Richmond Public Schools
Curriculum Framework
Grade 7 Honors (7/8)

Strand: Measurement and Geometry
8.2   The student will describe the relationships between the subsets of the real number system.

Suggested Pacing

Related Standards	
Spiral Down:	Spiral Up:

Essential Questions	Common Misconceptions
- What are the characteristics of rational and irrational numbers? - How can we locate rational numbers on a number line?	Categorizing Numbers: students have trouble sorting the numbers, which involves placing them into specific categories; this also involves comparing and contrasting (ie. what do the number groups have in common and what makes them different)

Understanding the Standard	Essential Knowledge and Skills
- The subsets of real numbers include natural numbers (counting numbers), whole numbers, integers, rational and irrational numbers. - Some numbers can belong to more than one subset of the real numbers (e.g., 4 is a natural number, a whole number, an integer, and a rational number). The attributes of one subset can be contained in whole or in part in another subset. The relationships between the subsets of the real number system can be illustrated using graphic organizers (that may include, but not be limited to, Venn diagrams), number lines, and other representations. - The set of natural numbers is the set of counting numbers {1, 2, 3, 4...}. - The set of whole numbers includes the set of all the natural numbers and zero {0, 1, 2, 3...}.	- Describe and illustrate the relationships among the subsets of the real number system by using representations (graphic organizers, number lines, etc.). Subsets include rational numbers, irrational numbers, integers, whole numbers, and natural numbers. - Classify a given number as a member of a particular subset or subsets of the real number system and explain why. - Describe each subset of the set of real numbers and include examples and non-examples. - Recognize that the sum or product of two rational numbers is rational; that the sum of a rational number and an irrational number is irrational; and that the product of a nonzero rational number and an irrational number is irrational.

- The set of integers includes the set of whole numbers and their opposites {…-2, -1, 0, 1, 2…}. Zero has no opposite and is neither positive nor negative.

- The set of rational numbers includes the set of all numbers that can be expressed as fractions in the form $\frac{a}{b}$ where a and b are integers and b does not equal zero. The decimal form of a rational number can be expressed as a terminating or repeating decimal. A few examples of rational numbers are $\sqrt{25}$, $\frac{1}{4}$, -2.3, 75%, and $4.\overline{59}$.

- The set of irrational numbers is the set of all nonrepeating, nonterminating decimals. An irrational number cannot be written in fraction form
(e.g., π, $\sqrt{2}$, 1.232332333…).

- The real number system is comprised of all rational and irrational numbers.

Vocabulary			Instructional Activities Organized by Learning Objective

Vocabulary

Real Numbers	Natural Numbers (Counting Numbers)	Whole Numbers
Integers	Rational Numbers	Irrational Numbers
Subset		

Instructional Activities Organized by Learning Objective

Textbook

Notes

Resources
- Print
- Technology-based

Station Activities

Assessment

Cross-Curricular Connections	Tiered Differentiations