

**H2 Prelims 2017 Paper 2
Marking Guide**

Section A

Theme 4: Geographical Investigation

- 1 A group of 24 eighteen-year-old students from Singapore wanted to examine the needs of the elderly in different neighbourhoods in Singapore. They had access to census and survey information on geographical spread of elderly residents aged 65 and above, elderly living arrangements in Singapore, their sources of social activity and whether elderly friendly fixtures were available in their homes.

The students wanted to obtain more information on specific neighbourhoods by assessing the needs of the elderly in Ang Mo Kio and Sengkang in terms of physical infrastructure in these neighbourhoods as well as social needs. They were allocated three days for field investigation. The three days were spread across the beginning, in the middle and at the end of November 2016.

Resource 1 shows the proportion of elderly population by planning area in 2016. Resource 2 shows proportion of households having elderly friendly fixtures in 2011. Resource 3 shows sources of social activity amongst the elderly in 2014. Resource 4 shows living arrangement of elderly by age in 2011.

- (a) **Suggest a suitable research question for the students' investigation.** [1]

Award 1 mark for a suitable research question.

Possible research questions include:

- Does Sengkang have higher % of dwellings with elderly friendly fixtures?
- Do the elderly in Ang Mo Kio have more sources of social activity compared to elderly in Sengkang?

- (b) **With reference to Resource 1, outline why Ang Mo Kio and Sengkang are appropriate locations for the students' research.** [4]

Award 2 marks for each reason to a maximum of 4 marks.

Possible responses include:

- Ang Mo Kio has the second highest proportion of elderly aged over 65 with 15-20% whilst Sengkang has a low proportion of elderly 5-10% → able to provide a good contrast
- Locations are of close proximity (they are next to each other as seen in Resource 1) → ease of access to conduct research

Point marked.

- (c) **Suggest a plan for the students to investigate needs of the elderly in Ang Mo Kio and Sengkang.** [7]

Indicative Content:

- establish the data needed to examine the research question e.g. quantitative data through surveys conducted with elderly or qualitative data through interviews/ focus group discussions with the elderly
- identify appropriate methods for collecting primary and secondary data e.g. using convenience sampling in Ang Mo Kio and Sengkang neighbourhoods to interview/survey elderly or systematic sampling in identified blocks (e.g. every 5th floor) to interview elderly
- consider research ethics e.g. list the key points that would be shared with the interviewees about their research purpose, minimize noise disturbance
- Limitations e.g. reasonable number of hours conducting one-to-one interviews

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with elderly for 24 students over three days

- Minimise potential risks in undertaking investigation e.g. stop fieldwork before sunset, use appropriate language during interviews, work in pairs

Levels marked:

Level	Marks	Descriptors
3	6-7	Response demonstrates accurate knowledge of geographical investigation methods. Outlines a relevant and coherent plan with reference to data collection, methods, investigation limitations and risk mitigation strategies. Response is relevant to context of question throughout
2	3-5	Response demonstrates some knowledge of geographical investigation methods. Outlines a clear plan with some reference to data collection, methods, investigation limitations and risk mitigation strategies. Response is mostly relevant to context of question but may lack clarity and coherence.
1	1-2	Response demonstrates limited or no knowledge of geographical investigation methods. Outline of plan is limited and may not refer to one or more of the facets of an investigation in their outline plan. Much of the response may not be relevant to context of question.
0	0	No creditworthy response

- (d) With reference to Resource 4, sketch a bar chart to represent living arrangements of the elderly in Singapore. [4]

For bar graph, 1 mark awarded for each of the following:

- Title
- Accuracy of proportion of sectors/height of bars.
- Clear and relevant labels.
- Axis

- (e) Evaluate the usefulness of Resources 2, 3 and 4 in understanding the needs of the elderly in Singapore. [9]

- Intro: Opinion/Stand?
- Resource 2 shows that only a quarter of elderly residents have elderly friendly features in their living environment→ shows that there is a lack of infrastructure within the living environment to cater to physical needs of the elderly in Singapore. Moreover, there are variations between the types of households the elderly stay in. 1-2 room households fare the best with 48.5% having elderly friendly features while 4 room households are the worst with only 20.8%. But resource is outdated (2011) and does not show spatial variations amongst different neighbourhoods.
- Resource 3 shows that most important source of social activity for elderly is through family/friends with more 88.9% and 62.4% meeting them at least once a month. However, the frequency is not shown in detail by the source as social needs of the elderly may not be fulfilled by once a month meetups. Therefore frequency of such get-togethers will be more useful in reflecting social needs of the elderly.
- Resource 4 reflects variations in age of the elderly and living environments→ those aged 75 and above are likely to have more healthcare needs as well as need for social support as they are likely to have more health concerns at

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an older age. Living arrangements: Elderly living alone will need the greatest support in terms of social needs compared to those living with relatives/nursing homes. The largest % of elderly for 65-74 age group have greater social support as they live with spouse & children/grandchildren. In comparison, the largest % of 75 and above have alternative living arrangements which may highlight very different social and financial needs.

- Though all sources combined reflect some aspects of physical, social needs of the elderly, they may be limited as they reflect Singapore's statistics in general and not location specific. Moreover, they are from 2011 and 2014 which may be outdated.
- Sum up. Reiterate stand

Level	Marks	Descriptors
3	7-9	Response demonstrates accurate knowledge and understanding of geographical investigation skills and methods relevant to the given context. Provides a logical and well-developed evaluation, which may include perceptive insights for the strongest responses. Reflects strong critical thinking skills and a good understanding of the requirements of the question.
2	4-6	Response demonstrates good knowledge and understanding of geographical investigation skills and methods relevant to the given context. Provides an evaluation, which may be limited in depth and detail. Response reflects critical thinking skills in general but may not always be relevant to the question.
1	1-3	Response shows inadequate knowledge and understanding of geographical investigation skills and methods. Response has some, though limited, relevance to the given context. Provides little or no evaluation. May include material that is irrelevant to the question.
0	0	No creditworthy response.

Note:

1. The assessment involves qualitative rather than quantitative evaluation. Judgements on the level to be awarded to an answer will be based on the principle of 'best fit' determined by the descriptors within each level.
2. The descriptors in each level may be worded differently in actual assessment to link them more to the questions set. However, regardless of the wordings used, the quality of responses expected of candidates in each level would not deviate from that stated in the generic level descriptors.

Section B

Theme 1: Tropical Environments

Typhoon Morakot in Taiwan

- 2 Resource 5 shows the path of Tropical Cyclone Morakot which crossed the South China Sea in August 2009. Resource 6 shows the effects of Typhoon Morakot on rainfall and discharge at various rainfall stations across Taiwan. Resource 7 shows a photograph of a mass movement that occurred in Southern Taiwan during Tropical Cyclone Morakot.

Commented [CKL1]: Are there 2 separate issues? Rainfall and Landslide?

- (a) Describe the development and passage of Typhoon Morakot as seen in [5] Resource 5.



- Typhoon Morakot was formed in the Pacific Ocean and it developed and travelled towards Taiwan and China in the western direction
- Typhoon Morakot started in 3 August as a tropical depression in the Pacific Ocean
- The typhoon increased in size to tropical storm on 4 August and upgraded to Typhoon 1 on 6 August and Typhoon 2 on 7 August.
- It downgraded to tropical storm as it passed East China Sea and made landfall at Fujian, China on 9 August.
- It downgraded further from tropical storm to tropical depression as it advanced to Zhejiang on 10 August.

Point marking. Answer to include the 1) start and 2) passage/route, general direction, 3) development in terms of size.

- (b) With reference to Resource 5 and your own knowledge, suggest how tropical storms are generated. [6]

Answer to include both surface and atmospheric conditions (to elaborate on 2-3 conditions with relation to resource)

Atmospheric conditions favouring the development of tropical cyclone

- (a) A location at least 5° N or S of equator.
 (b) A location on the western side of oceans [can relate to Resource where cyclone was initiated on the western side of the Pacific Ocean]

(c) *The presence of an upper atmosphere air rotation which spreads air outwards (anticyclonic circulation).*

(d) *The absence of a vertical wind shear*

Surface conditions favouring the development of tropical cyclone

(e) *A location over the sea with sea surface temperatures above 27°C. [can relate to the warm Pacific Ocean]*

Level	Marks	Descriptors
3	5-6	Response demonstrates accurate knowledge of conditions of cyclone. Explanation is detailed, thorough and relevant. Reference made to resource in response and information from resource used to substantiate response.
2	3-4	Response demonstrates adequate knowledge and understanding of the conditions of cyclone. Explanation is valid but may be somewhat limited in relevance and detail. Some of the response may not fully address the context of the question. Limited reference made to resource.
1	1-2	Response demonstrates limited or no knowledge and understanding of the conditions leading to cyclones. Explanation lacks detail. Overall the response does not address the context of the question. No reference made to resource.

(c) With reference to Resource 6, explain how Typhoon Morakot could have impacted the river channels in Taiwan. [5]

Possible answer:

- Sinan station has the greatest increase in discharge to 27000cms on 10 August (data from resource 6B) with 2600mm of rainfall (data from resource 6A)
- Possible answer: may lead to occurrence of fluvial floods with the large contribution of rainfall on the river
- As seen from Resource 6A, there is a giant landslide in Minsheng station where there is an increase in discharge to 18000cms by 10 August
- Depending on context on the location of the river in relation to the slope where landslide can occur
- Typhoon can lead to occurrence of landslide → landslide can lead to sedimentation in the river → result in displacement of river flow
- Typhoon can lead to fluvial flood, which can undercut the base of the slope and leads to landslide.

Level	Marks	Descriptors
3	5	Response demonstrates accurate knowledge of conditions of how cyclone can affect rivers. Explanation is detailed, thorough and relevant. Reference made to resource in response and information from resource used to substantiate response.
2	3-4	Response demonstrates adequate knowledge and understanding of how cyclone can affect rivers. Explanation is valid but may be

		somewhat limited in relevance and detail. Some of the response may not fully address the context of the question. Limited reference made to resource.
1	1-2	Response demonstrates limited or no knowledge and understanding of how cyclone can affect rivers. Explanation lacks detail. Overall the response does not address the context of the question. No reference made to resource.

- (d) **With reference to Resources 6, 7 and your own knowledge, discuss the role of Typhoon Morakot in triggering the mass movement as seen in Resource 7.** [9]

Indicative content:

Possible mass movement: landslide/mudflow

How excessive rainfall can trigger the occurrence of landslide

- By increasing shear stress and decreasing in shear strength and when shear stress exceeds shear strength, landslide can happen

How excessive rainfall can affect the attributes of the mass movement

- Excessive rainfall increase the water content of the soil, increase the speed of the landslide
- The excessive rainfall can result in a structure-less landmass with a hummocky surface

Other factors can also play a part in leading to the occurrence of the mass movement. These factors play a contributory role to the occurrence of mass movement

- Slope with unconsolidated materials
- Slope with a high angle of repose
- Slope with a weaker rock, more joints
- Human activities such as urbanisation, overloading, steepening, construction etc

Higher level responses would analyse the keyword of trigger and discuss the influence of the typhoon.

Level	Marks	Descriptors
3	7-9	Response demonstrates clear knowledge and understanding of the context in the question. Uses relevant, detailed and accurate factual information and conceptual understanding. Reflects strong critical thinking skills. Source(s) is well used to support the response. <ul style="list-style-type: none"> • Provides a logical and well-developed evaluation well founded on evidence and/or different viewpoints. <p style="text-align: center;">OR</p> <ul style="list-style-type: none"> • Makes a decision which clearly addresses different elements of the issue and/or interests of different stakeholders.
2	4-6	A satisfactory response which is generally sound and contains relevant points, but may not always focus on the context in the question. Uses factual information and conceptual understanding that is generally relevant to the given context but lacks detail and may contain some inaccuracies. Displays general critical thinking skills. Source(s) is used to support parts of the response. <ul style="list-style-type: none"> • Provides an evaluation, which may be limited in depth and insufficient evidence and support used. <p style="text-align: center;">OR</p> <ul style="list-style-type: none"> • Shows some attempt to address different elements of the issue and/or views of different stakeholders when making a decision but is not well-developed or exemplified.
1	1-3	Response shows a poor understanding of the context in the question. Uses basic factual information and conceptual understanding which has some, but limited, relevance to the question. Source(s) is not used or not accurately used to support the response. <ul style="list-style-type: none"> • Provides little or no evaluation.

		OR
		<ul style="list-style-type: none"> Evidence of decision-making, if present, are simple and may be flawed and contains no reference to views of stakeholders.
0	0	No creditworthy response.

Theme 2: Development, Economy and Environment

Huawei's Global Production Network

3 Huawei Technologies is a Chinese transnational networking and telecommunications equipment and services company headquartered in Shenzhen, Guangdong. Resource 8 shows the spatial organisation of Huawei's firm activities. Resource 9 depicts market share rankings of Top 5 smartphone brands. Resource 10 shows an article of Huawei opening a Global Service Centre in India. Resource 11 shows updates on the Indian government's 'Make in India' initiatives.

(a) With reference to Resource 8, describe the spatial organisation of [3] Huawei's operations.

Possible responses can include:

- Greatest spatial distribution are technical support centres → located in all continents
- Important functions like HQ and R&D largely clustered in China with close to 7 centres here
- All major continents like Asia, Europe, N America and S America have at least 4 different functions located here except for Africa with only 2 functions of technical centres and training centres

Point marked, award 1 mark for each valid response.

(b) Suggest two reasons for the locations of Huawei's supply centers and [4] hubs shown in Resource 8.

Possible responses include:

- One supply centre is located in most continents, with 2 in Asia and Europe → to cater to larger markets in Europe and Asia
- This could also be due to need to save transport costs of materials and goods and to have a ready stock to cater to changing demands in a regional market
- Could be due to a need to cater to different tastes and preferences of products in different markets

Point marked, award 2 marks for each elaborated response.

(c) Explain why Huawei's market share of smartphones could have changed [5] as shown in Resource 9.

Indicative content:

- Huawei is No 3 smartphone manufacturer in terms of market size, however, has increased its market share from 8.3% to 11.1% within 3 years
- This could be due to various reasons such as
 - Reaching out to more countries in terms of marketing and sales
 - Improving in product quality
 - Pricing product competitively relative to close competitors like Apple and Samsung
 - Catering to local tastes and preferences in terms of advertisements/product specifications

Level	Marks	Descriptors
3	5	Response demonstrates accurate knowledge of Huawei as a TNC and market share. Explanation is detailed, thorough and relevant. Reference made to resource in response and information from resource used to substantiate response.
2	3-4	Response demonstrates adequate knowledge and understanding of Huawei as a TNC and market share. Explanation is valid but may be somewhat limited in relevance and detail. Some of the response may not fully address the context of the question. Limited reference made to resource.
1	1-2	Response demonstrates limited or no knowledge and understanding of Huawei as a TNC and market share. Explanation lacks detail. Overall the response does not address the context of the question. No reference made to resource.
0	0	No creditworthy response

(d) **With reference to Resource 10, explain the economic impacts of Huawei's Global Service centre on India.** [5]

Commented [CKL2]: Impact or impacts?

Indicative content:

- Increased FDI can contribute to more economic revenue to be channelled to various sectors
- Increased employment with more than 1000 'techies' employed in higher skilled jobs such as engineering and IT
- Multiplier effect → could attract other related industries to locate in India which can generate more revenue and employment
- Training of workforce
- Caters to market in Asia, Middle east, Africa → increases global presence, connectivity

Level	Marks	Descriptors
3	5	Response demonstrates accurate knowledge of economic impacts of Huawei's Global Service centre on India . Explanation is detailed, thorough and relevant. Reference made to resource in response and information from resource used to substantiate response.
2	3-4	Response demonstrates adequate knowledge and understanding of economic impacts of Huawei's Global Service centre on India . Explanation is valid but may be somewhat limited in relevance and detail. Some of the response may not fully address the context of the question. Limited reference made to resource.
1	1-2	Response demonstrates limited or no knowledge and understanding of economic impacts of Huawei's Global Service centre on India . Explanation lacks detail. Overall the response does not address the context of the question. No reference made to resource.
0	0	No creditworthy response

Commented [CKL3]: Impact or impacts?

Commented [CKL4]: Impact or impacts?

Commented [CKL5]: Impact or impacts?

(e) **Using Resource 11 and your own knowledge, assess the influence of 'Make In India Initiatives' on TNCs such as Huawei.** [8]

Indicative content:

- Opinion/stand?
- Make in India initiatives can exert a positive influence on TNCs such as Huawei and increases attractiveness of India as a destination
 - Investment in transport networks such as roads and shipping (7000 crore) will improve efficiency in transporting finished products
 - Smart cities will allow greater technological infrastructure which can enhance communication networks for TNCs
 - Increased investment in defence → can improve safety/security of

FDI

- National policy for skills development→ improve quality of labour force which can be attractive for TNCs
- However:
 - Remains to be seen whether projects will be completed as in plan→ bureaucracy, inefficiencies in implementing programs such as transport improvements and training people
 - There could be spatial differences in such improvements where only some areas could benefit from these initiatives→ TNCs located in other areas may not be influenced by such initiatives
 - TNCs may not find these initiatives the main reason (or influential enough) for investing in India→ there could be other more important considerations such as political stability, labour cost, land cost, large market size etc
- Sum up

Level	Marks	Descriptors
3	7-8	Response demonstrates clear knowledge and understanding of the context in the question. Uses relevant, detailed and accurate factual information and conceptual understanding. Reflects strong critical thinking skills. Source(s) is well used to support the response. <ul style="list-style-type: none"> • Provides a logical and well-developed evaluation well founded on evidence and/or different viewpoints. OR • Makes a decision which clearly addresses different elements of the issue and/or interests of different stakeholders.
2	4-6	A satisfactory response which is generally sound and contains relevant points, but may not always focus on the context in the question. Uses factual information and conceptual understanding that is generally relevant to the given context but lacks detail and may contain some inaccuracies. Displays general critical thinking skills. Source(s) is used to support parts of the response. <ul style="list-style-type: none"> • Provides and evaluation, which may be limited in depth and insufficient evidence and support used. OR • Shows some attempt to address different elements of the issue and/or views of different stakeholders when making a decision but is not well-developed or exemplified.
1	1-3	Response shows a poor understanding of the context in the question. Uses basic factual information and conceptual understanding which has some, but limited, relevance to the question. Source(s) is not used or not accurately used to support the response. <ul style="list-style-type: none"> • Provides little or no evaluation. OR • Evidence of decision-making, if present, are simple and may be flawed and contains no reference to views of stakeholders.
0	0	No creditworthy response.

Theme 3: Sustainable Development

Urban transport in Bogota, Columbia

- 4 TransMilenio is a Bus Rapid Transit (BRT) system that serves Bogotá, the capital of Colombia which is a Less Developed Country in South America. Resource 12 shows the layout of the TransMilenio network. Resource 13 shows the TransMilenio's effects on journey times. Resource 14 shows a photograph of the BRT during the morning rush hour.

Commented [CKL6]: Need to spell in full?

- (a) Describe the feeder routes shown in Resource 12.

[3]

Possible responses can include:

- Network of feeder routes do not cover the entire city, only a dense network at Northwest part of the city and South & Southwest part of the city
- Northern part of the city is where the residential poverty is moderate whilst Southern part of the city, residential poverty is high

- Central portion of Transmilenio route is not supported by feeder routes.
- At the northern portion, feeder routes are more grid like and more complex in pattern whilst in the Southern portion, it is more branch like

Award 1 mark for each valid point.

(b) Suggest two reasons for the absence of TransMilenio routes in 2008 in the area marked X on Resource 12. [4]

Commented [CKL7]: Qn 3b was '2'.
Pls align – either spell or number

Possible responses can include:

- The area marked X is a place of low residential poverty which may be home to high income earners. Bus rapid transport may perhaps be secondary or insignificant to them as they may have private car ownership. This therefore defeats the purpose of establishing the bus transit
- Could be a very low residential population making investment in the TransMilenio there not worthwhile
- Environmental reason for its absence from X, such as a protected environment, or steep terrain making construction difficult.

Award 2 marks for each elaborated reason.

(c) Explain how the BRT system depicted in Resource 14 can ease traffic congestion. [5]

Indicative content:

- Dedicated bus lanes for BRT system → eases traffic congestion as traffic flow is not impeded by other vehicles
- BRT → can accommodate more people on the buses (seen in resource with a larger sized bus, many buses in line) → less people using private transport → less congestion
- Overhead pass to direct passengers to board buses → reduces human traffic on the roads → may ease traffic congestion

Level	Marks	Descriptors
3	5	Response demonstrates accurate knowledge of BRT system and traffic congestion. Explanation is detailed, thorough and relevant. Reference made to resource in response and information from resource used to substantiate response.
2	3-4	Response demonstrates adequate knowledge and understanding of BRT system and traffic congestion. Explanation is valid but may be somewhat limited in relevance and detail. Some of the response may not fully address the context of the question. Limited reference made to resource.
1	1-2	Response demonstrates limited or no knowledge and understanding of BRT system and traffic congestion.. Explanation lacks detail. Overall the response does not the address the context of the question. No reference made to resource.
0	0	No creditworthy response

(d) Outline the challenges that cities face in implementing public transport measures such as the BRT system as shown in Resource 14. [5]

Indicative content:

- Challenges in accommodating to populations in cities, especially those with rapidly growing populations in less developed countries. As seen in the resource, long queues of people for the buses
- Challenges in maintaining the BRT system due to need for financing and manpower as large volumes of buses are needed and they need to be serviced regularly
- Challenges in convincing people to use the system as it requires a mindset change from people able to afford private vehicles

Level	Marks	Descriptors
3	5	Response demonstrates accurate knowledge of implementation of public transport. Explanation is detailed, thorough and relevant. Reference made to resource in response and information from resource used to substantiate response.
2	3-4	Response demonstrates adequate knowledge and understanding of implementation of public transport. Explanation is valid but may be somewhat limited in relevance and detail. Some of the response may not fully address the context of the question. Limited reference made to resource.
1	1-2	Response demonstrates limited or no knowledge and understanding of implementation of public transport. Explanation lacks detail. Overall the response does not address the context of the question. No reference made to resource.
0	0	No creditworthy response

(e) **Bogotá's policy of urbanisation includes meeting the needs of the city's 3 million poor. To what extent do Resources 12 and 13 support the view that the TransMilenio has helped the poor more than the rich?** [8]

- Stand/opinion?
- In Resource 12 the TransMilenio serves areas inhabited by moderate poverty in the North and high poverty in the South
- In Resource 12, no feeder routes are reaching out to the higher income residential areas
- In Resource 13, the poorest saved more minutes off their journeys (18) than the richest (10)
- However in Resource 12 some of the areas of highest residential poverty (the red) were not served by the TransMilenio at all, such as in the extreme west and the extreme south of Bogotá.
- Also using Resource 13 journey times remained significantly longer for the poor (approximately 48 minutes) than for the rich (36 minutes), even though they had been shortened; or that categories 3, 4 and 6 all saved 10 minutes' journey time.
- Higher level responses can be distinguished by further comments, such as on the limitations of the evidence (for instance, giving time but not cost information); or the use of averages, such as the lived experience of the poor or the rich may be much better or worse than that given.

Level	Marks	Descriptors
3	7-8	Response demonstrates clear knowledge and understanding of the context in the question. Uses relevant, detailed and accurate factual information and conceptual understanding. Reflects strong critical thinking skills. Source(s) is well used to support the response. <ul style="list-style-type: none"> • Provides a logical and well-developed evaluation well founded on evidence and/or different viewpoints. <p style="text-align: center;">OR</p> <ul style="list-style-type: none"> • Makes a decision which clearly addresses different elements of the issue and/or interests of different stakeholders.
2	4-6	A satisfactory response which is generally sound and contains relevant points, but may not always focus on the context in the question. Uses factual information and conceptual understanding that is generally relevant to the given context but lacks detail and may contain some inaccuracies. Displays general critical thinking skills. Source(s) is used to support parts of the response. <ul style="list-style-type: none"> • Provides and evaluation, which may be limited in depth and insufficient evidence and support used. <p style="text-align: center;">OR</p> <ul style="list-style-type: none"> • Shows some attempt to address different elements of the issue and/or views of different stakeholders when making a decision but is not well-developed or exemplified.
1	1-3	Response shows a poor understanding of the context in the question. Uses basic factual information and conceptual understanding which has some, but limited, relevance to the question. Source(s) is not used or not accurately used to support the response. <ul style="list-style-type: none"> • Provides little or no evaluation. <p style="text-align: center;">OR</p> <ul style="list-style-type: none"> • Evidence of decision-making, if present, are simple and may be flawed and contains no reference to views of stakeholders.

0	0	No creditworthy response.
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