# Units of Study

UNIT 1:	Number and Number Systems: Civilisations and Human Interactions	Start: September	Duration: 4 weeks
	<ul> <li>Concepts: Form, Representation and Systems</li> <li>Subject Specific Skills: Researching, representing and compare converting between different forms of numbers. Simplifying Using appropriate forms of rounding to estimate results. Repand a product of its prime factors in order to solve problems.</li> <li>Learning Experiences: Students will discover a range of number humans interact. This will help students explore the global conhow important numbers have been throughout history.</li> </ul>	ring number systems. Re numerical expressions u presenting a number as a per systems that have ar pontext of orientation in s	eading writing, simplifying and sing the order of operations. an exponent, a square root isen as civilisations evolve and space and time and realise
UNIT 2:	Fractions: Human Connections	Start: October	Duration: 6 weeks
	<ul> <li>Concepts: Logic, Quantity and Simplification</li> <li>Subject Specific Skills: Representing and comparing fractions fractions. Using the four number operations (addition, subtra Applying mathematical strategies to solve problems involving</li> <li>Learning Experiences: Students will explore the meaning and and cultural recipes. Students will then have the opportunity to plan the right amount of food and ingredients required to</li> </ul>	in different forms. Simp action, multiplication and fractions. function of fractions by to use their knowledge serve a group of people	Difying different forms of d division) with fractions. researching various family of operations with fractions
UNIT 3:	Algebraic Expressions and Equations: Patterns in Nature	Start: November	Duration: 7 weeks
	<ul> <li>Concepts: Logic, Generalization, Models and Patterns</li> <li>Subject Specific Skills: Using correct terminology when analy patterns in different forms - diagrams, sequences, tables, wo expressions. Generalizing a mathematical pattern using algel patterns. Solving single-step and basic two-step algebraic eq</li> <li>Learning Experiences: Students will use algebra to explore a one aspect of the scientific and technical innovations. In order will need the tools of algebra, including writing expressions a</li> </ul>	zing algebraic patterns a rds. Creating and simpli- ora and solving application uations. Ind understand patterns to better understand th nd solving equations.	nd sequences. Representing fying basic algebraic ons involving algebraic in the natural world, which is e patterns around us, students
UNIT 4:	Geometric Constructions: Artistry and Creativity	Start: February	Duration: 7 weeks
	<ul> <li>Concepts: Form and Measurement</li> <li>Subject Specific Skills: Naming and classifying different geom and classifying the different types of angles. Constructing an various angle properties, including the angles in triangles. Na</li> <li>Learning Experiences: Student will learn about different angl they express their personal artistry and creativity. In order to construct angles and measure degrees using a protractor. Fro analyze and create artistic forms.</li> </ul>	etric elements (point, ra d measuring angles. Sol- aming and classifying the es and explore the relati explore angles student om art to architecture, th	y, line, segment). Naming ving problems using the e different types of triangles. onships between them as s will develop the ability to ney will use mathematics to



UNIT 5:	Percentages: inequality and Difference	Start: April	Duration: 5 weeks	
	<ul> <li>Concepts: Form, Equivalence, Quantity</li> <li>Subject Specific Skills: Representing a number in different forms - fractions, decimals and percentages. Converting between equivalent forms of numbers - fractions, decimals and percentages. Calculating percentage increase and decrease. Applying mathematical strategies to solve problems involving percentages.</li> <li>Learning Experiences: Students will work with percentages, fractions and decimals to explore the global context of fairness and development. They will apply the relationships between percentages, fractions and decimals as they explore worldwide refugee displacement, working conditions, nutrition, availability of safe drinking water as well as budgeting.</li> </ul>			
UNIT 6:	Data Management: Trends in Communities	Start: May	Duration: 6 weeks	
	<ul> <li>Concepts: Relationships, Representation and Justifica</li> <li>Subject Specific Skills: Collecting data (by hand and and line graphs. Determining the best type of grapharawing conclusions from primary and secondary</li> </ul>	ation using technology) and using b h to use to represent given sources of data. Applying n	ar graphs, histograms, pie chart data. Reading, interpreting an nathematical strategies to solv	:s d e

problems involving statistics.
Learning Experiences: Student will learn how to collect, classify and represent information that is gathered from a variety of sources as they explore the global context of identities and relationships. Understanding different types of data and the most effective ways to represent them may help students to uncover trends and concerns in local, national or even global communities.



## Unit 1: Number and Number Systems: Civilisations and Human Interactions

## Start: September

Duration: 4 Weeks

**LEARNING EXPERIENCES:** In this unit students will discover a range of number systems that have arisen as civilisations evolve and humans interact, which will help you explore and humans interact, which will help students explore the global context of orientation in space and time. By learning about numbers, their properties, and how to perform operations with them, you will realize how important numbers have been throughout history.

KEY CONCEPT: Form	Related Concepts / Subject Specific: Representation and Systems
STATEMENT OF INQUIRY:	Different systems and forms of representation develop as civilizations evolve and humans interact.

INQUIRY QUESTIONS:	
Factual:	What is a number? What is a number system?
Conceptual:	How are the ways we represent quantities related? How do the ways we represent something affect its usefulness?
Debatable:	How much are we influenced by the events of the past?

OBJECTIVES AND ASSESSMENT CRITERIA:		
A:	Knowing and understanding	Select appropriate mathematics when solving problems in both familiar and unfamiliar situations, apply the selected mathematics successfully when solving problems and solve problems correctly in a variety of contexts.
в:	Investigating patterns	Apply mathematical problem-solving techniques to recognize patterns, describe patterns as relationships or general rules consistent with correct findings, verify whether the pattern works for other examples.
C:	Communicating	Use appropriate mathematical language (notation, symbols and terminology) in both oral and written statements, use different forms of mathematical representation to present information, communicate coherent mathematical lines of reasoning, organize information using a logical structure.
D:	Applying mathematics in real- life situations	Identify relevant elements of authentic real-life situations, select appropriate mathematical strategies when solving authentic real-life situations, apply the selected mathematical strategies successfully to reach a solution, explain the degree of accuracy of a solution, describe whether a solution makes sense in the context of the authentic real-life situation.

#### ATLs:

Self Management: organizational skills, Social: Collaboration skills

#### **RESOURCES / LITERATURE OPTIONS:**

- MYP Mathematics 1: Oxford University Press
- Mathspace

#### SUMMATIVE ASSESSMENT TASKS:

1. Criteria A: Knowing and Understanding



## **Unit 2: Fractions: Human Connections**

## Start: October

Duration: 6 Weeks

**LEARNING EXPERIENCES:** In this unit, students will use fractions to explore the global context of identities and relationships. Humans engage in many different activities which allow us to connect with one another within families, communities, and cultures.

KEY CONCEPT: Logic		Related Concepts / Subject Specific: Quantity and Simplification
STA	TEMENT OF INQUIRY:	Using logic to simplify and manipulate quantities can help us explore human connections.
INQ	UIRY QUESTIONS:	
Fact	:ual:	What does it mean to simplify? What is the process for adding, subtracting, multiplying and dividing fractions?
Con	ceptual:	How is logic used to manipulate quantities?
Deb	atable:	What promotes human connections? What hinders human connections?
OBJ ASS	ECTIVES AND ESSMENT CRITERIA:	
A:	Knowing and understanding	Select appropriate mathematics when solving problems in both familiar and unfamiliar situations, apply the selected mathematics successfully when solving problems and solve problems correctly in a variety of contexts.
В:	Investigating patterns	Apply mathematical problem-solving techniques to recognize patterns, describe patterns as relationships or general rules consistent with correct findings, verify whether the pattern works for other examples.
C:	Communicating	Use appropriate mathematical language (notation, symbols and terminology) in both oral and written statements, use different forms of mathematical representation to present information, communicate coherent mathematical lines of reasoning, organize information using a logical structure.
D:	Applying mathematics in real- life situations	Identify relevant elements of authentic real-life situations, select appropriate mathematical strategies when solving authentic real-life situations, apply the selected mathematical strategies successfully to reach a solution, explain the degree of accuracy of a solution, describe whether a solution makes sense in the context of the authentic real-life situation.
ATLs:		Research: Understand and use technology systems, Communication: Make inferences and draw conclusions

#### **RESOURCES / LITERATURE OPTIONS:**

- MYP Mathematics 1: Oxford University Press
- Mathspace

- 1. Criteria A: Knowing and understanding
- 2. Criteria C: Communicating mathematics
- 3. Criteria D: Applying mathematics in real-life situations.



# Unit 3: Algebraic Expressions and Equations: Patterns in Nature

### Start: November

Duration: 7 Weeks

**LEARNING EXPERIENCES:** In this unit, students will use algebra to explore patterns in the natural world, which is one aspect of the global context scientific and technical innovations. In order to better understand the patterns around us, students will need the tools of algebra, including writing expressions and solving equations.

KEY CONCEPT: Logic	Related Concepts / Subject Specific: Generalisation, Models and Patterns

**STATEMENT OF INQUIRY:** A logical process helps to model and generalise patterns in the natural world.

INQUIRY QUESTIONS:	
Factual:	What is a pattern? What are the different types of patterns?
Conceptual:	How do we model patterns? How is it possible to model a pattern and make predictions?
Debatable:	Is there a mathematical order to our natural world?

OBJECTIVES AND ASSESSMENT CRITERIA:		
A:	Knowing and understanding	Select appropriate mathematics when solving problems in both familiar and unfamiliar situations, apply the selected mathematics successfully when solving problems and solve problems correctly in a variety of contexts.
В:	Investigating patterns	Apply mathematical problem-solving techniques to recognize patterns, describe patterns as relationships or general rules consistent with correct findings, verify whether the pattern works for other examples.
C:	Communicating	Use appropriate mathematical language (notation, symbols and terminology) in both oral and written statements, use different forms of mathematical representation to present information, communicate coherent mathematical lines of reasoning, organize information using a logical structure.
D:	Applying mathematics in real- life situations	Identify relevant elements of authentic real-life situations, select appropriate mathematical strategies when solving authentic real-life situations, apply the selected mathematical strategies successfully to reach a solution, explain the degree of accuracy of a solution, describe whether a solution makes sense in the context of the authentic real-life situation.

ATLs:	Thinking: Practise observing carefully in order to recognize problems, Communication: Understand and use mathematical notation

#### **RESOURCES / LITERATURE OPTIONS:**

- MYP Mathematics 1: Oxford University Press
- Mathspace

- 1. Criteria A: Knowing and understanding
- 2. Criteria B: Investigating patterns



# **Unit 4: Geometric Constructions: Artistry and Creativity**

### Start: February

**LEARNING EXPERIENCES:** In this unit, students will learn about different angles and explore the relationships between them as they express their artistry and creativity and explore the global context of personal and cultural expression. From art to architecture, they will use mathematics to analyze and create artistic forms of expression.

KEY CONCEPT: Form	Related Concepts / Subject Specific: Measurement
STATEMENT OF INQUIRY:	Artistry and creativity are enhanced through an understanding of how measurement helps things to define forms.
INQUIRY QUESTIONS:	
Factual:	What is a line? What can be measured?
Conceptual:	How do measurements help define different forms?
Debatable:	Is art more inspiration or calculation?
OBJECTIVES AND ASSESSMENT CRITERIA:	
A: Knowing and understanding	Select appropriate mathematics when solving problems in both familiar and unfamiliar situations, apply the selected mathematics successfully when solving problems and solve problems correctly in a variety of contexts.
B: Investigating patterns	Apply mathematical problem-solving techniques to recognize patterns, describe patterns as relationships or general rules consistent with correct findings, verify whether the pattern works for other examples.
C: Communicating	Use appropriate mathematical language (notation, symbols and terminology) in both oral and written statements, use different forms of mathematical representation to present information, communicate coherent mathematical lines of reasoning, organize information using a logical structure.
Applying D: mathematics in real- life situations	Identify relevant elements of authentic real-life situations, select appropriate mathematical strategies when solving authentic real-life situations, apply the selected mathematical strategies successfully to reach a solution, explain the degree of accuracy of a solution, describe whether a solution makes sense in the context of the authentic real-life situation.
ATLs:	Self-management: Consider content, Thinking: Draw reasonable conclusions and generalizations

### **RESOURCES / LITERATURE OPTIONS:**

- MYP Mathematics 1: Oxford University Press
- Mathspace

- 1. Criteria B: Investigating patterns
- 2. Criteria C: Communicating mathematics



## **Unit 5: Percentages: Inequality and Difference**

### Start: April

**LEARNING EXPERIENCES:** In this unit, students will work with percentages, fractions and decimals to explore the global context of fairness and development. They will apply the relationships between percentages, fractions and decimals as they explore worldwide refugee displacement, working conditions, nutrition and the availability of safe drinking water.

KEY CONCEPT: Form	Related Concepts / Subject Specific: Equivalence and Quantity

**STATEMENT OF INQUIRY:** Inequality and difference become clearer through the use of equivalence forms of quantities

INQUIRY QUESTIONS:	
Factual:	What is a percentage? When are two things equal?
Conceptual:	How can different forms be equivalent? When is it beneficial to use different forms?
Debatable:	Can fairness be calculated?

OBJECTIVES AND ASSESSMENT CRITERIA:		
A:	Knowing and understanding	Select appropriate mathematics when solving problems in both familiar and unfamiliar situations, apply the selected mathematics successfully when solving problems and solve problems correctly in a variety of contexts.
в:	Investigating patterns	Apply mathematical problem-solving techniques to recognize patterns, describe patterns as relationships or general rules consistent with correct findings, verify whether the pattern works for other examples.
C:	Communicating	Use appropriate mathematical language (notation, symbols and terminology) in both oral and written statements, use different forms of mathematical representation to present information, communicate coherent mathematical lines of reasoning, organize information using a logical structure.
D:	Applying mathematics in real- life situations	Identify relevant elements of authentic real-life situations, select appropriate mathematical strategies when solving authentic real-life situations, apply the selected mathematical strategies successfully to reach a solution, explain the degree of accuracy of a solution, describe whether a solution makes sense in the context of the authentic real-life situation.

	Research: Collect and analyze data to identify solutions and make informed decisions, Self-
AILS:	management: Use appropriate strategies for organizing complex information

#### **RESOURCES / LITERATURE OPTIONS:**

- MYP Mathematics 1: Oxford University Press
- Mathspace

- 1. Criteria C: Communicating
- 2. Criteria D: Applying mathematics in real-life situations



## **Unit 6: Data Management: Environmental Impact**

### Start: May

**LEARNING EXPERIENCES**: In this unit, students will learn how to collect, classify and represent information that is gathered from a variety of sources as they explore the global context of identities and relationships. Understanding different types of data and the most effective ways to represent them may help students to uncover trends and concerns in local, national or even global communities.

KEY CONCEPT:	Related Concepts / Subject Specific:
Relationships	Representation, Justification

**STATEMENT OF INQUIRY:** Representing data visually helps to identify relationships that can justify trends in communities.

INQUIRY QUESTIONS:	
Factual:	How do we represent information? How do we collect information?
Conceptual:	How does the way in which information is represented impact our ability to interpret it? What makes one representation more effective than another?
Debatable:	Whose responsibility is it to identify and help fix problems within a community?

OBJECTIVES AND ASSESSMENT CRITERIA:		
A:	Knowing and understanding	Select appropriate mathematics when solving problems in both familiar and unfamiliar situations, apply the selected mathematics successfully when solving problems and solve problems correctly in a variety of contexts.
В:	Investigating patterns	Apply mathematical problem-solving techniques to recognize patterns, describe patterns as relationships or general rules consistent with correct findings, verify whether the pattern works for other examples.
C:	Communicating	Use appropriate mathematical language (notation, symbols and terminology) in both oral and written statements, use different forms of mathematical representation to present information, communicate coherent mathematical lines of reasoning, organize information using a logical structure.
D:	Applying mathematics in real- life situations	Identify relevant elements of authentic real-life situations, select appropriate mathematical strategies when solving authentic real-life situations, apply the selected mathematical strategies successfully to reach a solution, explain the degree of accuracy of a solution, describe whether a solution makes sense in the context of the authentic real-life situation.
		sense in the context of the authentic real-life situation.

ATLs:	Research: Collect, record, and verify data, Communication: Share ideas with multiple audiences using a variety of digital environments and media
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### **RESOURCES / LITERATURE OPTIONS:**

- MYP Mathematics 1: Oxford University Press
- Mathspace

- 1. Criteria C: Communicating
- 2. Criteria D: Applying mathematics in real-life situations

