**Test Date**

**Unit 3 Study Guide** - Operations and Algebraic Thinking: Patterns in Addition and Multiplication

**McGraw Hill lessons:**

* Chapter 9, lesson 8-Solve Two-Step Word Problems
* Chapter 6, lesson1- Patterns in the Multiplication Table
* Chapter 5, lesson 2- Division as Equal Sharing
* Chapter 5,esson 3 Relate Division and Subtraction
* Lesson 7-5 Relating Multiplication and Division
* Chapter 13, lessons 3-7
* Chapter 9, lesson 1-4
* Chapter 12, lesson 4 Relate Bar Graphs to Scaled Picture Graphs

**In this unit, students will:**

● Understand concepts of area and relate area to multiplication and addition.

● Find the area of a rectangle with whole- number side lengths by tiling it.

● Multiply side lengths to find areas of rectangles with whole-number side lengths in context of solving real world and mathematical problems.

● Construct and analyze area models with the same product.

● Describe and extend numeric patterns.

● Determine addition and multiplication patterns.

● Understand the commutative property’s relationship to area.

● Create arrays and area models to find different ways to decompose a product.

● Use arrays and area models to develop understanding of the distributive property.

● Solve problems involving one and two steps, and represent these problems using equations with letters ***“n”*** or ***“x”*** representing the unknown quantity.

● Interpret pictographs to create a line plot.

● Find area of rectilinear figures by decomposing them into non-overlapping rectangles and adding the areas of the non-overlapping parts.

**Web Resources**

IXL Math – Grade 3 – [www.ixl.com](http://www.ixl.com)

* + Multiplication (H3, H10, H14, h15)
	+ Division (L1-13)
	+ Mixed Operations (M2, M9, M11)
	+ Data & Graphs (U5-U12)
	+ Geometry (W8-13, W15, W16, W18)

**Vocabulary**

* Equation
* Area
* Square unit
* Area model
* Array
* Commutative property of multiplication
* Distributive property of multiplication
* Decomposing
* Tiling
* Difference
* Dimensions – length, width
* Divide
* Quotient
* Estimation
* Expression
* Unknown variable
* Factor
* Line plot
* Scale
* Pictograph