Enduring Understandings and Essential Questions
Mathematics K-12
Wallingford Public Schools

Organization is based on the current State Frameworks in Mathematics. The parentheses indicate the proposed structure for the revision of the Math Frameworks.

Enduring Understandings	Essential Questions
Number Sense- (Numeric Reasoning, Rational Numbers and Proportional Reasoning)	
• There are many ways to represent a number. • The problem in front of you is a member of a larger class of problems. • Number sense develops through experience.	• How do I determine the best numerical representation (pictorial, symbolic, objects) for a given situation? • How does finding the common characteristics among similar problems help me to be a more efficient problem solver? • What kinds of experiences help develop number sense?
Operations- (Numeric Reasoning, Rational Numbers and Proportional Reasoning)	
• Operations create relationships between numbers. • The relationships among the operations and their properties promote computational fluency.	• Why do I need mathematical operations? • How do mathematical operations relate to each other? • How do I know which mathematical operation (+, -, x, ÷, exponents, etc.) to use? • How do I know which computational method (mental math, estimation, paper and pencil, and calculator) to use?
Estimation and Approximation- (Numeric Reasoning, Rational Numbers and Proportional Reasoning, Spatial Relationships)	
• In certain situations, an estimate is as useful as an exact answer.	• When is it appropriate to use estimation and/or approximation? • How important are estimations in real life situations? • How do I make a reasonable estimate?
Ratios, Proportions, and Percents- (Rational Numbers and Proportional Reasoning and Spatial Relationships)	
• Proportional relationships express how quantities change in relationship to each other.	• When and why do I use proportional comparisons? • How does comparing quantities describe the relationship between them?
Measurement- (Spatial Relationships)	
• Measurement describes the attributes of objects and events. • Standard units of measure enable people to interpret results or data. • All measurements have some degree of	• Why do I measure? • Why do I need standardized units of measurement? • How does what I measure influence how we measure?

uncertainty.	• How exact does a measurement have to be?
Spatial Relationships and Geometry- (Spatial Relationships)	
• Geometry and spatial sense offer ways to interpret and reflect on our physical environment. • Analyzing geometric relationships develops reasoning and justification skills.	• How do geometric models describe spatial relationships? • How are geometric shapes and objects classified?
Probability and Statistics- (Working with Data)	
• The way that data is collected, organized and displayed influences interpretation. • The probability of an event's occurrence can be predicted with varying degrees of confidence.	• Why is data collected and analyzed? • How do people use data to influence others? • How can predictions be made based on data?
Patterns- (Working with Data, Algebraic Thinking)	
• Patterns and relationships can be represented numerically, graphically, symbolically, and verbally. • Patterns provide insights into potential relationships.	• What is a pattern? • How do I describe a pattern? • How do I express a pattern to show a relationship? • How can patterns be used to make predictions?
Algebra and Functions- (Algebraic Thinking)	
• Real world situations can be represented symbolically and graphically. • Algebraic expressions and equations generalize relationships from specific cases.	• How is thinking algebraically different from thinking arithmetically? • How do I use algebraic expressions to analyze or solve problems? • How do the properties contribute to algebraic understanding? • What is meant by equality?
Problem Solving- (Process Standard)	
• A problem solver understands what has been done, knows why the process was appropriate, and can support it with reasons and evidence. • There can be different strategies to solve a problem, but some are more effective and efficient than others are. • The context of a problem determines the reasonableness of a solution. • The ability to solve problems is the heart of mathematics.	• How do I know where to begin when solving a problem? • How does explaining my process help me to understand a problem's solution better? • How do I decide what strategy will work best in a given problem situation? • What do I do when I get stuck? • How do I know when a result is reasonable? • What is the relationship between solving problems and computation? • Why is the ability to solve problems the heart of mathematics?