Grade 7 Design Units of Study

UNIT 1:	Build a Box (An exploration of techniques for building a box)			د ation of techniques for building a box)	Start: August	Duration: 18 Weeks/ 42 Hours
	 Concepts: Form, Function Aesthetic Subject Specific Skills: Woodworking, laser cutting, joining and finishing Learning Experiences: 		l finishing.			
			0 0 0	Students learn different box building techniques Students learn joining techniques Students learn finishing technique		

UNIT 2:	Soft Circuits (Wearable safety equipment for riding at night)	Start: January	Duration: 16 Weeks/ 14 Hours
	 Concepts: Creativity and Invention Subject Specific Skills: Laser cutting, circuitry and sewing Learning Experiences: Digital design of components for laser cutting Circuitry with LillyPad electronic components Sewing of components together 		
UNIT 3:	Wood Inlay Logos (Research into how to make wooden inlays)	Start: May	Duration: 3 weeks/14 hours
	 Concepts: Aesthetics and Evaluation Subject Specific Skills: Woodworking, laser cutting, creative Learning Experiences: Students conduct primary research into different te 	design echniques to create wo	ooden inlays



Grade 7 Design Unit 1: Redesign the School

Start: October

Duration: 6 Weeks (14 Hours)

LEARNING EXPERIENCES: In this unit students develop their photo manipulation skills to redesign a part of the school. Students will take photographs of the area of the school they would like to redesign; adding, deleting and modifying aspects of the image. They will then present their modified images.

KEY CONCEPT: Aesthetic	Related Concepts / Subject Specific: Adaptation	
STATEMENT OF INQUIRY:	The aesthetics of the environment in which we live and learn can influence our health and wellbeing.	
INQUIRY QUESTIONS:		
Factual:	What does aesthetics mean? What is Graphic Design?	
Conceptual:	How does the aesthetics of our surrounding impact on our personal well-being?	
Debatable:	Are the aesthetics of our surrounding superfluous?	
OBJECTIVES AND ASSESSMENT CRITERIA:	For each criterion below summarize ALL the assessment strands into 2-3 sentences.	
Inquiring and A: Analyzing	 i. explain and justify the need for a solution to a problem ii. construct a research plan, which states and prioritizes the primary and secondary research needed to develop a solution to the problem iii. analyse a group of similar products that inspire a solution to the problem iv. develop a design brief, which presents the analysis of relevant research 	
C: Creating the Solution	 i. construct a logical plan, which outlines the efficient use of time and resources, sufficient for peers to be able to follow to create the solution ii. demonstrate excellent technical skills when making the solution iii. follow the plan to create the solution, which functions as intended iv. explain changes made to the chosen design and plan when making the solution. 	
ATLs:	Communication and Self-Management	

RESOURCES:

- Gimp
- Cameras
- Canva

SUMMATIVE ASSESSMENT TASKS:

- 1. Criterion A: Students explore the problems associated with interior design and its effect on learning. They then explore photo manipulation and photography. Students also analyze existing products.
- 2. Criterion C: Students document the image manipulation of the chosen section of the school.



Grade 7 Design Unit 2: Soft Circuits

Start: August

LEARNING EXPERIENCES: Students will use using LillyPad soft circuit LED components to design wearable technology that lights up. These wearables will help students stay safe at night as they are riding their bicycles.

KEY CONCEPT: Creativity	Related Concepts: Invention	
STATEMENT OF INQUIRY:	Designers can creatively solve problems by connecting multiple materials.	
INQUIRY QUESTIONS:		
Factual:	What is circuit?	
Conceptual:	How have conductive materials enabled designers?	
Debatable:	How useful are new materials like soft circuits?	
OBJECTIVES AND ASSESSMENT CRITERIA:	For each criterion below summarize ALL the assessment strands into 2-3 sentences.	
B: Developing Idea	 i. develop a design specification, which outlines the success criteria for the design of a solution based on the data collected ii. present a range of feasible design ideas, which can be correctly interpreted by others iii. present the chosen design and outline the reasons for its selection iv. develop accurate planning drawings/diagrams and outline requirements for the creation of the chosen solution. 	
D: Evaluation	 i. describe detailed and relevant testing methods, which generate accurate data, to measure the success of the solution ii. explain the success of the solution against the design specification iii. describe how the solution could be improved iv. describe the impact of the solution on the client/target audience. 	

RESOURCES:

ATLs:

- LillyPad electronic components
- Felt, thread, conductive thread
- Inkscape
- Laser Cutter

SUMMATIVE ASSESSMENT TASKS:

1. Criterion B: Students develop design specification and design ideas for their soft circuit wearables.

Research and Thinking

1. Criterion D: Students evaluate the success of their soft circuit wearables in multiple ways. They also assess the effective of their soft circuit wearables in real world product testing.



Grade 7 Design Unit 3: Build a Box

Start: August

Duration: 18 Weeks (12 Hours)

LEARNING EXPERIENCES: Students learn techniques to design, manufacture, assemble and finish a box. These techniques include: types of lids, hinges and construction techniques. They will also practice the proper joining of corners and finishing methods.

KEY CONCEPT: Form	Related Concepts: Function and Perspective
STATEMENT OF INQUIRY:	The most effective products take into consideration from, function, and aesthetic to solve a problem.
INQUIRY QUESTIONS:	
Factual:	What is a box?
Conceptual:	Are all boxes made in the same way? What different techniques can be used to join materials together? What does research look like design? How do we collect, record and analyze data that is collected in design?
Debatable:	What techniques should be used to join box parts together?
OBJECTIVES AND ASSESSMENT CRITERIA:	For each criterion below summarize ALL the assessment strands into 2-3 sentences.
A: Inquiring and A: Analyzing	 i. explain and justify the need for a solution to a problem ii. construct a research plan, which states and prioritizes the primary and secondary research needed to develop a solution to the problem iii. analyse a group of similar products that inspire a solution to the problem iv. develop a design brief, which presents the analysis of relevant research
B: Developing Ideas	 i. develop a design specification, which outlines the success criteria for the design of a solution based on the data collected ii. present a range of feasible design ideas, which can be correctly interpreted by others iii. present the chosen design and outline the reasons for its selection iv. develop accurate planning drawings and outline requirements for the creation of the chosen solution.
C: Creating the Solution	 i. construct a logical plan, which outlines the efficient use of time and resources, sufficient for peers to be able to follow to create the solution ii. demonstrate excellent technical skills when making the solution iii. follow the plan to create the solution, which functions as intended iv. explain changes made to the chosen design and plan when making the solution
D: Evaluation	 i. describe detailed and relevant testing methods, which generate accurate data, to measure the success of the solution ii. explain the success of the solution against the design specification iii. describe how the solution could be improved iv. describe the impact of the solution on the client/target audience.
ATI s'	Self-Management

RESOURCES / LITERATURE OPTIONS:

- Woodworking equipment
- Wood, hardware, paint
- Makercase.com, Adobe Illustrator
- Laser Cutter

SUMMATIVE ASSESSMENT TASKS:

- 1. Criterion A: Students research skills and techniques into the components of a box.
- 2. Criterion B: Students develop design specification and design ideas for their boxes.



- 3. Criterion C: Students document the design, manufacture, assembly and finishing of their boxes.
- 4. Criterion D: Students evaluate the success of their robots in multiple ways. They also assess the impact of their robots on school spirit at an MYP assembly.



Grade 7 Design Unit 4: Wood Inlay Logos

Start: March

Duration: 6 Weeks (14 Hours)

LEARNING EXPERIENCES: In this unit students will create a logo with a wooden inlay.

KEY CONCEPT: Aesthetics	Related Concepts: Evaluation
STATEMENT OF INQUIRY:	Aesthetics can be affected the culture we grow up in.
INQUIRY QUESTIONS:	
Factual:	What is wooden inlay? What settings on the laser cutter do I need to use in order to inlay wood?
Conceptual:	How are choices we make about aesthetics made? What cultural influences affect our choice of materials?
Debatable:	What makes something beautiful? Can something that is beautiful to one person be ugly to another?
OBJECTIVES AND ASSESSMENT CRITERIA:	For each criterion below summarize ALL the assessment strands into 2-3 sentences.
A: Inquiring and A: Analyzing	 i. explain and justify the need for a solution to a problem ii. construct a research plan, which states and prioritizes the primary and secondary research needed to develop a solution to the problem iii. analyse a group of similar products that inspire a solution to the problem iv. develop a design brief, which presents the analysis of relevant research
ATLs:	Social and Research

RESOURCES / LITERATURE OPTIONS:

- Laser cutter
- Inkscape
- Adhesives
- Creative design

SUMMATIVE ASSESSMENT TASKS:

1. Criterion A: Students explore techniques used to make wooden inlays.

