CMS Lesson Plan

Teacher: McQueen

Lesson Date: September 28

Subject: 8th Grade Mathematics

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| **GSE Assessment Limits/Standards:**  **MGSE8.EE.1** Know and apply the properties of integer exponents to generate equivalent numerical expressions.  **MGSE8.EE.2** Use square root and cube root symbols to represent solutions to equations. Recognize that x2 = p (where p is a positive rational number and lxl < 25) has 2 solutions and x3 = p (where p is a negative or positive rational number and lxl < 10) has one solution. Evaluate square roots of perfect squares < 625 and cube roots of perfect cubes > -1000 and < 1000.  **MGSE8.EE.3** Use numbers expressed in scientific notation to estimate very large or very small quantities, and to express how many times as much one is than the other. For example, estimate the population of the United States as 3 × 108 and the population of the world as 7 × 109, and determine that the world population is more than 20 times larger.  **MGSE8.EE.4** Add, subtract, multiply and divide numbers expressed in scientific notation, including problems where both decimal and scientific notation are used. Understand scientific notation and choose units of appropriate size for measurements of very large or very small quantities (e.g. use millimeters  per year for seafloor spreading). Interpret scientific notation that has been generated by technology (e.g. calculators).  Know that there are numbers that are not rational, and approximate them by rational numbers.  **MGSE8.NS.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.  **MGSE8.NS.2** Use rational approximation of irrational numbers to compare the size of irrational numbers, locate them approximately on a number line, and estimate the value of expressions (e.g., estimate π2to the nearest tenth). For example, by truncating the decimal expansion of √2 (square root of 2), show that √2 is between 1 and 2, then between 1.4 and 1.5, and explain how to continue on to get better approximations. | ***Monday*** |
| **Lesson Objective/Learning Intention: Students will be able to convert numbers from standard form to scientific notation as well as convert from scientific notation to standard. Students will also be able to add, subtract, multiply and divide in scientific notation.** | |

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| **TIME** | **INSTRUCTIONAL SEQUENCE** | **FORMATIVE ASSESSMENT** |
|  |  | Note: A variety of formative assessments should be used at key points throughout the lesson. |
| 10  min | **Get started/Drill/Do Now:** Review converting from standard to scientific notation:   1. 1230045 2. .0000024350004 3. 43123.0003 |  |
| min | **Independent practice:**. |  |
| 15 min | **Whole Group Instruction:** Students will learn how to add and subtract numbers in scientific notation. <https://www.youtube.com/watch?v=PYTp75sryWA> |  |
| 20 min | **Group Practice/Small Group Instruction:** Students will be broken up into pairs. They will work with paint strips that have numbers on them. They will be given various problems in scientific notation and have to add or subtract them then convert them to standard form to show their answer |  |
| min | **Evaluate Understanding/Assessment:** |  |
| 5 min | **Closing Activities/Summary/DLIQ:** TOTD |  |
|  | **Enrichment/Extension/Re-teaching/Accommodations:** *(How will my lesson satisfy the needs of all learners?)* |  |

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| **Resources/Instructional Materials Needed: Exponents rules and study guide** |
| **Notes:** |

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| **Structure** | **Instructional Strategies Used- Please highlight, bold, or underline** |
| Whole Group | -Anticipatory guides/sets -Book/author talks -Cornell Notes  -Close Reading -Questioning the Author (QtA) -Question-Answer-Relationships (QAR)  -Text annotation -Think aloud -Think/Pair/Share |
| Guided Practice/Small group | -Anticipatory guides/sets -Book/author talks -Cornell Notes  -Close Reading -Literature Circles -Questioning the Author (QtA)  -Question-Answer-Relationships (QAR) -Reading conferences -Reciprocal teaching  -Strategy groups -Text annotation -Think aloud  -Think/Pair/Share -Writing Conferences - Paint strip answers |
| Independent Practice | -Anticipatory guides/sets -Book/author talks -Cornell Notes  -Close Reading -Literature Circles -Questioning the Author (QtA)  -Question-Answer-Relationships (QAR) -Reading conferences -Reciprocal teaching  -Strategy groups -Text annotation -Think aloud  -Think/Pair/Share -Writing Conferences - Right To Move |
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| **TIME** | **INSTRUCTIONAL SEQUENCE** | **FORMATIVE ASSESSMENT** |
|  |  | Note: A variety of formative assessments should be used at key points throughout the lesson. |
| 10  min | **Get started/Drill/Do Now:** Remediation on Exponent rules and equations  “I do – We Do – You do”   1. (5^6)^3 2. (3^-2)^5 3. (7^3)^4 4. 2( x+4) = -x +5 5. -4(-x – 3)= 2x – 6 6. 3( x+ 2) = 2x - 34 | **Tuesday/Wednesday** |
| min | **Engage/Motivation:** |  |
| 30 min | **Whole Group Instruction:** Multiplying with scientific notation. Use county power point and word problems. Brain break after |  |
| 50 min | **Group Practice/Small Group Instruction:** In small groups students will be given problems to practice. They will rotate every 10 minutes to a different station. Teacher will assist at a station. Problems will include word problems. |  |
| min | **Independent Practice**: |  |
| 5 min | **Evaluate Understanding/Assessment:** Ticket Out the Door (adding and subtracting in scientific notation) |  |
| 5 min | **Closing Activities/Summary/DLIQ:** Students will complete the DLIQ in their math notebook. |  |
|  | **Enrichment/Extension/Re-teaching/Accommodations:** *(How will my lesson satisfy the needs of all learners?)* |  |

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| **Resources/Instructional Materials Needed:** Paint strips, county power point and website |
| **Notes:** |

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| **Structure** | **Instructional Strategies Used- Please highlight, bold, or underline** |
| Whole Group | -Anticipatory guides/sets -Book/author talks -Cornell Notes  -Close Reading -Questioning the Author (QtA) -Question-Answer-Relationships (QAR)  -Text annotation -Think aloud -Think/Pair/Share |
| Guided Practice/Small group | -Anticipatory guides/sets -Book/author talks -Cornell Notes  -Close Reading -Literature Circles -Questioning the Author (QtA)  -Question-Answer-Relationships (QAR) -Reading conferences -Reciprocal teaching  -Strategy groups -Text annotation -Think aloud  -Think/Pair/Share -Writing Conferences - Paint Strip Answers |
| Independent Practice | -Anticipatory guides/sets -Book/author talks -Cornell Notes  -Close Reading -Literature Circles -Questioning the Author (QtA)  -Question-Answer-Relationships (QAR) -Reading conferences -Reciprocal teaching  -Strategy groups -Text annotation -Think aloud  -Think/Pair/Share -Writing Conferences - Right To Move |
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| **TIME** | **INSTRUCTIONAL SEQUENCE** | **FORMATIVE ASSESSMENT** |
|  |  | Note: A variety of formative assessments should be used at key points throughout the lesson. |
| 10  min | **Get started/Drill/Do Now:** Remediation of Exponent rules and equations “I do – We do – You do” | **Thursday/ Friday** |
| min | **Engage/Motivation:** |  |
| 30 min | **Whole Group Instruction:** Dividing with scientific notation. Use county power point and word problems. Brain break after |  |
| 50 min | **Group Practice/Small Group Instruction:** In small groups students will be given problems to practice. They will rotate every 10 minutes to a different station. Teacher will assist at a station. Problems will include word problems. |  |
| min | **Independent Practice**: |  |
| 10 min | **Evaluate Understanding/Assessment:** Ticket Out the Door (multiplying and dividing in scientific notation) |  |
| 5  min | **Closing Activities/Summary/DLIQ:** Students will complete the DLIQ in their math notebook. |  |
|  | **Enrichment/Extension/Re-teaching/Accommodations:** *(How will my lesson satisfy the needs of all learners?)* |  |

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| **Resources/Instructional Materials Needed:** Paint strips, video |
| **Notes:** |

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| **Structure** | **Instructional Strategies Used- Please highlight, bold, or underline** |
| Whole Group | -Anticipatory guides/sets -Book/author talks -Cornell Notes  -Close Reading -Questioning the Author (QtA) -Question-Answer-Relationships (QAR)  -Text annotation -Think aloud -Think/Pair/Share |
| Guided Practice/Small group | -Anticipatory guides/sets -Book/author talks -Cornell Notes  -Close Reading -Literature Circles -Questioning the Author (QtA)  -Question-Answer-Relationships (QAR) -Reading conferences -Reciprocal teaching  -Strategy groups -Text annotation -Think aloud  -Think/Pair/Share -Writing Conferences - Paint Strip Answers |
| Independent Practice | -Anticipatory guides/sets -Book/author talks -Cornell Notes  -Close Reading -Literature Circles -Questioning the Author (QtA)  -Question-Answer-Relationships (QAR) -Reading conferences -Reciprocal teaching  -Strategy groups -Text annotation -Think aloud  -Think/Pair/Share -Writing Conferences - Right To Move |