Kindergarten	Grade 1	Grade 2	Grade 3	Grade 4	Grade 5	Grade 6	Grade 7	Grade 8		Grades 9-12
									MA.912.LT.1 Apply recursive methods to solve problems.	MA.912.LT.1.1 Apply recursive and iterative thinking to solve problems. MA.912.LT.1.2 Solve problems involving recurrence relations. MA.912.LT.1.3 Apply mathematical induction in a variety of applications.
									MA.912.LT.2 Apply optimization and techniques from Graph Theory to solve problems.	MA.912.LT.2.1 Define and explain the basic concepts of Graph Theory. MA.912.LT.2.2 Solve problems involving paths in graphs. MA.912.LT.2.3 Solve scheduling problems using critical path analysis and Gantt charts. Create a schedule using critical path analysis. MA.912.LT.2.4 Apply graph coloring techniques to solve problems. MA.912.LT.2.5 Apply spanning trees, rooted trees, binary trees and decision trees to solve problems. MA.912.LT.2.6 Solve problems concerning optimizing resource usage using bin-packing techniques. MA.912.LT.2.7 Solve problems involving optimal strategies in Game Theory.
									MA.912.LT.3 Apply techniques from Election Theory and Fair Division Theory to solve problems.	MA.912.LT.3.1 Define and explain the basic concepts of Election Theory and voting. MA.912.LT.3.2 Analyze election data using election theory techniques. Explain how Arrow's Impossibility Theorem may be related to the fairness of the outcome of the election. MA.912.LT.3.3 Decide voting power within a group using weighted voting techniques. Provide real-world examples of weighted voting and its pros and cons. MA.912.LT.3.4 Solve problems using fair division and apportionment techniques.

	MA.912.LT.4 Develop an understanding of the fundamentals of propositional logic, arguments and methods of proof.	MA.912.LT.4.1 Translate propositional statements into logical arguments using propositional variables and logical connectives.
		MA.912.LT.4.2 Determine truth values of simple and compound statements using truth tables.
		MA.912.LT.4.3 Identify and accurately interpret "if...then," "if and only if," "all" and "not" statements. Find the converse, inverse and contrapositive of a statement.
		MA.912.LT.4.4 Represent logic operations, such as AND, OR, NOT, NOR, and XOR, using logical symbolism to solve problems.
		MA.912.LT.4.5 Determine whether two propositions are logically equivalent.
		MA.912.LT.4.6 Apply methods of direct and indirect proof and determine whether a logical argument is valid.
		MA.912.LT.4.7 Identify and give examples of undefined terms; axioms; theorems; proofs, including proofs using mathematical induction; and inductive and deductive reasoning.
		MA.912.LT.4.8 Construct proofs, including proofs by contradiction.
		MA.912.LT.4.9 Construct logical arguments using laws of detachment, syllogism, tautology, contradiction and Euler Diagrams.
		MA.912.LT.4.10 Judge the validity of arguments and give counterexamples to disprove statements.
	MA.912.LT.5 Apply properties from Set Theory to solve problems.	MA.912.LT.5.1 Given two sets, determine whether the two sets are equivalent and whether one set is a subset of another. Given one set, determine its power set.
		MA.912.LT.5.2 Given a relation on two sets, determine whether the relation is a function, determine the inverse of the relation if it exists and identify if the relation is bijective.
		MA.912.LT.5.3 Partition a set into disjoint subsets and determine an equivalence class given the equivalence relation on a set.
		MA.912.LT.5.4 Perform the set operations of taking the complement of a set and the union, intersection, difference and product of two sets.
		MA.912.LT.5.5 Explore relationships and patterns and make arguments about relationships between sets using Venn Diagrams.
		MA.912.LT.5.6 Prove set relations, including DeMorgan's Laws and equivalence relations.