

## COURSE OUTLINE – MYP YEAR 5 MATHEMATICS FOUNDATIONS & PRE-CALCULUS

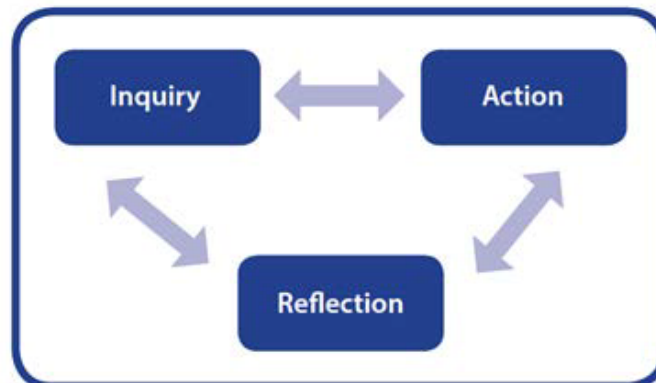
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*At Carson Graham, we strive for excellence in all endeavours, encourage personal and social responsibility, respect diversity and work to develop a life long commitment to learning.*

*Our aim is to develop inquiring, knowledgeable, confident and caring students who create a better world through intercultural understanding and respect.*

### UNITS OF STUDY

MYP units foster student inquiry and are conceptually based. Concepts have an essential place in the structure of knowledge. They require students to demonstrate levels of thinking that reach beyond facts or topics. Concepts are used to formulate the understanding that students should retain in the future; they become principles and generalizations that students can use to understand the world and to succeed in further study and in life beyond school.



*(Developing an MYP Unit, 2014)*

### Mathematics Key Concepts:

- Form
- Relationships
- Logic

### Mathematics Related Concepts:

- Change
- Justification
- Pattern
- Simplification
- Equivalence
- Measurement
- Quantity
- Space
- Generalization
- Model
- Representation
- System

**MYP Global Contexts** guide classroom inquiries and encourage an international perspective

- Identities and relationships
- Orientation in space and time
- Personal and cultural expression
- Scientific and technical innovation
- Globalization and sustainability
- Fairness and development

### Approaches to Learning

All MYP units of work offer opportunities for students to develop and practice ATL skills. These skills provide valuable support for students working to meet the subject groups aims and objectives.

These skills will be the focus in Mathematics:

Category	Skill indicator
Thinking skills	Use prioritization and order of precedence in problem-solving
Social skills	Help others to create success for themselves during group work
Communication skills	Organize and interpret data using both analogue and digital tools
Self-management skills	Practice focus and concentration while solving multiple problems
Research skills	Use a variety of technologies and media platforms, including social media and online networks, to source information

The MYP Mathematics course will focus on developing skills related to 4 criteria based objectives.

- Knowing and understanding
- Investigating patterns
- Communicating
- Applying Mathematics in real life contexts

Students will be assessed based on the criteria detailed below and MYP assessment will be both formally (report cards) and informally (feedback on assignments) reported. MYP levels will be used to calculate a student's overall standing in a course.



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**Criterion A: Knowing and understanding**

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>select</b> appropriate mathematics when solving simple problems in familiar situations</li><li>• <b>apply</b> the selected mathematics successfully when solving these problems</li><li>• generally <b>solve</b> these problems correctly.</li></ul>
3-4	The student: <ul style="list-style-type: none"><li>• <b>select</b> appropriate mathematics when solving more complex problems in familiar situations</li><li>• <b>apply</b> the selected mathematics successfully when solving these problems</li><li>• generally <b>solve</b> these problems correctly.</li></ul>
5-6	The student: <ul style="list-style-type: none"><li>• <b>select</b> appropriate mathematics when solving challenging problems in familiar situations</li><li>• <b>apply</b> the selected mathematics successfully when solving these problems</li><li>• generally <b>solve</b> these problems correctly.</li></ul>
7-8	The student: <ul style="list-style-type: none"><li>• <b>select</b> appropriate mathematics when solving challenging problems in both familiar and unfamiliar situations</li><li>• <b>apply</b> the selected mathematics successfully when solving these problems</li><li>• generally <b>solve</b> these problems correctly.</li></ul>

**Criterion B: Investigating patterns**

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>apply</b>, with teacher support, mathematical problem-solving techniques to discover simple patterns</li><li>• <b>state</b> predictions consistent with patterns.</li></ul>
3-4	The student: <ul style="list-style-type: none"><li>• <b>apply</b> mathematical problem-solving techniques to discover simple patterns</li><li>• <b>suggest</b> general rules consistent with findings.</li></ul>
5-6	The student: <ul style="list-style-type: none"><li>• <b>select</b> and apply mathematical problem-solving techniques to discover complex patterns</li><li>• <b>describe</b> patterns as general rules consistent with findings</li><li>• <b>verify</b> the validity of these general rules.</li></ul>
7-8	The student: <ul style="list-style-type: none"><li>• <b>select</b> and <b>apply</b> mathematical problem-solving techniques to discover complex patterns</li><li>• <b>describe</b> patterns as general rules consistent with correct findings</li><li>• <b>prove</b>, or <b>verify</b> and <b>justify</b> these general rules.</li></ul>

**Criterion C: Communicating**





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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>use</b> limited mathematical language</li><li>• <b>use</b> limited forms of mathematical representation to present information</li><li>• <b>communicate</b> through lines of reasoning that are difficult to interpret.</li></ul>
3-4	The student: <ul style="list-style-type: none"><li>• <b>use</b> some appropriate mathematical language</li><li>• <b>use</b> appropriate forms of mathematical representation to present information adequately</li><li>• <b>communicate</b> through lines of reasoning that are complete</li><li>• adequately <b>organize</b> information using a logical structure.</li></ul>
5-6	The student: <ul style="list-style-type: none"><li>• usually <b>use</b> appropriate mathematical language</li><li>• usually <b>use</b> different forms of mathematical representation to present information correctly</li><li>• usually move between different forms of mathematical representation</li><li>• <b>communicate</b> through lines of reasoning that are complete and coherent</li><li>• <b>present</b> work that is usually organized using a logical structure.</li></ul>
7-8	The student: <ul style="list-style-type: none"><li>• consistently <b>use</b> appropriate mathematical language</li><li>• <b>use</b> appropriate forms of mathematical representation to consistently present information correctly</li><li>• move effectively between different forms of mathematical representation</li><li>• <b>communicate</b> through lines of reasoning that are complete, coherent, and concise</li><li>• <b>present</b> work that is consistently organized using a logical structure.</li></ul>





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**Criterion D: Applying Mathematics in real life contexts**

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>identify</b> some of the elements of the authentic real-life situation</li><li>• <b>apply</b> mathematical strategies to find a solution to the authentic real-life situation, with limited success.</li></ul>
3-4	The student: <ul style="list-style-type: none"><li>• <b>identify</b> the relevant elements of the authentic real-life situation</li><li>• <b>select</b>, with some success, adequate mathematical strategies to model the authentic real-life situation</li><li>• <b>apply</b> mathematical strategies to reach a solution to the authentic real-life situation</li><li>• <b>describe</b> whether the solution makes sense in the context of the authentic real-life situation.</li></ul>
5-6	The student: <ul style="list-style-type: none"><li>• <b>identify</b> the relevant elements of the authentic real-life situation</li><li>• <b>select</b> adequate mathematical strategies to model the authentic real-life situation</li><li>• <b>apply</b> the selected mathematical strategies to reach a valid solution to the authentic real-life situation</li><li>• <b>explain</b> the degree of accuracy of the solution</li><li>• <b>explain</b> whether the solution makes sense in the context of the authentic real-life situation.</li></ul>
7-8	The student: <ul style="list-style-type: none"><li>• <b>identify</b> the relevant elements of the authentic real-life situation</li><li>• <b>select</b> appropriate mathematical strategies to model the authentic real-life situation</li><li>• <b>apply</b> the selected mathematical strategies to reach a correct solution to the authentic real-life situation</li><li>• <b>justify</b> the degree of accuracy of the solution</li><li>• <b>justify</b> whether the solution makes sense in the context of the authentic real-life situation.</li></ul>