

## 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. <b>Formative assessments could include;</b>	Summative assessment is assessment <i>of</i> learning. <b>Summative assessments could include;</b>
<b>A: Inquiring and Analyzing</b>	Incorporating developments from existing projects for inspiration	Presenting research and analysis of already existing products
<b>B: Developing Ideas</b>	Communicating ideas through drawing and sketching	Completing precision design drawings with dimensioning
<b>C: Creating the Solution</b>	Developing skills with hand tools and machinery	Completing high quality final products using hand tools and machines
<b>D: Evaluating</b>	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"> <li>• <b>states</b> the need for a solution to a problem</li> <li>• <b>states some of</b> the main findings of relevant research.</li> </ul>
3-4	<ul style="list-style-type: none"> <li>• <b>outlines</b> the need for a solution to a problem</li> <li>• <b>states</b> the research needed to <b>develop</b> a solution to the problem, <b>with some guidance</b></li> <li>• <b>outlines one existing</b> product that inspires a solution to the problem</li> <li>• <b>develops a basic</b> design brief, which <b>outlines some of</b> relevant research.</li> </ul>
5-6	<ul style="list-style-type: none"> <li>• <b>explains</b> the need for a solution to a problem</li> <li>• <b>constructs</b> a research plan, which <b>states</b> and <b>prioritizes</b> the primary and secondary research needed to <b>develop</b> a solution to the problem, <b>with some guidance</b></li> <li>• <b>describes</b> a group of similar products that inspire a solution to the problem</li> <li>• <b>develops</b> a design brief, which <b>outlines</b> the <b>findings</b> of relevant research.</li> </ul>
7-8	<ul style="list-style-type: none"> <li>• <b>explains</b> and <b>justifies</b> the need for a solution to a problem</li> <li>• <b>constructs</b> a research plan, which <b>states</b> and <b>prioritizes</b> the primary and secondary research needed to <b>develop</b> a solution to the problem <b>independently</b></li> <li>• <b>analyses</b> a group of similar products that inspire a solution to the problem</li> <li>• <b>develops</b> a design brief, which <b>presents</b> the <b>analysis</b> of relevant research.</li> </ul>

#### 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"> <li>• <b>lists</b> a few basic success criteria for the design of a solution</li> <li>• <b>presents</b> one design idea, which can be interpreted by others</li> <li>• <b>creates</b> incomplete planning drawings/diagrams.</li> </ul>
3-4	<ul style="list-style-type: none"> <li>• <b>constructs</b> a list of the success criteria for the design of a solution</li> <li>• <b>presents a few</b> feasible design ideas, using an appropriate medium(s) <b>or explains</b> key features, which can be interpreted by others</li> <li>• <b>outlines</b> the <b>main</b> reasons for choosing the design with reference to the design specification</li> <li>• <b>creates</b> planning drawings/diagrams or <b>lists</b> requirements for the chosen solution.</li> </ul>
5-6	<ul style="list-style-type: none"> <li>• <b>develops</b> design specifications, which <b>identify</b> the success criteria for the design of a solution</li> <li>• <b>presents a range of</b> feasible design ideas, using an appropriate medium(s) <b>and explains</b> key features, which can be interpreted by others</li> <li>• <b>presents</b> the chosen design and <b>outlines</b> the <b>main</b> reasons for its selection with reference to the design specification</li> <li>• <b>develops</b> accurate planning drawings/diagrams and <b>lists</b> requirements for the creation of the chosen solution.</li> </ul>
7-8	<ul style="list-style-type: none"> <li>• <b>develops</b> a design specification which <b>outlines</b> the success criteria for the design of a solution based on the data collected</li> <li>• <b>presents</b> a range of feasible design ideas, using an appropriate medium(s) <b>and annotation</b>, which can be correctly interpreted by others</li> <li>• <b>presents</b> the chosen design and <b>outlines</b> the reasons for its selection with reference to the design specification</li> <li>• <b>develops</b> accurate planning drawings/diagrams and <b>outlines</b> requirements for the creation of the chosen solution.</li> </ul>

## 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"> <li>• <b>demonstrates minimal</b> technical skills when making the solution</li> <li>• <b>creates</b> the solution, which functions <b>poorly</b> and is presented <b>in an incomplete form</b>.</li> </ul>
3-4	The student: <ul style="list-style-type: none"> <li>• <b>outlines</b> each step in a plan that contains some details, resulting in peers having difficulty following the plan to create the solution</li> <li>• <b>demonstrates satisfactory</b> technical skills when making the solution</li> <li>• <b>creates</b> the solution, which <b>partially</b> functions and is <b>adequately</b> presented</li> <li>• <b>outlines</b> changes made to the chosen design <b>or</b> plan when making the solution.</li> </ul>
5-6	The student: <ul style="list-style-type: none"> <li>• <b>constructs</b> a plan, which <b>considers</b> time and resources, sufficient for peers to be able to follow to create the solution</li> <li>• <b>demonstrates competent</b> technical skills when making the solution</li> <li>• <b>creates</b> the solution, which functions <b>as intended</b> and is presented <b>appropriately</b></li> <li>• <b>outlines</b> changes made to the chosen design <b>and</b> plan when making the solution.</li> </ul>
7-8	The student: <ul style="list-style-type: none"> <li>• <b>constructs</b> a <b>logical</b> plan, which <b>outlines</b> the efficient use of time and resources, sufficient for peers to be able to follow to create the solution</li> <li>• <b>demonstrates excellent</b> technical skills when making the solution</li> <li>• follows the plan to <b>create</b> the solution, which functions <b>as intended</b> and is presented <b>appropriately</b></li> <li>• <b>explains</b> changes made to the chosen design and plan when making the solution.</li> </ul>

## 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"> <li>• <b>describes a testing method</b>, which is used to measure the success of the solution</li> <li>• <b>states</b> the success of the solution.</li> </ul>
3-4	The student: <ul style="list-style-type: none"> <li>• <b>describes a relevant testing method</b>, which generates data, to measure the success of the solution</li> <li>• <b>outlines</b> the success of the solution against the design specification based on relevant product testing</li> <li>• <b>lists</b> the ways in which the solution could be improved</li> <li>• <b>outlines</b> the impact of the solution on the client/target audience.</li> </ul>
5-6	The student: <ul style="list-style-type: none"> <li>• <b>describes relevant testing methods</b>, which generate data, to measure the success of the solution</li> <li>• <b>describes</b> the success of the solution against the design specification based on <b>relevant</b> product testing</li> <li>• <b>outlines</b> how the solution could be improved</li> <li>• <b>describes</b> the impact of the solution on the client/target audience, <b>with guidance</b>.</li> </ul>
7-8	The student: <ul style="list-style-type: none"> <li>• <b>describes detailed and relevant testing methods</b>, which generate <b>accurate</b> data, to measure the success of the solution</li> <li>• <b>explains</b> the success of the solution against the design specification based on <b>authentic</b> product testing</li> <li>• <b>describes</b> how the solution could be improved</li> <li>• <b>describes</b> the impact of the solution on the client/target audience.</li> </ul>