Plan for Grade 8 Unit 8: Exponents and Scientific Notation

Relevant Unit(s) to review: Grade 6 Unit 6: Expressions and Equations

Essential prior concepts to engage with this unit	● expressions that have positive whole-number exponents and whole-number, fraction, or variable bases
Brief narrative of approach	This unit remains largely intact, aligned to the learning goals for exponents and scientific notation. Although some review is incorporated into the unit, students may need additional support and review with exponent and exponent notation. Based on the Check Your Readiness assessment, consider incorporating concepts from Grade 6 Unit 6 for the first section of the unit as needed.

Lessons to Add	Lessons to Remove or Modify
	1. Move to outside of class 8.8.16: culminating lesson incorporating work from the unit
Lessons added: 0	Lessons removed: 1

Modified Plan for Grade 8 Unit 8

Day	IM lesson	Notes
	assess	8.8 Check Your Readiness assessment. Note that the Check Your Readiness assessment includes item-by-item guidance to inform just-in-time adjustments to instruction within the lessons in 8.8
1	8.8.1	Calculate the area of a tilted square on a grid by using decomposition, and explain the solution method.
2	8.8.2	Determine the exact side length of a square and express it (in writing) using square root notation.
3	8.8.3	Comprehend the terms "irrational number" and "rational number".
4	8.8.4	Calculate an approximate value of a square root to the nearest tenth, and represent the square root as a point on the number line.
5	8.8.5	Determine a solution to an equation of the form $x^2 = a$ and represent the solution as a point on the number line.
6	8.8.6	Comprehend the term "Pythagorean Theorem" (in written and spoken language) as the equation $a^2 + b^2 = c^2$ where a and b are the lengths of the legs and c is the length of the hypotenuse of a right triangle.
7	8.8.7	Calculate an unknown side length of a right triangle using the Pythagorean Theorem, and explain (orally) the reasoning.
8	8.8.8	Calculate unknown side lengths of a right triangle by using the Pythagorean Theorem, and explain (orally) the solution method.
9	8.8.9	Determine whether a triangle with given side lengths is a right triangle using the converse of the Pythagorean Theorem.
10	8.8.10	Describe (orally) situations that use right triangles, and explain how the Pythagorean Theorem could help solve problems in those situations.

11	8.8.11	Calculate the distance between two points in the coordinate plane by using the Pythagorean Theorem and explain (orally) the solution method
12	8.8.12	Comprehend the term cube root
13	8.7.13	Determine the whole numbers that a cube root lies between, and explain (orally) the reasoning.
14	8.8.14	Comprehend that a rational number is a fraction or its opposite, and that a rational number can be represented with a decimal expansion that "repeats" or "terminates".
15	8.8.15	Compare and contrast (orally) decimal expansions for rational and irrational numbers
16	8.8.16	Apply ratios and the Pythagorean Theorem to solve a problem involving the aspect ratio of screens or photos, and explain (orally) the reasoning.
17	assess	8.8 End-of-Unit Assessment

Priority and Category List for Lessons

High priority (+), Medium priority (0), Low priority (-)

E: Explore, Play, and Discuss, D: Deep Dive, A: Synthesize and Apply

Lesson	Priority (+, 0, -)	Category (E, D, A)	Notes
8.8.1	+	E	Calculate the area of a tilted square on a grid by using decomposition, and explain (orally) the solution method.
8.8.2	+	E	Comprehend the term "square root of".
8.8.3	+	D	Comprehend the terms "irrational number" and "rational number".
8.8.4	+	D	Calculate an approximate value of a square root to the nearest tenth, and represent the square root as a point on the number line.
8.8.5	+	D	Determine a solution to an equation of the form $x^2 = a$ represent the solution as a point on

			the number line.
8.8.6	+	D	Comprehend the term "Pythagorean Theorem" (in written and spoken language)
8.8.7	+	A	Calculate an unknown side length of a right triangle using the Pythagorean Theorem, and explain (orally) the reasoning.
8.8.8	+	D	Calculate unknown side lengths of a right triangle by using the Pythagorean Theorem, and explain (orally) the solution method.
8.8.9	+	A	Determine whether a triangle with given side lengths is a right triangle using the converse of the Pythagorean Theorem.
8.8.10	+	A	Describe (orally) situations that use right triangles, and explain how the Pythagorean Theorem could help solve problems in those situations.
8.8.11	0	D	Calculate the distance between two points in the coordinate plane by using the Pythagorean Theorem and explain (orally) the solution method.
8.8.12	+	E	Comprehend the term cube root.
8.8.13	+	D	Determine the whole numbers that a cube root lies between, and explain (orally) the reasoning.
8.8.14	-	E	Comprehend that a rational number is a fraction or its opposite, and that a rational number can be represented with a decimal expansion that "repeats" or "terminates".
8.8.15	-	D	Compare and contrast (orally) decimal expansions for rational and irrational numbers.
8.8.16	-	A	Apply ratios and the Pythagorean Theorem to solve a problem involving the aspect ratio of screens or photos, and explain (orally) the reasoning.