

Some Ideas for Student-Initiated Learning Secondary

Preface

- This resource list is not exhaustive and serves as a starting point for you to explore areas of interest or spark ideas to pursue for SIL.
- You are encouraged to initiate your own SIL based on your interests and passion.

Types of suggested activities

- “Learning experiences” refer to listings where you would undergo an experience, such as visiting a museum, going on a virtual learning journey, or carrying out a project.
- “Resources” refer to listings that you could use to explore areas of interest, such as book lists, websites and SLS lessons to learn a skill/ lesson.

Please click on the links to access the suggested learning experiences and resources for student-initiated learning.

1. **Character and Life Skills Development** (resources & learning experiences related to Cyber Wellness, Family, Financial Literacy, Media Literacy, Peer Support and Relationships, Resilience Building, Student Leadership Development, Values in Action)
 - a. [Learning Experiences](#)
 - b. [Resources](#)
2. **Creative Arts** (resources & learning experiences related to Artists@Home, #BTS (Behind the Scenes), Creative Writing, Dance, Drama, Fastforward, Musicians@Home, Prose and Poetry, The Home Theatre)
 - a. [Learning Experiences](#)
 - b. [Resources](#)
3. **Education and Career Guidance**
 - a. [Learning Experiences](#)
 - b. [Resources](#)
4. **Emerging Technologies**
 - a. [Learning Experiences](#)
 - b. [Resources](#)
5. **Entrepreneurship**
 - a. [Learning Experiences](#)
 - b. [Resources](#)

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6. **History, Society, Global Affairs and Citizenry** (resources & learning experiences related to Contemporary Issues and Current Affairs, Culture and Heritage, History, Knowing Asia, Politics, International Relations & Law)
 - a. [Learning Experiences](#)
 - b. [Resources](#)
7. **Language Learning**
 - a. [Learning Experiences](#)
 - b. [Resources](#)
8. **Mental Health and Well-Being**
 - a. [Learning Experiences](#)
 - b. [Resources](#)
9. **Science, Technology, Engineering and Mathematics (STEM)** (resources & learning experiences related to Artificial Intelligence, Design and Making, Earth Science, Mathematics and Sciences, Programming and Coding)
 - a. [Learning Experiences](#)
 - b. [Resources](#)
10. **Sports and Healthy Lifestyle** (resources & learning experiences related to Character Development through Sports, Healthy Lifestyle Practices, Health and Nutrition, History of Sports, Science of Exercise and Sports)
 - a. [Learning Experiences](#)
 - b. [Resources](#)
11. **Sustainability and Nature** (resources and learning experiences related to Climate Change and Liveability, Singapore Green Plan, Nature)
 - a. [Learning Experiences](#)
 - b. [Resources](#)

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**Category: Character and Life Skills Development
Learning Experiences**

No.	Learning Experiences	Description	Levels	Area(s) of Interest
1.	Total Defence (Bronze) Badge Programme <i>by MOE and MINDEF (Nexus)</i>	<p>You can embark on four activities:</p> <ul style="list-style-type: none"> • Total Defence (Bronze) SLS lesson • Exposure to Cardiopulmonary Resuscitation (CPR)/ Automated External Defibrillator (AED) as part of existing Physical Education curriculum • Guardians of the City (GOTC) II card game (provided by Nexus to all Secondary 2 students) • Design of a new “Action” card for the GOTC II card game <p>Through this programme, you will:</p> <ul style="list-style-type: none"> • understand the multi-faceted challenges that Singapore faced in the past and continues to face today; • learn about the six pillars of Total Defence and how they forge Singaporeans’ preparedness and resilience in the face of a spectrum of national threats; • appreciate Total Defence as Singapore’s best defence and all-round response to changing threats and challenges; and • learn how we can all play our part to keep Singapore safe and secure. <p>When you complete this programme, you will receive the Total Defence Bronze Badge from MINDEF (Nexus). You may ask your teachers to write in directly to MINDEF (Nexus) at nexus@defence.gov.sg to request for the badges.</p>	Secondary 2	<ul style="list-style-type: none"> • Extension of learning in CCE • Extension of learning in National Education • Lifeskills
2.	National Youth Achievement Award Programme (NYAA) <i>by National Youth Achievement Award Council</i>	<p>NYAA is available to all young people like you. It is a holistic, balanced and non-competitive programme of voluntary activities outside curriculum time, designed to provide you with a platform to develop personal qualities and skills to make a difference to yourself, your</p>	All levels	<ul style="list-style-type: none"> • Extension of learning in CCE • Leadership

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No.	Learning Experiences	Description	Levels	Area(s) of Interest
		community and the world. You get to develop leadership skills to serve and contribute effectively to society through this programme.		
3.	Are you a Smart Shopper?	<p>You can explore supermarket/ departmental store websites and learn about the rights and responsibilities of a consumer when shopping as you, e.g.:</p> <ul style="list-style-type: none"> • (Lower Sec): Compare the prices and nutritional values on similar foods and different brands and select the most value-for-money items. • (Lower Sec): Compare product labels of different items (e.g. refrigerator, washing machine) and suggest the most suitable/ appropriate product that saves the most resources (e.g. energy, water, money). • (Upper Sec): Suggest how a consumer can practice sustainable consumption of a selected food commodity (e.g. cereals, vegetables). 	All levels	<ul style="list-style-type: none"> • Extension of learning in Nutrition and Food Science • Financial literacy • Sustainable consumption

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**Category: Character and Life Skills Development
Resources**

No.		Levels	Area(s) of Interest
1.	<p>Hi #JustCheckingIn on HealthHub You can access the Hi #JustCheckingIn resources on Healthhub to learn how to engage your peers with care and empathy. Through the videos and virtual learning journey, you will be able to learn interpersonal communication skills and apply them in the interactive quizzes and case scenarios.</p>	Lower Secondary	<ul style="list-style-type: none"> • Extension of learning in CCE • Peer support and relationships
2.	<p>MOE Library SLS Lesson on Empathy: How to be an Empathy Superhero You can learn how to understand different thoughts, feelings and needs of others without judgment. In addition, you will learn how to respond with empathy to someone in need.</p>	All levels	<ul style="list-style-type: none"> • Extension of learning in CCE • Peer support and relationships
3.	<p>MOE Library SLS Lessons on Peer Support You can learn about peer support through a series of six SLS lessons that includes strategies on identifying your social support circle, how to give and seek help, and how to cope positively. The list of SLS lessons are:</p> <ol style="list-style-type: none"> 1. Peer Support Can Make a Positive Difference 2. Identifying Social Support Circle 3. How to Give Help? 4. How to Ask for Help? 5. Coping Positively 6. Identifying Signs of Distress 	All levels	<ul style="list-style-type: none"> • Extension of Learning in CCE • Peer support and relationships
4.	<p>MOE Library SLS Lesson on Social Skills: Saying It Right You can learn about help in an appropriate manner that will help build relationships with peers.</p>	Lower Secondary	<ul style="list-style-type: none"> • Extension of learning in CCE • Social skills
5.	<p>MOE Library SLS Lesson on Peer Mediation: How can I be a Peer Mediator? You will recall the use of the 5-step IHEAR process to mediate a conflict between peers.</p>	All levels	<ul style="list-style-type: none"> • Extension of learning in CCE • Peer support and relationships
6.	<p>MOE Library SLS Lessons on Gaming Module 1 and Module 2 You can embark on a two-part SLS resource to understand how and why one can become hooked on gaming. You will learn about the potential risks associated with gaming, including excessive gaming, cyber bullying and the potential dangers of making friends with online strangers. Management</p>	All levels	<ul style="list-style-type: none"> • Extension of learning in CCE

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No.		Levels	Area(s) of Interest
	strategies that you can exercise to self-regulate and prevent excessive gaming and other online risks will also be shared in this resource.		<ul style="list-style-type: none"> • Cyber wellness - Gaming
7.	MOE Library SLS Lesson: What is Social Media?, Social Media Algorithms and Filter Bubbles You can embark on a multi-part SLS resource where you will be introduced to how social media makes use of algorithms to entice users to spend more time on the platform and its impact. You will also learn how to use social media while mitigating the associated risks.	Upper Secondary	<ul style="list-style-type: none"> • Extension of Learning in CCE • Cyber wellness – Social media
8.	MOE Library SLS lesson: Doxxing You will learn what doxing is and its impact. You will also learn how to protect yourself from being doxed, and what you can do if you are a victim of doxxing.	Upper Secondary	<ul style="list-style-type: none"> • Extension of learning in CCE • Cyber wellness - Doxxing
9.	MOE Library SLS lesson: Cancel Culture You will learn what cancel culture is and how it differs from other modes of online vigilantism. You will also learn how to protect yourself and others from being cancelled.	Upper Secondary	<ul style="list-style-type: none"> • Extension in Learning of CCE • Cyber wellness – Cancel culture
10.	MOE Library SLS lesson: What is a Botnet? You will learn what botnets are, how a botnet attack looks like and how to protect yourself from such attacks.	Upper Secondary	<ul style="list-style-type: none"> • Extension in Learning of CCE • Cyber wellness – Botnets
11.	Resources on SGCares You can access the web and app-based resources on SGCares , a national movement dedicated to guide and support the goodwill of all who live in Singapore to better help those in need. You will learn about the diverse groups of people in our community, the current issues they are facing and be inspired through reading the stories of others who have made a difference in addressing these issues.	All levels	<ul style="list-style-type: none"> • Extension of learning in CCE • Civic consciousness
12.	Youth.sg on Instagram You can visit Youth.sg on Instagram to keep abreast of youth-centric issues (e.g. career-related, environment and sustainability), and their impact. The account is managed by the National Youth Council (NYC), and brings to youth the latest trends and share perspectives on issues youth face.	All levels	<ul style="list-style-type: none"> • Extension of learning in CCE • Youth perspectives
13.	MOE Library SLS Lesson: Protecting our Public Transport System against Terrorism You can access the SLS Lesson (produced in partnership with Land Transport Authority) to learn about the terrorist threats present in our public transport system, how we can help keep the public transport system safe, and what to do when a terrorist attack happens.	All levels	<ul style="list-style-type: none"> • Extension of learning in CCE • Public security

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No.		Levels	Area(s) of Interest
14.	Financial Literacy You can visit the following websites to learn about financial literacy related topics. <ul style="list-style-type: none"> • Moneysense • Institute for Financial Literacy 	Upper Secondary	<ul style="list-style-type: none"> • Financial literacy
15.	Price Comparison for Daily Products You can use the Price Kaki app by the Consumers Association of Singapore (CASE) to compare the prices of different groceries, household items and hawker food in Singapore. This app allows you to make discerning choices by comparing prices of various products from local supermarkets, departmental stores and hawker centres.	All levels	<ul style="list-style-type: none"> • Extension of learning in Nutrition and Food Science Budgeting
16.	Making Students Money Savvy <ul style="list-style-type: none"> • Solving Problems using Mathematics and Financial Literacy Concepts (in collaboration with GIC) • Application of Percentage (in collaboration with IRAS) You can learn about financial literacy and taxation using the listed self-exploration modules on SLS. You can also research about cryptocurrency (e.g. Bitcoin) and how they are used in the real world.	All levels	<ul style="list-style-type: none"> • Extension of learning in Mathematics • Financial literacy
17.	MOE Library SLS Lesson: How Can CPF Help Me Prepare for Retirement? Students access the SLS Lesson to learn about the Central Provident Fund (CPF) and how it can help them save for their future, such as retirement.	Upper Secondary	<ul style="list-style-type: none"> • Financial literacy
18.	MOE Library SLS Lesson: Compound Interest Access the lesson to learn about the concept of compound interest and the differences between simple and compound interest.	All levels	<ul style="list-style-type: none"> • Financial literacy
19.	MOE Library SLS Lesson: Inflation Access the lesson to learn about inflation and purchasing power, and the value of money.	All levels	<ul style="list-style-type: none"> • Financial literacy
20.	MOE Library SLS Lesson: Digestion Learn about the digestive process and how nutrients are digested and absorbed by the body.	All levels	<ul style="list-style-type: none"> • Extension of learning in Food and Consumer Education/Nutrition and Food Science
21.	MOE Library SLS Lesson: Colorectal Cancer Learn about colorectal cancer, its risk factors and preventive measures.	All levels	<ul style="list-style-type: none"> • Extension of learning in in Food

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No.		Levels	Area(s) of Interest
			and Consumer Education/Nutrition and Food Science

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**Category: Creative Arts
Learning Experiences**

No.	Learning Experiences	Description	Levels	Area(s) of Interest
1.	A Day as an Artist/ Designer	Learn about the works of an art/ design practitioner/ professional and find out more about his/ her techniques and influences through a collection of online articles, interviews and videos by National Gallery Singapore or Design Singapore . Inspired by what you have learnt, create your own artwork/ design piece in response to the artist's style and thematic concerns.	All levels	<ul style="list-style-type: none"> • Art
2.	Creation of Virtual Art Exhibition/ Trail	<p>You can select a series of 5–8 relevant artworks/ design pieces, based on a given theme, from online sources and create an online art exhibition or art trail.</p> <p>You can consider your choices based on the suitability of artworks that relate to the chosen theme. As a curatorial statement, you can articulate an explanation of your selection in written or verbal format.</p> <p>The online art exhibition could be hosted on suitable platforms such as Artsteps, Padlet and Google Sites.</p>	All levels	<ul style="list-style-type: none"> • Art
3.	Explore the Arts in Esplanade Offstage	<p>Listen, watch and read content in Esplanade Offstage, which covers a range of art forms (e.g. Music, Dance, Visual Arts, Theatre, Film and Literary Arts), stories of artists, and what goes on behind the scenes in Esplanade, the performing arts centre for everyone.</p> <p>Inspired by what you have learnt, create a short video or social media post to share your learning with family and friends.</p>	All levels	<ul style="list-style-type: none"> • Art • Dance • Drama • Music • Literary Arts • Film
4.	Explore performances, stories and lessons by our national orchestras	<p>Explore content from a range of musical performances, stories of musicians and lessons about music in Youtube channels by:</p> <ul style="list-style-type: none"> • Singapore Chinese Orchestra • Singapore Symphony Orchestra <p>Inspired by what you have learnt, create a short video or social media post to share their learning with family and friends.</p>	All levels	<ul style="list-style-type: none"> • Music

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**Category: Creative Arts
Resources**

No.	Description	Levels	Area(s) of Interest												
1.	<p>MOE Library SLS Lessons for SIL Arts You may self-explore and choose SIL Arts SLS lessons based on the <i>5 Themes</i> below.</p> <table border="1"> <thead> <tr> <th>Theme</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td> The Home Theatre  </td> <td> Critical viewing of films and some exploration of film making techniques <ul style="list-style-type: none"> The Home Theatre: 'Daughter' (2020) by Theodore Melfi </td> </tr> <tr> <td> #BTS (Behind The Scenes)  </td> <td> Introduction to creatives (e.g. artists, musicians, playwrights etc) and the creative process (e.g. how a work is created) <ul style="list-style-type: none"> #BTS: Teochew Opera 101 </td> </tr> <tr> <td> Fastforward  </td> <td> Hands-on experiences of technology mediated creative practices (e.g. Art/ Music/ Interdisciplinary) <ul style="list-style-type: none"> Fastforward: Design an Album Cover! Fastforward: Virtual Turntable DJ-ing Fastforward: Painting with Robots Fastforward: Digital Gamelan Jam </td> </tr> <tr> <td> Artists @Home  </td> <td> Hands-on experiences of art making and appreciation <ul style="list-style-type: none"> Artists@Home: Collagraph Printing Artists@Home: The Art of Sketchbooking </td> </tr> <tr> <td> Musicians @Home  </td> <td> Hands-on experiences of music making and appreciation <ul style="list-style-type: none"> Musicians@Home: Play 'Ocean Eyes' by Billie Eilish (Easy Guitar) Musicians@Home: Play 'Dynamite' by BTS (Guitar & Percussion) </td> </tr> </tbody> </table>	Theme	Description	The Home Theatre 	Critical viewing of films and some exploration of film making techniques <ul style="list-style-type: none"> The Home Theatre: 'Daughter' (2020) by Theodore Melfi 	#BTS (Behind The Scenes) 	Introduction to creatives (e.g. artists, musicians, playwrights etc) and the creative process (e.g. how a work is created) <ul style="list-style-type: none"> #BTS: Teochew Opera 101 	Fastforward 	Hands-on experiences of technology mediated creative practices (e.g. Art/ Music/ Interdisciplinary) <ul style="list-style-type: none"> Fastforward: Design an Album Cover! Fastforward: Virtual Turntable DJ-ing Fastforward: Painting with Robots Fastforward: Digital Gamelan Jam 	Artists @Home 	Hands-on experiences of art making and appreciation <ul style="list-style-type: none"> Artists@Home: Collagraph Printing Artists@Home: The Art of Sketchbooking 	Musicians @Home 	Hands-on experiences of music making and appreciation <ul style="list-style-type: none"> Musicians@Home: Play 'Ocean Eyes' by Billie Eilish (Easy Guitar) Musicians@Home: Play 'Dynamite' by BTS (Guitar & Percussion) 	All levels	<ul style="list-style-type: none"> Arts for enjoyment, meaning making and communication
Theme	Description														
The Home Theatre 	Critical viewing of films and some exploration of film making techniques <ul style="list-style-type: none"> The Home Theatre: 'Daughter' (2020) by Theodore Melfi 														
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No.	Description	Levels	Area(s) of Interest
2.	<p><u>MOE Library SLS Lessons on Video Production</u> You can self-explore these SLS lessons to learn how to produce a video.</p> <ul style="list-style-type: none"> • Video Production 101 - Pre-Production #1 - 8-Step Checklist Before Filming • Video Production 101 - Pre-Production #2 - Get Great Audio For Your Videos With Your Phone • Video Production 101 - Pre-Production #3 - The Art of Framing • Video Production 101 - Pre-Production #4 - Join Video Masterclass • Video Production 101 - Production #1 - Creative Ways to Present School Projects • Video Production 101 - Post-Production #1 - How to Trim Videos on Your Phone • Video Production 101 - Post-Production #2 - Finding Free Music for Your Videos • Video Production 101 - Post-Production #3 - Adding Text to Videos: 5 Mistakes to Avoid • Video Production 101 - Post-Production #4 - Advanced Video Editing Tips 	All levels	<ul style="list-style-type: none"> • Video production

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**Category: Education and Career Guidance
Learning Experiences**

No.	Learning Experiences	Description	Levels	Area(s) of Interest
1.	ECG Events	<p>Keep updated on exciting events such as Open Houses, Career Fairs, Workshops, and more, through the Calendar of Events on MySkillsFuture Portal! These events are your chance to explore and discover the endless possibilities for your future education and career pathways.</p> <p>https://go.gov.sg/mysfsec</p>	All levels	<ul style="list-style-type: none"> • Extension of learning in CCE (ECG): Exploring Opportunities, Staying Relevant
2.	Information Interviews	<p>With so many education opportunities available for you after secondary school, how can you make an informed decision on your next step? Learn how to gather first-hand information on education pathways through this SLS resource on Information Interviews, and take the first step to find out more!</p> <p>https://go.gov.sg/sls-infointerview-sec</p>	Upper Secondary	<ul style="list-style-type: none"> • Extension of learning in CCE (ECG): Exploring Opportunities, Staying Relevant

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**Category: Education and Career Guidance
Resources**

No.	Description	Levels	Area(s) of Interest
1	<p>SLS Resource: My Careers Exploration https://go.gov.sg/ecg-industry-sec</p> <p>My Careers Exploration is a series of SLS resources featuring different industries and job roles within each industry sector. Explore industries such as Arts, Entertainment and Recreation, Education, and Security. Learn about the skills required and opportunities available in these industries, to help you make informed decisions on your own journeys.</p> <p>You can also find out more about emerging career sectors, skills, and jobs in demand in Singapore here:</p> <ul style="list-style-type: none"> • MOM Shortage Occupation List • Skills Demand for the Future Economy 	All levels	<ul style="list-style-type: none"> • Extension of learning in CCE (ECG): Exploring Opportunities
2.	<p>SLS Resource: Futurist Series https://go.gov.sg/thefuturist</p> <p>The Futurist Series provides you with valuable insights from industry professionals, sharing their education and career journeys and offering advice on resilience, adaptability, and embracing a growth mindset in the World of Work. You will also learn about the emerging Digital, Care, and Green economies and hear from guest speakers at World Skills ASEAN 2023, including those from industries such as Creative Arts and Fashion, Infocomm Technology, Manufacturing and Engineering Technology, Social and Personal Services, and Transportation and Logistics.</p>	All levels	<ul style="list-style-type: none"> • Extension of learning in CCE (ECG): Exploring Opportunities
3.	<p>SLS Resource: Critical Core Skills https://go.gov.sg/criticalcoreskills-sec-preu</p>	All levels	<ul style="list-style-type: none"> • Extension of learning in CCE (ECG): Discovering Purpose

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	<p>Wondered about the skill sets you need to pursue your education and career goals? Learn more about Critical Core Skills (CCS) essential for the ever-changing world of work, and be encouraged to make plans for how you will hone your skills for the future.</p>		
4.	<p>SLS Resource: What's Your Wheel? https://go.gov.sg/sls-careerwheel</p> <p>Access this new interactive resource on the Career Wheel that guides you to explore different factors that you could consider, when shaping your education and career goals.</p>	All levels	<ul style="list-style-type: none"> • Extension of learning in CCE (ECG): Discovering Purpose
5.	<p>Preparing for the Early Admissions Exercise [EAE] https://go.gov.sg/eae</p> <p>Keen to participate in the Early Admissions Exercise (EAE) but unsure how to begin preparing for it? This resource shares tips and useful further readings to get you started. Here, you will learn more about the EAE and the courses you can apply for based on your aptitudes and interests.</p>	Upper Secondary	<ul style="list-style-type: none"> • Extension of learning in CCE (ECG): Staying Relevant
6.	<p>MySkillsFuture Student Portal (Sec) https://go.gov.sg/mysfsec</p> <p>The MySkillsFuture Student Portal is a one-stop platform for you to learn more about yourself, explore various education and career possibilities, and develop skills to stay relevant and make informed decisions on your future pathways!</p> <p>You can use the Education Guide to learn more about different education pathways based on your interests and aspirations, or explore the Singapore Industry Landscape to learn more about different industries and their available job roles.</p>	All levels	<ul style="list-style-type: none"> • Extension of learning in CCE (ECG): Discovering Purpose, Exploring Opportunities, Staying Relevant

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**Category: Emerging Technologies
Learning Experiences**

No.	Learning Experiences	Description	Levels	Area(s) of Interest
1.	AI Modules on SkillsBuild for Students <i>by IBM</i>	You can learn about the foundations of artificial intelligence and its applications via IBM's <i>SkillsBuild for Students</i> platform. The materials are free but require registration with the SkillsBuild platform to access. <ul style="list-style-type: none"> • Module 1: What is AI? • Module 2: AI and You • Module 3: Machine Learning in AI • Module 4: AI Applications 	Upper Secondary	<ul style="list-style-type: none"> • Artificial intelligence • Machine learning
2.	Google Teachable Machine	You can explore how AI uses data such as images or sound to learn and make predictions. This app is free to use and you may use your student Google account to save your project.	All levels	<ul style="list-style-type: none"> • Artificial intelligence • Machine learning

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**Category: Emerging Technologies
Resources**

No.	Description	Levels	Area(s) of Interest
1.	<p>MOE Library SLS Lesson: AI for Everyone (AI4E) Student Edition</p> <p>You will be introduced to modern AI technologies and applications so as to be savvy consumers of AI products and services. You will learn how to identify opportunities and potentially use cases in your work and daily lives.</p>	All levels	<ul style="list-style-type: none"> • Artificial intelligence
2.	<p>MOE Library SLS Lessons on Artificial Intelligence</p> <p>You can learn about the basics of Artificial Intelligence (AI), machine learning and deep learning, before examining three case studies to explore and reflect upon the impact of AI on society.</p> <ul style="list-style-type: none"> • Emerging Technologies: AI (Part 1) • Emerging Technologies: AI (Part 2) 	Upper Secondary	<ul style="list-style-type: none"> • Artificial intelligence • Machine learning
3.	<p>MOE Library SLS Lessons on HaloCode</p> <p>You can learn about basic block programming with the HaloCode and leverage its AI capabilities to create projects that incorporate machine learning.</p> <ul style="list-style-type: none"> • Exploring HaloCode • Getting Started with HaloCode • Voice Recognition with HaloCode • Facial Recognition with Halocode • Design Challenge: Creating a Health Tech Prototype with HaloCode 	All levels	<ul style="list-style-type: none"> • Block programming • Microcontroller • Artificial intelligence • Machine learning
4.	<p>MOE Library SLS Lessons on Arduino</p> <p>You can learn about syntax programming with Arduino to create interactive projects using Arduino microcontrollers and sensors.</p> <ul style="list-style-type: none"> • Getting Started with Arduino • Creating a Thermometer with Arduino • Design Challenge: Creating a Robotic Arm with Arduino • Design Challenge: Creating Smart Home Prototype with Arduino 	Upper Secondary	<ul style="list-style-type: none"> • Syntax programming • Microcontroller • Internet of Things (IoT)
5.	<p>MOE Library SLS Lessons on Raspberry Pi</p> <p>You can learn about syntax programming with Python and Raspberry Pi to create interactive projects with sensors and actuators.</p> <ul style="list-style-type: none"> • Getting Started with Raspberry Pi 	Upper Secondary	<ul style="list-style-type: none"> • Syntax programming • Microcontroller • Internet of Things (IoT)

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No.	Description	Levels	Area(s) of Interest
	<ul style="list-style-type: none"> • Create a Photo Frame with Raspberry Pi • Design Challenge: Creating an Internet Monitor with Raspberry Pi • Design Challenge: Creating a Motion-activated Lamp with Raspberry Pi 		
6.	<p>MOE Library SLS Lessons on Bare Conductive</p> <p>You can learn about electrically conductive paint and together with the Bare Conductive Touch Board (microcontroller) create interactive projects with touch interfaces.</p> <ul style="list-style-type: none"> • Introduction to Bare Conductive Touch Board • Creating an Instrument with Bare Conductive Touch Board 	All levels	<ul style="list-style-type: none"> • Microcontroller • Internet of Things (IoT)
7.	<p>MOE Library SLS Lessons on Tinkercad</p> <p>You can learn how to use Tinkercad to create Computer Aided Designs (CAD) for 3D printing, to bring your designs to life.</p> <ul style="list-style-type: none"> • Creating a 3D Model with Tinkercad 	All levels	<ul style="list-style-type: none"> • 3D Modelling • 3D Printing

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**Category: Entrepreneurship
Learning Experiences**

No.	Learning Experiences	Description	Levels	Area(s) of Interest
1.	Marketing for a Good Cause Citi-YMCA Youth for Causes	<p>You can choose to either support a cause from any of your class/ CCA VIA in school or select from the website ‘Youth for Causes’ based on your interest.</p> <p>Using knowledge you have learnt from EBS (e.g. Marketing Mix, Communication and Business Investigation), you can conduct online research on how you can contribute to the cause by creating awareness through social media. To complete this, you will need to consider 3 of the 4 Ps of Marketing [Place – which social media platform, Promotion – method in which you can use (podcast/ digital poster/ short promo video) and Product – which aspect of the organisation/ cause you can focus on to build your marketing].</p>	Upper Secondary	<ul style="list-style-type: none"> • Extension of learning in EBS • Community service
2.	Virtual learning journeys of businesses in the service industry <ul style="list-style-type: none"> • Fairprice (pricing, packaging) • Warehouse Hotel 	<p>You can learn about the marketing mix of businesses in the service industries and see how the tools are being applied to a real-world context through the virtual learning journeys.</p>	Upper Secondary	<ul style="list-style-type: none"> • Extension of learning in EBS • Interest in retail, tourism and hospitality industry in Singapore
3.	Singapore as a tour destination for Southeast Asian Tourists	<p>Students can conduct a business investigation on factors that attract Southeast Asians to visit Singapore. They can follow up with research on the marketing mix of a local business in the service industry (Retail, Hospitality, Travel and Tourism) that makes it appealing to Southeast Asian tourists, and make recommendations to improve the marketing mix to attract even more tourists.</p>	Upper Secondary	<ul style="list-style-type: none"> • Extension of learning in EBS • Interest in retail, tourism and hospitality industry in Singapore

**Some Ideas for Student-Initiated Learning
Secondary Level**

**Category: Entrepreneurship
Resources**

No.	Description	Levels	Area(s) of Interest
1.	<p>MOE Library SLS Lessons on Businesses and Enterprising Mindset</p> <p>You can access Pasar Buzz to learn how EBS concepts are being applied in businesses. You can also gain insights on the entrepreneurial mindset of business owners.</p>	Upper Secondary	<ul style="list-style-type: none"> • Extension of learning in EBS • Business • Enterprising mindset
2.	<p>MOE Library SLS Lessons on Developments in Singapore’s Business Environment</p> <p>You can access the “<i>In-trend Series</i>” through the search function on the SLS, which provides an authentic learning experience to find out about the happenings in Singapore’s business environment.</p> <p>You will find out how businesses keep up with changing trends by staying relevant learn as well as the different examples of customer expectations and technological developments.</p>	Upper Secondary	<ul style="list-style-type: none"> • Extension of learning in EBS • Business
3.	<p>MOE Library SLS lessons on Discovering Accounting in Business</p> <p>This Financial Instruments: Stock Market Basics SLS lesson introduces you to basic terms used in the stock market and the financial world. You will also learn about what an Initial Public Offering means and how to calculate capital gains.</p> <p>You may also explore what exchange traded funds are and how the Straits Times Index works by accessing the lesson, Financial Instruments: STI and Exchange Traded Funds.</p> <p>You can also learn about the protocol that businesses should take when seeking to recover debts from their debtors who face difficulty paying up on time by accessing the SLS lesson, Recovery of business debts.</p>	Upper Secondary	<ul style="list-style-type: none"> • Extension of learning in POA • Financial instruments • Stock market • Accountancy • Recovery of debts

**Some Ideas for Student-Initiated Learning
Secondary Level**

**Category: History, Society, Global Affairs and Citizenry
Learning Experiences**

No.	Learning Experiences	Description	Levels	Area(s) of Interest
1.	An Old New World <i>Digital exhibition by National Museum Singapore (NMS) and National Heritage Board (NHB)</i>	You can learn more about what the region was like 200 years before the founding of Singapore, which contextualises Singapore's role in the region prior to the establishment of a British trading post in 1819.	All levels	<ul style="list-style-type: none"> Extension of learning in Singapore's early history
2.	BALIKSG <i>by NHB</i>	You can learn more about the development of Singapore in its early years as a British trading post through the lite version of the BALIKSG app.	All levels	<ul style="list-style-type: none"> Extension of learning in Singapore's early history
3.	Between Declarations and Dreams: Art of Southeast Asia since the 19th Century <i>Exhibition by National Gallery Singapore (NGS)</i>	You can learn more about the Southeast Asian region through this exhibition. Starting in the mid-19th century, the exhibition navigates the art history of Southeast Asia as one that is characterised by a continuous encounter with the new as the region's artists negotiated the meaning of art and sought to reinvent vernacular expressions and aesthetics. The curatorial narrative explores four main themes places in a broadly chronological sequence, each one critically examining the shared artistic impulse of the region for each period: <i>Authority and Anxiety, Imagining Country and Self, Manifesting the Nation, and Re:Defining Art.</i>	All Levels	<ul style="list-style-type: none"> Regional history
4.	Curiosity <i>by National Library Board (NLB)</i>	You can immerse yourself in an interactive way to discover and rediscover the history of Singapore. <i>Curiosity</i> curates the heritage materials of the NLB and the National Archives of Singapore (NAS). If you are interested to do further research or learn more about a particular area, such as historical places in Singapore, use the Storymaps found on the <i>Curiosity</i> website to do so.	All levels	<ul style="list-style-type: none"> Heritage Singapore history
5.	Discover Maps, Unlock the Past <i>By Yale-NUS College, in collaboration with NLB, Leiden University Libraries, Yale University Library and Bodleian Libraries, University of Oxford</i>	You can explore historical maps of Singapore and Southeast Asian to find out more about the region through this unique on-line collection that showcases pre-1900 maps of Southeast Asia.	All Levels	<ul style="list-style-type: none"> Singapore History Regional History

**Some Ideas for Student-Initiated Learning
Secondary Level**

No.	Learning Experiences	Description	Levels	Area(s) of Interest
6.	<p>Every Body Plays a Part <i>Digital exhibition by NMS</i></p>	<p>You can learn about the evolution and development of public health in Singapore through this digital exhibition.</p>	All levels	<ul style="list-style-type: none"> • History of public health services in Singapore
7.	<p>HDB LIVINGSPACE Virtual Gallery <i>Virtual gallery by Housing Development Board (HDB)</i></p>	<p>You can explore the evolution of public housing in Singapore through an engaging and immersive virtual gallery. By walking through the different spaces in the gallery, you will be able to trace the progress of public housing since the 1960s, step into the shoes of a town planner, discover how HDB develops quality living environments that are smart and sustainable, experience the community spirit and vibrancy in the HDB heartlands, and many more.</p>	All levels	<ul style="list-style-type: none"> • Extension of learning in Social Studies • Multiculturalism • Social history in Singapore • Sustainability • Citizenship – civic participation
8.	<p>Home, Truly: Growing up with Singapore 1950s to the present <i>Digital exhibition by NMS</i></p>	<p>You can explore the lives of people living in Singapore in the 1950s to the present. A digital version of the exhibition is available for you to read interesting stories related to the exhibition.</p>	All levels	<ul style="list-style-type: none"> • Social history in Singapore
9.	<p>Online Exhibitions <i>Digital exhibitions by National Archive, Singapore (NAS)</i></p> <p>Current exhibitions include:</p> <ul style="list-style-type: none"> • Colours Behind Barbed Wires: A Prisoner of War’s Story Through Haxworth’s Sketches • Historical Journey of the Indian National Army • Ode to Friendship: Celebrating Thailand-Singapore Relations 	<p>You can explore online history exhibitions to learn more about Singapore and regional history, e.g.:</p> <ul style="list-style-type: none"> • living conditions of the Prisoners of War interned at Changi Gaol during the Japanese Occupation of Singapore; • the history of the Indian National Army and its role in India’s struggle for independence; and • the development of Thailand-Singapore relations since 1800. 	All levels	<ul style="list-style-type: none"> • Singapore history • Regional history •

**Some Ideas for Student-Initiated Learning
Secondary Level**

No.	Learning Experiences	Description	Levels	Area(s) of Interest
10.	<p>Realising Singapore’s Vision of ‘Smart Nation’ in the Face of Cyber Threats <i>2-hour documentary by Channel News Asia (CNA)</i></p>	<p>You can discover Singapore’s response to the challenges of cyber security and how they are managed.</p>	Upper Secondary	<ul style="list-style-type: none"> • Extension of learning in Social Studies • Citizenship – Civic participation
11.	<p>Roots.Sg <i>By NHB</i></p> <ul style="list-style-type: none"> • Online Repository • Stories 	<p>You can explore and extend your learning in the different issues you learn in History and Social Studies through online exhibitions, stories and virtual tours about the Singapore heritage.</p>	All levels	<ul style="list-style-type: none"> • Extension of learning in History and Social Studies • Multi-culturalism • Social history in Singapore • Heritage
12.	<p>Virtual learning journeys of places in Singapore</p> <ul style="list-style-type: none"> • Chek Jawa • Sungei Buloh • Gardens by the Bay • Kampong Glam • Little India • Marina Bay Sands 	<p>You can embark on virtual learning journeys which lend semblances of reality to the conception of different places in Singapore. You can explore the uniqueness of each place through exploratory embedded interactive features like 360 perspective, zoom, informative guide and notes all through automated function or manually toggling the menu provided.</p>	All levels	<ul style="list-style-type: none"> • Extension of learning in Geography • Explore unique places in Singapore • Heritage
13.	<p>Virtual News Gallery <i>Virtual gallery by NLB</i></p>	<p>You can explore issues relating to the using of information and mass media, as well as learn about key historical events (e.g. the Fall of Singapore, the Maria Hertogh riots) from newspaper articles. The gallery contains information on four early newspapers in Singapore. There is also a game show for you to learn about distinguishing between real and fake news.</p>	All levels	<ul style="list-style-type: none"> • Singapore history
14.	<p>Virtual tours of museums and places of historical relevance E.g. the Smithsonian Museum of American History, the</p>	<p>You can embark on virtual tours of these museums and/or explore a wide collection of artefacts and resources to enrich your knowledge of history.</p>	All levels	<ul style="list-style-type: none"> • World history • Regional history • Singapore history

**Some Ideas for Student-Initiated Learning
Secondary Level**

No.	Learning Experiences	Description	Levels	Area(s) of Interest
	National Gallery , the Istana in Singapore , the British Museum . You can also access virtual tours using Google Earth and Google Arts and Culture .			
15.	Intangible Cultural Heritage	You can explore the significance of traditional local food from the different ethnic groups based on history and cultural influences.	All levels	<ul style="list-style-type: none"> • Extension of learning in Nutrition and Food Science • Food and culture
16.	360° Virtual Tour of the Supreme Court	You can embark on a virtual learning journey to learn more about Singapore’s Judicial history and the workings of the justice system. Begin this journey at the former Supreme Court (National Gallery Singapore), where you will rediscover old courtrooms, hidden tunnels and holding cells. Canvass artefacts and solve puzzles as you explore our judicial legacy and processes. The tour then transports you to the present-day Supreme Court. Learn how our rich traditions have adapted to modern times and get a glimpse into the Courtroom of the future.	All levels	<ul style="list-style-type: none"> • Social Studies • Governance • Judiciary

**Some Ideas for Student-Initiated Learning
Secondary Level**

**Category: History, Society, Global Affairs and Citizenry
Resources**

No.	Description	Levels	Area(s) of Interest
1.	<p>History Websites for Extension of Learning</p> <ul style="list-style-type: none"> • Podcasts (e.g. History Fangirl, a History of the World, Isaac Meyer’s History of Japan and BBC World Service’s Witness History: World War 2 Collection. The last two podcasts are also available on Spotify.) • Free online courses by universities and online learning portals (e.g. Harvard University, Khan Academy) • National Archives of Singapore’s Oral History collection (e.g. the Reflections of Yesteryear series offers valuable insights into how life was like in Singapore – it consists a compilation of moments signifying pioneering efforts, breakthrough ideas, significant changes in the lives of Singaporeans and new beginnings in Singapore’s history). • History apps on historical events (e.g. The History of Everything), and to visualise the past (e.g. Civilisations AR). • Resources provided by National Library Board as part of their Eye on Asia initiative 	All levels	<ul style="list-style-type: none"> • Extension of learning in History • History for enjoyment and information
2.	<p>MOE Library SLS Lesson: Stranded on the Suez!</p> <p>You can learn more about the Suez Canal, such as its connections to Singapore’s past, why Ever Given got stuck and how it was eventually freed, and the global implications of its blockage.</p>	All levels	<ul style="list-style-type: none"> • Contemporary issue • History • Economics • Social Studies • Engineering
3.	<p>IRAS Digital Gallery on Singapore’s Tax Story</p> <p>You can learn more about the Singapore Tax Story. Travel back to the beginnings of tax in 1819 when modern Singapore was founded and discover its evolution from then till present day. Uncover interesting facts about taxes, witness the transformation over the decades and learn how taxes help build an inclusive and progressive Singapore.</p>	All Levels	<ul style="list-style-type: none"> • Extension of learning in National Education • Citizenship • Learning for enjoyment and information
4.	<p>MOE Library SLS Lesson: Managing the Singapore Reserves</p> <p>You can learn more about the Singapore Reserves and how it demonstrates the functions and roles of the government in working for the good of society. You will be given opportunities to reflect on your learning and consider how citizens can play a complementary role to the government in ensuring their own economic and social well-being.</p>	All levels	<ul style="list-style-type: none"> • Social Studies • Governance • Citizenship

**Some Ideas for Student-Initiated Learning
Secondary Level**

**Category: Language Learning
Learning Experiences**

No.	Learning Experiences	Description	Levels	Area(s) of Interest
1.	Virtual learning journeys of places in Singapore <ul style="list-style-type: none"> • Chinatown Heritage Centre • Kampong Glam • Little India • Other Virtual Learning Journeys to explore in Singapore 	<p>You can embark on virtual learning journeys which lend semblances of reality to the conception of different places in Singapore. You can learn about the history, architecture and interesting facts of these places and learn to appreciate Singapore’s history and culture. You can explore the uniqueness of each place through embedded interactive features like 360 perspective, informative guide and exploratory notes, etc.</p> <p>Challenge yourself to curate an MTL itinerary for foreign visitors by applying the language skills learnt in MTL lessons.</p>	All levels	<ul style="list-style-type: none"> • Extension of learning in MTL • Singapore culture • Heritage
2.	News in Curriculum <i>SPH and Mediacorp news website embedded in the SLS</i>	<p>You can access news sites from SPH and Mediacorp via SLS to read and view curated news articles and videos.</p> <p>Self-directed and regular reading of news articles nurture the habit of reading on current affairs in you. With content and information gathered from the news, you can develop your own points of view and use them in your discussion or writing.</p>	All levels	<ul style="list-style-type: none"> • Extension of learning in Chinese Language • News literacy • Interactive oral/ writing skills
3.	Creative Writing	<p>You can engage in creative writing to hone your creativity and imagination. It could tie in with any relevant theme – e.g., appreciation of nature, surviving and thriving in a pandemic. You can search online for “creative writing prompts” to help get started.</p>	All levels	<ul style="list-style-type: none"> • Extension of learning in English • Extension of learning in MTL • Creative writing
4.	Language Learning Resources on SLS and Online Sites	<p>You can access interactive language tasks and activities, and/ or texts that feature good models of language (e.g., speech presentation) to learn more about using English or to reinforce your learning based on your own learning needs. Some suggested resources can be accessed under the ‘Resources’ section below.</p>	All levels	<ul style="list-style-type: none"> • Extension of learning in English • Extension of learning in MTL
5	Responding to the World	<p>You can express your opinion in the form of a personal/ critical response. This can be based on your own experiences – e.g., reviewing a new café, beauty product, tech product or video game.</p>	All levels	<ul style="list-style-type: none"> • Extension of learning in English

**Some Ideas for Student-Initiated Learning
Secondary Level**

No.	Learning Experiences	Description	Levels	Area(s) of Interest
		You can choose to produce a written response or create a video/podcast.		<ul style="list-style-type: none"> • Extension of learning in MTL
6.	Poetry Performance	Record your reading of a poem and upload your recording on the SLS to share with your peers. As you read your poem aloud, visualise the images in your mind and draw your attention to the sound imagery in the poem.	All levels	<ul style="list-style-type: none"> • Literary arts • Extension of learning in Literature
7.	Photojournalism	<p>Research and understand the creative process of taking photographs (e.g. TED talk or an interview with a photojournalist). It could cover features/ talking points on how they take photos and elaborate further on how it makes them feel.</p> <p>You can then apply the learning by:</p> <ul style="list-style-type: none"> • reading a text extract and finding or taking your own photos that best captures the mood and atmosphere of the setting; • writing a caption/ poem for an image of a setting; or • selecting an image (e.g. by searching online) that represents the location that you imagine the story is taking place in. 	All levels	<ul style="list-style-type: none"> • Photography and art • Writing •
8.	Put it Together	<p>You can go on a virtual learning journey (e.g. virtual museum tours, Google Earth) to learn about the context of a poem of your choice. This would help you to visualise the setting and sense the atmosphere as you draw on details you observe during the virtual learning journey.</p> <p>You can also compare selected poems of your choice with a relevant piece of art and write a personal response to it. This helps you to analyse and reflect on how different aspects of a writer's craft combine to have an impact on your experience and interpretation of literary texts.</p> <p>You can also explore related poetry readings, dramatic monologues, short films and animation videos to deepen your understanding of the literature.</p>	All levels	<ul style="list-style-type: none"> • Literary Arts • Extension of learning in Literature

**Some Ideas for Student-Initiated Learning
Secondary Level**

No.	Learning Experiences	Description	Levels	Area(s) of Interest
9.	Reflecting on Lit	<p>You can choose to respond to a text read in class through a piece of creative response in the form of one of the following:</p> <ul style="list-style-type: none"> • Diary entry in the shoes of a character • Letter to a character in the text • Photo or picture that captures the feeling of one moment in the text • Magazine feature to promote the themes discussed in the text <p>Critique of a play/ short film based on the text</p>	All levels	<ul style="list-style-type: none"> • Extension of learning in Literature
10.	Lit!amins	<p>You can choose from a range of lessons from this lesson series on the SLS that would expand your Literature experience beyond the classroom:</p> <ul style="list-style-type: none"> • Explore Literature through art by making the connections between visual forms of art and poetry. You can learn to create art pieces that help you better understand your Literature texts. • You can experience being a writer and create your own poems or short stories that excites you. • You can explore fun poetry and texts beyond your classroom through Lit!amins, and appreciate ‘nonsense’ poetry or disaster poems or learn more about anti-heroes in the books that we read. • You can also explore the connections between songs and Literature and appreciate how Literature can shape how we think or feel about songs. 		<ul style="list-style-type: none"> • Music • Art • Creative Writing
11.	<u>Spoken Word/Slam poetry</u>	<p>You can learn about spoken word poetry and how to write your own poems.</p>	All levels	<ul style="list-style-type: none"> • Literary arts • Extension of learning in Literature
12.	<u>Storytelling</u>	<p>You can learn about the art of storytelling from Pixar animators and think about the kinds of stories that you may be interested to craft.</p>	All levels	<ul style="list-style-type: none"> • Film • Extension of learning in Literature

**Some Ideas for Student-Initiated Learning
Secondary Level**

No.	Learning Experiences	Description	Levels	Area(s) of Interest
13.	History of Theatre	You can find out more about the history of theatre and the vibrant traditions of theatre that have blossomed in different cultures, from Greek tragedies to Japanese Kabuki plays.	All levels	<ul style="list-style-type: none"> • Drama • Extension of learning in Literature • Arts for enjoyment, meaning making and communication
14.	People behind the scenes	Interested in pursuing a career in theatre? You can explore the different backstage roles and what these people do.	All levels	<ul style="list-style-type: none"> • Drama • Extension of learning in Literature • Arts for enjoyment, meaning making and communication
15.	Costume and Set Design	You can research on the creative processes of set and costume designers. You can then design the set and/or characters' costumes for the novel or play that you are studying, which will help to deepen your understanding of the text.	All levels	<ul style="list-style-type: none"> • Drama • Extension of learning in Literature

**Some Ideas for Student-Initiated Learning
Secondary Level**

**Category: Language Learning
Resources**

No.	Description	Levels	Area(s) of Interest
1.	<p>English Book Reading List You can choose from a wide selection of books on this book reading list, sorted by genre and/or themes, via the National Library Board (NLB) website.</p>	All levels	<ul style="list-style-type: none"> • Extension of learning in English • Reading for enjoyment and information
2.	<p>Language Learning Resources on Online Sites</p> <ul style="list-style-type: none"> • British Council: Learn English Teens – You can access free resources to help with practising your English. • Word of the Day – You can subscribe to Word of the Day emails from dictionaries such as Dictionary.com, Merriam-Webster and Oxford English Dictionary. • Writing competitions – You can aim to take part in competitions such as the Live On Festival – Essay Competition or The Commonwealth Essay Competition. 	All levels	<ul style="list-style-type: none"> • Extension of learning in English
3.	<p>MOE Library SLS Lessons on Current Affairs You can read up on a topic on current affairs by accessing the Reading Up lessons through the search function on the SLS. A new lesson will be published approximately every month, introducing you to a topic on current affairs happening both locally and globally. A variety of articles and videos are provided for you to read, listen to, and view, and by doing so, you can explore various perspectives and develop your understanding of the topic.</p>	All levels	<ul style="list-style-type: none"> • Extension of learning in English • Current affairs
4.	<p>MOE Library SLS Lessons on Semiotic Modes and Vocabulary You can expand your knowledge of semiotic modes and vocabulary via the exploration of multimodal texts through the Into the Deep lessons on the SLS. You will be able to read and experience unique multimodal texts, such as interactive stories and infographics, before applying your understanding by creating multimodal texts of your own.</p>	All levels	<ul style="list-style-type: none"> • Extension of learning in English
5.	<p>MOE Library SLS Lessons on EL-related Educational Applications You can explore the six areas of language learning related to the English Language through the App Review lesson series on the SLS. You will be able to engage with fun and interesting educational tools and platforms, such as storyboarding apps and speech recognition tools, before reflecting on how they support your learning of Listening & Viewing, Reading & Viewing, Speaking & Representing, Writing & Representing, Grammar or Vocabulary skills:</p> <ul style="list-style-type: none"> • App Review: Perk Up Your Ears 	All levels	<ul style="list-style-type: none"> • Extension of learning in English

**Some Ideas for Student-Initiated Learning
Secondary Level**

No.	Description	Levels	Area(s) of Interest
	<ul style="list-style-type: none"> • App Review: Read Like a Pro • App Review: Speak Up! • App Review: Beat Writer's Block • App Review: Healthy Grammar, Happy Student • App Review: Wanna be a Word Wizard? 		
6.	<p>Take Your Pick! You can access the Take Your Pick! lessons through the search function on the SLS to read articles and books, as well as view audio-visual materials related to themes you learn during English lessons.</p>	All levels	<ul style="list-style-type: none"> • Extension of learning in English • Reading, listening and viewing for enjoyment and information
7.	<p>Extensive Reading Graded Readers You can read MTL stories written by local writers using the Extensive Reading Graded Readers.</p> <p><u>CL</u></p> <ul style="list-style-type: none"> • 《小轩的折叠世界》 • 《伤者》 • 《锁城记》 • 《面包特工队》 • 《我的男友是人鱼》 • 《不可思议的打印机》 • 《请问你要去哪里?》 • 《中四》 • 《我的女侠罗明依》 • 《红楼梦：青春版》 • 《鼠患》 • 《第四个男人》 • 《篮球小子》 <p><u>ML</u></p> <ul style="list-style-type: none"> • JATi Secondary 1 List (1A Book) • JATi Secondary 1 List (1B Book) • JATi Secondary 2 List (2A Book) • JATi Secondary 2 List (2B Book) 	All levels	<ul style="list-style-type: none"> • Extension of learning in MTL • Reading for enjoyment and information

**Some Ideas for Student-Initiated Learning
Secondary Level**

No.	Description	Levels	Area(s) of Interest
	<p><u>TL</u></p> <ul style="list-style-type: none"> • அகன்ற வாசிப்பு - திறந்த ஜன்னல் • அகன்ற வாசிப்பு - வெள்ளம் வந்தது • அகன்ற வாசிப்பு - புயல் • அகன்ற வாசிப்பு - சாருமதி • அகன்ற வாசிப்பு - துமாசிக் • அகன்ற வாசிப்பு - விடுதலை • அகன்ற வாசிப்பு - சுமைதாங்கி • அகன்ற வாசிப்பு - எண்ணங்கள் நிலையானவை அல்ல • நானும் ஒரு படைப்பாளி 2017-2018 • நானும் ஒரு படைப்பாளி 2021 • நிகழ்வை விவரித்தல் • தமிழ்ருவி சுவரொட்டி தயாரித்தல் • தமிழ்ருவி பயிற்றுவளங்கள் உவமைகள் • தமிழ்ருவி வல்லின மெய் மிகும் இடங்கள் வல்லின மெய் மிகா இடங்கள் • தமிழ்ருவி எழுவாய் பயனிலை • தமிழ்ருவி சிற்றேடு தயாரித்தல் • சுருக்கி வரைதல் • தமிழ்ருவி சிறுகதையின் கூறுகள் 		
8.	<p>News Resources on SPH and Mediacorp You can search for news resources on the curated SPH and Mediacorp news platforms, embedded in the SLS (CL, ML and TL). The news can be related to themes in your textbooks and you can embark on news-related projects.</p>	All levels	<ul style="list-style-type: none"> • Extension of learning in MTL • News resources related to the textbook units' themes
9.	<p>Resources from Community Partners</p> <p><u>ML</u> You can access supplementary educational audio and video resources developed by community partners such as Mediacorp Warna 94.2 FM, Mediacorp RIA 89.7 FM and the Malay Heritage Centre.</p>	All levels	<ul style="list-style-type: none"> • Supplementary resources related to language and culture

**Some Ideas for Student-Initiated Learning
Secondary Level**

No.	Description	Levels	Area(s) of Interest
	<p>TL You can access supplementary educational audio and video resources developed by community partners such as Mediacorp Oli 96.8FM and the Centre for Singapore Tamil Culture. developed by community partners such as Mediacorp Oli 96.8FM and the Centre for Singapore Tamil Culture.</p>		
10.	<p>Chinese Songs (Composed and sung by students) You can explore the repository of Chinese songs composed and sung by students in Singapore to learn more about the local youth culture and how literary devices could be used in songwriting. The songs are winning entries of “Xin Kong Xia” <i>Xinyao</i> Singing and Songwriting Competition organised by the Committee to Promote Chinese Language Learning (CPCLL) over the years.</p>	All levels	<ul style="list-style-type: none"> Extension of learning in Chinese Language and Literature
11.	<p>Chinese Radio Dramas (Written and broadcast by students) You can explore the repository of Chinese radio dramas written by students to learn more about the local youth culture and narrative/ script writing. These dramas are winning entries of the “Script It Right” Radio Drama Competitions organised by the CPCLL. These radio dramas are further made into SLS packages which comprise guiding questions and analysis to help you further appreciate them.</p>	All levels	<ul style="list-style-type: none"> Extension of learning in Chinese Language and Literature
12.	<p>Chinese e-Books, Music Videos and Lesson Packages You can choose from a series of e-books specially commissioned to suit local Secondary students’ interests and proficiency. The books are uploaded onto SLS, and each come with a lesson package consisting of guiding questions, trailers and/ or songs based on the book. You can select the book you want to read based on your interest.</p> <ul style="list-style-type: none"> 《小轩的折叠世界》 《伤者》 《锁城记》 《面包特工队》 《我的男友是人鱼》 《不可思议的打印机》 《请问你要去哪里？》 《中四》 《我的女侠罗明依》 《红楼梦：青春版》 《鼠患》 《第四个男人》 《篮球小子》 	All levels	<ul style="list-style-type: none"> Extension of learning in Chinese Language and Literature

**Some Ideas for Student-Initiated Learning
Secondary Level**

No.	Description	Levels	Area(s) of Interest
13.	<p>Zaobao-MOE News Outreach Programme</p> <p>You can engage in current affairs through the MediaCorp-MOE News Outreach Programme:</p> <ul style="list-style-type: none"> • zbschools.sg (Curated by Zaobao for secondary school students) • SLS News Portal (Curated by Zaobao for the 2021 CL Curriculum) • 8 World so young (Curated by MediaCorp for CL students) 	All levels	<ul style="list-style-type: none"> • Extension of learning in Chinese Language • Current affairs
14.	<p>MOE Library SLS Lesson: Managing the Singapore Reserves</p> <p>You can learn more about the Singapore Reserves and how it demonstrates the functions and roles of the government in working for the good of society. You will be given opportunities to reflect on your learning and consider how citizens can play a complementary role to the government in ensuring their own economic and social well-being.</p>	All levels	<ul style="list-style-type: none"> • Social Studies • Governance • Citizenship

**Some Ideas for Student-Initiated Learning
Secondary Level**

**Category: Mental Health and Well-being
Learning Experiences**

No.	Description	Levels	Area(s) of Interest
1.	<p>Augmented Reality Exploration on the Harms of Drugs By downloading the “DrugFreeSG” application from Apple App Store or Google Play Store and visiting this e-Brochure, you can embark on an exciting journey to interact with virtual characters to find out more on the harms of drugs.</p>	All levels	<ul style="list-style-type: none"> • Extension of learning in CCE

**Category: Mental Health and Well-being
Resources**

No.	Description	Levels	Area(s) of Interest
1.	<p>MOE Library SLS Lessons on Challenging Automatic Negative Thoughts (ANTs) You can embark on a two-part SLS resource (Understanding ANTs and Challenging ANTs) to learn to recognise what ANTs are, identify the different types of ANTs, reflect on the impact of ANTs on emotions and behaviours, and challenge your ANTs using the 3R strategy (Recall, Rationalise, Replace).</p>	All levels	<ul style="list-style-type: none"> • Extension of learning in CCE • Mental health
2.	<p>MOE Library SLS Lesson on Mental Illnesses: Understanding Mental Illnesses You can learn what mental illnesses are, their causes, and the differences between mental health problems and illnesses. Through understanding the five common mental illnesses (i.e. depression, eating disorders, anxiety disorders, obsessive-compulsive disorder and schizophrenia), including signs and symptoms of each illness as well as the treatments, you will appreciate the importance of early intervention for better recovery and how you can seek help and give help when necessary.</p>	All levels	<ul style="list-style-type: none"> • Extension of learning in CCE • Mental health
3.	<p>MOE Library SLS Lesson: Motivation You will view a slideshow of collection of motivational quotes that aims to inspire courage, belief in oneself, optimism, flexibility, overcoming of challenges and help-seeking. You can create your own collection of motivational quotes and take a look at them on days when you need some cheer.</p>	All levels	<ul style="list-style-type: none"> • Extension of learning in CCE • Mental health

**Some Ideas for Student-Initiated Learning
Secondary Level**

**Category: Science, Technology, Engineering, Mathematics (STEM)
Learning Experiences**

No.	Learning Experiences	Description	Levels	Area(s) of Interest
1.	Code Combat	You can learn basic coding skills by completing basic free-to-play game levels. This platform will teach you the basics of syntax-based (text-based) coding, such as Python, JavaScript, and C++.	All levels	<ul style="list-style-type: none"> • Computational Thinking • Coding
2.	CodePen	You can learn to design your own webpage and learn front-end development skills for HTML, CSS and JavaScript. This website shows the design of your webpage instantly as you type your code. You may grab a book from the library or find an online tutorial to help you get started.	Upper Secondary	<ul style="list-style-type: none"> • Coding • Web Design
3.	Arduino Simulator	You can explore and learn about Arduino programming (widely used in the industry) using the simulation software. This serves as an extension of learning (out-of-syllabus content) for digital electronics.	Upper Secondary	<ul style="list-style-type: none"> • Extension of learning in Electronics • Micro-controller (Arduino programming)
4.	Calculatoredge – Electronics Engineering	You can make use of the online calculators to make quick calculations during your project works and study how the calculations are performed with the help of formulae and/or diagrams provided. Examples include: <ul style="list-style-type: none"> • Ohm’s law • resistor colour code • voltage divider • BJT transistor bias voltage • IC 555 timer 	Upper Secondary	<ul style="list-style-type: none"> • Extension of learning in Electronics • Calculations involving electrical circuits
5.	PhET Interactive Simulations – Electricity	You can make use of these simulations to explore, reinforce and verify the theories learnt in class. Examples include: <ul style="list-style-type: none"> • circuit construction kit • Ohm’s law • capacitor lab • semiconductors 	Upper Secondary	<ul style="list-style-type: none"> • Extension of learning in Electronics • Basic principles in electricity

**Some Ideas for Student-Initiated Learning
Secondary Level**

No.	Learning Experiences	Description	Levels	Area(s) of Interest
6.	Design Journal SOS	You can access D&T resources via the blog created by a D&T teacher at Pathlight School.	All levels	<ul style="list-style-type: none"> Extension of learning in D&T
7.	Community Problem Solving	You can work with peers to investigate a problem of interest in your community, use data and recommend possible solutions (e.g. how to identify dengue cluster or how to reduce water/ power consumption).	All levels	<ul style="list-style-type: none"> Extension of learning in Mathematics Problem-solving Modelling
8.	Creating and Designing using Mathematics	You can explore how mathematics is used in an area of interest or hobby, such as fashion designing, game designing and interior designing. For example, you can explore how mathematics can be used in designing a room/ house. You can use different digital applications/ tools to come up with a floor plan, create a budget, make a prototype, etc.	All levels	<ul style="list-style-type: none"> Extension of learning in Mathematics Design thinking
9.	Developing Future Mathematicians	You can propose and carry out projects that extend learning beyond the syllabuses and experience “discovery” like a mathematician (e.g. given a rectangle floor area, how many points can you mark on the floor so that no two points are less than 1 meter apart). You can also refer to Singapore Mathematical Society website which provides a collection of Mathematics projects done by students as part of the Singapore Mathematics Project Festival.	All levels	<ul style="list-style-type: none"> Extension of learning in Mathematics
10.	Mathematical Problem Solving <ul style="list-style-type: none"> NRich The International Mathematical Modelling Challenge 	You can attempt problems, ranging from mathematical to real-world problems. The websites show a collection of problems solved by students in different competitions. There are also trigger tasks to arouse interest in certain areas of Mathematics.	All levels	<ul style="list-style-type: none"> Extension of learning in Mathematics Problem solving Mathematical thinking Coding
11.	Mathematics Around Us	<u>How things work (investigation)</u> You can investigate and study everyday items such as a box of tissue, a cup, a pencil, or a washing machine and learn about their connections with mathematics, e.g.: <ul style="list-style-type: none"> How is mathematics used in the design of a tissue box? 	All levels	<ul style="list-style-type: none"> Extension of learning in Mathematics

**Some Ideas for Student-Initiated Learning
Secondary Level**

No.	Learning Experiences	Description	Levels	Area(s) of Interest
		<ul style="list-style-type: none"> • How is mathematics applied in the working of a washing machine? (e.g. algorithms) <p><u>Math in daily activities (decision-making)</u> You can explore how mathematics is used in making decisions in our daily activities, such as deciding on the best route from one place to another or choosing the best deal when shopping online.</p> <p><u>Math in sports (prediction and optimisation)</u> You can research on how mathematics is used to analyse performances of players and teams, and predict outcomes in sports such as football, basketball and F1 Grand Prix. Sports coaches/ players could use mathematics to improve your future performance. For example, athletes could monitor running speeds at different intervals to pace themselves better.</p>		
12.	Mathematics in Different Professions	<p>You can choose a career of your interest and research about how people in this profession use mathematics (e.g. a nurse, an engineer, or a graphic designer).</p> <p>If you are aspiring to be a game designer, graphic designer, concept artist or character artist, you can refer to websites like Pixar in a Box to understand the mathematics used in animations.</p>	Upper Secondary	<ul style="list-style-type: none"> • Extension of learning in Mathematics
13.	Mathematics Stories	<p>You can learn about an area of Mathematics through various modes. For example:</p> <ul style="list-style-type: none"> • Watch YouTube videos (e.g. Stories of Mathematics by TED talk) • Watch a series of lectures titled 'Christmas Lectures' by the <i>Royal Institution</i> on mathematics and science • Read a book (e.g. Story of PI, The Joy of Mathematics, • Math Puzzles, Flatland) • Listen to a podcast 	All levels	<ul style="list-style-type: none"> • Extension of learning in Mathematics • Reading for enjoyment, interest and information

**Some Ideas for Student-Initiated Learning
Secondary Level**

No.	Learning Experiences	Description	Levels	Area(s) of Interest
14.	Mathematics Toolbox: Teach Yourself a New Mathematics Skill	You can learn a new skill related to Mathematics and technology, e.g.: <ul style="list-style-type: none"> • Coding (e.g. Python) • Using graphing software (e.g. GeoGebra, Desmos) • Using statistical software (e.g. R Studio) • Using data visualisation software (e.g. Tableau) 	All levels	<ul style="list-style-type: none"> • Extension of learning in Mathematics • Developing digital literacy • Statistical thinking • Computational thinking
15.	Size of Earth <ul style="list-style-type: none"> • How Eratosthenes calculated the Earth's circumference • NASA satellites 	You can explore how Mathematics played an important role in the determination of the size of the Earth, and how modern technology is able to confirm the size of the Earth. Questions you can find answers to include: <ul style="list-style-type: none"> • How was the size of Earth determined before satellites were launched into space? • How do satellites determine the size of Earth? What else can satellites do? 	All levels	<ul style="list-style-type: none"> • Mathematical modelling space
16.	Citizen Science	You can explore and contribute to various citizen science projects via platforms, e.g.: <ul style="list-style-type: none"> • Zooniverse: Help scientists classify galaxies according to shape in the galaxy zoo project • NASA Citizen Science: Look for interstellar particles in aerogel from the stardust spacecraft (Stardust@home project) • National Geographic Citizen Science: Projects include observing wildlife anywhere and measuring night-sky brightness. 	All levels	<ul style="list-style-type: none"> • Extension of learning in Science • Astronomy • Ecology • Earth Sciences
17.	Determining concentration of sugar solution	You can examine the effect of varying concentrations of sugar solution to attract ants. <ul style="list-style-type: none"> • Prepare sugar water of different concentrations to attract ants. • Design an investigation to determine the minimum concentration of sugar that will attract ants. • Design a contraption that allows the trapping of ants within the sample to count the total number of ants attracted over a fixed period of time. 	All levels	<ul style="list-style-type: none"> • Extension of learning in Science

**Some Ideas for Student-Initiated Learning
Secondary Level**

No.	Learning Experiences	Description	Levels	Area(s) of Interest
		<ul style="list-style-type: none"> Analyse the data by plotting a standard calibration curve to determine the minimum concentration of sugar water that will attract ants. 		
18.	Virtual Learning Journey	<p>You can embark on a virtual learning journey to the various places below:</p> <ul style="list-style-type: none"> Join Jane Goodall on a captivating exploration of Tanzania’s Gombe National Park where you can observe the chimpanzees that she has studied over the years. Join Mission Blue on an exciting high seas adventure to the Costa Rica Thermal Dome Hope Spot, gain insights into the extreme biodiversity of the high seas and follow marine biologists in the field tagging turtles, tracking sharks and more. Investigate how architects use biomimicry to design a more sustainable future by incorporating form, function and systemic processes from nature into building design. If you’re inspired and eager to apply your newfound knowledge, consider participating in the Biomimicry Institute’s youth design challenge. The challenge offers the opportunity to design nature-inspired solutions to critical real-world problems. Dive into the fascinating world of natural history with a virtual tour of the Lee Kong Chian Natural History Museum, London Natural History Museum or the Smithsonian Natural History Museum. Explore the diverse exhibits and learn about the rich biodiversity of our planet. Gain insights into the medical field by taking a virtual tour of the NKF Dialysis Centre. Understand the facilities and equipment used for dialysis treatment and learn about the importance of kidney health. 	All levels	<ul style="list-style-type: none"> Extension of learning in Science
19.	Kitchen Science - DNA Extraction from Fruits	You can join a biologist for a 30-minute lesson to learn how to extract DNA from plant cells and see DNA without a microscope.	All levels	<ul style="list-style-type: none"> Extension of learning in Science
20.	Making of Indicators	You can learn through hands-on experience on how an indicator works, using common household materials.	Upper Secondary	<ul style="list-style-type: none"> Extension of learning in Science

**Some Ideas for Student-Initiated Learning
Secondary Level**

No.	Learning Experiences	Description	Levels	Area(s) of Interest
		<ul style="list-style-type: none"> • Make an indicator by using hot water to extract red cabbage/ blue flower pea/ turmeric indicator (related skills: dissolving, filtration). • Research online to construct the pH scale in relation to the colour of the indicator. • Use the scale to determine the pH of household materials. 		
21.	Polymers	<p>You can examine the water retention ability between different materials.</p> <ul style="list-style-type: none"> • Home based activities: Observe the materials inside the diapers vs. cotton wool/ sponge. • Examine the water retention of the materials (by comparing how much volume of water can the material hold using measuring cups. • Do offline research and come up with 2-3 summary slides on how diapers work. 	Upper Secondary (Secondary 4 and 5)	<ul style="list-style-type: none"> • Extension of learning in Chemistry • Extension of learning in Mathematics
22.	Student-initiated investigative or engineering project	<p>You can plan and implement your own project. Simple projects that can be done at home include:</p> <ul style="list-style-type: none"> • Investigative <ul style="list-style-type: none"> ○ how the physical properties of an oscillator affect its period ○ how the launch parameters and/or physical properties of a projectile affect its range ○ how the physical properties of a round object affect the time taken to roll down an incline ○ how the shape/size and filling level of a water bottle affect executing a “bottle flip” • Engineering <ul style="list-style-type: none"> ○ building a gravity racer ○ building a mousetrap car ○ building embedded sensors 	All levels	<ul style="list-style-type: none"> • Extension of learning in Science
23.	The Science Behind Safe Driving	<p>You can tour the Toyota Motor manufacturing plant in this virtual learning journey to learn about the process and measures taken to improve the safety and quality of cars.</p>	Upper Secondary	<ul style="list-style-type: none"> • Design thinking

**Some Ideas for Student-Initiated Learning
Secondary Level**

**Category: Science, Technology, Engineering, Mathematics (STEM)
Resources**

No.	Description	Levels	Area(s) of Interest
1.	<p>Animation</p> <p>If you are interested in animation and movie making, you can look at the series of videos, PIXAR in a Box, which is designed to help you answer the often-asked question: "Why do I need to learn this stuff?" You can demonstrate how the concepts learnt in school are used to make movies at Pixar.</p> <p>This YouTube video describes what this project is all about.</p>	All levels	<ul style="list-style-type: none"> • Animation • Story telling
2.	<p>Coding and Programming</p> <p>You can visit the following websites to learn about coding and/or programming.</p> <ul style="list-style-type: none"> • Hour of Code <ul style="list-style-type: none"> ○ You can try to write computer codes or draw flowcharts to solve some of the mathematical problems. ○ You can start by trying a one-hour tutorial called ‘Hour of Code’, designed to demystify “Coding”. The activities, organised by grade levels, allow you to learn to create programs and apps. ○ The website also features online tutorials that cover areas such as block-based coding, Javascript, creating Apps, other programming languages. • LearnPython.org <ul style="list-style-type: none"> ○ You can pick up Python with this free resource which includes some interactive exercises. • DataCamp for Educators <ul style="list-style-type: none"> ○ You can pick up Python, R, SQL, Tableau and many others relating to the field of Data Science. This is a free resource that includes explanatory videos and interactive exercises with precise feedback. • Checkio <ul style="list-style-type: none"> ○ If you have some knowledge of Python, you can refine and enhance your coding skills with this game-based website with numerous programming challenges. • freeCodeCamp <ul style="list-style-type: none"> ○ You can start by attempting the course “College Algebra with Python”, which consists of instructional videos to follow along interactively. You will also build your own Algebra Colab notebook which you could use as your custom calculator. 	All levels	<ul style="list-style-type: none"> • Extension of learning in Mathematics • Developing digital literacy • Computer Science • Artificial intelligence • Machine learning • Coding

**Some Ideas for Student-Initiated Learning
Secondary Level**

No.	Description	Levels	Area(s) of Interest
3.	<p>Graphic software for Mathematics You can download and use a graphic software for explorations/ investigations, e.g.:</p> <ul style="list-style-type: none"> ● Desmos – has a scientific and graphing calculator, includes teacher-designed activities ● GeoGebra – comprises online tutorials to learn GeoGebra and activities for you to learn concepts, organised by Grade levels 	All levels	<ul style="list-style-type: none"> ● Extension of learning in Mathematics
4.	<p>Interactive Simulations for Mathematics and Science You can use interactive simulations, such as PhET Simulations (University of Colorado), for the learning of Science and Mathematics concepts. Access to these simulations is free of charge.</p>	All levels	<ul style="list-style-type: none"> ● Extension of learning in Mathematics ● Extension of learning in Science ● Developing digital literacy
5.	<p>Mathematics-related Readings You can check out Mathematics-related books that may pique your interest in the history, development and application of Mathematics.</p> <p>Suggested titles:</p> <ul style="list-style-type: none"> ● Amazing Math Projects You Can Build Yourself: Numbers, Geometry, Shapes, by Bardos, Laszlo C. ● Top STEM Careers in Math, by Brezina, Corona ● Mathematical Curiosities: A Treasure Trove of Unexpected Entertainments, by Posamentier, Alfred S and Ingmar Lehmann 	All levels	<ul style="list-style-type: none"> ● Extension of learning in Mathematics ● Reading for enjoyment, interest and information
6.	<p>Astronomy You can access Crash Course Astronomy, a free online course comprising a series of videos over 46 episodes. The course starts with the astronomical observations we can make with the naked eye and expands out to cover the solar system, stars, galaxies and the universe itself.</p> <p>By the end of this course, you will be able to</p> <ul style="list-style-type: none"> ● define the components of the universe, from planets in the Solar System to dark energy and gamma rays; ● understand how astronomers collect and analyse data to study the past and current state of the universe; ● explain the difference between asteroids, comets and meteors; and 	Upper Secondary	<ul style="list-style-type: none"> ● Extension of learning in Science ● Astronomy

**Some Ideas for Student-Initiated Learning
Secondary Level**

No.	Description	Levels	Area(s) of Interest
	<ul style="list-style-type: none"> contextualise observed phenomena within scientific theories about History and Physics of space, such as the Big Bang theory. 		
7.	<p>Creating a Physics Simulation You can create a Physics simulation with GlowScript by trinket.io.</p> <p>You can access a free introductory online course to GlowScript, a programming environment that allows users to make web-based 3D models. You can use a Python-based package called Visual Python (or VPython) designed for physics education instruction. When coding in Visual Python in GlowScript, the environment takes care of all the 3D lighting and objects, letting you focus on the laws of physics directly.</p>	Upper Secondary	<ul style="list-style-type: none"> Extension of learning in Science Developing digital literacy Computational thinking Coding
8.	<p>Engineering Tinkercad offers an excellent platform for students to delve into the world of circuit creation. With free tutorials readily accessible, students can begin by mastering the construction of series and parallel circuits. As they progress, they can expand their knowledge by learning to use breadboards, and eventually venture into the realms of Micro:bit and Arduino, where they can explore coding on top of their circuitry. This gradual progression allows students to build a strong foundation in electronics and programming, making Tinkercad an great resource for budding engineers and innovators.</p>	All levels	<ul style="list-style-type: none"> Engineering Circuit design and Breadboard Extension of learning in Electronics Extension of learning in Mobile Robotics Computational thinking Coding
9.	<p>Sketching You can view the videos curated in this list to learn sketching.</p>	All levels	<ul style="list-style-type: none"> Extension of learning in D&T Sketching and doodling
10.	<p>Geography Websites for Extension of Learning</p> <ul style="list-style-type: none"> ESRI GeoInquiries – This website provides short inquiry-based activities for learning of map-based content. The range of topics are extensive, ranging from Earth Science to Human Geography. <ul style="list-style-type: none"> This is a series of collections on World Geography: <ul style="list-style-type: none"> https://www.esri.com/en-us/industries/education/schools/geoinquiries-world-geography https://www.esri.com/en-us/industries/education/schools/geoinquiries-collections National Geographic Education – This website contains a collection of varied resources on different topics. 	All levels	<ul style="list-style-type: none"> Extension of learning in Geography

**Some Ideas for Student-Initiated Learning
Secondary Level**

No.	Description	Levels	Area(s) of Interest
	<ul style="list-style-type: none"> ○ This is a collection of articles, videos and explanations about Earth’s Structure, which allows you to dive deep into the natural processes and hazards shaping our earth’s landscapes: <ul style="list-style-type: none"> ○ https://www.nationalgeographic.org/topics/resource-library-earth-structure ○ https://geographyeducationonline.org/live-events/lectures 		
11.	<p>Virtual Learning Journeys You can watch videos that introduce STEM concepts and explore STEM professions to glean a greater appreciation of STEM learning in everyday life. Suggested titles:</p> <ul style="list-style-type: none"> • SSEF Fringe Activities “A Hundred Hows” Learning Journey Videos • STEMTogether Series 	All levels	<ul style="list-style-type: none"> • Extension of learning in Science
12.	<p>Engineering Challenge yourself to complete 44 science and engineering challenges from the The James Dyson Foundation Challenge Cards, designed by engineers from Dyson, at home or in the classroom. The challenges encourage you to develop an inquisitive mind and get excited about engineering.</p>	Lower Secondary	<ul style="list-style-type: none"> • Engineering
13.	<p>MOE Library SLS Resource: Designing with Micro:bit Series Ep.1 A Dicey Situation Students can learn to brainstorm a basic Micro:bit project into creative and meaningful ideas that are related to daily life.</p>	Upper Secondary	<ul style="list-style-type: none"> • Extension of learning in D&T • Microcontroller

**Some Ideas for Student-Initiated Learning
Secondary Level**

**Category: Sports and Healthy Lifestyle
Learning Experiences**

No.	Learning Experiences	Description	Levels	Area(s) of Interest
1.	Promoting Olympism in Society	You can explore various topics under Olympism, such as gender equality and social development.	All levels	<ul style="list-style-type: none"> Character development through sports
2.	Virtual Tour of the Olympic Museum	<p>You can explore the different facets of the Olympics, from learning about the rich history of the Olympics to the how the Olympic Games have impacted our society through media.</p> <ul style="list-style-type: none"> Explore the collections in the Olympic Museum to delve into the rich history of the Olympic Games. Explore the films and audio to discover how the Olympic Games have impacted people and society. Read the Olympic Stories to realise how the Olympic spirit continues to influence our lives today. 	All levels	<ul style="list-style-type: none"> History of sports
3.	Webinar featuring Refugee Olympic Team swimmer Yusra Mardini	You can view the webinar featuring Refugee Olympic Team swimmer Yusra Mardini to hear about her incredible story and tips for staying resilient.	All levels	<ul style="list-style-type: none"> Character development through sports
4.	Webinar featuring American Olympic Medalist J'den Cox	You can view the webinar featuring American athlete J'den Cox to learn about how he battled depression while learning to cope with partially losing his hearing during his career as a wrestler.	All levels	<ul style="list-style-type: none"> Character development through sports
5.	Inclusivity Through Sports	You can explore the fascinating journeys into the minds of Paralympians, as they share proven qualities like determination and ambition to succeed in their sport despite their disabilities. You can also find out more about how the various sports are played at the Paralympics.	All levels	<ul style="list-style-type: none"> Character development through sports
6.	The Afternoon Stretch	You can learn to perform simple exercises using a chair.	All levels	<ul style="list-style-type: none"> Healthy lifestyle practices
7.	Perform Better Series	<p>You can learn to perform a series of exercises:</p> <ul style="list-style-type: none"> Foundation to body workout Functional movement and mobility 	All levels	<ul style="list-style-type: none"> Healthy lifestyle practices

**Some Ideas for Student-Initiated Learning
Secondary Level**

No.	Learning Experiences	Description	Levels	Area(s) of Interest
		<ul style="list-style-type: none"> • Isometric and eccentric movements • Isometric and eccentric movements II • Balance strengthening exercises • HIIT Fun with your fitness 		
8.	Heart Smart Eating Habits	You can explore how to eat more healthy and nutritious foods in the right proportions to feel their best, and the benefits of a balanced meal plan. You can learn to lower your risk of heart disease and its associated risk factors such as excess weight, hypertension, high cholesterol and diabetes by eating a healthy balanced diet that incorporates a variety of nutrient-rich foods.	All levels	<ul style="list-style-type: none"> • Nutrition and health • Diet and meal planning
9.	Nutritional Tools	You can explore various online nutritional tools that can be used to plan a balanced diet. You can also find out the nutritional value of the food you eat.	All levels	<ul style="list-style-type: none"> • Nutrition and health • Diet and meal planning • Extension of learning in Nutrition and Food Science
10.	Making the Right Food Choices	You can explore supermarket/ food establishment websites and apply your knowledge on meal planning for a specific target group. You may choose healthier food options based on nutritional values and ingredients used and/or methods of cooking. <ul style="list-style-type: none"> • NTUC FairPrice • Sheng Siong • Giant • Cold Storage 	All levels	<ul style="list-style-type: none"> • Extension of learning in Nutrition and Food Science • Nutrition and health
11.	How can I get enough sleep?	You can learn how to get more sleep and what sleep deprivation is doing to our mental and physical health by watching this documentary.	All levels	<ul style="list-style-type: none"> • Healthy lifestyle practices
12.	Are Vapes Really Healthier Than Cigarettes?	You can watch an exclusive feature by CNA investigating what is vaping and its unknown harmful effects. Vaping in public is becoming an increasingly common sight in Singapore, despite laws banning these devices – also known as e-cigarettes. <ul style="list-style-type: none"> • Vaping enforcement in Singapore 	All levels	<ul style="list-style-type: none"> • Healthy lifestyle practices

**Some Ideas for Student-Initiated Learning
Secondary Level**

No.	Learning Experiences	Description	Levels	Area(s) of Interest
13.	The Kallang Story: A Sports, Arts and Heritage Trail	You can discover former grounds of Kallang Park, built in 1959, at a time when Singaporeans looked forward to a new era as master of their own destiny. Journey through memories of a wondrous amusement park, Singapore's "darkest day for sports", and end in front of a soaring sporting venue.	All levels	<ul style="list-style-type: none"> • History of sports

**Some Ideas for Student-Initiated Learning
Secondary Level**

**Category: Sports and Healthy Lifestyle
Resources**

No.	Description	Levels	Area(s) of Interest
1.	<p>Learning Values through Sports You can learn about values through sports by exploring the stories of athletes. You can learn how values, such as discipline, respect and diligence, are demonstrated through sports and how you can exhibit these values in your own way.</p>	All levels	<ul style="list-style-type: none"> • Character development through sports
2.	<p>Athletes' Handbook You can read up on sport nutrition, injury prevention and sport psychology in the Athlete's Handbook. Topics include nutrition for competition and traveling, using intensity of pain when injured, managing anxiety and pressure.</p>	All levels	<ul style="list-style-type: none"> • Health and Nutrition • Science of Exercise and Sports
3.	<p>Time Management for Sports and School You can learn how to manage your time to lead an active and healthy lifestyle by better balancing sports with studies and school.</p> <ul style="list-style-type: none"> • Studying more effectively • Planning and reviewing a weekly schedule • Planning an integrated annual schedule 	All levels	<ul style="list-style-type: none"> • Healthy lifestyle practices • Self-Management
4.	<p>Understanding Food & Nutrition Labels You can better understand food and nutrition labels used in Singapore, which will be helpful when you choose healthier food options based on nutritional values and ingredients.</p>	All levels	<ul style="list-style-type: none"> • Nutrition and health • Diet and meal planning
5.	<p>Healthier Recipes for Home-cooked Goodness You can explore what are popular healthy recipes to prepare some wholesome and delicious local food, with accompanying videos to guide the preparation process.</p>	All levels	<ul style="list-style-type: none"> • Nutrition and health • Diet and meal planning
6.	<p>Home-based Activities related to Nutrition and Food Science You can refer to the NFS-related Home-Based Activity Guide and choose an activity to embark on (e.g. supermarket tour, heritage food trails).</p>	All levels	<ul style="list-style-type: none"> • Nutrition and health • Diet and meal planning • Extension of learning in Nutrition and Food Science

**Some Ideas for Student-Initiated Learning
Secondary Level**

**Category: Sustainability and Nature
Learning Experiences**

No.	Learning Experiences	Description	Levels	Area(s) of Interest
1.	Beauty of Singapore's Environment <i>Virtual tours by NPARKS</i> (e.g. Singapore Botanic Gardens Learning Forest)	You can learn about the heritage of the different parks and the rich biodiversity that can be found in Singapore through the variety of virtual tours. Through the learning experiences, you would be able to understand the importance of conserving the environment.	All levels	<ul style="list-style-type: none"> • Extension of learning in Social Studies • Extension of learning in Geography • Environmental conservation • Heritage • Love for nature
2.	Global Climate Change – Vital Signs of the Planet	<p>You can explore the interactives “Eyes on the Earth 3D”, “Climate Time Machine” and “Global Ice viewer” to observe how the Earth’s climate has changed in recent history, through indicators like sea level and global temperatures.</p> <p>You will also learn more about aeronautics and space research, in the context of how it contributes to our action against climate change.</p>	All levels	<ul style="list-style-type: none"> • Climate change
3.	Humane Education: Touching Hearts and Minds <i>by ACRES</i>	You can volunteer to educate the public about how general public unawareness for wildlife has resulted in widespread animal abuse and exploitation, and the need to handle wildlife respectfully as more city developments will encroach on the natural habitats and ecosystems of wildlife in Singapore.	All levels	<ul style="list-style-type: none"> • Extension of learning in Geography • Animal abuse • Liveable city for all
4.	Gardening with Edibles	You can participate in NParks’ ‘Gardening with Edibles’ initiative to grow your own edibles at home. This initiative is aligned with Singapore’s national strategy to strengthen food resilience. You will pick up care tips or planting techniques through attending or watching past online masterclasses conducted by NParks horticulturists. You can then share stories of your fruits of labour on social media using #NParksBuzz and #GardeningwithEdiblesSG .	All levels	<ul style="list-style-type: none"> • Extension of learning in Science • Extension of learning in Food & Consumer Education

**Some Ideas for Student-Initiated Learning
Secondary Level**

No.	Learning Experiences	Description	Levels	Area(s) of Interest
5.	People. Places. Planet.	You can learn about the considerations behind the construction of the Active Living Hub at Paya Lebar Quarter (PLQ). The website is a good example of design thinking in action and efforts on sustainability to preserve the environment. Case studies and worksheets are available to facilitate your virtual learning journey.	All levels	<ul style="list-style-type: none"> • Extension of learning in D&T • Sustainability
6.	Youth@SGNature	<p>The Youth@SGNature initiative brings together NParks' existing and new programmes to provide youth with more platforms to engage with nature and motivate youth to be stewards for biodiversity conservation and greenery.</p> <ul style="list-style-type: none"> • NParks CIN Biodiversity Watch involves monitoring of butterfly, dragonfly, garden birds, heron and intertidal species in our parks, gardens, and nature reserves is carried out by citizen scientists to help us understand the quality of the habitats, track the number and richness of species over time, and develop management strategies to sustain or enhance these populations. • Science Communicators for CIN Ambassadors will equip you with knowledge and skills to effectively communicate Singapore's biodiversity and nature conservation-related topics to the public in creative and engaging ways. 	Upper Secondary	<ul style="list-style-type: none"> • Extension of learning in Science

**Some Ideas for Student-Initiated Learning
Secondary Level**

**Category: Sustainability and Nature
Resources**

No.	Description	Levels	Area(s) of Interest
1.	<p>MOE Library SLS Lesson: Science and Sustainable Development You can learn about the <i>2030 Agenda for Sustainable Development</i> and how science and technology can play a role in helping us to achieve the sustainable development goals which countries undertake in order to mobilise efforts to end poverty, fight inequalities and tackle climate change.</p>	All levels	<ul style="list-style-type: none"> • Extension of learning in Science
2.	<p>MOE Library SLS Lesson: Urban Farming for Food Security You can learn about the challenges in food security that Singapore faces, strategies to strengthen Singapore's food security, and glean a deeper understanding into how urban farming can be carried out in Singapore.</p>	All levels	<ul style="list-style-type: none"> • Extension of learning in Science
3.	<p>ArcGIS Storymaps You can explore interesting geographical topics through the ArcGIS Storymaps, which feature the use of GIS maps, videos, photographs, graphs and texts in an interactive manner.</p> <p>Some topics include:</p> <ul style="list-style-type: none"> • Mapping the Novel Coronavirus Pandemic (examining the history and spread of Covid-19, data updated daily) • Living in the Age of Humans (a series of storymaps examining planet-wide impacts of human activities) • Earth's Biggest Storms: Tropical Cyclones (understand the anatomy of cyclones and its impacts) • In Search of Refuge (mapping forced displacement from 1951-2017) • Sustainable Neighbourhoods in Singapore (adopting a perspective of an urban planner from another country to understand how Singapore builds its neighbourhoods) 	All levels	<ul style="list-style-type: none"> • Extension of learning in Geography • Health & diseases • Climate change; weather & climate • Sustainable development
4.	<p>Virtual Learning Journeys of Places in Singapore - Exploring Concept of Sustainability and Tourism in the Context of Singapore You can embark on virtual learning journeys which lend semblances of reality to the conception of different places in Singapore. You can explore the uniqueness of each place through exploratory embedded interactive features like 360 perspective, zoom, informative guide and notes all through automated function or manually toggling the menu provided.</p>	All levels	<ul style="list-style-type: none"> • Extension of learning in Geography • Explore unique places in Singapore • Tourism • Re-imagining

**Some Ideas for Student-Initiated Learning
Secondary Level**

No.	Description	Levels	Area(s) of Interest
	Virtual learning journeys were created for places such as: <ul style="list-style-type: none"> • Chek Jawa • Sungei Buloh • Gardens by the Bay • Kampong Glam • Little India • Marina Bay Sands 		<ul style="list-style-type: none"> • Sustainability
5.	MOE Library SLS Lesson: Learning Journey through Sentosa’s Imbiah Trail You can take a virtual trip down Sentosa’s Imbiah Trail to learn about the diversity of flora and fauna. Through the lesson, you will learn the interrelationships between various organisms in the community, recognise how adaptive traits can affect the survival of organisms and know how you can play a part to conserve the environment.	All levels	<ul style="list-style-type: none"> • Extension of learning in Science
6.	MOE Library SLS Lesson: Giant Pandas, Big Deal You can expand your knowledge about the interactions within ecosystems and understand the work behind panda conservation. You will also learn how sustainability is achieved in panda conservation.	All levels	<ul style="list-style-type: none"> • Extension of learning in Science
7.	MOE Library SLS Lesson: Exploring Tengah with Different Lenses Through multi-disciplinary lenses, you can explore the opportunities brought about by the development of the Tengah town. Through different inquiry questions, you will learn and understand how the Tengah town brings about opportunities in the following aspects: <ul style="list-style-type: none"> • social • economic • environmental 	All levels	<ul style="list-style-type: none"> • Sustainability and Society • Active citizenry
8.	MOE Library SLS Lesson: Data Processing with Python This lesson is developed with the support from CWSS and SST. You will learn: <ul style="list-style-type: none"> • about the Eco Stewardship Programme; • to write simple Python language code that enables non-interactive file input/output; and to perform rudimentary data processing and analysis to make sense of data collected by Smart Power Meters.	Upper Secondary	<ul style="list-style-type: none"> • Extension of learning in science • Coding

**Some Ideas for Student-Initiated Learning
Secondary Level**

No.	Description	Levels	Area(s) of Interest
9.	<p>MOE Library SLS Lesson: Zero Waste Students access the SLS lesson to enhance their understanding of local and global waste situation. They learn about the management of food waste, packaging waste (including plastics), and e-waste in Singapore. Through increased awareness of waste management, they also learn how to contribute to the journey towards zero waste.</p>	All levels	<ul style="list-style-type: none"> • Extension of learning in science
10.	<p>MOE Library SLS Lesson: Conservation of Coral Reefs Students access the SLS lesson to learn about corals, the environmental threats to coral reefs and the importance of individual and collective conservation efforts to protect them.</p>	All levels	<ul style="list-style-type: none"> • Extension of learning in science
11.	<p>MOE Library SLS Lesson: Self-Watering Planters: Growing Edibles at Home! In this lesson, students will learn about the conditions necessary for healthy plant growth, as well as how to incorporate self-watering features into planters. They will then apply their knowledge by constructing a DIY self-water planter from recycled plastic bottles to grow edible plants at home, with a focus on food security.</p>	All levels	<ul style="list-style-type: none"> • Extension of learning in Science • STEM
12.	<p>MOE Library SLS Lesson: Food Waste in Singapore In this lesson, students will gain a better understanding of the situation in Singapore and how food waste is generated. Additionally, they will learn about the creative solutions developed by the government and organisations to address food waste challenges, as well as the steps they can take to minimise food waste.</p>	All levels	<ul style="list-style-type: none"> • STEM
13.	<p>MOE Library SLS Lesson: Envisioning a City in Nature – The importance of Biodiversity in the Face of Climate Change This lesson encourages students to think creatively and critically about the challenges and solutions in creating climate-ready cities that conserve biodiversity while adapting to a changing climate. Students will have a deeper appreciation for the vital role of biodiversity in our ecosystem. They will be able to evaluate the current situation and be inspired to take action to promote climate resilience in their local communities and transform Singapore into a City in Nature.</p>	All levels	<ul style="list-style-type: none"> • Extension of learning in Science
14.	<p>MOE Library SLS Lesson: Solar Panels in Singapore In this lesson, students learn that sunlight is a promising renewable energy resource for Singapore, as it is one of the nation’s four national energy options. However, challenges such as limited space and intermittent sunshine are encountered. Students also discover ongoing</p>	Upper Secondary	<ul style="list-style-type: none"> • Extension of learning in Science

**Some Ideas for Student-Initiated Learning
Secondary Level**

No.	Description	Levels	Area(s) of Interest
	innovations by scientists and engineers aimed at making solar panel deployment more viable for Singapore.		