Name of teacher:

Subject: Mathematics Grade: MYP1 2020-2021

| **Unit Title** | **Key concept** | **Related concept(s)** | **Global context** | **Statement of inquiry** | **MYP objectives** | **ATL skills** | **Content** **(topics, knowledge, skills)** |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Operations with numbers    **One** | Form | Equivalence, Systems | **Fairness and development** | Making fair judgment is easier if we understand a variety of numeric systems and forms. | A: Knowing and understanding  B: Investigating patterns  C: Communicating    D: Applying mathematics in real-life contexts | **Critical-thinking skills** – Draw reasonable conclusions and generalizations; Apply existing knowledge to generate new ideas; Evaluate propositions;  **Creative-thinking skills** – Consider ideas from multiple perspectives, use models and simulations to explore complex systems; Apply existing knowledge to generate new ideas; Use brainstorming and visual diagrams to generate new ideas and inquiries;  **Transfer skills** – Inquire in different contexts to gain a different perspective; Using skills and knowledge in multiple contexts; Apply skills and knowledge in unfamiliar situations.  **Communication skills** – Use and interpret a range of discipline-specific terms and symbols, Reading, writing and using language to communicate information | *All students should:*  Classifying numbers as natural, whole, integers, rational and irrational.  Using a number line to identify positive and negative numbers.  Solving problems using the four operations with integers, fractions, and decimals.  Know how to order the operations.  Investigate proportions and how to move from one form to another (i.e: convert fractions to decimals or percent, etc.).  Simplifying fractions visually.  Finding LCM and HCE  Apply percentages to real-life problems. |
| **Unit Title** | **Key concept** | **Related concept(s)** | **Global context** | **Statement of inquiry** | **MYP objectives** | **ATL skills** | **Content** **(topics, knowledge, skills)** |
| Algebra Basics | Relationships | Patterns, Simplification | **Identities and relationships** | Identifying and using patterns and rules is the key to simplifying relationships, in life and in algebra. | A: Knowing and understanding  B: Investigating patterns  C: Communicating    D: Applying mathematics in real-life contexts | **Transfer skills**  (Apply skills and knowledge in unfamiliar situations)  **Affective Skills** (Emotional management, Demonstrate persistence and perseverance)  **Information literacy Skills**  (Interacting with media to use and create ideas and information)  **Communication skills** (Read critically and for comprehension, Understand and use mathematical notation, Organize and depict information Logically) | **All students should:**  **Identify variables, constants, coefficients Summarize**  **Algebra basics**  **Classify like terms**  **Combining like terms with addition, subtraction, multiplication and division.**    **expressions by simplifying them**  **Identifying commutative operations (algebraic product)**  **Writing algebraic expressions** |
| **Unit Title** | **Key concept** | **Related concept(s)** | **Global context** | **Statement of inquiry** | **MYP objectives** | **ATL skills** | **Content** **(topics, knowledge, skills)** |
| Statistics | Relationships | Representation, Justification | **Globalization and Sustainability** | Representing data visually helps to identify relationships that can justify global decisions. | A: Knowing and understanding  C: Communicating    D: Applying mathematics in real-life contexts | **Communication skills** (Organize and Depict information logically, Use and interpret a range of discipline-specific, give meaningful feedback, use appropriate forms of writing for different purposes audiences, make inferences and draw conclusions, organize and depict information logically  **Information-literacy skills** (Finding, interpreting, judging and creating information, Collect, record and verify data, process data and report results)  **Media-literacy skills** (Interacting with media to use and create ideas and information)  **Reflection skills** (Keep a journal to record reflections; Consider Personal Learning strategies)  **Critical-thinking Skills** (interpret data, draw reasonable conclusion and generalizations)  **Transfer skills** (Inquire in different contexts to gain a different perspective; Apply skills and knowledge in unfamiliar situations) | ***All students should:***  Primary and Secondary data  Population and Sample  Random Sample  Representing data in different graphs  Tally and frequency table  Dot plot  Column Graph  Pie chart  Analysing graphs.  The uses of each graph  Changing percentage to degree and vice versa  Finding the mean, mode, median and bimodal |
| **Unit Title** | **Key concept** | **Related concept(s)** | **Global context** | **Statement of inquiry** | **MYP objectives** | **ATL skills** | **Content (topics, knowledge, skills)** |
| Algebraic Equations | Logic | Change, Models | **Personal and cultural expression** | Unknown and variables can be modelled and solved using algebraic logic and relationships between variables and unknowns | A: Knowing and understanding  B: Investigating patterns  C: Communicating    D: Applying mathematics in real-life contexts | **Self-management skills** (  **Communication skills** (Make inferences and draw conclusions; Reading writing and using language to gather and communicate information; Make inferences and draw conclusions; Understand and use mathematical notation)  **Information-literacy skills**  **Transfer skills**  (Apply skills and knowledge in unfamiliar situations)  **Critical-thinking Skills**  (Analyzing and evaluating issues and ideas; Practice observing carefully in order to recognize problems) | ***All students should:***  ***What does commutative mean?***  ***Construct* algebraic expressions and equations that represent real-life situations.**  **Algebraic movements:**  **-*Over the bridge***  ***-Balancing***  ***Flowcharts***  **Solving equations with inverse operations.**  **Substitute into expressions or equations.** |
| **Unit Title** | **Key concept** | **Related concept(s)** | **Global context** | **Statement of inquiry** | **MYP objectives** | **ATL skills** | **Content (topics, knowledge, skills)** |
| Measurement  **2** | Form | Space, Measurement | **Orientation in space and time** | Measurement is expressed in various forms to communicate the space around or within an object. | A: Knowing and understanding  B: Investigating patterns  C: Communicating    D: Applying mathematics in real-life contexts | **Communication skills** (Use appropriate forms of writing; Understand and use mathematical notation; Read carefully and for comprehension; Use and interpret Discipline-specific and symbols; Organize and depict information logically; Read critically; give meaningful feedback; Use intercultural understanding to interpret communication; Make inferences and draw conclusions)  **creative-thinking Skills** (Apply existing knowledge to generate new ideas, products or processes, use brainstorming and visual diagrams to generate new ideas and inquiries)  **Critical-thinking Skills** (Draw reasonable conclusions and Generalizations, Test generalizations and conclusions)  **Transfer skills** (Apply skills and knowledge in unfamiliar situations, combine knowledge, understanding and skills to create products or solution)  **Collaboration skills** (Build consensus; Listen actively to other perspectives and ideas)  **Organizational skills** (Use appropriate strategies for organizing complex information) | ***All students should:***  **Measure lengths using a ruler or compass and angles using a protractor**  **Estimate distances, lengths and angles**  **Select the most appropriate unit for a given measurement**  **Sketch and label scale diagrams**  **Calculate metric conversions, area and perimeter**  **Identify types of angles and triangles, and properties of polygons and circles**  **Recognize the shapes that make up composite figures**  ***Some students could***  **Calculate the area and perimeter of composite figures containing missing shapes** |
| **Unit Title** | **Key concept** | **Related concept(s)** | **Global context** | **Statement of inquiry** | **MYP objectives** | **ATL skills** | **Content (topics, knowledge, skills)** |
| Quantities  **Six** | Logic | Generalization, Quantity | **Scientific and technical innovation** | Mathematical logic helps us to find general rules in quantities and relationships and to make exciting, innovative discoveries. | A: Knowing and understanding  C: Communicating    D: Applying mathematics in real-life contexts | **Communication skills** (Organize and depict information logically; Use intracultural understanding to interpret communication)  **creative-thinking Skills** (Create original works and ideas; Use existing works and ideas in new ways; practice visible thinking strategies and techniques)  **Media-literacy skills** (seek a range of perspectives form multiple and varied sources)  **Information-literacy skills** (Understand and use technology system  **Critical-thinking Skills** (Practice Observing carefully in order to recognize problems Analyze complex concepts and projects into their constituent parts and synthesize them to create new understanding)  **Collaboration skills** (Exercise leadership and take on a variety of roles within groups)  **Transfer skills**  (Apply skills and knowledge in unfamiliar situations) | ***All students should: know how to multiply single digit Numbers and order for more than one operation in an expression.***  ***Know how to use ruler to divide a picture into sections.***  ***Estimations, Modelling, Grouping numbers, Identity Shapes*** |

 **Name of teacher: Mr.Ahmad Fadel**

**MYP2**

| **Unit Title** | **Key concept** | **Related concept(s)** | **Global context** | **Statement of inquiry** | **MYP objectives** | **ATL skills** | **Content**  **(topics, knowledge, skills)** |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Fractions, decimals and percentages**  **One** | **Relationships** | **Change , simplification** | **Globalization and sustainability** | **Financial personal and economic change can be understood and simplified using proportional relationships like ratios and percentages** | **A: knowing and understanding**  **B: investigating patterns**  **C: communicating**    **D: applying mathematics in real-world contexts.** | **Creative- thinking skills**  **Communication skills**  **Transfer skills**  **Information literacy skills** | **What is the relationship between fractions and decimals?**  **How can we visualize percentages and decimals?**  **Activity : decimal numbers**  **How do convert fractions and decimals?**  **What is the best way to find the percentage of something?**  **What is the difference between percentage of and percentage off?**  **Activity : money for nothing?**  **Can percentages go over 100 % ?**  **Activity : ask the experts?**  **Does money make the world go round?**  **Activity : neither a borrower nor a lender be**  **Activity : complete the crossword , backwards**  **How do we simplify a ratio?**  **Activity : just keep swimming**  **Activity : proportional reasoning , for good reason**  **Ho do we reason with ratios?**  **Activity : do you need to know about ratios to share and compare?** |
| **Unit Title** | **Key concept** | **Related concept(s)** | **Global context** | **Statement of inquiry** | **MYP objectives** | **ATL skills** | **Content**  **(topics, knowledge, skills)** |
| **Visual data**  **Two** | **Form** | **Systems , patterns** | **Globalization and sustainbility** | **Fair forms of communications help us to reveal patterns and improve our truth- telling systems.** | **A: Knowing and understanding**  **B: Investigating patterns.**  **C: Communicating**    **D: Applying Mathematics in real-life contexts.** | **Communication skills**  **Transfer skills**  **Information literacy skills**  **Critical thinking skills**  **Collaboration skills** | **How do we get our hands on data?**  **How do we organize data?**  **In what forms we can represent data ?**  **Activity : food banks**  **Activity : grouping and classifying data**  **What is a dot plot?**  **What exactly are info graphics?**  **Activity : create your own visually appealing info graphic**  **How do we find patterns in data?**  **Activity : statistical analysis of texts**  **How do we handle results fairly?**  **How do we know what to trust?**  **What is a reality check?** |
| **Unit Title** | **Key concept** | **Related concept(s)** | **Global context** | **Statement of inquiry** | **MYP objectives** | **ATL skills** | **Content**  **(topics, knowledge, skills)** |
| **All about polygons**  **Three** | **Logic** | **Measurements, generalization** | **Scientific and technical innovation** | **The general properties of shapes and our spatial environment can be measured by logic and manipulated and created by technology.** | **A: knowing and understanding**  **B: investigating patterns**  **C: communicating**    **D: Applying Mathematics in real-life contexts.** | **Creative- thinking skills**  **Affective skills**  **Collaboration skills** | **How do we know about shapes?**  **Activity : diagonals in polygons**  **What about shapes with nine sides or more?**  **Activity : when does a polygon stop?**  **What inside these shapes?**  **Circle , semicircles, and ellipses**  **How do we use**  **Is nature made from shapes or vise versa?**  **Activity : what are the mathematics of apps like snapchat?**  **How can logic help us map 2D to 3D?**  **What general rules can we find for objects?**  **How can we have fun with shapes?**  **How do we measure what is inside a shape?**  **How to find volume**  **Do we need to understand shapes to innovate?**  **Activity : vertex investigation** |
| **Unit Title** | **Key concept** | **Related concept(s)** | **Global context** | **Statement of inquiry** | **MYP objectives** | **ATL skills** | **Content**  **(topics, knowledge, skills)** |
| **Where do conclusions come from?**  **Four** | **Logic** | **Patterns , quantity** | **Identities and relationships** | **Relationships between variables form patterns which often justify important logical conclusions.** | **A: Knowing and understanding**  **B: Investigating patterns.**  **C: Communicating**    **D: Applying Mathematics in real-life contexts** | **Critical- thinking skills Communication skills:**  **Information literacy skills**  **.** | **What is a mathematical echo?**  **When should the center be the middle?**  **Why does the average person use average?**  **Activity : football's rising stars**  **Which is the best measure of central tendency?**  **Activity : tampering with data**  **How do we keep track of how far we’ve come?**  **How can outliers affect range?**  **How can we visually represent spread?**  **Box-and-whisker plots**  **What steps are needed to draw a box plot?**  **What are positive and negative correlations?**  **Can one positive correlation be 'more positive' than another?**  **Can statisticians replaced by computers?** |
| **Unit Title** | **Key concept** | **Related concept(s)** | **Global context** | **Statement of inquiry** | **MYP objectives** | **ATL skills** | **Content**  **(topics, knowledge, skills)** |
| **Can mathematics be beautiful?**  **Five** | **Relationships** | **Equivalence , justification** | **Personal and cultural expression** | **In many cultures, arguments about what is perceived as beautiful can be justified by a mathematical relationship between equivalent images.** | **A: Knowing and understanding**  **B: Investigating patterns.**  **C: Communicating**    **D: Applying Mathematics in real-life contexts** | **Communication skills**  **Critical-thinking skills**  **Transfer skills** | **From scatter plot to Cartesian plane**  **Where do I stand?**  **Activity : battleships**  **How do I turn a table into graph?**  **Activity : plot it**  **Activity : graphs and equations**  **Activity : gradient/slope investigation**  **What is mathematical about mirrors?**  **Activity : reflect investigation**  **How many ways we can rotate a figure?**  **Activity : just plotting around**  **How do 'two-dimensional figures' move?**  **Activity : on the move**  **What qualifies as 'similar'?**  **How do we enlarge a shape?** |
| **Unit Title** | **Key concept** | **Related concept(s)** | **Global context** | **Statement of inquiry** | **MYP objectives** | **ATL skills** | **Content**  **(topics, knowledge, skills)** |
| **How does it all tie together?**    **six** | **Form** | **Space , representation** | **Orientation in space and time** | **Where we are in space and time changes what we know as much as the form by which is represented.** | **A: Knowing and understanding**  **B: Investigating patterns.**  **C: Communicating**    **D: Applying Mathematics in real-life contexts** | **Communication skills**  **Media literacy skills**  **Creative thinking skills**  **Transfer skills** | **What is meant by mathematical synonyms?**  **Expanding**  **Factorizing**  **Activity : fascinating factors**  **What is binary?**  **How do we generalize patterns in numbers?**  **Is paternity leave a fair benefit ?**  **What makes an image 'mathematical'?**  **Activity : mystic roses**  **Are primes beautiful?**  **Activity : meet the emirps**  **The development of numbers**  **How good is your mental mathematics?**  **Activity : are you a mathematics star?**  **Which structures define your hometown?**  **How can I beat the system?** |

 **Name of teacher: Ms. Nidhal Hadad**

**Grade: MYP3 2018-2019**

| **Unit Title** | **Key concept** | **Related concept(s)** | **Global context** | **Statement of inquiry** | **MYP objectives** | **ATL skills** | **Content**  **(topics, knowledge, skills)** |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Dirhams and dollars**  **One** Learner Profile  Knowledgeable | Relationships | Quantity  Representation. | **Scientific and technical innovation** | Different forms of representation are used to show the relationships between quantities in a way for everyone to understand. | A: knowing and understanding  B: investigating patterns  C: communicating    D: applying mathematics in real-world contexts. | Communication skills; Information literacy: Access information to be informed and inform others  Self-Management  Organizational skills: Plan strategies and take action to achieve personal and academic goals | Divisibility rules  Prime and composite numbers, multiples, factors and prime factors  <https://www.mathgoodies.com/lessons/vol3/divisibility>, Divisability rules  GCF and LCM  Classifying real numbers  Operations with integers  Operations with rational numbers  Absolute values of rational numbers  Integer inequalities with absolute values  Percent of numbers and money amounts  Patterns: Formulate a rule to describe the relationship between two columns of numbers in a table of values.  Patterns: Describe the relationship and represent a rule in a given table, using a mathematical expression.  Patterns: Find the expression for the nth term and hence the required nth term, or if the value is given, the number of the term.  Find the total given a part and a percent  Find what percent one number is of another  Estimate percent of numbers  Compare percents of numbers  Percent of change  Simple interest ,Compound interest |
| **Unit Title** | **Key concept** | **Related concept(s)** | **Global context** | **Statement of inquiry** | **MYP objectives** | **ATL skills** | **Content**  **(topics, knowledge, skills)** |
| **Planet Index**  **Two**  Learner Profile  Thinkers | **Logic** | **Simplification and systems** | **Scientific and technical innovation** | **Logical reasoning skills are needed to represent complex information in a simplified way.** | **A: Knowing and understanding**  **B: Investigating patterns.**  **C: Communicating**    **D: Applying Mathematics in real-life contexts.** | **Self Management Organizational skills: Use appropriate strategies for organizing complex**  **Thinking**  **Information**  **Transfer skills: Apply skills and knowledge in unfamiliar situations** | **Understanding and evaluating positive exponents and the zero index law**  **Exponents with negative bases**  **Exponents with decimal and fractional bases**  **Understanding and evaluating negative exponents**  **Multiplying and dividing with exponents**  **Raising a power to a further power**  **Positive and negative square roots**  **Solving equations involving squares and square roots**  **Estimating square and cube roots**  **Solving equations involving cubes and cube roots**  **Converting between standard and scientific notation**  **Multiplying numbers written in scientific notation**  **Dividing numbers written in scientific notation** |
| **Unit Title** | **Key concept** | **Related concept(s)** | **Global context** | **Statement of inquiry** | **MYP objectives** | **ATL skills** | **Content**  **(topics, knowledge, skills)** |
| **Solving and modeling the unknown**  **Three**  **Learner Profile**  **Reflective** | **Relationships** | **Quantity**  **Models** | **Globalization and sustainability** | **Modeling the relationship between different qualities and quantities can prompt an opportunity for changes.** | **A: knowing and understanding**  **B: investigating patterns**  **C: communicating**    **D: Applying Mathematics in real-life contexts.** | **Communication**  **Communication skills: Collaborate with peers and experts using variety of digital environments and media**  **Self-Management Organizational skills: Keep an organized and logical system of information files and notebooks** | **Multiplying a polyn+D4omial by a monomial (distributive law)**  **Multiplying two binomials (FOIL) (a+b)(c+d)**    **Squaring a binomial (a+b)(a+b)**  **Multiplying two binomials leading to a perfect square binomial**  **Solving equations involving like terms**  **Solving equations with variables on both sides**  **Solving multi-step linear equations**  **Writing and solving linear equations to solve word problems**  **Solving simple linear equations involving absolute values**  **Finding the number of solutions for a linear equation**  **Sketching of linear graphs – revision**  **Solving systems of equations by graphing**  **Solving simultaneous equations using elimination**  **Solving simultaneous equations using substitution**  **Solving systems of equations – word problems** |
| **Unit Title** | **Key concept** | **Related concept(s)** | **Global context** | **Statement of inquiry** | **MYP objectives** | **ATL skills** | **Content**  **(topics, knowledge, skills)** |
| **What are my chances?**  **Four**  **Learner**  **Profile**  **Inquirers** | **Logic** | **Generalization**  **Justification** | **Identities and relationships** | **Logical reasoning skills are needed to justify generalizations.** | **A: Knowing and understanding**  **B: Investigating patterns.**  **C: Communicating**    **D: Applying Mathematics in real-life cotexts** | **Thinking**  **Critical- thinking skills: Test generalizations and conclusions**  **Communication: Communication skills:**  **Make inferences and draw conclusions**  **.** | **Probability of simple events Probability of opposite, mutually exclusive, and overlapping events**  **Experimental probability**  **Make predictions**  **Compound events: find the number of outcomes**  **Identifying independent and dependent events**  **Probability of independent and dependent events**  **Factorials**  **Permutations**  **Counting principle**  **Combination and permutation** |
| **Unit Title** | **Key concept** | **Related concept(s)** | **Global context** | **Statement of inquiry** | **MYP objectives** | **ATL skills** | **Content**  **(topics, knowledge, skills)** |
| **Triangles in design**  **Five**  **Learner Profile- open minded** | **Form** | **Patterns**  **Space** | **Personal and cultural expression** | **Patterns, in different forms, are tied to your emotional experiences.** | **A: Knowing and understanding**  **B: Investigating patterns.**  **C: Communicating**    **D: Applying Mathematics in real-life contexts** | **Communication Communication skills: Use and interpret a range of discipline specific terms and symbols**  **Thinking**  **Creative thinking skills: Apply existing knowledge to generate new ideas or processes** | **Theorem of Pythagoras – finding the length of the missing side**  **Theorem of Pythagoras – finding the perimeter**  **Theorem of Pythagoras – word problems**  **Converse of the Theorem of Pythagoras**  **Translating triangles**  **Reflecting triangles**  **Rotating triangles**  **Dilation: graph the image**  **Dilation: find the coordinates**  **Dilation: scale factor and classification**  **Identifying similar and congruent figures**  **Statements for congruent figures (≅) and similar figures (~)**  **Side lengths and angle measures of congruent figures**  **Similar figures and indirect measurements**  **Proving triangles congruent by SSS and SAS**  **Proving triangles congruent by ASA, AAS and HL** |
| **Unit Title** | **Key concept** | **Related concept(s)** | **Global context** | **Statement of inquiry** | **MYP objectives** | **ATL skills** | **Content**  **(topics, knowledge, skills)** |
| It's all about the scale  **Six**  Learner Profile  Communicators | Relationships | Measurement and Models | **Orientation in space and time** | There is an accurate relationship between the measurement of a drawing or model and the measurements of the real object. | A: Knowing and understanding  B: Investigating patterns.  C: Communicating    D: Applying Mathematics in real-life contexts | **Social**  **Collaboration skills: Help others to succeed**  **Thinking**  **Transfer skills: Apply skills and knowledge in unfamiliar situations**. | Identifying and finding equivalent ratios – word problems  Solving proportions  Unit rates and equivalent rates: word problems  Scale drawings: Word problems  Find the constant of proportionality from a table  Write equations for proportionality from a table  Identify proportional relationships by graphing  Find the constant of proportionality from a graph  Write equations for proportionality from a graph  Identify and graph proportional relationships  Interpret graphs of proportional relationships  Write and solve equations for proportional relationships |

 **Name of teacher: Mr.Ahmed F.Hameed**

**Grade: MYP4**

| **Unit Title** | **Key concept** | **Related concept(s)** | **Global context** | **Statement of inquiry** | **MYP objectives** | **ATL skills** | **Content**  **(topics, knowledge, skills)** |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **In how many different ways can we express the same thing?**  **One** | **Form** | **Patterns** | **Globalization and sustainability** | **Numbers in different forms give us a variety of ways to predict patterns and think about problems of global significance** | **A: knowing and understanding**  **B: investigating patterns**  **C: communicating**    **D: applying mathematics in real-world contexts.** | **Communication skills:**  **Creative-thinking skills** | **How number sets defined?**  **How and why do we group numbers? Activity : Number sets**  **How do number systems expand our understanding?**  **Who has got the power?**  **How can powers be negative?**  **Activity : negative powers**  **Activity : Reciprocal practice**  **Activity : Mind opening**  **Can rounding help or hinder decision making?**  **What is the difference between significant figure and decimal place ?**  **What patterns can we see in different number forms and operations?**  **Activity: Logs and bases** |
| **Unit Title** | **Key concept** | **Related concept(s)** | **Global context** | **Statement of inquiry** | **MYP objectives** | **ATL skills** | **Content**  **(topics, knowledge, skills)** |
| **Why does algebra look so clever?**  **Two** | **Relationships** | **Simplification** | **Identities and relationships** | **Finding and expressing things in common helps us to simplify and improve relationships** | **A: Knowing and understanding**  **B: Investigating patterns.**  **C: Communicating**    **D: Applying Mathematics in real-life contexts.** | **Communication skills**  **Organization skills**  **Affective skills**  **Creative-thinking skills**  **Critical-thinking skills** | **stepping into the unknown**  **what is meant by an unknown?**  **Activity : Algebra revision**  **Substitution**  **How does simplification allow us to find an unknown ?**  **How can equations be solved?**  **Activity : BEDMAS**  **How do we expand?**  **How do we factorize expressions?**  **Quadratic expressions**  **How can squares be perfect or different?**  **Activity : perfect square trinomials** |
| **Unit Title** | **Key concept** | **Related concept(s)** | **Global context** | **Statement of inquiry** | **MYP objectives** | **ATL skills** | **Content**  **(topics, knowledge, skills)** |
| **Can you walk the line?**  **Three** | **Logic** | **Equivalence** | **Orientation in space and time** | **Mathematical knowledge is built through logical structures, developed over time and transferred to equivalent situations.** | **A: knowing and understanding**  **B: investigating patterns**  **C: communicating**    **D: Applying Mathematics in real-life contexts.** | **Communication skills**  **Transfer skills**    **Critical-thinking skills** | **Two unknowns in one equation**  **Activity : Equations into lines**  **What else can we learn from the activity : linear equations**  **Why do we rearrange and how?**  **How can technology enables us to find the same info quicker ?**  **Where are the lines of equations in time and space?**  **Activity : Cartesian plane**  **Using technology to improve media literacy skills**  **How can logic help us apply algebra to real-life situations?**  **How do we solve simultaneous equations?**  **Activity : Finding pairs of solutions**  **What to do if the equations get more complex?**  **Simultaneous equations**  **Are there other paths to find the same information?** |
| **Unit Title** | **Key concept** | **Related concept(s)** | **Global context** | **Statement of inquiry** | **MYP objectives** | **ATL skills** | **Content**  **(topics, knowledge, skills)** |
| **How is technical innovation changing our ideas of public and private space?**  **Four** | **Relationship** | **Models** | **Scientific and technical innovation** | **Modeling allows us to solve new spatial relationship problems arising from technical innovation.** | **A: Knowing and understanding**  **B: Investigating patterns.**  **C: Communicating**    **D: Applying Mathematics in real-life contexts** | **Information literacy skills**  **Critical-thinking skills**  **Collaboration skills**  **Creative-thinking skills**  **Transfer skills**  **Communication skills** | **Calculating the unknown angles and sides**  **Who and what is Pythagoras?**  **How do trigonometric relationships work?**  **What is the trigonometric relationships work?**  **Activity: How can angles be manipulated?**  **Can we calculate what we can't measure?**  **Using trigonometric ratios**  **How do we find a missing angle or side?**  **Where do geometric shapes occur around us?**  **Activity: Will the relationships work in 3d models?**  **What is the sine rule?**  **What is the cosine rule?**  **Applying the cosine rule to find sides or angles**  **Activity : Tangent rule**  **Activity: how to convert angles to radians?**  **How can we use this knowledge?** |
| **Unit Title** | **Key concept** | **Related concept(s)** | **Global context** | **Statement of inquiry** | **MYP objectives** | **ATL skills** | **Content**  **(topics, knowledge, skills)** |
| **How can we move in space?**  **Five** | **Logic** | **Space** | **Personal and cultural expressions** | **Applying mathematical logic to spatial dimensions can open personal , cultural and social entrepreneurship opportunities .** | **A: Knowing and understanding**  **B: Investigating patterns.**  **C: Communicating**    **D: Applying Mathematics in real-life contexts** | **Communication skills**  **Collaboration skills**  **Critical-thinking skills**  **Creative-thinking skills**  **Transfer skills**  **Media literacy skills** | **What is a point in space?**  **Activity : Revision of points in the Cartesian plane**  **How do we find the length of a line segment?**  **Connecting the dots in geometry**  **Connecting Pythagoras theorem to the formula for distance between two points**  **How can we find distance between two points on a map?**  **Activity : Distance on a real life Cartesian grid**  **Finding the half way or midpoint**  **Activity : midpoints**  **What else can we tell from line segment?**  **Activity : naming vertical and horizontal lines**  **parallel and perpendicular lines**  **How do we construct perpendicular lines?**  **What are vectors?**  **Activity : Name the vector** |
| **Unit Title** | **Key concept** | **Related concept(s)** | **Global context** | **Statement of inquiry** | **MYP objectives** | **ATL skills** | **Content**  **(topics, knowledge, skills)** |
| **How well do data reflect reality?**    **Six** | **Relationships** | **Change** | **Fairness and development** | **We must take care to ask the right questions and to measure the correct data to understand relationships so we can use information to make the world a better and fairer place** | **A: Knowing and understanding**  **B: Investigating patterns.**  **C: Communicating**    **D: Applying Mathematics in real-life contexts** | **Critical-thinking skills**  **Communication skills**  **Affective skills**  **Media literacy skills**  **Transfer skills** | **What are data?**  **Why do we collect data?**  **Why is information important?**  **Activity : which is which?**  **Activity : data overload**  **How do we collect data?**  **Types of data**  **Activity : describing data**  **Discussing data collection**  **Activity : TV habits**  **Different tables of data representation**  **How can we find what the collected data tells us?**  **Activity: fantasy or fact ?**  **How is our representation of data changing?**  **Activity : representation of data**  **How personal is the interpretation of data?**  **How can we use data to develop ourselves and the world around us?**  **Activity : cumulative frequency**  **How can we better understand the relationships which cause change and those which are correlated?**  **How do we find standard deviation?** |

 **Name of teacher: Mr.Ahmed F.Hameed**

**Grade: MYP5**

| **Unit Title** | **Key concept** | **Related concept(s)** | **Global context** | **Statement of inquiry** | **MYP objectives** | **ATL skills** | **Content**  **(topics, knowledge, skills)** |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Making the world a fairer and more equal place**  **One** | **Logic** | **Quantity** | **Fairness and development** | **The difference between quantities can be represented by inequalities, which allows us to solve and logically address inequality in mathematics and in life.** | **A: knowing and understanding**  **B: investigating patterns**  **C: communicating**    **D: applying mathematics in real-world contexts.** | **Communication skills**  **Affective skills**  **Transfer skills**  **Information skills** | **What is an inequality ?**  **Strict inequality**  **Activity : using strict inequality symbols**  **How to represent inequalities?**  **How do we solve inequalities?**  **Using logic with inequalities**  **What quantities are associated with linear inequalities?**  **Activity : shade the region**  **What is a number pattern?**  **Understanding sequences**  **Activity : making connections**  **Finding number patterns in images**  **Where can we find number sequences in the world around us?**  **What are geometric sequences?**  **What other type of sequences are there?**  **Activity : finding the fibonaccis** |
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| **How many forms has a quadratic?**  **Two** | **Relationships** | **Representation** | **Globalization and sustainability** | **Representing relationships visually and algebraically can allow us to find and optimize 'best case scenario' and sustainable solution.** | **A: Knowing and understanding**  **B: Investigating patterns.**  **C: Communicating**    **D: Applying Mathematics in real-life contexts.** | **Communication skills**  **Reflection skills**  **Information literacy skills** | **What's more than a linear equation?**  **What is a quadratic equation?**  **Activity : identifying equations**  **What is the quadratic function telling us to do with the input?**  **How do we graph the quadratic functions?**  **What do those relationships tell us?**  **Activity : playing with parabolas**  **How do we solve a quadratic equation?**  **Solving quadratic equations by factorization**  **Solving quadratic equations by completing the square**  **What is the quadratic formula?**  **Activity : a bad day for Gareth**  **What do these relationships in different forms tell us?** |
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| **How do functions function?**  **Three** | **Form** | **Generalization** | **Identities and relationships** | **Relationships can be identified by generalizing data into various models and forms , which allows us to solve and predict these real-world relationships** | **A: knowing and understanding**  **B: investigating patterns**  **C: communicating**    **D: Applying Mathematics in real-life contexts.** | **Reflection skills**  **Organization skills**  **Communication skills**  **Information literacy skills** | **What is a function?**  **Activity : evaluating propositions**  **Generating values using tables**  **Activity : mapping your mind**  **How do we use functions to find values**  **How do we increase the power?**  **The cubic function**  **Activity : sliding on the cubic curve**  **How do we use functions generalize ?**  **Correlation**  **Finding the line of best fit**  **How far should we trust functions or models to tell us about the real world?**  **Changing the parameters of an exponential equation**  **What is meant by exponential growth or decay?**  **How and why do we develop the form of functions to improve their accuracy?** |
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| **What do I get by learning these things?**  **Four** | **Form** | **Justification** | **Orientation in space and time** | **Statements about the spaces and shapes around us can be justified to show they are invariant through space and time.** | **A: Knowing and understanding**  **B: Investigating patterns.**  **C: Communicating**    **D: Applying Mathematics in real-life contexts** | **Reflection skills**  **Research skills**  **Communication skills**  **Media literacy skills**  **Critical-thinking skills**  **Transfer skills** | **What is a circle made of?**  **Activity : definitions**  **What about area?**  **Activity : inside the circle**  **What are circle theorems?**  **Activity : guided inquiry into angles on an arc**  **Using theorems to solve problems**  **Activity : semicircles**  **What is a cycle quadrilateral?**  **Activity : tangent to a circle theorem**  **Can you see circles in real-life context?**  **Can a circle wave?**  **How do we find trigonometric functions in circles?**  **Activity : cosine ratio**  **What are trigonometric identities and why are they interesting?**  **What is the difference between an identity and an equation?** |
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| **The only sure thing**  **Five** | **Logic** | **Measurement** | **Personal and cultural expression** | **An individual's understanding of risk and chance is highly dependent on both logic and their personal experience .** | **A: Knowing and understanding**  **B: Investigating patterns.**  **C: Communicating**    **D: Applying Mathematics in real-life contexts** | **Reflection skills**  **Collaboration skills**  **Critical- thinking skills**  **Information literacy skills** | **What is probability?**  **There's nothing sure in life**  **Activity : what do you think the chances are?**  **Activity : revision exercise**  **How can probabilities change?**  **Probabilities are much more than dices, spinners , cards and coins**  **Complementary events**  **Does perception of risk have a personal or cultural aspect ?**  **Activity : how can people be successful through the application of probability?**  **Activity : weather facts or fiction?**  **How do we handle multiple events?**  **The fundamental principle of counting**  **How are expected probabilities different from observation ?**  **What is uncertainty?**  **Does probability change with sample size?**  **How do we estimate and calculate probabilities?** |
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| **Am I ready?**    **Six** | **Relationships** | **Systems** | **Scientific and technical innovations** | **Your future relationship with mathematics will be determined by your understanding of both traditional and innovative systems.** | **A: Knowing and understanding**  **B: Investigating patterns.**  **C: Communicating**    **D: Applying Mathematics in real-life contexts** | **Self-management skills**  **Critical thinking skills**  **Transfer skills** | **how is the knowledge you have learned connected to the aims of MYP mathematics?**  **1-enjoy mathematics ,develop curiosity , begin to appreciate its elegance and power**  **2-develop an understanding of the principles and nature of mathematics**  **3-communicate clearly and confidently in a variety of contexts**  **4-develop logical ,critical and creative thinking and to develop confidence , perseverance , and independence in mathematical thinking and problem solving**  **5-develop powers of generalization and abstraction**  **6-apply and transfer skills to a wide range of real-life situations , other areas of**  **knowledge and future developments**  **7-appreciate how developments in technology and mathematics have influenced each other**  **8-appreciate the moral, social and ethical implications arising from the work of mathematicians and the applications of mathematics**  **9-appreciate the international dimension in mathematics through an awareness of the universality of mathematics and its multicultural and historical perspectives**  **10-appreciate the contribution of mathematics to other areas of knowledge**  **11-develop the knowledge , skills and attitudes necessary to pursue further studies in mathematics**  **12-develop the ability to reflect critically upon their own work and the work of others.** |