**MT Breakout for L4 video list**

MT 1: Reasoning, Basic Rules and Constructions

* ***Basic Rules***
	+ Postulates/axioms
		- 1.1: Through any 2 points is exactly one line
		- 1.2: If 2 lines intersect they intersect in exactly one point
		- 1.3: If 2 planes intersect then they intersect in exactly one line
		- 1.4: Through any 2 non-collinear points there is exactly one plane
	+ Theorems
	+ Properties
* ***Reasoning***
	+ Inductive
		- The use of patterns to reach a logical conclusion
	+ Deductive
		- The use of statements or known facts to reach one logical conclusion
* Constructions
	+ Lines
		- Copy a line segment
		- Perpendicular bisector of a line segment
		- Divide a segment into n equal parts
		- Parallel line through a point(angle copy method)
	+ Angles
		- Bisecting an angle
		- Copy an angle
		- Construct a 30 degree angle
		- Construct a 45 degree angle
		- Construct a 90 degree angle
	+ Triangles
		- Copy a triangle
		- Isosceles Triangle, given a base and side
		- Equilateral Triangle
		- Triangle ***Median***

MT 2: Pythagorean Theorem, Coordinate Geometry and Transformations

* ***Pythagorean Theorem***
	+ prove and use the Pythagorean theorem to determine distance and find missing lengths of sides of right triangles
* ***Coordinate Geometry***: Prove theorems by using coordinate geometry, including the midpoint of a line segment, the distance formula, and various forms of equations of lines and circles.
	+ find the distance between two points in the coordinate plane
	+ Recall the slope-intercept form, the point-slope form and standard forms of a linear equation
	+ Relate slopes of parallel and perpendicular lines
	+ Find the length of a segment by using the distance formula or a grid triangle and the Pythagorean Theorem.
	+ Find a line parallel or perpendicular to a given line and write and equation for that line.
	+ Determine the equation of a circle given a graph or the center (h, k), and determine the graph given an equation in form (x-h)² + (y-k)² = r²
* ***Transformations***
	+ Perform a translation, rotation, or reflection to move a shape in a plane.
	+ Determine the line (including x- or y- axis) a figure is reflected across.
	+ Determine a position after a composition of translations.
	+ Describe a translation using vectors or words.

MT3 – Parallel Lines, Quadrilaterals and Angles

* ***Parallel Lines***
	+ Use theorems involving the properties of parallel lines cut by a transversal
	+ Identify corresponding, alternate interior, and same-side interior angles in 2 dimensional figures
* ***Quadrilaterals***
	+ Classify quadrilaterals (parallelogram, square, rectangle, rhombus, trapezoid, and kite) based on their angles and sides
	+ Prove and use theorems involving the properties of Parallelograms
	+ Prove and use theorems involving the diagonals of rhombuses and rectangles
	+ Prove and use theorems involving the properties of Trapezoids and Kites
* ***Interior and Exterior angles and angle Pairs***
	+ Find and use measures of sides and of interior and exterior angles of any polygon to classify figures and solve problems.
	+ Prove relationships between angles in polygons by using properties of complementary, supplementary, vertical, and exterior angles

MT 4 – Triangle Congruence and Similarity and Triangle Inequalities

* ***Congruence and Similarity***
	+ Prove that triangles are congruent or similar, and they are able to use the concept of corresponding parts of congruent triangles.
		- Congruency Patterns (AAS, ASA, SAS, SSS)
		- Similarity Patterns (AA~, SAS~, SSS~)
* ***Triangle Inequality***
	+ Know and are able to use the triangle inequality theorem.