

COURSE OUTLINE – MYP YEAR 3 DESIGN – TECHNOLOGY EDUCATION



Course Overview:

The Design and Wood Technology 8 course is an investigation into the multiple fields of technical education. Students will be introduced to common technical skills such as traditional hand tools and machinery as well as positive action towards safety. Through use of the IB Design Cycle, students will learn to build practical projects in a hands-on environment.

Learning:

Through engaging with this course, students should UNDERSTAND...

Design can be responsive to identified needs.



Complex tasks require the acquisition of additional skills.



Complex tasks may require multiple tools and technologies.



Through engaging with this course, students will KNOW...

Statement of Inquiry	Concepts	Unit Title/Topic
The development of machine tools has allowed humans to adapt product designs that incorporate good form and function.	Development, Adaptation, Form, Function	Scroll Saw and CNC
Good communication and collaboration allows for safe usage of machinery that assist us in developing sustainable woodworking products in a time and resource limited environment.	Communication, Collaboration, Sustainability, Resources	Piggy Banks

Through engaging with this course, students will DO...

CURRICULAR COMPETENCIES CATEGORIES	EXAMPLES
Understanding context	- Find issues and uncover needs and potential design opportunities
Defining	- Identify key features or potential users and their needs - Identify criteria for good design projects and potential limitations
Ideating	- Generate potential ideas and add to others' ideas
Prototyping	- Develop a plan that identifies key stages of machining and resources needed
Testing	- Evaluate and make changes where necessary to improve the project
Making	- Identify and use appropriate tools, technologies, and materials for production - Make a plan for production that includes key stages, and carry it out, making changes as needed - Use materials in ways that minimize waste
Sharing	- Demonstrate their product and describe their process, using appropriate terminology and providing reasons for their selected solution and modifications

Through this course, students will develop the following Approaches to Learning skills...

Below are some examples of how we develop ATL skills in Design:

ATL Skill Category	Examples of Skills
Thinking skills	Interpret data gathered from scientific and general informational sources
Social skills	Practice giving feedback on the design developments
Communication skills	Use appropriate verbal, written, and visual communication based on purpose and audience
Self-management skills	Maintain good self-motivation and incorporate good time management and planning skills
Research skills	Make connections between research and related moral, ethical, social, economic, political, cultural or environmental factors

Assessment:

Throughout this course, students will demonstrate their learning...

The MYP Design course will focus on developing skills related to 4 criteria based objectives.	Formative assessment is assessment <i>as</i> learning, or assessment <i>for</i> learning. Formative assessments could include;	Summative assessment is assessment <i>of</i> learning. Summative assessments could include;
A: Inquiring and Analyzing	Incorporating developments from existing projects for inspiration	Presenting research and analysis of already existing products
B: Developing Ideas	Communicating ideas through drawing and sketching	Completing precision design drawings with dimensioning
C: Creating the Solution	Developing skills with hand tools and machinery	Completing high quality final products using hand tools and machines
D: Evaluating	Ongoing evaluating and improving of projects	Presenting evidence of evaluating and improving of projects through its various iterations

Academic Honesty and Personal Integrity

The faculty at Carson Graham expects our students to complete academic and nonacademic work that is authentic and respectful of intellectual property. All students are expected to adhere to the school's Policy for Academic Integrity. Ignorance of the standards related to academic honesty and student integrity is not an excuse for dishonesty, plagiarism and malpractice. You are expected to familiarize yourself with the policy.

<https://www.sd44.ca/school/carson/About/schoolpolicies/Documents/Carson%20Graham%20Academic%20Honesty%20Policy%20reviewed%20December%202018.pdf>

Grade Descriptors:

Level 7

Produces high-quality, frequently innovative design solutions through the application of the design cycle. Communicates comprehensive, nuanced understanding of design concepts and contexts through independent and detailed work. Consistently demonstrates sophisticated critical and creative thinking to inform research methods and to refine selected solutions. Frequently transfers knowledge and applies skills, with independence and expertise, to complex real-world issues.

Level 6

Produces high-quality, occasionally innovative design solutions through the application of the design cycle. Communicates extensive understanding of design concepts and contexts through independent and detailed work. Demonstrates critical and creative thinking to inform research methods and to refine selected solutions, frequently with sophistication. Transfers knowledge and applies skills, often with independence, to real-world issues.

Level 5

Produces generally high-quality design solutions through the application of the design cycle. Communicates good understanding of design concepts and contexts. Demonstrates critical and creative thinking to inform research methods and to refine selected solutions, sometimes with sophistication. Usually transfers knowledge and applies skills, with some independence, to real-world issues.

Level 4

Produces good-quality design solutions through the application of the design cycle. Communicates basic understanding of design concepts and contexts, with few misunderstandings and minor gaps. Often demonstrates critical and creative thinking to inform research methods and to refine selected solutions. Transfers some knowledge and applies some skills in familiar situations, but requires support in unfamiliar situations.

Level 3

Produces design solutions of an acceptable quality that generally follow the design cycle. Communicates basic understanding of design concepts and contexts in the work with occasional significant misunderstandings or gaps. Begins to demonstrate some critical and creative thinking to inform research methods and to refine selected solutions. Begins to transfer knowledge and apply skills, requiring support even in familiar situations.

Level 2

Produces work of limited quality. Communicates limited understanding of some design concepts and contexts. Demonstrates limited evidence of critical or creative thinking. Limited evidence of transfer of knowledge or application of skills.

Level 1

Produces work of a very limited quality. Conveys many significant misunderstandings or lacks understanding of most design concepts and contexts. Very rarely demonstrates critical or creative thinking. Very inflexible, rarely shows evidence of knowledge or skills.

Assessment Rubrics:

Grade 8

Criterion A: Inquiring and analysing

Achievement level	Level descriptor
0	The student does not reach a standard described by any of the descriptors below.
1-2	The student: <ul style="list-style-type: none"> • states the need for a solution to a problem • states some of the main findings of relevant research.
3-4	<ul style="list-style-type: none"> • outlines the need for a solution to a problem • states the research needed to develop a solution to the problem, with some guidance • outlines one existing product that inspires a solution to the problem • develops a basic design brief, which outlines some of relevant research.
5-6	<ul style="list-style-type: none"> • explains the need for a solution to a problem • constructs a research plan, which states and prioritizes the primary and secondary research needed to develop a solution to the problem, with some guidance • describes a group of similar products that inspire a solution to the problem • develops a design brief, which outlines the findings of relevant research.
7-8	<ul style="list-style-type: none"> • explains and justifies the need for a solution to a problem • constructs a research plan, which states and prioritizes the primary and secondary research needed to develop a solution to the problem independently • analyses a group of similar products that inspire a solution to the problem • develops a design brief, which presents the analysis of relevant research.

Criterion B: Developing ideas

Achievement level	Level descriptor
0	The student does not reach a standard described by any of the descriptors below.
1-2	The student: <ul style="list-style-type: none"> • lists a few basic success criteria for the design of a solution • presents one design idea, which can be interpreted by others • creates incomplete planning drawings/diagrams.
3-4	<ul style="list-style-type: none"> • constructs a list of the success criteria for the design of a solution • presents a few feasible design ideas, using an appropriate medium(s) or explains key features, which can be interpreted by others • outlines the main reasons for choosing the design with reference to the design specification • creates planning drawings/diagrams or lists requirements for the chosen solution.
5-6	<ul style="list-style-type: none"> • develops design specifications, which identify the success criteria for the design of a solution • presents a range of feasible design ideas, using an appropriate medium(s) and explains key features, which can be interpreted by others • presents the chosen design and outlines the main reasons for its selection with reference to the design specification • develops accurate planning drawings/diagrams and lists requirements for the creation of the chosen solution.
7-8	<ul style="list-style-type: none"> • develops a design specification which outlines the success criteria for the design of a solution based on the data collected • presents a range of feasible design ideas, using an appropriate medium(s) and annotation, which can be correctly interpreted by others • presents the chosen design and outlines the reasons for its selection with reference to the design specification • develops accurate planning drawings/diagrams and outlines requirements for the creation of the chosen solution.

Criterion C: Creating the solution

Achievement level	Level descriptor
0	The student does not reach a standard described by any of the descriptors below.
1-2	The student: <ul style="list-style-type: none"> • demonstrates minimal technical skills when making the solution • creates the solution, which functions poorly and is presented in an incomplete form.
3-4	The student: <ul style="list-style-type: none"> • outlines each step in a plan that contains some details, resulting in peers having difficulty following the plan to create the solution • demonstrates satisfactory technical skills when making the solution • creates the solution, which partially functions and is adequately presented • outlines changes made to the chosen design or plan when making the solution.
5-6	The student: <ul style="list-style-type: none"> • constructs a plan, which considers time and resources, sufficient for peers to be able to follow to create the solution • demonstrates competent technical skills when making the solution • creates the solution, which functions as intended and is presented appropriately • outlines changes made to the chosen design and plan when making the solution.
7-8	The student: <ul style="list-style-type: none"> • constructs a logical plan, which outlines the efficient use of time and resources, sufficient for peers to be able to follow to create the solution • demonstrates excellent technical skills when making the solution • follows the plan to create the solution, which functions as intended and is presented appropriately • explains changes made to the chosen design and plan when making the solution.

Criterion D: Evaluating

Achievement level	Level descriptor
0	The student does not reach a standard described by any of the descriptors below.
1-2	The student: <ul style="list-style-type: none"> • describes a testing method, which is used to measure the success of the solution • states the success of the solution.
3-4	The student: <ul style="list-style-type: none"> • describes a relevant testing method, which generates data, to measure the success of the solution • outlines the success of the solution against the design specification based on relevant product testing • lists the ways in which the solution could be improved • outlines the impact of the solution on the client/target audience.
5-6	The student: <ul style="list-style-type: none"> • describes relevant testing methods, which generate data, to measure the success of the solution • describes the success of the solution against the design specification based on relevant product testing • outlines how the solution could be improved • describes the impact of the solution on the client/target audience, with guidance.
7-8	The student: <ul style="list-style-type: none"> • describes detailed and relevant testing methods, which generate accurate data, to measure the success of the solution • explains the success of the solution against the design specification based on authentic product testing • describes how the solution could be improved • describes the impact of the solution on the client/target audience.