

Design Subject Group Overview

Grade	Unit 1	Unit 2	Unit 3	Unit 4
6	SCRAPi Concepts: Creativity Form & Function Global Context: Personal and Cultural Expression Inquiry: Exploring personal and cultural expressions can help to develop creative forms and functions for a specific individual. Assessment: Criterion A: Inquiring and Analyzing. Criterion B: Developing Ideas. Criterion C: Creating the solution. Criterion D: Evaluation. ATL skills: Communication skills: Give and receive meaningful feedback; Organize and depict information logically Creative-thinking skills: Use brainstorming and visual diagrams to generate new ideas and inquiries Consider multiple alternatives, including those that might be unlikely or impossible Create novel solutions to authentic problems Create original works and ideas; use existing works and ideas in new ways Content summary: Know: How to work with different materials to create a product. Understand: Sustainability of different resources. The impact a designer can have on the environment when developing their designs. Do:	Energy Efficient Vehicles Challenge Concepts: Systems Evaluation and Function Global Context: Scientific and Technical Innovation - Systems, models, methods Inquiry: Designers use a system called the iterative process to evaluate a product's level of success when innovating. Assessment: Criterion A: Inquiring and Analyzing. Criterion B: Developing Ideas. Criterion D: Evaluation. ATL skills: Collaboration skills: Delegate and share responsibility for decision-making Listen actively to other perspectives and ideas Negotiate effectively Critical-thinking skills: Practice observing carefully in order to recognize problems Content summary: Know: What is positive and negative friction. How to modify and improve your elastic driven car. Understand: How to use the iterative process to make improvements. What energy transferred and energy loss means. Do: Make an elastic driven car. Test their product.	IDU DESIGN - I&S Concepts: Communities, Development, Sustainability Global Context: Globalization and sustainability: Urban planning, strategy and infrastructure Inquiry: How can urban design support the development of sustainable and connected communities? Assessment: IDU Criteria Criterion A: Evaluating Criterion B: Synthesizing Criterion C: Reflecting ATL skills Help others participate, contribute and succeed Consider ideas from multiple perspectives Content summary: Know: How to work with clay to create a product. Understand: How to use different perspectives to show a place. Do: Research images to get inspired The practice of 1:1 scaled sketches to represent the chosen place with different angles Work with the clay slab.	Emojis :) Concepts: Communities Form, Function Global Context: Identities and relationships - identity formation Inquiry: Emojis have the form and function of expressing emotions, conveying messages, and contributing to identity formation in contemporary communities. Assessment: The Design Cycle Process, leading towards a final creation of emojis soft toys (Criteria A, B, C & D) ATL skills: Affective skills - Demonstrate persistence and perseverance Reflection skills - Focus on the process of creating by imitating the work of others Content summary: Know: How to demonstrate emotions in a non-verbal way. Understand: The function of emojis. Do: Plan and create templates for the final product. Learn hand sewing.

	Research existing products for inspiration. Produce a range of design ideas. Create a plan that will support the creation of their final design. Create a functional product that serves the client's needs.			
7	Surface Design (Screen Printing) Concepts: Function, Form and Aesthetics Global Context: Personal and Cultural Expression Inquiry: Design is a great means for visually communicating with your clients. Assessment: The Design Cycle Process, leading towards a final creation of screen printed t-shirts for the client (Criteria A, B, C & D) ATL skills: Organization skills: Set goals that are challenging and realistic; Bring necessary equipment and supplies to class; Keep an organized and logical system of information files/notebooks Affective skills: Practise focus and concentration; Demonstrate persistence and perseverance Content summary: Know: Drawing skills, Photography skills Understand: Stencil making, Positive and negative space, Cut out stencils Do: Screen Printing, Color theory, Composition.	Textile Design: Pillow/ tote bags Concepts: Systems, Ergonomics Resources Global Context: Identities and Relationships Inquiry: Designers must consider carefully the client and function for a product to create an effective design. Assessment: The Design Cycle Process, leading towards a final product for the client (Criteria A, B, C & D) ATL skills: Organization skills: Create plans to prepare for summative assessments Creative-thinking skills: Use brainstorming and visual diagrams to generate new ideas and inquiries Transfer skills: Combine knowledge, understanding and skills to create products or solutions Content summary: Know: Basic hand-sewing skills, machine sewing, Understand: properties of materials, flat patterns, Do: Make 3D prototype structures, follow patterns	Robotics EV3olution Concepts: Communication, Evaluation and Function Global Context: Orientation in Space and Time Inquiry: For a robot to solve different problems (*function) programmers must repeatedly test, evaluate and then adapt their communication to the robot (program) so evolving their solution to better meet the constraints set by the problem. Assessment: The Design Cycle Process. Criteria A and D ‘Bio- robots evaluation and uses of robots presentation’, Criteria B,C and D - Toxic trash robotics challenge, Criteria B,C and D Maze challenge B,C and D. Final First Lego League (FLL) A,B,C,D ATL skills: Communication skills: Organize and depict information logically; Affective skills: Demonstrate persistence and perseverance. Critical-thinking skills: Practise observing carefully in order to recognize problems; Propose and evaluate a variety of solutions; Identify obstacles and challenges; Troubleshoot systems and applications Content summary: Lesson 1- 7 Think like a robot: Students complete a challenge where they are ‘human robots’ to learn and experience computational thinking Lesson 8-18 Students use Lego EV3 Robots and scratch based block programming to complete a series of ‘bootcamp’ challenges that build skills and increase in complexity. Lesson 19-23 Maze challenges students plan strategies to complete a ‘maze’. Lesson 23-32 FLL board with challenges and also building / adaptations to complete tasks.	
8 Product	Lamp Style Concepts: Systems, Ergonomics, Sustainability Global Context: Scientific and technical innovation - Adaptation, ingenuity and progress Inquiry: Designers adapt sustainable and ergonomic systems to reduce the human environmental impact. Assessment:		Let’s Clay Concepts: Communication, Form, Perspective Global Context: Personal and cultural expression - Artistry, craft, creation, beauty Inquiry: Designers communicate different cultural perspectives in the crafty form of an object. Assessment:	

	The Design Cycle Process leading towards a final product as a lamp (Criteria A, B, C, & D) ATL skills: Collaboration skills - Listen actively to other perspectives and ideas Creative-thinking skills - Make unexpected or unusual connections between objects and/or ideas Content summary: Students will practice research, learn drawing techniques, plan, create 3D forms, and engage in critical thinking by evaluating the process.	The Design Cycle Process leading towards the production of a functional vessel (Criteria A, B, C, & D) ATL skills: Organisation skills - Plan short- and long-term assignments; meet deadlines Affective skills - Practice focus and concentration Content summary: Know: What kind of technique must you know to work with clay? Understand: How do different cultures express their beliefs through clay? Do: Work with clay to create a vessel for a family member's client.
8 Digital	3D Printing: Signet Ring/Pendant Design Concepts: Development, Form, Identity Global Context: Personal and cultural expression (Artistry, craft, creation, beauty) Inquiry: Through iterative development, designers can communicate cultural and personal identity through meaningful three-dimensional forms. Assessment: The Design Cycle Process, leading towards a final product developed individually (Criteria A, B, C, & D) ATL skills: Communication skills: I can effectively structure and organise information using an appropriate format. Content summary: In this Design unit, students will explore the process of 3D design and printing. Using Tinkercad, they will develop and refine a signet ring inspired by their cultural heritage, sporting interests, or personal passions. Through sketching, modelling, and iteration, students will learn how to transform two-dimensional ideas into three-dimensional digital designs. The unit focuses on developing technical skills in 3D modelling while encouraging students to create a meaningful and personalised product.	
9 Product	Real World Design Concepts: Community Adaptation, Collaboration Global Context: Scientific and Technical Innovation - Products, processes, and solutions Inquiry: When creating a product, Designers must think about what people want and how it can help everyone in our community. They work together with the use of the Design Cycle to develop the best possible solution. Assessment: Criterion A: Inquiring and Analyzing. Criterion B: Developing Ideas. Criterion C: Creating the solution. Criterion D: Evaluation. ATL skills: Collaboration skills: Practise empathy; Delegate and share responsibility for decision-making; Listen actively to other perspectives and ideas; Give and receive meaningful feedback Critical-thinking skills: Practise observing carefully in order to recognize problems; Creative-thinking skills: Use brainstorming and visual diagrams to generate new ideas and inquiries; Consider multiple alternatives, including those that might be unlikely or impossible; Create novel solutions to authentic problems Content summary: • Understand how to use the design cycle. • Use the inquiry process to investigate a client's needs. • Develop creativity by producing a large range of feasible design ideas. • Create plans that support the successful completion of a product. • Produce a working product that has been tested for the client and community use.	

9 Digital	Maker Space Concepts: Systems, Form, Creativity Global Context: Scientific and Technical Innovation - Products, processes, and solutions Inquiry: Understanding the relationship between systems, form and creativity enables the development of innovative products and solutions. Assessment: The Design Cycle Process, leading towards a final product developed individually (Criteria A, B, C, & D) ATL skills: Thinking skills: I can explore concepts and develop solutions with curiosity and creativity. Content summary: - Understand how digital designs are transformed into physical products through laser-cutting technologies. - Develop creativity by producing a large range of feasible design ideas. - Create plans that support the successful completion of a product.		CIS Filming/Animation Concepts: Community, Perspective, Change Global Context: Identities and relationships (attitudes, motivation, independence) Inquiry: Understanding different perspectives within a community can motivate positive change. Assessment: The Design Cycle Process, leading towards a final product developed individually (Criteria A, B, C, & D) ATL skills: Communication skills: I can engage meaningfully in discussions to explore ideas critically and creatively. Content summary: In this Design unit, students will apply the design process to investigate issues within their school community, analyse different perspectives, and create a film/animation to raise awareness and encourage positive change.	
10 Product	Upcycle Textile Concepts: Change, Form, Aesthetics and Adaptation Global Context: Globalization and sustainability Inquiry: Design process is an interaction between designer and the environment: The environment influences the designer and the designer has a responsibility towards the environment. Assessment: The Design Cycle Process, leading towards the creation of the final product within the specifications of the client (Criteria A, B, C & D) ATL skills: Communication skills: Give and receive meaningful feedback; Use intercultural understanding to interpret communication Organization skills: Create plans to prepare for summative assessments Affective skills: Practise strategies to develop mental focus Reflection skills: Identify strengths and weaknesses of personal learning strategies Content summary:	Surface Design-Broad Walk Concepts: Communication, Adaptation Global Context: Identities and relationship Inquiry: A good design can be adapted to fit the target audience and used as a great means for communication. Assessment: The Design Cycle Process, leading towards the creation of the final product within the specifications of the client (Criteria A, B, C & D) ATL skills: Communication skills: Use a variety of organizers for academic writing tasks. Self-management skills: Plan short- and long-term assignments; meet deadlines. Research skills: Access information to be informed and inform others. Content summary: Introduction to cut out stencils Negative and positive space Floating and continuous line shapes Color theory Positive propaganda	Production Design for a school play Concepts: Communication, Collaboration and Function Global Context: Identities and relationship Inquiry: Understanding a relationship with a client and the importance of communication throughout the process in order to achieve a set purpose. Assessment: The Design Cycle Process, leading towards the creation of the final product within the specifications of the client (Criteria A, B, C & D) ATL skills: Communication skills: Share ideas with multiple audiences using a variety of digital environments and media. Organization skills: Plan short- and long-term assignments; meet deadlines. Collaboration skills: Exercise leadership and take on a variety of roles within groups; Take responsibility for one's own actions; Manage and resolve conflict and work collaboratively in teams. Content summary:	Toy Design Concepts: Function, Form, Communication Global Context: Personal and cultural expressions Inquiry: Designers can adapt the form and function of a toy in order to effectively communicate learning concepts and entertainment. Assessment: The Design Cycle Process, leading towards the creation of the final product within the specifications of the client (Criteria A, B, C & D) ATL skills: Communication skills: Share ideas with multiple audiences using a variety of digital environments and media. Organization skills: Plan short- and long-term assignments; meet deadlines. Collaboration skills: Exercise leadership and take on a variety of roles within groups; Take responsibility for one's own actions; Manage and resolve conflict and work collaboratively in teams. Content summary: This project is open and based on students' prior learning. Students

	Know: Basic hand-sewing skills, machine sewing, surface design techniques Understand: properties of materials, flat patterns, Do: Make 3D prototype structures, follow patterns	Screen printing using single colors Blends Overlapping colors Composition Elements of Design	This project is a very open subject that depends on the school play and requirements of the production. Students have the choice to work with following: Set design Costume design Communication Design and Marketing	can choose a medium of their choice to create an effective toy for the chosen purpose. Textiles: Require understanding of properties of materials, hand and machine sewing, creating and following patterns Wood: Requires basic woodworking skills, understanding properties of wood and health and safety aspects around the wood workshop and machines. Plastics: properties of material, melting point, illustrator, laser cutter Card/paper: Proper use of hot glue guns, cutting knives, etc.
10 Digital	Text-Based Adventure Game (in Python) Concepts: Adaptation, Development and Communication Global Context: Globalization and Sustainability Inquiry: Exploring the impact of globalisation and sustainability, we investigate how the development and communication of a text-based adventure game using Python can promote sustainable narratives and foster global connections. Assessment: The Design Cycle Process, leading towards the creation of the final product within the specifications of the client 1. SDG Design Brief (Crit A) 2. Game Design (Crit B) 3. Game Implementation in Python (Crit C) 4. Evaluation against CfS (Crit D) ATL skills: Self-Management Skills: Plan short- and long-term assignments; meet deadlines; Keep and use a planner for assignments. Thinking skills: Apply existing knowledge to generate new ideas, products or processes; Transfer current knowledge to learning of new technologies. Content summary: 1. Basic input and output operations 2. Numbers and Calculations 3. Loops (For, While) 4. Variables 5. User Input 6. Boolean Expressions (and, or, not) 7. Selection Statements (if, elif, else) 8. Functions 9. Python in Pieces animation techniques (movement, sound) 10. Extension: Lists, Nested Loops/Selection, Linear Search			Programming Development (with Python) Concepts: Function, Change and Creativity Global Context: Personal and Cultural Expression Inquiry: Through the process of designing and developing a games or interactive websites using Python, students will explore how creativity, function, and the expression of personal and cultural perspectives can drive positive change. Assessment: The Design Cycle Process, leading towards the creation of the final product within the specifications of the client (Criteria A, B, C & D) ATL skills: Research: Evaluate and select information sources and digital tools based on their appropriateness to specific tasks. Critical Thinking: Analyse complex concepts and projects into their constituent parts and synthesize them to create new understanding: Practice observing carefully in order to recognize problems; Use models and simulations to explore complex systems and issues. Creative Thinking: Use brainstorming and visual diagrams to generate new ideas and inquiries. Content summary: 1. Use of Python Libraries