Grade Level	Unit #1
MYP 1	**Title/Theme:** Number System
	Common Core Standards: 6.NS.1, 6.NS.2, 6.NS.3, 6.NS.4
	Content: -division of fractions, -how decimals and fractions relate to one another. - Dividing multi-digit whole numbers - Adding, subtracting, multiplying and dividing decimals-Find LCM and GCF of two whole numbers
	# of weeks: 5
	Key Concept(s): Logic
	Related Concept(s) : Representation, Quantity
	Global Context : Scientific and Technical Innovation
	Statement of Inquiry: Representing using a logical process may lead to better understanding of number system.
	MYP Objectives: A,B,D
	ATL Skills: - Thinking skills - reflection skills

Assessment Task with criteria:
 Exam (paper pencil test that will asess Criteria A and D) Performance task: shopping time, student will use their knowledge of number system and the relarions between operations to shop online with a specific budget. (this task will asess criteria B where they will investigate inorder to buy the items that fits their budget and save money as much as they can)

Title/Theme : Integer Numbers

Common Core Standards: 6.NS.5
6.NS.6 (a , b , c)
6.NS.7 (a , b , c , d)
6.NS.8

Content:

Integer numbers and absolute value
- Comparing and ordering integers
- Adding integers
- Subtracting integers
- Multiplying integers
- Dividing integers

 # weeks: 6

Key concep t: Relationships

Related concepts : Quantity, Representation

Global context : Identities and relations

MYP 2	**Statement of inquiry** : The continuous human need over the centuries to develop groups of numbers to represent realistic quantities and to express the relations between them The continuous human need over the centuries to develop groups of numbers to represent realistic quantities and to express the relations between them.
	MYP objectives Objective A: Knowing and understanding i. select appropriate mathematics when solving problems in both familiar and unfamiliar situations ii. apply the selected mathematics successfully when solving problems iii. solve problems correctly in a variety of contexts. Objective D: Applying mathematics in real life context i. identify relevant elements of authentic real-life situations ii. select appropriate mathematical strategies when solving authentic real-life situations iii. apply the selected mathematical strategies successfully to reach a solution iv. explain the degree of accuracy of a solution v. explain whether a solution makes sense in the context of the authentic real-life situation.
	ATL skills: Critical thinking skills: Practise observing carefully in order to recognize problems Communication: Use intercultural understanding to interpret communication

	Assessment Task with criteria A: Knowledge and understanding D. Applying mathematics to Real life context (Summative paper pencil Test)
MYP 3	***Title/Theme*** : The Number System
	Common Core Standards: 8.NS.1, 8.NS.2, 8.EE.1, 8.EE.2 , 8.EE.3, 8.EE.4
	Contents : Rational Numbers Powers and Exponents, Multiply and divide monomials, Powers of monomials, Negative Exponents, Scientific notations, Compute with sceitnific notations, roots, estimate roots, compare real numbers
	# of weeks: 5
	Key Concept(s): Form
	Related Concept(s): Representation**,** Simplification
	Global Context : Globalization and sustainability
	Statement of Inquiry: Nature has different forms that can be represented in different ways globally.
	MYP Objectives: A , B, C, D
	ATL Skills: Self-management skills: organization skills Set goals that are challenging and realistic social: social skills Give and receive meaningful feedback : :

	Assessment Task with criteria: A: Knowledge and understanding (Summative paper pencil Test) + B Investigating Patterns C Communication + D Applying math to real life context (Project)
MYP 4 Diploma	**Algebra, Unit # 1**
	Title/Theme: Relationships between quantities
	Common Core Standards: N.QN.1 N.QN.2 N.QN.3 A.CED.1 A.CED.2 A.CED.3 A.CED.4
	# of weeks: 5
	Key Concept(s): Relationships
	Related Concept(s) : Equivalence Quantity
	Global Context: Identities and Relationships

Statement of Inquiry: Understanding relationships between quantities enhances reasonable meaning of real life situations.	
MYP Objectives: A Knowing and understanding D Applying mathematics in real life contexts	
ATL Skills: Communication:understand and use mathematical notation Thinking:Critical :interpert Data and Propose and evaluate a variety of solution.	
Assessment Task with criteria: Formative and summative asssessment : A(1,2,3) and D(1,2)	
Title/Theme: Linear equations and Inequalities	
Content: Solving multi-step equations Solve the equation containing a variable at both ends Solve equations that include absolute value Solve linear inequalities by adding and subtracting Solve linear inequalities by multiplication and division Resolve multi-step inequalities Solve Composite inequalities Solve the inequalities that include absolute value	
# of weeks: 6	
Key Concept(s) : Relationships	

MYP 4 Muqarrara	**Related concepts:** Equivalence, Simplification, Representation
	Global Context: Identities and Relationships
	Statement of Inquiry: Representation and simplification of relationships in the form of equations help us make decisions
	MYP objectives Objective A: Knowing and understanding i. select appropriate mathematics when solving problems in both familiar and unfamiliar situations ii. apply the selected mathematics successfully when solving problems iii. solve problems correctly in a variety of contexts. Objective C: Communicating i. use appropriate mathematical language (notation, symbols and terminology) in both oral and written explanations ii. use different forms of mathematical representation to present information iii. move between different forms of mathematical representation iv. communicate complete and coherent mathematical lines of reasoning v. organize information using a logical structure..
	ATL Skills: Self-management - Organization skills: Use appropriate strategies for organizing complex information Thinking skills - Transfer skills**:** Apply skills and knowledge in unfamiliar situations

	Assessment Task with criteria **A**: Knowledge and understanding (Summative paper pencil Test) C: Communication Performance task: A task that puts the student in a real experience to make a decision to choose the best mobile company while traveling to a country of his choice
MYP 5	***Title/Theme*** : Similarity, Right Triangle Trigonometry, and Proof
	Common Core Standards: G.SRT.1, G.SRT.2, G.SRT.3, G.CO.9, G.CO.10, G.CO.11, G.SRT.4, G.SRT.5, G.GPE.6, G.SRT.6, G.SRT.7, G.SRT.8
	Contents : Special right triangles Trigonometry +B59+B61:E61+B61:F61+B59+B61:E61+B61:L61 +B61:K61+B61:J61+B61:I61+B61:H61+B61:G61
	# of weeks: 6weeks
	Key Concept(s): Relationships
	Related Concept(s): Models , Justification
	Global Context : Scientific and technical innovations
	Statement of Inquiry : Modeling allows us to solve new spatial relationships problems arising
	MYP Objectives: A , D, C
	ATL Skills:Thinking - Critical thinking skills

Assessment Task with criteria:

A: Knowledge and understanding Summative assessment (paper pencil)

D : Applying math to real-life conext +

C : communication (performance task) (students will be given a real life task and find the unknown values using mathematical modelling. They will then use a scale to create a model on sketchup(any alternative application) in order to verify and justify their

Unit #2

Title/Theme: Rational numbers

Common Core Standards: 6.NS.5, 6.NS,6, 6.NS.7, 6.NS.8

Content:
-Usage of positive and negative numbers
- Use number line diagrams and coordinate axes to plot negative numbers on the line and in the plane
-Order and find absolute value of rational numbers.
-graphing points in all four quadrants of the coordinate plane including the use of coordinates and absolute value to find distances between points

# of weeks: 6

Key Concept(s): Fom

Related Concept(s): model
system

Global Context :Fairness and development

Statement of Inquiry: Understanding rational numbers enhances logical reasoning system of real world

MYP Objectives: A, B & C

ATL Skills:
-thinking skills
critical thinking and creative thinking

Assessment Task with criteria:

Exam (the exam will inculde real life situations were students will use their understading of math logic to solve it (paper pencil test that will asess Criteria A)

Project: that will assess(Criteria B and C)

Title/Theme : Rational Numbers

Common Core Standards: 7.NS.1 (a , b , c , d)

7.NS.2 (a , b , c , d)

7.NS.3

Content:

Rational numbers

Comparing and ordering rational numbers

Multiplying rational numbers

Dividing rational numbers

Adding and subtracting like denomenator rational numbers

Adding and subtracting unlike denomenator rational numbers

Powers and exponents

Order of operations

 # weeks: 6

Key concept : Form

Related concepts: Equivalence, Simplification

Global context: Identities and relations

Statement of inquiry : humans developed groups of numbers to simplify the expression of equavalent amounts in different forms to meet their needs

MYP objective s

Objective A: Knowing and understanding

i. select appropriate mathematics when solving problems in both familiar and unfamiliar situations

ii. apply the selected mathematics successfully when solving problems

iii. solve problems correctly in a variety of contexts.

Objective B: Investigating patterns:

i. select and apply mathematical problem-solving techniques to discover complex patterns

ii. describe patterns as relationships and/or general rules consistent with findings

iii. verify and justify relationships and/or general rules

 Objective C: Communicating

i. use appropriate mathematical language (notation, symbols and terminology) in both oral and written

explanations

ii. use different forms of mathematical representation to present information

iii. move between different forms of mathematical representation

iv. communicate complete and coherent mathematical lines of reasoning

v. organize information using a logical structure..

ATL skills:

Reflection skills: Consider ATL skills development

Transfer skills: Apply skills and knowledge in unfamiliar situations

Assessment Task with criteria
A: Knowledge and understanding
(Summative paper pencil Test)
 B: Investigating patterns
C: Communication
Performance task (Use the four operations on the rational numbers and equavelent ratios to represent real (life situations

Title/Theme: Expressions and Equations

Common Core Standards: 8.EE.1 ,8.EE.2,8.EE.3 ,8.EE.4,8.EE.7a ,8.EE.7b,8.EE.5,8.EE.6 ,8.EE.8a,8.EE.8b '8.EE.8c

Contents : Solve Equations with rational co-efficients, Solve 2 step equations , Write 2 step equations, Solve equations with variables on each side, Solve multi step Equations, Constant rate of change, Slope, Equations in y=mx , Slope-intercept form, Graph line using intercepts, write linear Equations, Solve systems of equation by graphing, Solve systems of equation algebraically.

# of weeks: 10

Key Concept(s): Relationships

Related Concept(s): model , Equivalence

Global Context : globalization and sustainability

Statement of Inquiry : models created with equivalent equations can reveal relationships between human action and environment.

MYP Objectives: A, B, C, D

ATL Skills:
Communication skills
-interpret and use effectively modes of non-verbal communication
-take effective notes in class

Algebra, Unit # 2

Title/Theme:
Linear and Exponential Relationship

Common Core Standards:
A.REI.10
A.REI.11
A.REI.12
F.BF.1
  F.BF.2
  F.BF.3
F.IF.1
F.IF.2
F.IF.3
F.IF.4
F.IF.5

# of weeks : 10

Key Concept(s):
Relationships

Related Concept(s) :
Change
Systems

Global Context:
Orientation in space and time

Statement of Inquiry:

Representing and investigating patterns of related quantities, give clear visualization and ease prediction of the relation.

MYP Objectives:

A Knowing and understanding
B Investigating patterns
C Communicating
D Applying mathematics in real life contexts

ATL Skills:

Thinking:Make unexpected or unusaul connectios between obects and/or ideas.
Self- management:Reflection:consider personal learning strategies.

Assessment Task with criteria:

Formative and summative asssessment : A(1,2,3),B(1,2),C(1,2,3,4) and D(1,2,5)

Title/Theme: Systems of Linear equations

Content: Solve system of two linear equations graphically
Solve system of two linear equations by substitution
Solve system of two linear equations by elimination
Solve system of two linear equations by multiplication
Application of systems of equations

# of weeks: 3

Key concept: Logic

Related concepts: Systems, Representation

Global Context: Scientific and Technical innovation

Statement of Inquiry : Linear equations depend on mathematical logic to organize and reflect to reach to creative solutions to life situations.

MYP objectives

Objective A: Knowing and understanding
i. select appropriate mathematics when solving problems in both familiar and unfamiliar situations ii. apply the selected mathematics successfully when solving problems iii. solve problems correctly in a variety of contexts.

• Objective D: Applying mathematics in real life context
 i. identify relevant elements of authentic real-life situations
ii. select appropriate mathematical strategies when solving authentic real-life situations
iii. apply the selected mathematical strategies successfully to reach a solution
iv. explain the degree of accuracy of a solution
v. explain whether a solution makes sense in the context of the authentic real-life situation.

ATL Skills:

  Critical-thinking skills: Revise understanding based on new information and evidence
Reflection skills: Develop new skills, techniques and strategies for effective learning

Assessment Task with criteria
A: Knowledge and understanding
D. Applying mathematics to Real life context
(Summative paper pencil Test)

Title/Theme : Applications of Probability

Common Core Standards: S.CP.1, S.CP.2, S.CP.3, S.CP.4, S.CP.5, S.CP.6, S.CP.7, S.CP.8 (+), S.CP.9 (+), S.MD.6(+), S.MD.7 (+)

Contents : Simple probability
Probability With Permutations and Combinations
Probability With Permutations and Combinations
Simulations
Probabilities of Independent and Dependent Events
Probabilities of Independent and Dependent Events contd.
Probability of mutually exclusive events

# of weeks: 6 weeks

Key Concept(s): RELATIONSHIPS

Related Concept(s): Patterns, Justification

Global Context: Fairness and development

Statement of Inquiry : Patterns can help us make relations in order to predict the most possible outcome of an event and its fair consequences

MYP Objectives: A, B, D

ATL Skills : Communication skills,

Assessment Task with criteria:

A: Knowledge and understanding Summative assessment (paper pencil)

B : investigating patterns + D : Applying math to real-life conext (Performance task)

In the task students will find out the pattern obtianed while throwing a dice and a coin and they will find out the fairness of the game given some condition. once done with this they will then suggest a fair approach to the game.

Unit #3

Title/Theme: Ratios and proportions	

Common Core Standards: 6.RP.1, 6.RP.2, 6.RP.3a, 6.RP.3b, 6.RP.3c
6. RP.3d

 Content:
 - concept of a ratio and ratio language
- concept of a unit rate
- ratio and rate reasoning to solve real-world and mathematical problems,
-Make a table of equivalent ratios and find missing values
-solve unit ratio problems including unit price and speed

# of weeks: 7

Key Concept(s): Relationships

Related Concept(s): Patterns, equivalence

Global Context : Identities and relationships

Statement of Inquiry: Equivalent values expressed in different forms can be used to describe and calculate the relationship between quantities and rates.
                     .

MYP Objectives: A, C & D

ATL Skills:
critical thinking skills, reflection skills

Assessment Task with criteria:

Exam (paper pencil test that will asess Criteria A and D)Performance task Criteria (C and D)

Title/Theme: Ratio and Proportions

Common Core Standards: 7.RP.1

7.RP.2 (a , b , c , d)

7.RP.3

7.G.1

Content:

Ratio

Rate

Conversion between Metric units

Conversion between English units

Solve proportion

Fractions and percentage

Find the percentage mentally

Estimating the percentage

Percentage formula

 # weeks: 6

Key concept: Relationships

Related concepts : Equivalence, Representation

Global context: Fairness and development

Statement of inquiry : Understanding the relationship between proportions and equavelent ratios leads to make the right decissions in different situations.

MYP objectives

Objective B: Investigating patterns:

i. select and apply mathematical problem-solving techniques to discover complex patterns

ii. describe patterns as relationships and/or general rules consistent with findings

iii. verify and justify relationships and/or general rules

Objective C: Communicating

i. use appropriate mathematical language (notation, symbols and terminology) in both oral and written explanations

ii. use different forms of mathematical representation to present information

iii. move between different forms of mathematical representation

iv. communicate complete and coherent mathematical lines of reasoning

v. organize information using a logical structure.

Criterion D: Applying mathematics in real-life

contexts

i. identify relevant elements of authentic real-life situations

ii. select appropriate mathematical strategies when solving authentic real-life situations

iii. apply the selected mathematical strategies successfully to reach a solution

iv. explain the degree of accuracy of a solution

v. explain whether a solution makes sense in the context of the authentic real-life situation.

ATL skills:

Comunication skills: Give and receive meaningful feedback

Assessment Task with criteria

D. Applying mathematics to Real life context
(Summative paper pencil Test)
 B: Investigating patterns,
C: Communication
Performance task: Students will choose promotional offers in discount seasons to help users make the right decisions while shopping

Title/Theme: Functions

Common Core Standards: 8.F.2, 8.F.1, 8.F.3, 8.F.4, 8.F.5

Contents : Represent relationships, Relations, Functions, Linear functions, Compare properties of functions, Construct functions, Linear and non linear functions, Qualitative Graphs

# of weeks: 3

Key Concept(s): Relationships

Related Concept(s): Patterns, justification

Global Context: Globalization and sustainability

Statement of Inquiry: Justification of patterns and relationships will help raise awareness on global issues

MYP Objectives: C, D

ATL Skills:

communication- communication skills
Understand and use mathematical notation social : collaboration skills :Listen actively to other perspectives and ideas

Assessment Task with criteria:
 C. Communicating + D. Applying mathematics to Real life context (Performance task)
 In this project with the knowledge of linear and non linear functions students will be asked to make a qualitative graph . They will make their own description of the pattern in the graph related to a global issue.

Algebra, Unit # 3

Title/Theme:
Reasoning with Equations.

Common Core Standards:
A.REI.1
 A.REI.3
 A.REI.5
 A.REI.6

# of weeks : 3

Key Concept(s):
Logic

Related Concept(s):
System ,Equivalence

Global Context:
Scientific and Technical innovation

Statement of Inquiry:
Relate quantities by different systems and represent these relations by different types of forms,using technical systems.

MYP Objectives:
B Investigating patterns
C Communication

ATL Skills:
Thinking:critical (test generalizations and conclusions),Transfer (combine knowledge, understanding and skills to create products or solutions).

Assessment Task with criteria:
Formative and summative asssessment :Band C

Title/Theme: Linear functions and its analysis

Content:
 Relationships and Functions
Graphing linear equations
Solving linear equations graphically
  Rate of change and slope
  Writing equations in the slope- intercept form Graphing equations using slope- intercept form
Writing Equations in the point- slope form
Parallel and perpendicular lines
Arithmetic sequences
Geometric sequences
Exponential functions

# of weeks: 6

Key Concept(s): Form

Related concepts: Measurement, Representation, Models

Global Context: Identities and Relationships

Statement of Inquiry: The representation and modeling of linear functions is one way of communicating.

MYP objectives

Objective C: Communicating

i. use appropriate mathematical language (notation, symbols and terminology) in both oral and written explanations

ii. use different forms of mathematical representation to present information

iii. move between different forms of mathematical representation

iv. communicate complete and coherent mathematical lines of reasoning

v. organize information using a logical structure..

• Objective D: Applying mathematics in real life context

i. identify relevant elements of authentic real-life situations

ii. select appropriate mathematical strategies when solving authentic real-life situations

iii. apply the selected mathematical strategies successfully to reach a solution

iv. explain the degree of accuracy of a solution

v. explain whether a solution makes sense in the context of the authentic real-life situation.

ATL Skills:

Communication skills: Understand and use mathematical notation

Reflection skills: Demonstrate flexibility in the selection and use of learning strategies

Assessment Task with criteria

D: Applying mathematics to Real life context
(Summative paper pencil Test)
C. Communication
Performance task : the students will use what they learned about writing equations and its representations and composing systems of equations to design a plyground by drawing lines and writing its equations correctly.

Title/Theme : Circles With and Without Coordinates

Common Core Standards: G.C.1 , G.C.2 , G.C.3 , G.C.4 (+), G.C.5, G.GPE.1, G.GPE.2, G.GPE.4, G.GMD.1, G.GMD.3

Contents : Circles and circumference
Measuring angles and arcs
Arcs and Chords
Inscribed angles
Tangents
Secants , tangents and angle measures
Special segments
Equation of Circles

# of weeks: 6 weeks

Key Concept(s): FORM

Related Concept(s): Measurements, Space

Global Context: Personal and Cultural Expression

Statement of Inquiry: Understanding form and shapes enhances creativity in personal and cultural expressions

MYP Objectives: A, B, C

ATL Skills: Communication skills, Thinking - Critical thinking skills.

Assessment Task with criteria:

A: Knowledge and understanding Summative assessment (paper pencil)

B : investigating patterns + C : communication

Students will construct circles and with the knowledge of the parts of circles they will construct some segments. once done they will identify the general rules and connections between these segments in the circles.

Unit #4

Title/Theme: Equations and Expressions

Common Core Standards: 6.EE.1, 6.EE.2, 6.EE.3. 6.EE.4, 6.EE.5, 6.EE.6, 6.EE.7, 6.EE.8, 6.EE. 9

Content:
  -Write and evaluate numerical expressions
-Apply the properties of operations to
-Identify equivalent expressions
-solve equations or inequalities
-Use variables to represent two quantities in a real-world problem

# of weeks: 8

Key Concept(s): Logic

Related Concept(s): Generalization,
Model

Global Context: personal and cultural expressions

Statement of Inquiry: Algebra follows a logical system of reasoning using variables to represent the unknown, in real life situations

MYP Objectives: A, D & C

ATL Skills: Social Skills and communication skills

Assessment Task with criteria:

Exam (Criteria A, D)

Project: Learn and present another country's number system (Criterion C)

Title/Theme: Equations and Algebric Expressions

Common Core Standards: 7.EE.1

7.EE.2

7.EE.3

7.EE.4 (a , b)

Content:

Variables and algebric expressions

Equations

Addition and subtraction equations

Multiplication equation

Solving two steps equations

Writing two steps equations

Solving equations with variables in both sides

Modeling equations

Inequalities

 # weeks: 6

Key concept : Relationships

Related concepts : Equivalence, Model

Global context : Globalization and sustainability

Statement of inquiry :Modeling the relations in a form of equations allows for finding solutions in real life situations
:   .

MYP objectives

Objective A: Knowing and understanding

i. select appropriate mathematics when solving problems in both familiar and unfamiliar situations

ii. apply the selected mathematics successfully when solving problems

iii. solve problems correctly in a variety of contexts

Criterion D: Applying mathematics in real-life contexts

i. identify relevant elements of authentic real-life situations

ii. select appropriate mathematical strategies when solving authentic real-life situations

iii. apply the selected mathematical strategies successfully to reach a solution

iv. explain the degree of accuracy of a solution

v. explain whether a solution makes sense in the context of the authentic real-life situation.

MYP:

ATL skills:

Affective skills: Practise "failing well"

Critical-thinking skills: Gather and organize relevant information to formulate an argument

Assessment Task with criteria
A: Knowing and understanding
D: Applying mathematics in real-life contexts
(Summative paper pencil Test)

Title/Theme: Triangles and transformations

Common Core Standards: 8.G.1 a, b, c, 8.G.2, 8.G.3, 8.G.4, 8.G.5, 8.G.6, 8.G.7, 8.G.8

Contents : Lines, Angles of Triangles, Pyhtagorean theorem, Distance on coordinate plane, Translations, Reflections, Rotations, Dilations , Congruence and transformations, Similarity and transformations, Properties of Similar polygons, similar triangles and indiret measurement, Slope and similar triangles.

# of weeks: 10

Key Concept(s): *Relationship*

Related Concept(s): Justification and measurement

Global Context: Orientation in space and time

Statement of Inquiry: Making appropriate connections helps us justify what we discoer throguh measurement and observation.

MYP Objectives: A,B, C

ATL Skills:
self management skills- affective
Mindfulness
– Practise focus and concentration
Thinking : Critical-thinking skills
Consider ideas from multiple perspectives

Assessment Task with criteria:

A . Knowledge and understanding + C. Communicating   Summative #1,

A. Knowledge and understanding + B investigating pattern summative #2

(paper pencil Test)

Algebra, Unit # 4

Title/Theme:

Discriptive Statistics

Common Core Standards:

S.ID.1

S.ID.2

S.ID.3

S.ID.5

S.ID.6(a,b,c)

S.ID.7

S.ID.8

# of weeks: 5

Key Concept(s):

 logic

Related Concept(s):

Patterns

Justification

Global Context:

Scientific and Technical innovation

Statement of Inquiry :
Follow patterns of related quantites and simplify their relations.

MYP Objectives:
A Knowing and understanding
B Investigating patterns
C Communicating

ATL Skills:
Thinking:critical (test generalizations and conclusions),Transfer (combine knowledge, understanding and skills to create products or solutions).

Assessment Task with criteria:
Formative and summative asssessment : A,B,C
Performance Task

Title/Theme: Polynomials

Content:
 Laws of power
 Real numbers
 Multiplying and dividing monomial   Polynomials
Adding and subtracting polynomials
Multiplying monomial by polynomial
Multiplying polynomials
Analysing monomial
Using squaring property   Distributive property
Quadratic equation $X^2 +bX +c=0$
Difference between two squares
Complete square
Solving quadratic equations by completing the square
Solving quadratic equations by quadratic formula

# of weeks: 9

Key Concept(s) : Relationships

Related concepts: Equivalence, Simplification

Global Context: Personal and cultural expressions

Statement of Inquiry: Real life problems can be resolved by expressing the equivalence of relations.

MYP objectives
Objective A: Knowing and understanding
i. select appropriate mathematics when solving problems in both familiar and unfamiliar situations ii. apply the selected mathematics successfully when solving problems iii. solve problems correctly in a variety of contexts.
• Objective B: Investigating patterns:
i. select and apply mathematical problem-solving techniques to discover complex patterns
ii. describe patterns as relationships and/or general rules consistent with findings
iii. verify and justify relationships and/or general rules

• Objective D: Applying mathematics in real life context
 i. identify relevant elements of authentic real-life situations
ii. select appropriate mathematical strategies when solving authentic real-life situations
iii. apply the selected mathematical strategies successfully to reach a solution
iv. explain the degree of accuracy of a solution
v. explain whether a solution makes sense in the context of the authentic real-life situation.

ATL Skills:
Transfer skills: Use effective learning strategies in subject groups and disciplines
Creative-thinking skills: Apply existing knowledge to generate new ideas, products or processes

Assessment Task with criteria

A: Knowledge and understandin,

(Summative paper pencil Test- 1)   B: Investigating patterns

D: Applying mathematics in real life context

(Summative paper pencil Test- 2)

Title/Theme : Linear Equations , Inequalities & Functions

Common Core Standards: A.CED.1, A.CED.2, A.CED.3, F.IF.4, F.IF.5, F.IF.6, F.IF.7 a, F.IF.7 b, F.BF.4, F.BF.3

Contents: Solving Absolute Value Equations

Solving Inequalities

Solving Compound and Absolute Value Inequalities

Linear Relations

Scatter Plots and Lines of Regression

Special Functions

Parent Functions and Transformations

Graphing Linear and Absolute Value Inequalities

# of weeks: 6 weeks

Key Concept(s): Logic

Related Concept(s): Simplification, Models

Global Context: Scientific and technical innovations

Statement of Inquiry: Modelling using a logical process helps us to understand the world we live in.

MYP Objectives : A,B, C

ATL Skills : Self- management skills - Reflection skills

Assessment Task with criteria:

A: Knowledge and understanding Summative assessment + B : investigating patterns (paper pencil)

 C : communication (Performance task)

Students will construct their own deisgns and then they will figure out the equations of the designs along with each each parts domain and range. They will then explain why they restricted the domain and range.

Unit #5

IDU Title/Theme: Geometrical Science

Common Core Standards: 6.G1, 6.G.2, 6.G.3, 6.G.4

Content:
classify and measure two- and three-dimensional figures, such as triangles, quadrilaterals, cubes, prisms
compute distance, area and volume and report their answers using accurate terms, such as miles, square miles or cubic feet.
-Solve
real-world and mathematical problems involving area, surface area, and volume

# of weeks: 5

Key Concept(s): Form

Related Concept(s) :models & patterns

Global Context: Scientific and technical innovation

Statement of Inquiry : Modelling using sceintific and mathetical techniques enhances creativity

MYP Objectives: IDU Objectives ABC & D; Subject-specific pbjectives A, D, & B

ATL Skills:- Communication (collaborate with peers and experts using a variety of techniques); Social (collaboration - give and receive meaningful feedback)

Assessment Task with criteria: students will create a geometrtic city and then they will use electricity to ligjht it with criteria: Exam: (A, B, and D) and IDU creiteria A, B, C & D

Title/Theme: Geometry and Measurement

Common Core Standards: 7.G.2
7.G.3
7.G.4
7.G.5
7.G.6

Content:
Relations between angles and straight line
Area of triangle and tranpezoid
 Circumference of circle
Area of Circle
Area of composite shapes
3- D shapes
Drawing 3- D shapes
Transversal slicing Surface area of quadrangular prism
Volume of cylinder

 # weeks: 6

Key concept : Form

Related concepts : Measurement, Representation

Global contex t: Scientific and technical innovation

Statement of inquiry : Human use of the relation between the geometric shapes and its representations was the basics of development of architecture creativity throughout ages.

MYP objectives

Objective A: Knowing and understanding

i. select appropriate mathematics when solving problems in both familiar and unfamiliar situations

ii. apply the selected mathematics successfully when solving problems

iii. solve problems correctly in a variety of contexts.

Objective B: Investigating patterns:

i. select and apply mathematical problem-solving techniques to discover complex patterns

ii. describe patterns as relationships and/or general rules consistent with findings

iii. verify and justify relationships and/or general rules

 Objective C: Communicating

i. use appropriate mathematical language (notation, symbols and terminology) in both oral and written

explanations

ii. use different forms of mathematical representation to present information

iii. move between different forms of mathematical representation

iv. communicate complete and coherent mathematical lines of reasoning

v. organize information using a logical structure.

 MYP:

ATL skills:

 Creative-thinking skills: Practise visible thinking strategies and techniques

 Reflection skills: Demonstrate flexibility in the selection and use of learning strategies

Assessment Task with criteria
 A: Knowing and understanding
 (Summative paper pencil Test)
 B: Investigating patterns,
 C: Communication
  Peformance task: The students collect data and apply the measures of center and explain its consequencies by choosing a real life problem

Title/Theme: Volume and Surface Area

Common Core Standards: 8.G.9

Contents: Volume of cylinder, cone and sphere, Surface area of Cylinder and cone , Changes in dimensions .

# of weeks: 6

Key Concept(s):   Form

Related Concept(s): Models, measurements, quantities

Global Context : Personal and cultural expressions

Statement of Inquiry: Understanding forms and models enhances creativity and helps to develop different cultures.

MYP Objectives: A, B

ATL Skills:
Communication skills
Interpret and use effectively modes of non-verbal communication
Thinking : creative thinking skills
Use brainstorming and visual diagrams to generate new ideas and
inquiries

Assessment Task with criteria:

A . Knowledge and understanding Summative #1

B . Investigating patterns (Performance task)

In this task students will perform various operations on cylinders they will investigate the effect of these opeartions . They will use same dimensions paper to construct cylinder 1 and cylinder 2 , by changing the height and the circumference of the cylinder . After constructing these cylinders they will mention when and why they see a major change in the volume of the cylinder.

Geometry, Unit # 5

Title/Theme:

Congruence,Proof, And Constructions**.**

Common Core Standards:

G.CO.1

G.CO.2

G.CO.3

G.CO.4

G.CO.5

 G.CO.6

G.CO.7

G.CO.8

G.CO.12

G.CO.13

# of weeks: 7

Key Concept(s) :

 Relationships

Related Concept(s):

Representation , Justification

Global Context:

Scientific and Technical innovation

Statement of Inquiry:
Establishing patterns in the natural world can help in understanding relationship

MYP Objectives:
A Knowing and understanding
C Communicating
D Applying mathematics in real life contexts

ATL Skills:
Research:information literacy skill(collect,record and verify data) : :
Media literacy skills(demonestarte awarness of media interpretations of events and ideas(including digital social media). :

Assessment Task with criteria:
Formative and summative asssessment : A,C and D

Title/Theme: Radical equations and triangles

Content: Radical equations and triangles:
Simplyfing radical expression
 Rational powers
 Operations on radical expressions
 Radical equations
Pythagorean theorem
Distance between two points and coordinate of the midpoint
 Congruent triangles
 Trigonometric ratios

# of weeks: 5

Key Concept(s): Form

Related concepts: Generalization, Simplification

Global Context: Personal and cultural expressions

Statement of Inquiry: The trigonometric generalization and radical expression simplification are useful in distance and height measurements.

MYP objectives

Objective A: Knowing and understanding

i. select appropriate mathematics when solving problems in both familiar and unfamiliar situations ii. apply the selected mathematics successfully when solving problems iii. solve problems correctly in a variety of contexts.

• Objective B: Investigating patterns:

i. select and apply mathematical problem-solving techniques to discover complex patterns

ii. describe patterns as relationships and/or general rules consistent with findings

iii. verify and justify relationships and/or general rules

Objective C: Communicating

i. use appropriate mathematical language (notation, symbols and terminology) in both oral and written

explanations

ii. use different forms of mathematical representation to present information

iii. move between different forms of mathematical representation

iv. communicate complete and coherent mathematical lines of reasoning

v. organize information using a logical structure..

ATL Skills:

Communication skills: Make effective summary notes for studying

Creative-thinking skills: Make unexpected or unusual connections between objects and/or ideas

Assessment Task with criteria
A: Knowledge and understandin,
 B: Investigating patterns
(Summative paper pencil Test)
C. Communication
 Performance task: Based on simplification of Algebric expressions included in a trigonmoetric function

Title/Theme: System of Equations and Inequalities

Common Core Standards: A.CED.3, A.REI.11,   (+) N.VM.6, 7, 8, 9, 10, 11, 12

Contents: Solve Systems of Equations
Solving systems of inequalities by graphing Optimization with Linear Programming
Systems of Equations in three variables
Operations with Matrices
Multiplying Matrices
Solving Systems of Equations Using Cramer's rule
Solving Systems of Equations Using Inverse Matrices

# of weeks: 6 weeks

Key Concept(s): RELATIONSHIPS

Related Concept(s): Systems, Models

Global Context: Scientific and technical innovations

Statement of Inquiry: Mathematical models can be used to better understand systems in our life.

MYP Objectives: A, C, D

ATL Skills : Communication skills

Assessment Task with criteria:

A: Knowledge and understanding Summative assessment +

D : Applying math to real-life conext +

C : communication (performance task) (

Students will construct a real life scneraio with the help of storyboard.com or any other story creating website. the scneario should show scientific research. they will construct equations with this scenario to solve them .

Unit #6

Title/Theme: Statistics

Common Core Standards: 6.Sp.1, 6.SP.2, 6.SP.3, 6.SP,4, 6.SP.5

Content:
-Develop understanding of statistical variability.
-Summarize and describe distributions.

# of weeks: 5

Key Concept(s): Relationship

Related Concept(s): justification , representation

Global Context : globalization and systainability

Statement of Inquiry: Analyzing interpreting data impact decision making in the world

MYP Objectives: A, B &C

ATL Skills : -research skills
Communication skills

Assessment Task with criteria:

Exam(Criteria A)   Performance task:: students will investigate to create a survey about a topic in their interest (criteria B and C)

Title/Theme: Probability

Common Core Standards: 7.SP.1

7.SP.2

7.SP.3

7.SP.4

7.SP.5

7.SP.6

7.SP.7 (a , b)

Content:

-Measures of center and range

 -Events and probability

-Counting the outcomes

 - Principal of Counting

-Compound Events

 -Theoritical probability and trial propability

-Statistical inference

 # weeks: 6

Key concept: Logic

Related concepts : Pattern, Model

Global context : Personal and cultural expression

Statement of inquiry: and interpret patterns; help us make decisions based on mathematical logic

MYP objectives

Objective C: Communicating

i. use appropriate mathematical language (notation, symbols and terminology) in both oral and writtenexplanations

ii. use different forms of mathematical representation to present information

iii. move between different forms of mathematical representation

iv. communicate complete and coherent mathematical lines of reasoning

v. organize information using a logical structure.

Criterion D: Applying mathematics in real-lifecontexts

i. identify relevant elements of authentic real-life situations

ii. select appropriate mathematical strategies when solving authentic real-life situations

iii. apply the selected mathematical strategies successfully to reach a solution

iv. explain the degree of accuracy of a solution

v. explain whether a solution makes sense in the context of the authentic real-life situation.

ATL skills:

Information literacy skills: Access information to be informed and inform others   Media literacy skills:

Demonstrate awareness of media interpretations of events and ideas

(including digital social media)

Assessment Task with criteria

D: Applying mathematics in real-life contexts

(Summative paper pencil Test)

 C: Communication

Performance task: the students asked to find the measures of center of real life data collected by students

Title/Theme: Data Analysis

Common Core Standards: 8.SP1, 8.SP2, 8.SP3, 8.SP4

Contents : Scatter Plots, Lines of best fits, Two-way tables, Descriptive Statistics

# of weeks : 2

Key Concept(s): Logic

Related Concept(s): Justification, Representation, generalization

Global Context : Orientation in space and time .

Statement of Inquiry: Logic is essential to justify different representations over space and time

MYP Objectives: A, D

ATL Skills:

Research skills

Collect and analyse data to identify solutions and make informed decisions

Thinking : Critical skills

Interpret data

Geometry, Unit # 6

Title/Theme:
Connecting Algebra and Geometry Through Coordinates.

Common Core Standards:
G.GPE.4
G.GPE.5
G.GPE.7

# of weeks: 6

Key Concept(s):
Relationships

Related Concept(s):
Models , Space

Global Context:
Orintation in space and time

Statement of Inquiry :

Understanding relationships between shapes and models enable contiuous improving situation in space.

MYP Objectives:

B Investigating Patterns

D Applying mathematics in real life contexts.

ATL Skills:

Research:(collect,record and verify data) :

Media literacy skills(demonestarte awarness of media interpretations of events and ideas(including digital social media).. :

Assessment Task with criteria:

Formative and summative asssessment : B and D

Title/Theme: Probability and Statistics

Content:

Design survey study

 Analysis of survey results

Sample statistics and population

Permutations and combinations

Probability of compound events

# of weeks: 3

Key concept : Logic

Related concepts: Measurement, Pattern

Global Context: ScientifiD65:G66c and Technical innovation

Statement of Inquiry : Logic and measurements are used to discover patterns to make decissions.

MYP Objectives:
Objective C: Communicating
i. use appropriate mathematical language (notation, symbols and terminology) in both oral and written explanations
ii. use different forms of mathematical representation to present information
iii. move between different forms of mathematical representation
iv. communicate complete and coherent mathematical lines of reasoning
v. organize information using logical structure

 Objective D: Applying mathematics in real life context
 i. identify relevant elements of authentic real-life situations
ii. select appropriate mathematical strategies when solving authentic real-life situations
iii. apply the selected mathematical strategies successfully to reach a solution
iv. explain the degree of accuracy of a solution
v. explain whether a solution makes sense in the context of the authentic real-life situation.

ATL Skills:
 Collaboration skills: Help others to succeed
Communication skills**:** Organize and depict information logically

Assessment Task with criteria

D. Applying mathematics to Real life context
(Summative paper pencil Test)

C. Communication,

Performance task: Allow the students to do real experiment to collect data and use the measures of center of their grades and make a plain to improve it and compare the results after applying the plan

Title/Theme : Quadratic Functions and Relations

Common Core Standards: F.IF.4, F.IF.5, F.IF.7, F.IF.8, F.IF.9, A.CED.4, N.CN.7, N.CN.8 (+)

Contents: Graphing Quadratic Functions
Solving Quadratic Equations
Solving Quadratic Equations contd.
Solving quadratic Equations by Factoring
Complex numbers
Completing the square
Quadratic Formula and the Discriminant
Transformation of Quadratic Graphs
Quadratic Inequalities

# of weeks: 6 weeks

Key Concept(s): RELATIONSHIPS

Related Concept(s): Models, Representation

Global Context: Scientific and technical Innovations

Statement of Inquiry: Sound decisions can be made by using technology to find a model that represents relationship

MYP Objectives: A,B, D

ATL Skills: Thinking - Creative thinking skills , transfer skills.

Assessment Task with criteria:

A: Knowledge and understanding Summative assessment (paper pencil)

B : investigating patterns + D : Applying math to real-life conext (Performance task)

Students will take a picture of any model which represents a quadratic form. They will then investigate the different parts of the quadratic either by using the graphing calculator or on the computer.