

Vocabulary Strategy: Knowledge Rating Scale

Directions:

Select a list of important vocabulary words from a new unit or a chapter of text. Prepare a handout for each of your students that lists the vocabulary words followed by three columns labeled *Know It Well*, *Have Heard/Seen It*, and *No Clue*.

Divide the class into mixed ability groups of three or four students to provide students with the opportunity to share their diverse background knowledge.

Have the students consider each word on the Knowledge Rating Scale and place an X in the appropriate column next to the word. If a student feels they are able to explain or define a word they should put an X in the *Know It Well* column. If the word sounds familiar but they do not know exactly what it is or how to describe it they should mark the *Have Heard/Seen It* column. If the student is totally unfamiliar with the word they should mark the column *No Clue*. The example below is taken from The Number Devil (1998) vocabulary.

	Know it well	Have heard/seen it	No Clue
Natural Numbers	X		
Negative Numbers	X		
Irrational Numbers	X		
Imaginary Numbers			X
Squaring a number		X	
Raising to a power	X		
Zero Power		X	
Square root		X	
Prime Numbers		X	
Sieve of Eratosthenes (test for prime numbers)			X
Goldbach's Conjecture			X
Infinitely Large Numbers	X		
Infinitely Small Numbers			X

After students have filled out the chart ask them to write down definitions for those words which they have marked in the *Know It Well* column.

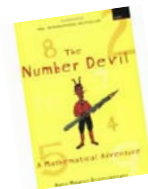
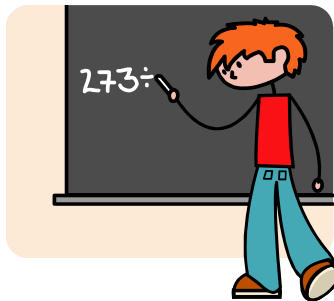
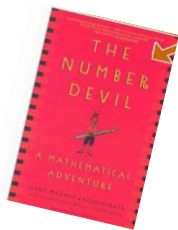
Lead the class discussion about the words for which students have definitions. As the students read the book in the following days, direct them to add definitions for unknown words and confirm or, if appropriate, change definitions they have written.

Activity: Below are several versions of the Knowledge Rating Scale using various vocabulary from the book The Number Devil. The first two lists are more basic vocabulary that could be used in a Pre-Algebra or even possibly in an Algebra or Geometry class. The next list contains a list with terms more suited to an Algebra 2 or possibly a Pre-Calculus class and then a shorter list of even more advanced topics that might be toughed on briefly to spark student interest. The final sheet contains a list of Mathematicians. You may decide to utilize one or more of these sheets in your class.

Knowledge Rating Scale

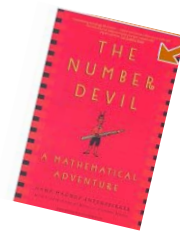
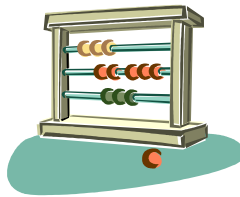
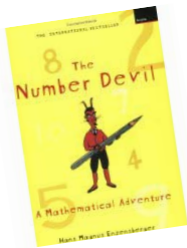
Beginning Topics—Types of Numbers

	Know it well	Have heard/seen it	No Clue
Natural Numbers			
Negative Numbers			
Irrational Numbers			
Imaginary Numbers			
Squaring a number			
Raising to a power			
Zero Power			
Square root			
Prime Numbers			
Sieve of Eratosthenes (test for prime numbers)			
Goldbach's Conjecture			
Infinitely Large Numbers			
Infinitely Small Numbers			



Knowledge Rating Scale Beginning Topics—Geometry

	Know it well	Have heard/seen it	No Clue
Pythagorean Theorem			
Triangular numbers			
Fractals			
Polyhedron			
Dodecahedron			
Hexahedron			
Tetrahedron			
Pentagon			
Isosceles			
Vertices			
Edges			
Pi			
Proofs			
Axioms			





Knowledge Rating Scale Advanced Topics

	Know it well	Have heard/seen it	No Clue
Recursion			
Sequences			
Series			
Harmonic Series			
Geometric Series			
Factorials			
Combinations			
Permutations			
Traveling Salesman Problem			
Sierpinski Triangle/ Pascal's Triangle			

More Advanced Topics...

	Know it well	Have heard/seen it	No Clue
Uncountable sets			
Countable Infinite Sets			
Simplex Algorithm			
Optimization Problem			
Topological Objects			
Imaginary numbers			

Knowledge Rating Scale Mathematicians

Mathematicians	Know him well	Heard of him	No clue
George Cantor			
Bertrand Russell			
Pythagoras			
Blaise Pascal			
Leonhard Euler			
Fibonacci			
Georg Cantor			
Carl Friedrich Gauss			
Johan van de Lune			
Eratosthenes			

