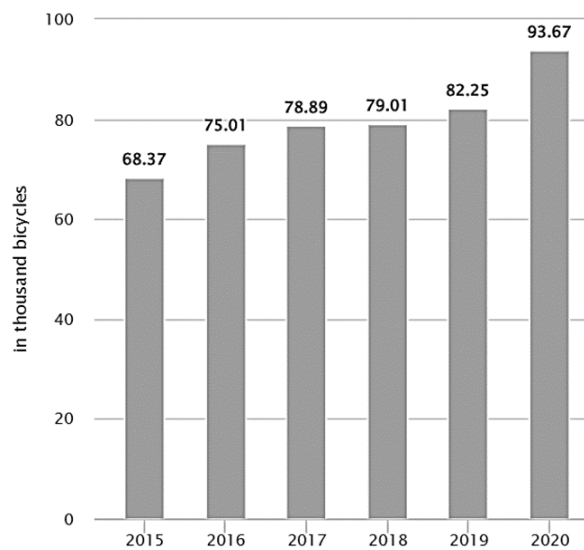


Fig. 6

Using Fig. 6, suggest how Singapore's town planning can better serve residents.

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- 7 Study Fig. 7, which shows a photograph of a scene at Hougang MRT, Singapore.



Fig. 7

Identify the purpose of the spatial associations shown in Fig. 7 and explain other roles of spatial associations in urban neighbourhood.

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GEL CLUSTER

TOPIC 2 PRACTICE QUESTIONS

Cluster: GEL

Topic 2.1: Sustainable urban neighbourhoods

- 1 Study Fig. 1, which shows a community event in a neighbourhood



Fig. 1

With reference to Fig. 1, Explain how the community event supports the environmental and social sustainability of urban neighbourhoods.

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- 2 Study Fig. 2, which shows urban population density and the extra time spent travelling due to traffic congestion in selected urban areas.

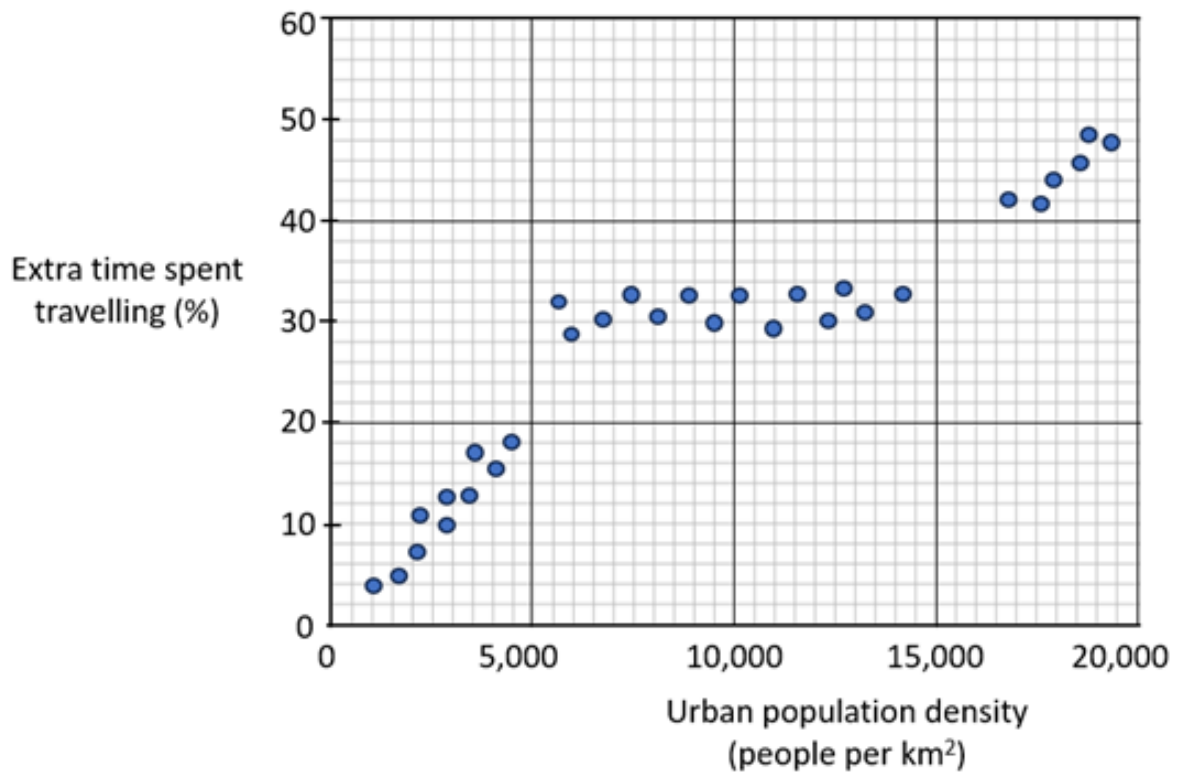


Fig. 2

Describe the relationship between urban population density and the extra time spent travelling shown in Fig. 2.

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Using Fig. 3, suggest how water harvesting is done in the HDB block and explain its importance to environmental sustainability.

[4]

4 Study Fig. 4, which shows a sustainable urban city.

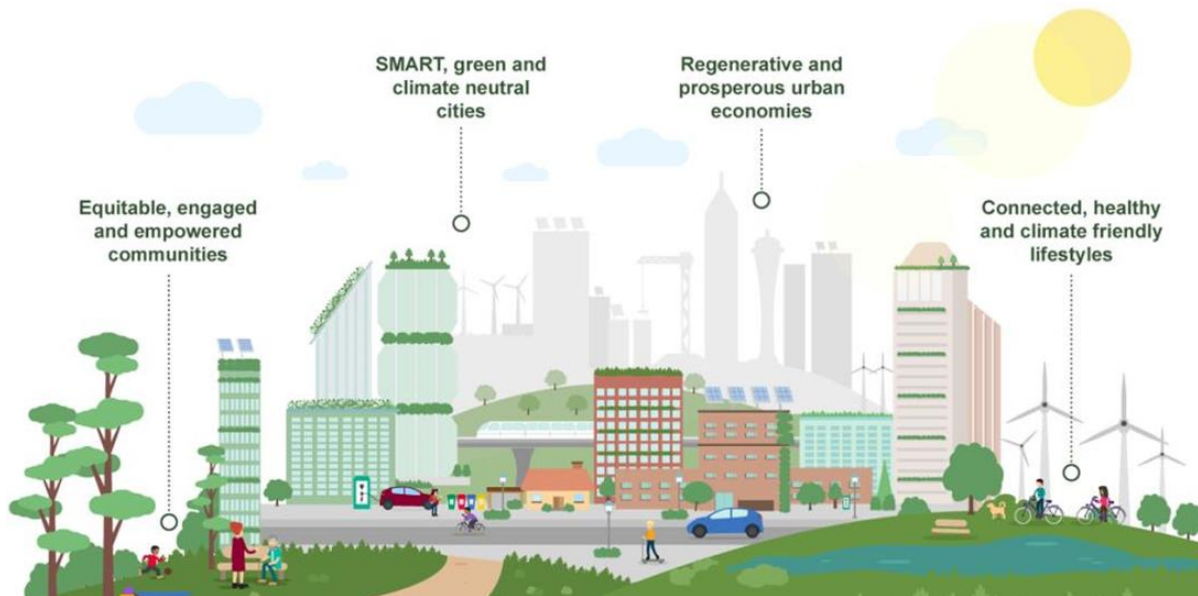


Fig. 4

With reference to Fig. 4, describe how this urban city aims to achieve social and environmental sustainability.

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- 5** Explain how urban neighbourhoods can achieve both economic and social sustainability

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- 6** Outline how social sustainability may be encouraged amongst residents living in close proximity to one another.

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7 Study Fig. 6,



**Centralised cooling system (CCS): an eco-friendly and efficient cooling technology in homes*

**Modular rooftop units: Rooftop systems for air-conditioning in high buildings*

*AI-enabled digital platform: Artificial Intelligence system to improve users' interaction

Fig. 6

Using Fig. 6, explain how a town can be environmentally and socially sustainable.

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Cluster: GEL

Topic 2.2: Ecosystem services in urban neighbourhoods

- 1 Study Fig. 1, which shows a diagram about a supporting ecosystem.

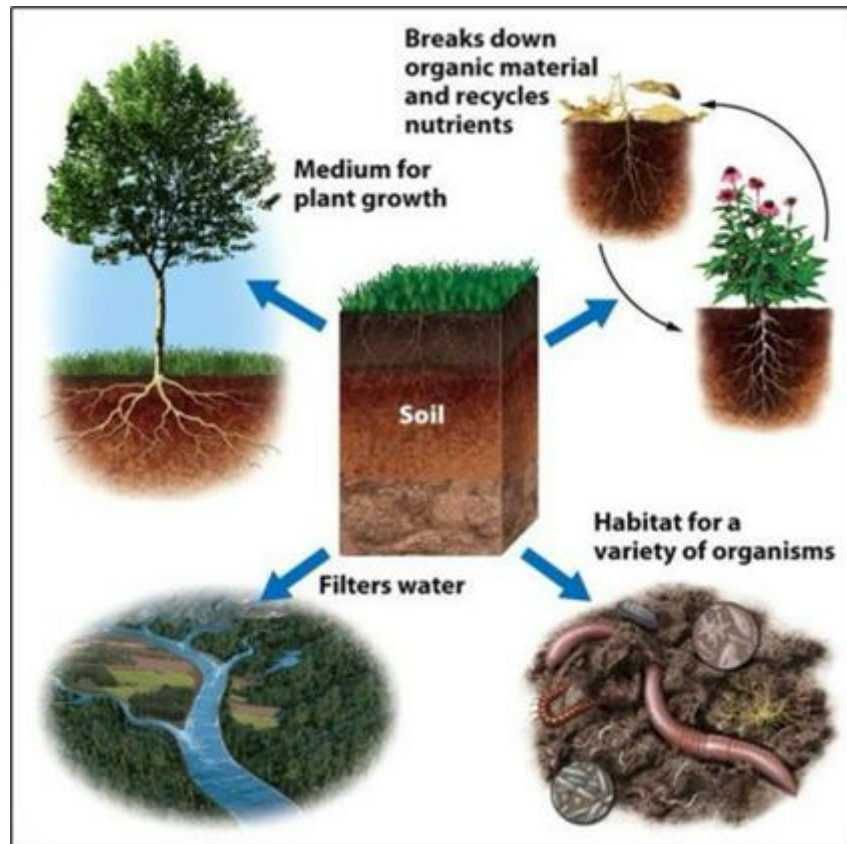


Fig. 1

With reference to Fig. 1, explain what a supporting ecosystem is.

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- 2 Study Fig. 2, which shows a photograph of a mangrove forest in Bintan, Indonesia.



Fig. 2

With reference to Fig. 2, explain how mangrove forests may provide cultural and provision ecosystem services for a community.

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- 3 Study Fig. 3, which shows a photograph of Bukit Timah Nature Reserve.



Fig. 3

With reference to Fig. 3, describe the cultural and supporting services provided by the nature reserve.

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- 4 Study Fig. 4, shows a group of friends exercising in Central Park, a large park in New York City, USA.



Fig. 4

With reference to Fig. 4, identify and describe two regulating ecosystem services that Central Park provides.

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- 5 Study Fig. 5, which shows an article on rooftop garden in an urban neighbourhood.

NEE SOON SOUTH ZONE C RC ROOFTOP GARDEN POTLUCK

Sat, 4 Jun, 2022, 4:30 PM - 6:30 PM (GMT+8.0)

Blk 813 Yishun Ring Road, MSCP

Singapore 761813

Share this event

[f](#) [t](#) [in](#)

Join us for some yummy food at Blk 813 Yishun Ring Road MSCP Rooftop Garden for a POTLUCK party with our community gardeners. Feel free to bring some food and drinks along to share with your neighbours.

Let's enjoy the kampong spirit and the joy of gardening!

In Yishun, you will find community gardens in Singapore, built atop a HDB car park. The rooftop of a multi-storey carpark in Yishun has been turned into a community garden by the Rooftop Farming interest group made up of some 18 residents in Nee Soon South Zone D. Ong Chun Yeow is one of several estate residents with a garden allotment, growing lots of leafy greens like purslane, swiss chard, and amaranth, herbs, galangal, as well as fruiting vegetables like bitter melon, okra and tomatoes.

Fig. 5

With reference to Fig. 5, suggest how this area can contribute towards the different types of ecosystem services in a neighbourhood.

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6 Study Fig. 6, which shows photographs of Bishan-Ang Mo Kio Park.



Fig. 7

With reference to Fig. 7, describe the regulating and cultural ecosystem services that can be found within this park.

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7 Describe two ecosystem services found in urban neighbourhoods.

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- 2 Study Fig. 2 and 3, which shows, the data on the different causes of fire in Singapore.

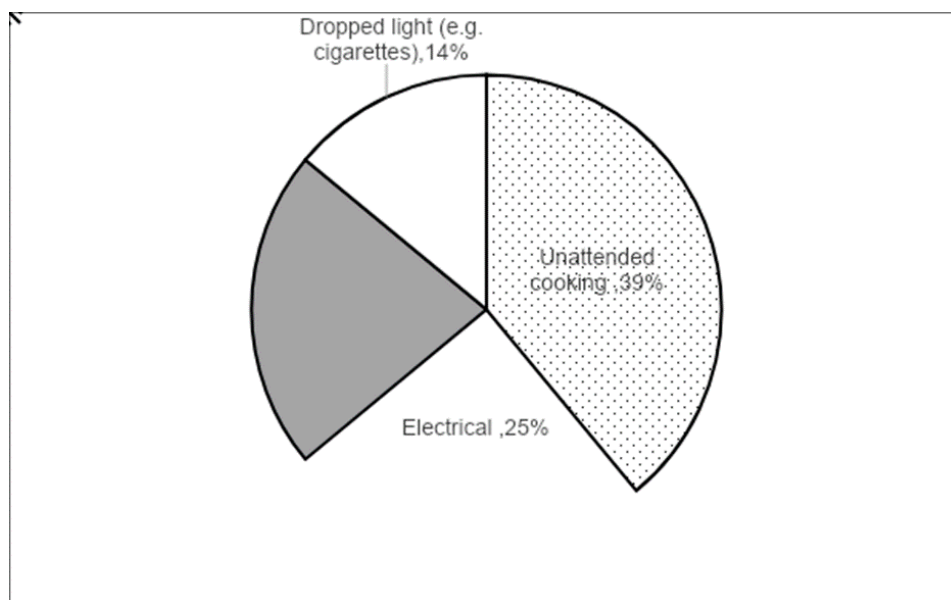


Fig. 2

Trend in top two causes of fires in residential buildings in 2021 and 2022

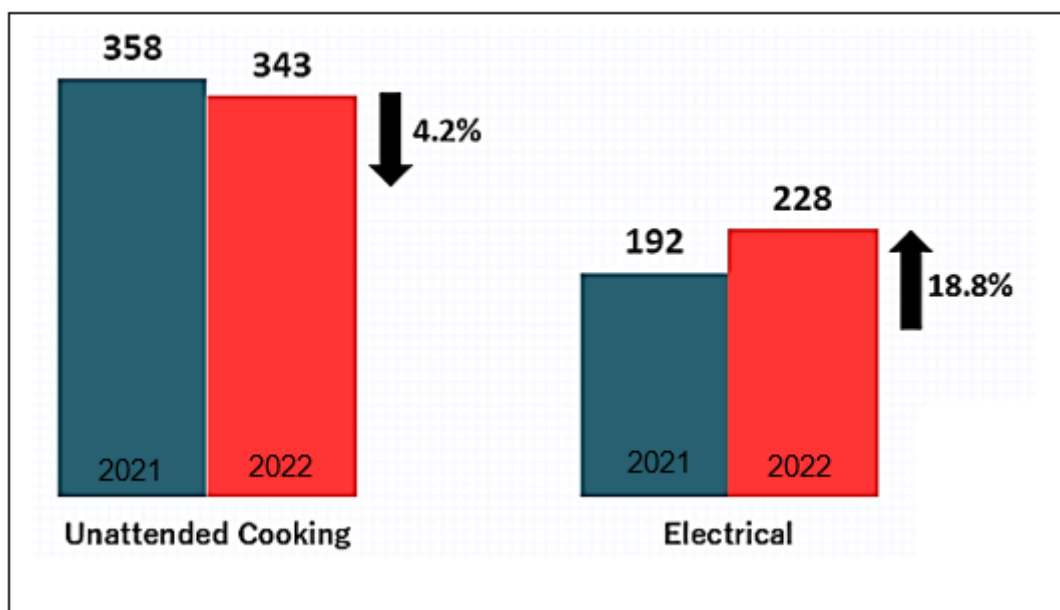


Fig. 3



Based on to Fig. 2 and 3, comment on the causes of fires in residential buildings in Singapore in 2022.

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- 3 Study Fig. 4, which shows which shows the changes in the causes of residential fires between 2020 and 2021 in Singapore.

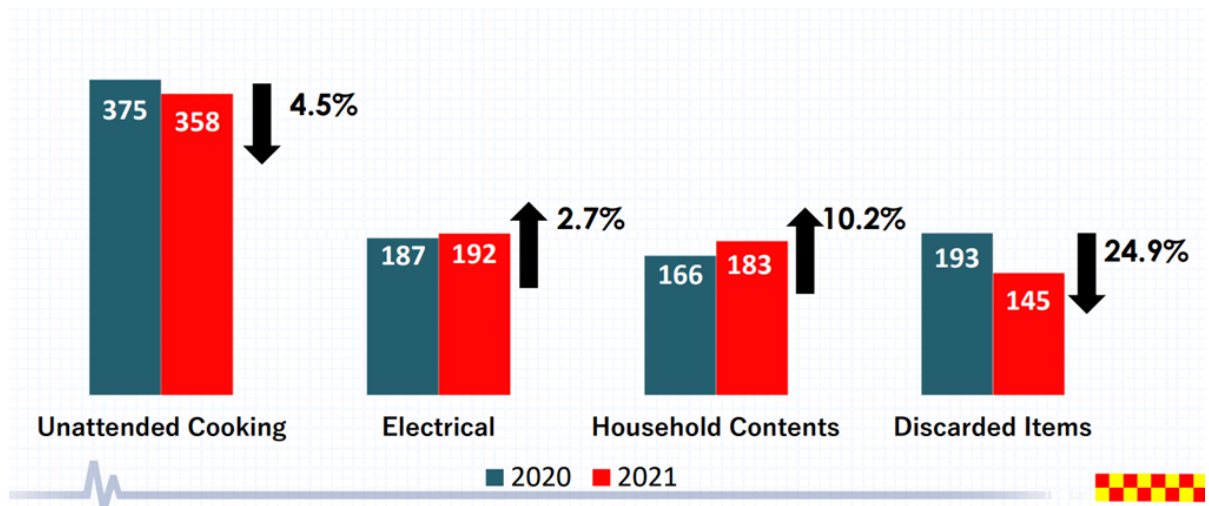


Fig. 4



With reference to Fig. 4, compare the changes in the causes of residential fires between 2020 and 2021.

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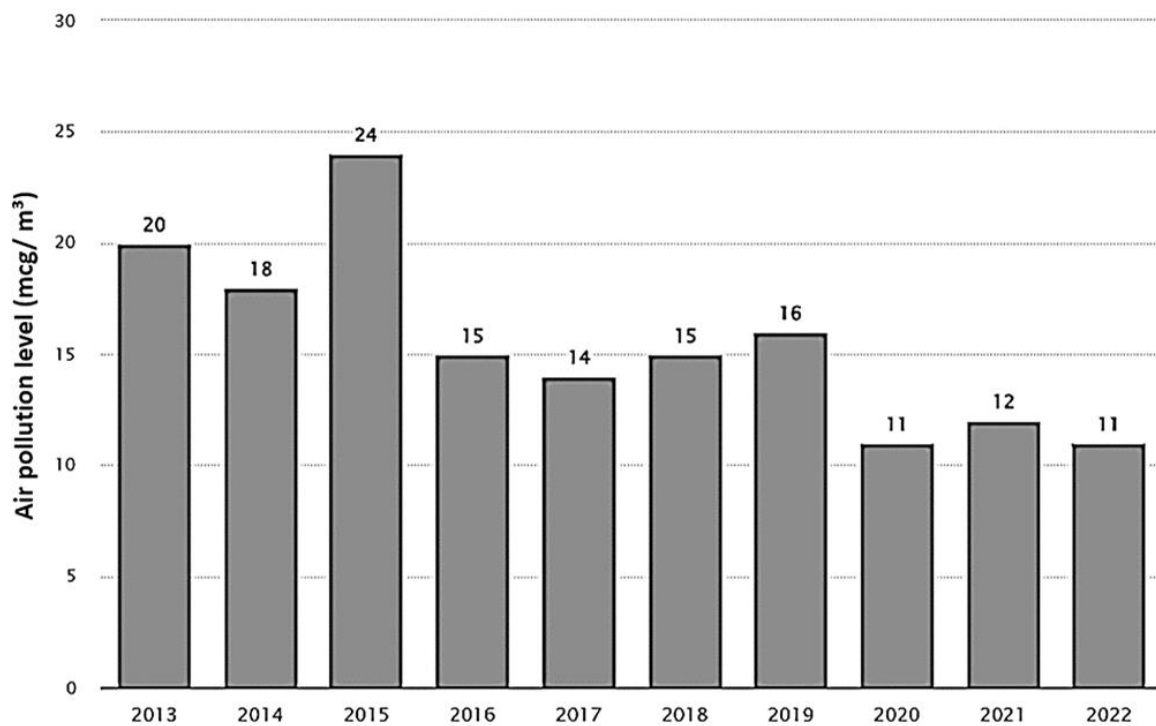
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- 4 Study Fig. 5, which shows the annual air pollution level of particulate matter (PM2.5) in Singapore from 2013 to 2022.



*mcg-microgram

Fig. 5



With reference to Fig. 5, describe the trend in the annual air pollution level of particulate matter (PM 2.5) in Singapore from 2013 to 2022.

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Explain how air pollution could affect people living in cities.

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- 5** Study Fig. 6, which shows a view of an oil refinery off the coast in Singapore.



Fig. 6



Identify the hazard shown in Fig. 6.

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Explain how the hazard shown in Fig. 6 may impact people in Singapore.

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6 Describe two common hazards in urban neighbourhoods and how they can be sustainably managed.

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7 Study Fig. 7, which shows the number of days with high air pollution rate by areas in the United Kingdom from 2010 to 2022.

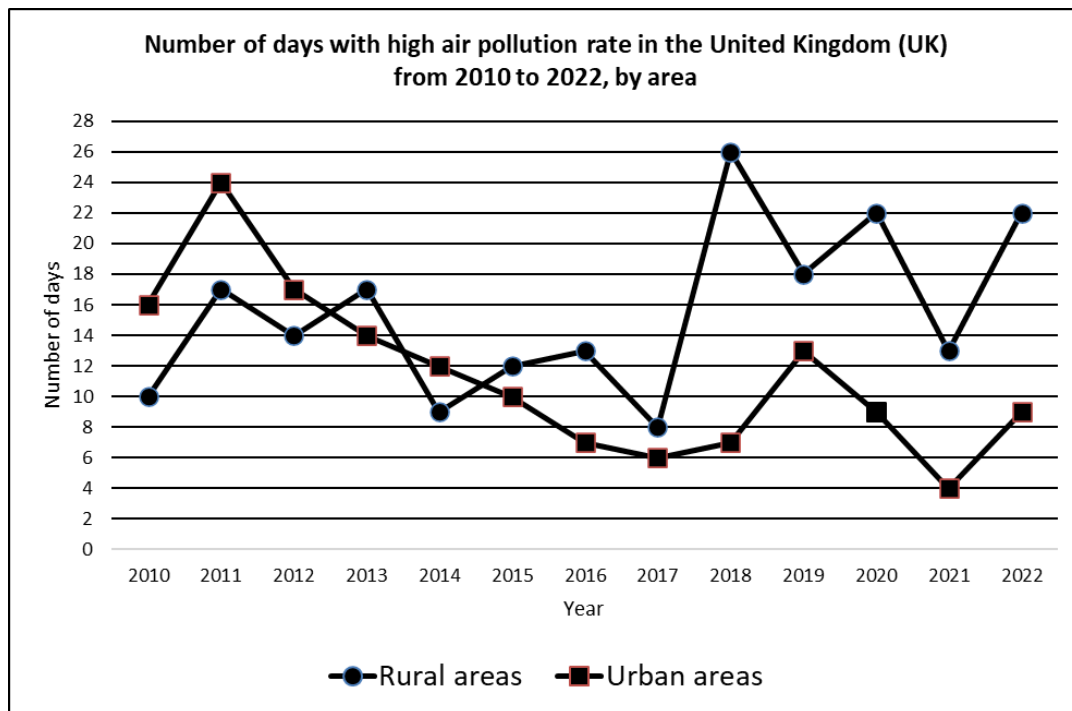


Fig. 7

Compare the trends in the number of days with high air pollution rate between rural and urban areas from 2010 to 2022 shown in Fig. 7.

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Cluster: GEL

Topic 2.4: Building sustainable urban neighbourhoods

- 1 Study Fig. 1, which shows a poster put up by NEA on recycling.

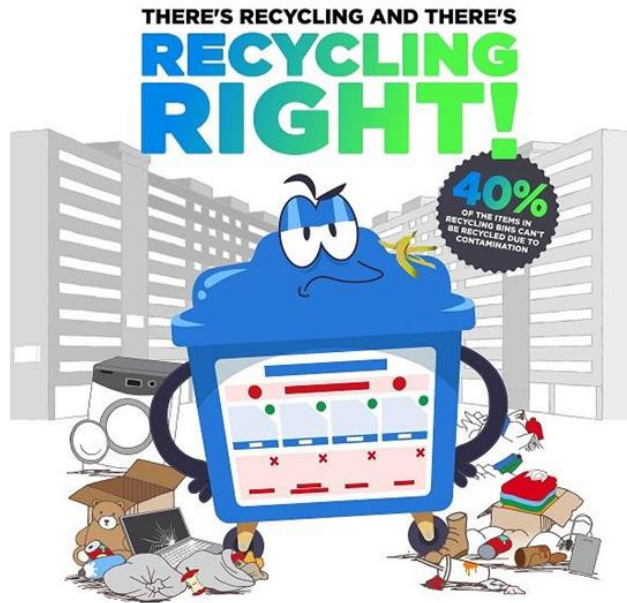


Fig. 1

With reference to Fig. 1, explain how this is part of environmental stewardship that is developed in an urban neighbourhood.

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2 Study Fig. 2, which shows a poster on fire safety.

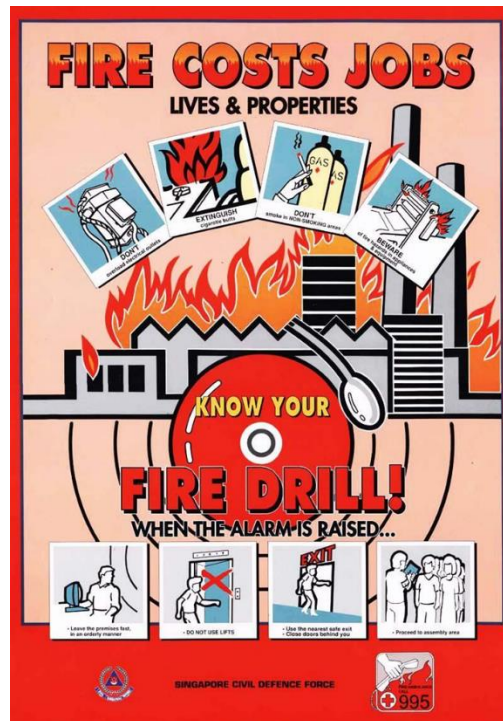


Fig. 2

With reference to Fig. 2, how the impact of fires may be reduced through reducing vulnerability and exposure as part of risk management.

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- 3 Study Fig. 3 and 4, which shows a community-led project to teach the community how to install outdoor solar panels in Sunnyside Neighbourhood, Southern Houston, Texas, USA and the number of households installing rooftop solar panel in Houston.



Fig. 3

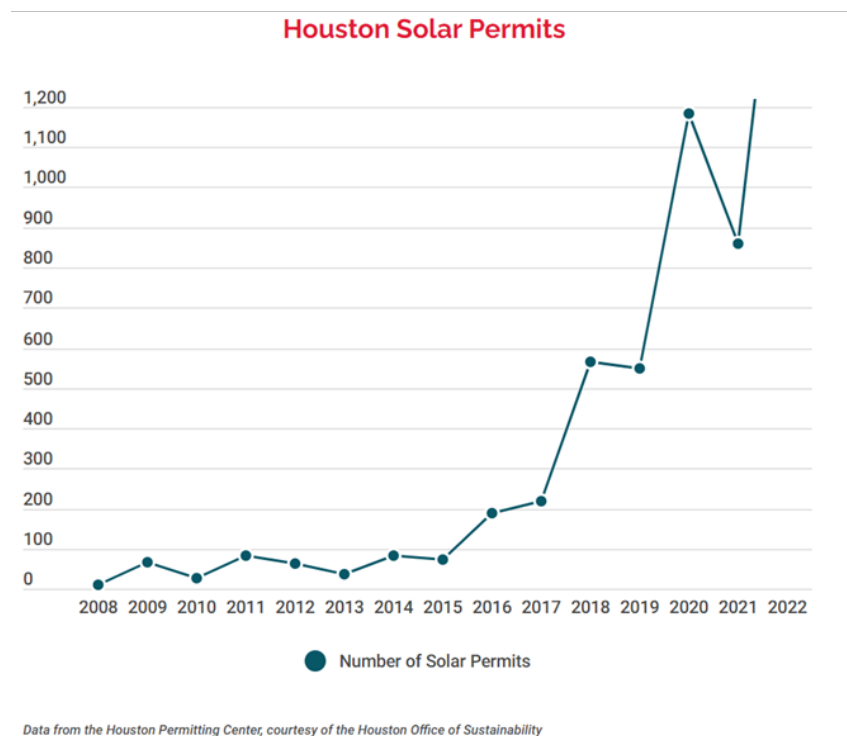


Fig. 4

Using Figs. 3 and 4, explain how initiatives like this can contribute to the sustainability and community resilience of a neighbourhood.

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- 4 Study Fig. 5, which shows the myResponder(Fire) Application that was launched by the Singapore Civil Defence in 2015. Individuals who download this application will be alerted if there are fire incidents near them.



Fig. 5

With reference to Fig. 5, suggest how the launch of myResponder(Fire) Application can help to reduce the impact of residential fires.

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- 5** Study Fig. 6, which shows students participating in an environmental programme in a school.



Fig. 6



Explain how the activity shown in Fig. 6 is an example of environmental stewardship.

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6 Evaluate if a small population size helps urban neighbourhoods in building community resilience.

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Reported Residential Fires in Singapore by Cause 2016-2018



With reference to Fig. 7, compare the trends of the causes of reported residential fires in Singapore between 2016 to 2018.

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Explain how managing disaster risks could reduce the impacts of residential fires.

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- 5** Study Fig. 7, which shows distributions of Automated External Defibrillators (AEDs).

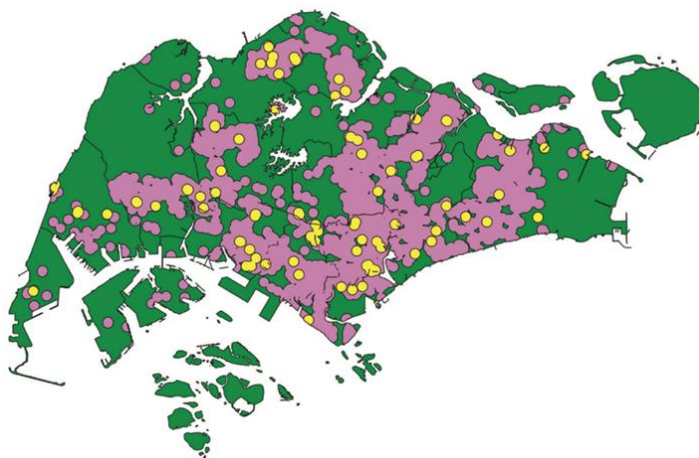


Fig. 6

Describe the spatial pattern of public access to AEDs in Singapore.

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