

Number System: Grade 8

Stage 1 Desired Results		
ESTABLISHED GOALS: <u>Competencies:</u> - Demonstrate the ability to apply number sense by categorizing and comparing real numbers. - Demonstrate the ability to model real world problems by building and analyzing the appropriate expression, equation, or function. - Demonstrate the ability to analyze and summarize text and integrate knowledge to make meaning of discipline-specific materials. - Demonstrate the ability to produce coherent and supported writing in order to communicate effectively for a range of discipline-specific tasks, purposes, and audiences. - Students will demonstrate the ability to speak purposefully and effectively by strategically making decisions about content, language use, and discourse style. <u>Content Standards:</u> 8.NS.A.1 - Know that numbers that are not rational are called irrational. Understand informally that every number has a decimal expansion; for rational numbers show that the decimal expansion repeats eventually, and convert a decimal expansion which repeats eventually into a rational number. 8.EE.A.2 - Use square root and cube root symbols to represent solutions to equations of the form $x^2 = p$ and $x^3 = p$, where p is a positive rational number. Evaluate square roots of small perfect squares and cube roots of small perfect cubes. Know that $\sqrt{2}$ is irrational. 8.NS.A.2 - Use rational approximations of irrational numbers to compare the size of irrational numbers, locate them approximately on a number line diagram, and estimate the value of expressions. 8.G.B.7 - Apply the Pythagorean Theorem to determine unknown side lengths in right triangles in real-world and mathematical problems in two and three dimensions. 8.G.B.8 - Apply the Pythagorean Theorem to find the distance between two points in a coordinate system. 8.G.B.6 - Explain a proof of the Pythagorean Theorem and its converse. - MP1 Make sense of problems and persevere in solving them. - MP2 Reason abstractly and quantitatively. - MP3 Construct viable arguments and critique the reasoning of others. - MP6 Attend to precision. - MP7 Look for and make use of structure.	Transfer	
	Students will be able to independently use their learning to organize information to make comparisons and informed decisions.	
	Meaning	
	ENDURING UNDERSTANDINGS Students will understand that... - attributes are used to categorize information. - information can be examined by using multiple representations.	ESSENTIAL QUESTIONS When is it appropriate to categorize?
	Acquisition	
	Students will know... - that rational numbers are real numbers that can be expressed as a ratio of two integers $(\frac{a}{b})$, where b is not zero. - that irrational numbers are those which cannot be expressed as a ratio $\frac{a}{b}$. - that rational numbers can be expressed in decimal form as repeating or terminating decimals. - that real numbers can be compared and ordered. - that squaring a number and taking the square root of a number are inverse operations. - the Pythagorean Theorem. <u>vocabulary:</u> rational number, irrational number, radical symbol, square root, decimal expansion, theorem, legs, hypotenuse, square root	Students will be skilled at... - converting numbers written as a rational number expressed as $\frac{a}{b}$ into decimal expansion. - converting numbers written as a decimal expansion to a rational number expressed as $\frac{a}{b}$. - distinguishing between rational and irrational numbers. - comparing the magnitude of real numbers. - approximating irrational numbers. - approximating the value of expressions involving irrational numbers, for example 2π. - using irrational numbers to solve real-world problems, including those that require the Pythagorean Theorem. - explaining a proof of the Pythagorean Theorem and its converse.

MP8 Look for and express regularity in repeated reasoning.		
Content Area Literacy Standards		21st Century Skills
- RST.6-8.3 Follow precisely a multistep procedure when carrying out experiments, taking measurements, or performing technical tasks. - RST.6-8.4 Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific or technical context relevant to <i>grades 6-8 texts and topics</i>. - RST.6-8.7 Integrate quantitative or technical information expressed in words in a text with a version of that information expressed visually.		<i>make judgements and decisions</i> <i>solve problems</i> <i>communicate clearly</i> <i>use and manage information</i>

Stage 2 - Evidence	
<i>Evaluative Criteria</i>	<i>Assessment Evidence</i>
	PERFORMANCE TASK(S):
	OTHER EVIDENCE:

Stage 3 – Learning Plan	
Summary of Key Learning Events and Instruction	
Language Arts Integration	Mathematics Integration
1.OA.1 Use	1.OA.1 Use
Technology Integration	District Materials
1.OA.1 Use	

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