

COURSE OUTLINE – MYP YEAR 3 MATHEMATICS



Course Overview & Expectations:

MYP Year 3 Mathematics is integrated into the course of Mathematics 8 prescribed by BC Ministry of Education. This course is designed to provide students with the foundation of mathematical understanding and critical thinking skills required to successfully complete subsequent high school math courses. Students will develop computational fluency, find relationships between 2D and 3D objects, and demonstrate linear relationships in many ways as well as identifying and making generalizations. Students will also analyse data and compare the quantities of ratios, rates, and percents.

Learning:

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

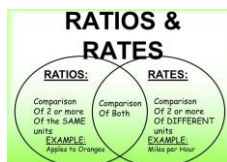
Number represents, describes, and compares the quantities of ratios, rates, and percents.

Computational fluency and flexibility extend to operations with fractions.

Discrete linear relationships can be represented in many connected ways and used to identify and make generalizations.

The relationship between surface area and volume of 3D objects can be used to describe, measure, and compare spatial relationships.

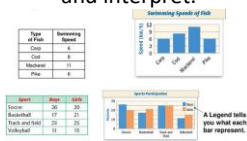
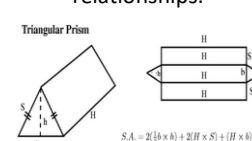
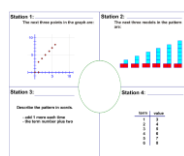
Analyzing data by determining averages is one way to make sense of large data sets and enables us to compare and interpret.



$$\frac{1}{10} + \frac{6}{10} \times \frac{3}{1} = \frac{19}{10}$$

$$\frac{1}{10} + \frac{6}{10} \times \frac{3}{1} = \frac{21}{10}$$

So, which is correct?



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

Statement of Inquiry	Key Concept/Concepts	Unit Title/Topic
Making use of historically developed patterns can help us in understanding spatial relationships in our world.	Relationships , Representation	Square Numbers and the Pythagorean Relationship
Forms take shape and occupy space in the real world	Form , Space	Surface Area and Volume
Measurements can increase our understanding of shapes in the natural world.	Form , Measurement	Operations with Fractions
Preservation of equality is fundamental to mathematical relationships.	Relationships , Equivalence	Graphing and Solving Linear Relations
Proportional reasoning can help us compare quantities and solve real-life problems	Logic , Quantity	Ratio, Rates and Proportional reasoning
Logic dictates the quantity available for consumption.	Logic , Quantity	Financial Literacy
Logic can be applied to model and justify decisions.	Logic	Statistics and Probability

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

CURRICULAR COMPETENCIES	EXAMPLES
Reasoning and analyzing	<ul style="list-style-type: none"> use reasoning and logic to explore, analyze, and apply the Pythagorean relationship model views and nets of 3-D objects in real contexts demonstrate and apply mental math strategies to estimate perfect squares, cubes and square roots and cube roots reasonably
Understanding and solving	<ul style="list-style-type: none"> apply multiple strategies to solve problems in both abstract situations and real contexts visualize to explore operation with fractions
Communicating and representing	<ul style="list-style-type: none"> use mathematical vocabulary and language to contribute to discussions about adding, subtracting, multiplying, dividing and order of operation with fractions communicate thinking about ratios, rates, and proportional reasoning in many ways communicate thinking about percents less than 1 and greater than 100 in many ways
Connecting and reflecting	<ul style="list-style-type: none"> connect the concept of linear relations to other mathematical concepts, other areas, and to my interests use mathematical arguments to support my choices

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

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

Category Skill indicator	Examples
Thinking skills	Consider ideas from multiple perspectives, apply skills and knowledge in unfamiliar situations, make connections between subject groups and disciplines
Social skills	Practise empathy, help others to succeed, take responsibility for one's own actions, plan short- and long-term assignments; meet deadlines, give and receive meaningful feedback
Communication skills	Give and receive meaningful feedback, negotiate ideas and knowledge with peers and teachers, take effective notes in class, make effective summary notes for studying, exercise leadership and take on a variety of roles within groups
Self-management skills	Bring necessary equipment and supplies to class, keep an organized and logical system of information files/notebooks, practise strategies to overcome distractions, practise "bouncing back" after adversity, identify strengths and weaknesses of personal learning strategies (self-assessment)
Research skills	Make connections between various sources of information, collect and analyse data to identify solutions and make informed decisions

Assessment:

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

The MYP Mathematics 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: Knowing and Understanding	Class instructions, class discussions, quizzes, handouts	Tests, Projects
B: Investigating Patterns	Class activities, class discussions	Guided inquiry pattern assessments
C: Communicating	Class discussions, group work, group projects	Tests, Projects
D: Applying Mathematics in Real Life Contexts	Class activities, group work, in-class projects	Tests, Projects

Assessment Rubrics:

Criterion A: Knowing and understanding

Achievement level	Proficiency Scale	Level descriptor
0		The student does not reach a standard described by any of the descriptors below.
1-2	Emerging	The student is able to: <ul style="list-style-type: none"> • select appropriate mathematics when solving simple problems in familiar situations • apply the selected mathematics successfully when solving these problems • generally solve these problems correctly in a variety of contexts.
3-4	Developing	The student is able to: <ul style="list-style-type: none"> • select appropriate mathematics when solving more complex problems in familiar situations • apply the selected mathematics successfully when solving these problems • generally solve these problems correctly in a variety of contexts.
5-6	Proficient	The student is able to: <ul style="list-style-type: none"> • select appropriate mathematics when solving challenging problems in familiar situations • apply the selected mathematics successfully when solving these problems • generally solve these problems correctly in a variety of contexts.
7-8	Extending	The student is able to: <ul style="list-style-type: none"> • select appropriate mathematics when solving challenging problems in both familiar and unfamiliar situations • apply the selected mathematics successfully when solving these problems • generally solve these problems correctly in a variety of contexts.

Criterion B: Investigating patterns

Achievement level	Proficiency Scale	Level descriptor
0		The student does not reach a standard described by any of the descriptors below.
1-2	Emerging	The student is able to: <ul style="list-style-type: none"> • apply, with teacher support, mathematical problem-solving techniques to discover simple patterns • state predictions consistent with patterns.
3-4	Developing	The student is able to: <ul style="list-style-type: none"> • apply mathematical problem-solving techniques to discover simple patterns • suggest relationships and/or general rules consistent with findings.
5-6	Proficient	The student is able to: <ul style="list-style-type: none"> • select and apply mathematical problem-solving techniques to discover complex patterns • describe patterns as relationships and/or general rules consistent with findings • verify these relationships and/or general rules.
7-8	Extending	The student is able to: <ul style="list-style-type: none"> • select and apply mathematical problem-solving techniques to discover complex patterns • describe patterns as relationships and/or general rules consistent with correct findings • verify and justify these relationships and/or general rules.

Criterion C: Communicating

Achievement level	Proficiency Scale	Level descriptor
0		The student does not reach a standard described by any of the descriptors below.
1-2	Emerging	The student is able to: <ul style="list-style-type: none"> • use limited mathematical language • use limited forms of mathematical representation to present information • communicate through lines of reasoning that are difficult to interpret.
3-4	Developing	The student is able to: <ul style="list-style-type: none"> • use some appropriate mathematical language • use different forms of mathematical representation to present information adequately • communicate through lines of reasoning that are able to be understood, although these are not always clear • adequately organize information using a logical structure.
5-6	Proficient	The student is able to: <ul style="list-style-type: none"> • usually use appropriate mathematical language • usually use appropriate forms of mathematical representation to present information correctly • move between different forms of mathematical representation with some success • communicate through lines of reasoning that are clear although not always coherent or complete • present work that is usually organized using a logical structure.
7-8	Extending	The student is able to: <ul style="list-style-type: none"> • consistently use appropriate mathematical language • use appropriate forms of mathematical representation to consistently present information correctly • move effectively between different forms of mathematical representation • communicate through lines of reasoning that are complete and coherent • present work that is consistently organized using a logical structure.

Criterion D: Applying Mathematics in real life contexts

Achievement level	Proficiency Scale	Level descriptor
0		The student does not reach a standard described by any of the descriptors below.
1-2	Emerging	The student is able to: <ul style="list-style-type: none"> • identify some of the elements of the authentic real-life situation • apply mathematical strategies to find a solution to the authentic real-life situation, with limited success.
3-4	Developing	The student is able to: <ul style="list-style-type: none"> • identify the relevant elements of the authentic real-life situation • select, with some success, adequate mathematical strategies to model the authentic real-life situation • apply mathematical strategies to reach a solution to the authentic real-life situation • describe whether the solution makes sense in the context of the authentic real-life situation.
5-6	Proficient	The student is able to: <ul style="list-style-type: none"> • identify the relevant elements of the authentic real-life situation • select adequate mathematical strategies to model the authentic real-life situation • apply the selected mathematical strategies to reach a valid solution to the authentic real-life situation • describe the degree of accuracy of the solution • discuss whether the solution makes sense in the context of the authentic real-life situation.
7-8	Extending	The student is able to: <ul style="list-style-type: none"> • identify the relevant elements of the authentic real-life situation • select appropriate mathematical strategies to model the authentic real-life situation • apply the selected mathematical strategies to reach a correct solution • explain the degree of accuracy of the solution • explain whether the solution makes sense in the context of the authentic real-life situation.

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>