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Design: Year 1 - STEM

Unit Title	Key Concept	Related Concept(s)	Global Context	Statement of Inquiry	MYP Subject Group Objectives	ATL Skills	Content (topics, knowledge, skills)
Unit 1 (Fall Semester) Water Bottle Rocket Design, Build and Test Unit 1/2 Coding an Autonomous Vehicle with Scratch	Unit 1 - Fall Development Unit 1/2 Systems	Unit 1 - Fall Collaboration Unit 1/2 Function	Unit 1 - Fall Orientation in Space and Time Unit 1/2 Scientific and Technical Innovation	Unit 1 - Fall By understanding the history of global spaceflight, I will be able to develop my own rocket by collaborating with my partner. Unit 1/2 I will create innovative and functional code to programme an autonomous vehicle in Scratch by understanding its control systems.	Unit 1 - Fall A B C D Unit 1/2 A B C D	Collaboration Self-management Critical thinking	Unit 1 - Fall -Physics -Rocket design -Modelling -Testing Unit 1/2 -Coding -Scratch -Computer science -Autonomous vehicles
Unit 2/3 Creating an Autonomous Vehicle with Lego EV3 Robots	Logic	Adaptation	Scientific and Technical Innovation	I will adapt to a new programming language to create a logical and innovative programme capable of controlling an autonomous robot.	A B C D	Collaboration Self-management Critical thinking	-Robotics -Program-ming -Autonomous vehicles -Lego EV3
Unit 3/4 MagLev Trains with Micro:bit Computers	Global Interactions	Innovation	Globalisation and Sustainability	I will understand the global need for mass transportation in the future and develop multiple experiments to discover how maglev trains work and create an innovative, working model of one.	A B C D	Collaboration Organization	-MagLev trains -Circuitry -Electro-magnetic force -Physics -Micro:bit -Program-ming -Computer science

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Unit 4/5 Selective Colour with Photoshop	Aesthetics	Form	Personal and Cultural Expression	I will understand the form and aesthetic of a good photograph and digitally manipulate an image that I've taken in order to express myself personally and culturally.	A B C D	Critical thinking Collaboration	-Photography -Composition -Photoshop -Editing
Unit 5/6 Puzzle Design and Build with Sketchup Pro and 3D Printer	Connections	Ergonomics	Personal and Cultural Expression	I will create a multi-piece puzzle that can be connected and disconnected by understanding the ergonomic needs of users, whilst also adding my own personal and cultural touch to the final product.	A B C D	Critical thinking Collaboration Organization	-3D modelling -Design -3D printing -Design process -Computer-aided drafting -SketchUp Pro
Unit 6 (Spring Semester) Cardboard Boat Design, Build and Race at the YMCA	Creativity	Function	Identities and Relationships	I will use my creativity to research, design and build a cardboard boat that is functionally sound and capable of traversing a swimming pool in order to compete in a race with the other students in 6th grade.	A B C D	Critical thinking Collaboration Organization	-Buoyancy -Boat building -Archimedes Principle -Competition -Design challenge

Design: Year 2 - STEM

Unit Title	Key Concept	Related Concept(s)	Global Context	Statement of Inquiry	MYP Subject Group Objectives	ATL Skills	Content (topics, knowledge, skills)
Unit 1 Coding a Video Game with Scratch	Development	Adaption	Personal and Cultural Expression	I will design and develop a basic game in Scratch by adapting to a new challenge using the language. I will also	A B C D	Communication Social Thinking	-Coding -Game design -Computer science

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				add my own personal and cultural touch to my game.			
Unit 2 Programming an Interactive Game with Micro:bit Computers	Development	Adaption	Scientific and Technical Innovation	I will research, design and develop an innovative and interactive game using a Micro:bit by adapting to a new programming platform.	A B C D	Communication Social Thinking	-Coding -Javascript -Micro:bits -Computer science
Unit 3 Photo Manipulation with Adobe Photoshop	Creativity	Invention	Personal and Cultural Expression	I will invent a creative and unique image by manipulating multiple other images in Adobe Photoshop.	A B C D	Communication Social Thinking Self-Management	-Photography -Composition -Photoshop -Editing
Unit 4 Font Design with Adobe Illustrator	Creativity	Form	Personal and Cultural Expression	I will develop my own creative font style, paying particular attention to form, using Adobe Illustrator and adding my own personal and cultural touch.	A B C D	Communication Social Thinking Self-Management	-Design -Typography -Adobe Illustrator -Design process
Unit 5 Maze Navigating Robots with Lego EV3	Logic	Adaptation	Scientific and Technical Innovation	I will use logic to programme a Lego EV3 robot in an innovative way to autonomously navigate a maze by adapting to a new programming language.	A B C D	Communication Social Thinking Self-Management	-Robotics -Program-ming -Autonomous vehicles -Lego EV3
Unit 6 (Fall Semester) Pinewood Derby Car Design, Build and Race--Joint STEM/Wood-shop Unit	Unit 6 - Fall Form Unit 6 - Spring Aesthetics	Unit 6 - Fall Function Unit 6 - Spring Ergonomic s	Unit 6 - Fall Scientific and Technical Innovation Unit 6 - Spring Personal and Cultural	Unit 6 - Fall I will research, design and build a functional and innovative Pinewood Derby car, paying strict attention to its form and the design constraints. Unit 6 - Spring	Unit 6 - Fall A B C D Unit 6 - Spring A B	Communication Social Thinking Self-Management	Unit 6 -Fall -Wood-working -Friction -Newton's Laws of Motion -Vehicle design Unit 6 - Spring

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Unit 6 (Spring Semester) Chair Design and Print with Sketchup Pro and 3D Printer			Expression	I will create an aesthetically pleasing and ergonomically effective chair that adheres to a personal or cultural theme using SketchUp Pro.	C D		-3D modelling -Design -3D printing -Design process -Computer-aided drafting -SketchUp Pro

Design: Year 3 - Woodshop

Unit Title	Key Concept	Related Concept(s)	Global Context	Statement of Inquiry	MYP Subject Group Objectives	ATL Skills	Content (topics, knowledge, skills)
Unit 1 Safety in the Wood Shop	Development	Evaluation Resources	Scientific and Technical Innovation	In order to create a safe, responsible environment, we must develop safe practices, using resources while taking risks.	C.	Self-management Thinking	-Safety -Powertools -First aid
Unit 2 Birdhouse	Form	Adaptation	Scientific and Technical Innovation	Creating a real model based on a blueprint requires constant adaptation, change, innovation.	A. B. C D.	Self-management Thinking Research	-Design -Planning -Sketching -Prototyping -Powertools -Measurements -Wood types -Hardware
Unit 3 Community Project	Communities Development	Collaboration Form Function	Scientific and Technical Innovation	Through creativity and imagination, individuals and groups can have an impact on their communities. This can be achieved by using the knowledge on form and function, we can build products to improve our school.	A. B. C D.	Self-management Thinking Research	-Design -Planning -Sketching -Prototyping -Powertools -Measurements -Wood types -Hardware