YISHUN SECONDARY SCHOOL
Subject & Code: Pure Geography / 2279 Level & Stream: Sec 4 EXPRESS

The Curriculum and Approaches to Learning	**Key Programmes / Competitions**
The Geography syllabus is organised by topics that are grouped according to clusters to achieve a balance between breadth and depth of content coverage. By using geographical concepts and methods in lessons at YSS, students would elevate the relevance and applicability of Geography. Furthermore, students will be able to understand key geographical concepts such as space, place, physical and human processes, environmental and cultural diversity and interdependence and skills to develop in them an appreciation of the physical and human environment.	• Learners will engage in inquiry-based, differentiated learning experiences that make their thinking visible and support deeper understanding • Reflective learner who evaluates and develops their skills and knowledge through ongoing self-reflection • Assessment for learning approaches to assess students and provide feedback to help them improve • NUS Geography Challenge to inspire to develop a keen interest in the dynamic discipline of Geography • To critically use educational technology (Ed-Tech) and AI tools to analyse and interpret geographical data

Term / Week Term 1	Learning Experiences (chapter, activity)	Learning Outcomes & Assessment
0	**Back-to-School Programme**	
1 – 2	**<u>Topic 4.1 – Plate Tectonics</u>** **<u>KQ4.1.1 – What is the plate tectonic theory?</u>** **Plate tectonic theory** **a)** Earth's internal structure consists of core, mantle and crust, including continental and oceanic crusts **b)** explains how forces within Earth drives global plate movements **Convection currents** **a)** within the hot softened mantle below the crust **b)** being the driving force of overlying plates **Slab-pull force** **a)** gravity-controlled subduction of denser oceanic plate **b)** drags the rest of the plate along **<u>KQ4.1.2 – How does seafloor spreading support the plate tectonic theory?</u>** **Seafloor spreading** **a)** magma rises through mid-ocean ridges **b)** forms new oceanic crusts **Evidence from age of rocks** **a)** younger rocks are found nearer the crest of mid-ocean ridges **b)** rocks get progressively older further away from mid-ocean ridges **Evidence from limited sediment accumulation** **a)** destruction of older oceanic crusts at trenches **b)** oceanic crusts younger than continental crusts	**<u>Content Activity</u>:** • Experiential learning to better understand the internal structure of the earth **<u>Skill Focus</u>:** • Annotating of diagram • Comparison of the different layers of the internal structure of the earth • Data response question - using figure to describe and explain **<u>Content Activity:</u>** • Teacher plays a short animation showing magma rising at mid-ocean ridges and new oceanic crust forming. Students to discuss the following question: "Why might oceanic crusts near the ridge be younger than those farther away?" Groups use **Google Earth** to locate mid-ocean ridges and trenches. Students annotate: (a) Ridge crests with younger rocks and (b)Areas with older crust and limited sediment **<u>Skills Focus</u>** • Critical thinking, collaboration and digital literacy

3 – 4	**KQ4.1.3 – How does magnetic striping support the plate tectonic theory?** **Magnetic striping** **a)** normal and reversed polarity **b)** stripes of rock on the seafloor with alternating magnetic properties **Evidence from rock composition** **a)** basalt is a volcanic rock that forms the oceanic crust **b)** contains minerals that can be influenced by Earth's magnetic field **Evidence from rock patterns** **a)** alternating polarity forms a striped pattern **b)** not random or isolated occurrences **KQ4.1.4 – What happens at plate boundaries when tectonic plates move?** **Divergent plate boundaries** **a)** plates move away from each other **b)** results in mid-ocean ridges, volcanoes including submarine volcanoes and volcanic islands, rift systems and earthquakes **Convergent plate boundaries** **a)** plates move towards each other **b)** results in fold mountains, volcanoes including submarine volcanoes, oceanic trenches and earthquakes **Transform plate boundaries** **a)** plates slide past each other **b)** results in faults and earthquakes	**Skill Focus**: • Data response question - using figure to describe and explain • Short-answer question • Describe the characteristics of landforms and phenomena associated with divergent plate movements • Explain the causes of landforms and phenomena associated with divergent plate movements.

5 – 7 CNY Celebrations 16 Feb 2026 CNY 17 – 18 Feb 2026	**<u>Topic 4.2 – Earthquakes and volcanoes</u>** **KQ 4.2.1 – How do tectonic processes affect the magnitude of earthquakes?** **Tectonic processes of earthquakes** **a)** stress builds up and exceeds strength of the fault **b)** sudden release of seismic waves, radiating energy from the focus **Magnitude of earthquakes** **a)** affected by amount of energy released through ground movement **b)** recorded using seismometers **Measuring earthquakes** **a)** Richter Scale measures local magnitude of earthquakes **b)** Moment Magnitude Scale measures larger earthquakes more reliably **Revision for WA1**	**<u>Content Activity:</u>** • Students work in small groups: (a) use rubber bands or springs to simulate stress along a fault, (b) Gradually increase tension until it "snaps," representing the release of seismic energy. Students observe and discuss how the amount of stress relates to earthquake magnitude. **<u>Skill Focus</u>:** • Critical thinking, Observation & analysis, Collaboration
8	**Buffer Week** Weighted Assessment 1	
9 – 10	**KQ 4.2.2 – How do tectonic processes affect the magnitude of volcanic eruptions?** **Tectonic processes of volcanic eruptions** **a)** magma consisting of dissolved gases is less dense forces its way upward and breaks through weak areas in the Earth's crust **Magnitude of volcanic eruptions** **a)** determined by amount of dissolved gases and magma viscosity **b)** stratovolcanoes erupt violently and shield volcanoes emit magma gently **Measuring volcanic eruptions** **a)** Volcanic Explosivity Index measures relative explosivity of historic eruptions **b)** considers the volume of ejected materials, height of eruption cloud **c)** and duration of the eruption	**<u>Skill Focus</u>:** • Data response question - using figure to describe and explain • Describe the characteristics of landforms and phenomena associated with convergent and transform plate movements. • Explain the causes of landforms and phenomena associated with convergent and transform plate movements. • Draw annotated cross section of a volcano
March Holiday [16/3/2026 – 22/3/2025]		

Term / Week Term 2	Learning Experiences (chapter, activity)	Learning Outcomes & Assessment
1	**KQ 4.2.3 – How might distribution of earthquakes and volcanoes influence the location of tectonic hazards?** **Distribution of earthquakes** **a)** along all plate boundaries **b)** largest concentration at the Pacific Ring of Fire **Distribution of volcanoes** **a)** located near convergent and divergent plate boundaries **b)** hot spot volcanoes are found away from plate boundaries **Distribution of tectonic hazards** **a)** most located near plate boundaries, and near earthquakes and volcanoes **b)** tsunamis and volcanic ash may spread beyond geographic region **KQ 4.2.4 – How might tectonic hazards affect the natural and human systems?** **Earthquake hazards and their impacts** **a)** hazards include ground shaking, soil liquefaction, landslides and tsunamis **b)** impacts include destroying ecosystems, properties and infrastructure, disrupting services, and causing injury and loss of life **Volcanic eruption hazards and their impacts** **a)** hazards include tephra, volcanic gases, lava flows, pyroclastic flows, lahars and volcanic landslides **b)** impacts include destroying ecosystems, properties and infrastructure, disrupting services, and threatening public health and causing injury and loss of life	**Content Activity:** • To show a world map of recent earthquakes and volcanic eruptions. Teacher to ask "Where are earthquakes and volcanoes most common, and why do you think that is?" Using AI, each group answers: (a)Where are earthquakes concentrated and why? (b) Where are volcanoes located and why? (c) How do tectonic hazards extend beyond plate boundaries (e.g., tsunamis, ash clouds). Students summarise findings with examples (Pacific Ring of Fire, hot spot volcanoes, tsunamis). • Learners will use GIS to analyse and describe the global distribution of earthquakes and volcanoes **Skill Focus:** • AI Literacy, Digital Literacy, Critical Thinking, Collaboration, Civic Awareness & Problem-Solving **Content Activity:** • Use of AI tools to discuss and evaluate the risks and benefits of living near volcanoes **Skill Focus:** • Data Response Question - using figure to describe and explain • Annotation of photograph

	Benefits of volcanic eruptions and living near volcanoes **a)** volcanic eruption provides fertile soil for farming after volcanic materials are broken down and weathered, and makes available valuable minerals and building materials **b)** living near volcanoes allow harnessing of geothermal energy and tourism activities	
2 Good Friday (3/4/2026)	**KQ 4.3.1 – How does disaster risk management help achieve sustainable development?** **Disaster Risk Management** **a)** prevent, reduce and manage disaster risks thus strengthening resilience **b)** apply plans and actions which are developed into various strategies by communities **Disaster risk and loss** **a)** brings about serious economic, social and environmental consequences **b)** costly for individuals and countries, and may hinder development **Reducing disaster risks** **a)** important for disaster-prone developing countries **b)** cost-effective investment in preventing future losses, thus contributing to sustainable development	**Content Activity:** • Teacher presents a short scenario: "Imagine a coastal town is hit by a massive flood. What kinds of problems might the community face?" Students brainstorm potential economic, social, and environmental impacts. Students design a mini disaster risk management plan for a chosen type of disaster (e.g., floods, earthquakes, typhoons). Each plan should include: (a) Prevention strategies, (b) Mitigation strategies, (c) Response and recovery actions. All groups to present. **Skills Focus:** • Critical Thinking, Collaboration, Communication, Civic Awareness, Problem-Solving

3 – 4	**KQ 4.3.2 – Why do disaster risks related to earthquakes and volcanic eruptions vary across places?** **Tectonic disaster risk** **a)** interaction between tectonic hazards and vulnerability and exposure to earthquakes and volcanic eruptions **b)** results in potential loss of human lives and damage to properties **Factors influencing disaster risks caused by earthquakes** **a)** nature of hazards including duration and time of shaking **b)** vulnerable conditions including quality of building design and construction, soil and rock properties, and exposure including population density and distance from epicentre **Factors influencing disaster risks caused by volcanic eruptions** a) nature of hazards including chemical composition of magma b) vulnerable conditions including availability of surface and ground water facilitating the development of lahars, prevailing wind conditions affecting distribution of tephra, and exposure including presence of human settlements **KQ 4.3.3 – How effective are the strategies in building communities' resilience to earthquakes and volcanic eruptions?** **Strengthening resilience** **a)** important for communities living in hazard-prone zones **b)** to resist, adapt and recover from impacts of disasters in a timely and efficient manner	**Content Activity:** • Essay writing on effectiveness of strategies in building communities' resilience **Skills Focus:** • Use of AI too to evaluate the effectiveness of strategies in building communities' resilience

	Strategies in building community resilience **a)** reducing exposure including land use planning, reducing vulnerability including hazard resistant building designs, and monitoring and warning systems **b)** increasing preparedness for response and recovery **Challenges in building community resilience** **a)** extent of community's resources **b)** capability of community to organise itself for disasters **KQ 4.3.4 – How effective are the disaster management strategies after an earthquake or a volcanic eruption?** **Disaster management** **a)** organisation, planning and application of strategies **b)** responding to and recovering from disasters **Disaster management strategies** **a)** disaster response includes search and rescue efforts, timely evacuation, and provision of basic social and psychosocial services to affected communities **b)** disaster recovery includes restoring and improving facilities and living conditions of affected communities **Challenges in disaster management** **a)** lack of domestic resources, including technological and financial resources **b)** engaging relevant stakeholders to collaborate and integrate disaster management strategies into their practices	**Content Activity:** • Essay writing on effectiveness of strategies in disaster management **Skills Focus:** • Use of AI too to evaluate the strategies in building communities' resilience

5	**Topic 5.1 – Small island city-state** **KQ 5.1.1 – What are the natural characteristics of Singapore?** **Size and elevation** **a)** small landmass with limited natural resources **b)** low-lying island **Climate** **a)** tropical equatorial climate **b)** experiences Northeast and Southwest monsoons **Ecosystems with large biodiversity** **a)** land-based ecosystem including tropical rainforests **b)** coastal ecosystems including inter-tidal areas, mangroves and coral reefs **KQ 5.1.2 – What are the human characteristics of Singapore?** **Economic characteristics** **a)** diversified economy **b)** wide range of service and manufacturing industries **Social characteristics** **a)** open and globalised **b)** densely populated and well connected internationally **Political characteristics** **a)** independent sovereign state **b)** active contributor to global initiatives	**Content Activity:** • Students work in small groups and are given a case study of a tropical island (e.g. a low-lying equatorial island). Using maps, climate graphs, and short information texts, students investigate (a) the island's size and elevation (b) its tropical equatorial climate and monsoon patterns and (c) types of ecosystems present (rainforests, mangroves, coral reefs). Students to create a concept map or infographic showing how these physical characteristics support high biodiversity **Skills Focus:** • Geographical inquiry, collaboration, synthesis of information, making connections **Content Activity** • Students work in pairs or small groups to complete a country profile WebQuest. Using online resources, students research (a) Economic characteristics: diversified economy; service and manufacturing industries, (b) social characteristics: globalised society; population density; international connectivity, (c) Political characteristics: sovereignty; participation in global initiatives. Students present their findings in a digital poster or slide deck, explaining how these characteristics support the country's development and global influence **Skills Focus:** • Research skills, digital literacy, synthesis of information, global awareness

6 Labour Day (1/5/2025)	**KQ 5.1.3 – What are Singapore's vulnerabilities?** **Limited land and natural resources** **a)** difficult to achieve sustainable urban development **b)** vulnerable to food, water and energy insecurities **Changing demographics** **a)** decreasing birth rate, ageing population and increasingly diverse society **b)** vulnerable to labour shortage and economic slowdown **External shocks and global uncertainties** **a)** environmental, social and economic uncertainties **b)** vulnerable to climate change, pandemics and financial crises **KQ 5.1.4 – What contributes towards Singapore's resilience?** **Resilient in terms of survival** **a)** Singapore can overcome national crises **b)** effective management of economic recessions and pandemics **Resilient in terms of adaptability** **a)** Singapore adapts to changing circumstances **b)** puts in place robust infrastructure and strong systems **Resilient in terms of thriving** **a)** Singapore thrives as a small island city-state **b)** focused on building a liveable and sustainable city	**Content Activity:** • Students to vote on the biggest threat to Singapore's future. Three groups focus on one challenge each—limited resources, changing demographics, or global uncertainties. Students identify impacts and propose a digital/innovative solution using shared slides. Groups post findings and comment on others' ideas. Groups present their solutions; students reflect on how technology supports resilience. **Skills Focus:** • Digital literacy, Critical thinking & problem-solving, Collaboration & communication, Civic awareness

7 – 8	**KQ 5.2 – Challenges and Opportunities** **KQ 5.2.1 – How might climate change affect Singapore?** **Impacts of climate change** **a)** rising sea level **b)** increased daily mean temperatures and changing weather patterns **Challenges due to climate change** **a)** floods, urban heat island effect, vector-borne diseases **b)** threats to biodiversity, food and water insecurities **Opportunities created to adapt to climate change** **a)** land reclamation, coastal management, increasing health resilience **b)** high technology farming and development of water technologies **KQ 5.2.2 – How might tectonic hazards affect Singapore?** **Impacts of tectonic hazards** **a)** not susceptible to majority of tectonic disasters **b)** major tectonic movements close to the Sunda Megathrust may still affect Singapore **Challenges due to plausible occurrence of tectonic hazards in the region** **a)** destruction of structures built on reclaimed land, and threat of floods from a mega earthquake **b)** threat of ash clouds from volcanic eruptions affecting health and disrupting the economy **Opportunities created to mitigate and adapt to tectonic hazards in the region** **a)** national preparedness plans, use of technology to monitor tectonic movements **b)** partnerships between countries on disaster response and recovery	**Content Activity:** • Students are divided into small groups. Each group asks an AI tool to: (a) explain the impacts of climate change in Singapore, (b) Identify challenges caused by climate change, (c) Suggest innovative adaptation strategies using technology. Using Canva or Google Slides, groups design a "Climate Action Plan" infographic that shows: (a) impacts → Challenges → AI-suggested Adaptation Solutions and (b) Encourage students to add their own ideas to improve or localize AI suggestions. **Skills Focus** • AI Literacy, Critical Thinking, Collaboration, Digital Creativity, Problem Solving **Content Activity** • To present a short simulation video of a mega earthquake and volcanic eruption in the region. Teacher to illicit response "How could these events affect Singapore despite it not being directly on a fault line?" Students are divided into groups of 3–4. Each group asks an AI tool to research: (a) Potential impacts on Singapore, (b) Challenges posed by tectonic hazards in the region (c) Opportunities and strategies for mitigation and adaptation. Groups use ArcGIS Online to locate tectonic features. **Skills Focus** • AI Literacy, Critical Thinking, Digital & Geospatial Literacy, Collaboration, Civic Awareness & Problem-Solving

9	**KQ 5.2.3 – How might tourism activity affect Singapore?** **Impacts of tourism activity in Singapore** **a)** economic and social impacts **b)** environmental impacts **Challenges affecting tourism development in Singapore** **a)** intensifying regional competition and increasingly discerning visitors **b)** ageing population, resource constraints and threats from global uncertainties **Opportunities created to mitigate and adapt to impacts of tourism activity in Singapore** **a)** benefits due to growing Asia and develop partnerships with stakeholders to spearhead placemaking initiatives **b)** trial sustainability solutions and develop skilled workers	**Content Activity:** • To show a short video highlighting tourist attraction in Singapore and the number of visitors per year. To ask students the following question: "What positive and negative effects do you think tourism has on Singapore?" Divide students into three groups, each focusing on one area: (a) Impacts of tourism (economic, social, environmental), (b) Challenges to tourism development and (c) Opportunities to mitigate negative impacts and adapt. **Skills Focus:** • Digital Literacy, critical Thinking, collaboration, Communication □ □
10 Vesak Day (31/5/2026)	Sec 4E5N Mother Tongue Intensive Week	
June Holiday Break (1/6/2026 – 28/6/2026)		

Term / Week Term 3	Learning Experiences (chapter, activity)	Learning Outcomes & Assessment
1 – 2 Youth Day (7/7/2026)	**5.3 – Sustainable and resilient Singapore** **5.3.1 – Why is sustainable development important for Singapore?** **Ensure competitive economy** **a)** attract investments **b)** provide employment opportunities **Ensure sustainable environment** **a)** clean and healthy environment **b)** excellent air and water quality **Achieve high quality of life for all** **a)** foster community spirit **b)** facilitate active participation in sustainable development **KQ 5.3.2 – How does Singapore approach sustainable development?** **Building up resilience crucial to achieving sustainable development** **a)** increases Singapore's capacity to survive, adapt and thrive **b)** on-going process involving past, present and future actions **Integrated master planning key to achieve sustainable development** **a)** adopts long-term approach in reviewing land-use plans and demands **b)** strikes a balance between economic and social development **Dynamic urban governance key to achieve sustainable development** **a)** political leadership sets clear direction and cooperation among different government agencies to implement and execute policies **b)** public service and institutions with well-thought out systems and processes **KQ 5.3.3 – What are Singapore's efforts in sustainable development?** **Environment and climate resilience efforts** **a)** cleaning and greening Singapore **b)** mitigation efforts include green buildings and clean energy, and adaptation efforts include water resilience and food resilience	**Content Activity:** • Students work in groups to explore why sustainable development is important for Singapore. Each group is assigned one pillar: (a) Competitive economy, (b) Sustainable environment, (c) High quality of life. Students will discuss how their pillar supports Singapore's sustainable development.

	Economic resilience efforts **a)** deepen and diversify international connections and strengthen business capabilities to innovate **b)** encourage Singaporeans to acquire and utilise deep skills **Social resilience efforts** **a)** develop skills throughout life through SkillsFuture national movement and mobilising communities in preparedness measures **b)** creating shared spaces to bring people together, offer input to government planning and address social concerns **KQ 5.3.4 How might Singapore continue to develop sustainably?** **Environmental considerations** **a)** life-support systems of the global environment and nature in providing ecosystem services **b)** limitations of Singapore's physical environment and possible threats including transboundary haze and climate change **Economic and social considerations** **a)** ability of Singapore's society to advance its economy **b)** commitment and contribution from all stakeholders in society **Political considerations** **a)** good governance with strong political willpower **b)** commitment to develop and improve long term sustainable development plans	**Content Activity:** • Show a short video highlighting Singapore's sustainable initiatives (green spaces, water management, energy efficiency). Quick discussion prompt on Mentimeter: "Which factor—environmental, economic, social, or political—do you think is most crucial for sustainable development in Singapore?" Divide students into **four groups**, each focusing on one consideration: (a) Environmental, (b) Economic, (c) Social and (d) Political. Using Google Slides or Canva, groups create a visual summary showing: (a) key points of their assigned consideration and (b) How it contributes to sustainable development. **Skills Focus:** • Digital literacy, communication, critical thinking, civic awareness
3	Buffer week	
4 – 8 * National Day Celebrations (7/9/26) National Day	**Revision for Preliminary Exam:** • Sec 3 and Sec 4 topics **Topical Revision on** • Geography in Everyday Life Cluster • Climate Cluster	

(9/9/26)	• Tectonic Cluster • Tourism Cluster • Singapore Cluster	
8 – 10 * Teachers' Day Celebrations on W10	Preliminary Exam	
September Holiday Break (7/9/26 – 13/9/26)		

Term / Week **Term 4**	**Learning Experiences (chapter, activity)**	**Learning Outcomes & Assessment**
1	**Script Checking**	
2 – 5 Graduation Day on W2*	**Revision for O Level Exam:** • Weather and Climate GI • Weather and Climate • Tectonics • Tourism • Food	
6 – 8 Deepavali	**O Level Exam**	

**All information is correct at the time of publication and may be subjected to change.*