Number and Operation MCA-III Achievement Level Descriptors

General comments for all grade levels

Meets State Standard

Exceeds the Standard Students at this level of mathematics exceed the mathematics skills of the Minnesota Academic Standards. Some of the skills demonstrated very consistently may include:

Meets the Standard Student at this level of mathematics meet the mathematics skills of the Minnesota Academic Standards. Some of the skills demonstrated may include:

Does Not Meet State Standard

Partially Meets the Standard Students at this level partially meet the mathematics skills of the Minnesota Academic Standards. Some of the skills demonstrated may include:

Does Not Meet the Standard Students at this level succeed at few of the fundamental mathematical skills of the Minnesota Academic Standards. Some of the skills demonstrated may include:

Reflection Questions

- What patterns emerge in the Number and Operations Strand?
- What similarities and differences do you notice from grade to grade?
- How do the 'verbs' change at each of the 4 achievement levels?
- What can you do to assure all students meet the state standards for this strand?

3rd Grade

399

Meets State Standard

Exceeds the Standard Solves real-world and mathematical problems using addition, subtraction, and multiplication; understands that the size of a fractional part is relative to the size of the whole.

366

Meets the Standard Compares and represents whole numbers up to 100,000; solves real-world and mathematical problems using addition and subtraction; represents multiplication and division in various ways (reference MN Academic Standards 3.1.2.3); compares and orders fractions with common denominators.

350

Does Not Meet State Standard

Partially Meets the Standard Represents whole numbers up to 1,000 using expanded notations; compares whole numbers up to 100,000; subtracts multi-digit whole numbers without regrouping; knows common multiplication and division facts (2s, 5s, 10s); writes fractions for a given representation, including number line.

340

Does Not Meet the Standard Represents whole numbers with words; adds multi-digit whole numbers, matches fractions with correct area model.

301

4th Grade

499

Meets State Standard

Exceeds the Standard Chooses correct operation in a problem solving situation; uses various strategies to solve multi-step problems and assess the reasonableness of results; develops a rule for addition and subtraction of fractions with common denominators; compares and orders decimals to the thousandths.

466

Meets the Standard Knows division facts; multiplies multi-digit numbers; solves multiplication problems when all relevant information is present and the question is clearly defined; solves division problems by solving for missing factor; connects relationship between multiplication and division; solves multi-step problems involving addition and subtraction; uses fraction models to determine equivalent fractions; reads and writes decimals up to thousandths.

450

Does Not Meet State Standard

Partially Meets the Standard Knows basic multiplication facts and recognizes some division facts; knows decimal and fraction equivalents for halves and fourths; uses models to compute with fractions.

440

Does Not Meet the Standard : Partial recall of basic multiplication facts; computes inefficiently (e.g., uses repeated addition instead of multiplication); uses models to represent fractions.

401

5th Grade

599

Meets State Standard

Exceeds the Standard Efficiently divides and knows when to divide in a problem solving situation; adds and subtracts fluently with fractions and decimals.

563

Meets the Standard Divides multi-digit numbers; solves division problems when all relevant information is present and the question is clearly defined; orders and compares common fractions and decimals; adds and subtracts fractions; adds and subtracts decimals.

550

Does Not Meet State Standard

Partially Meets the Standard Knows basic division facts; knows benchmark decimal and fraction equivalents (e.g., ½ = 0.5, ¼ = 0.25).

540

Does Not Meet the Standard Partial mastery of basic division facts; recognizes fractions and decimals in familiar context.

501

6th Grade

699

Meets State Standard

Exceeds the Standard Recognizes when it is appropriate to apply the concept of factoring; sees connection between factoring and application in a problem solving situation; efficiently translates between fraction, decimal, and percent forms of positive rational number to solve problems; compares ratios and understands their relationship to fractions; recognizes ratios in context.

662

Meets the Standard Understands the concept of factors and factoring (composing and decomposing numbers); determines equivalences among fractions, decimals, and percents but reverts to one representation to solve problems (e.g., changes everything to decimals); creates ratio to represent situation when given key words in context; understands concept of ratio.

650

Does Not Meet State Standard

Partially Meets the Standard Names pairs of factors of numbers (e.g., 12 = 2 x 6, 12 = 3 x 4); recognizes equivalences among common fractions, decimals, and percents; recognizes a ratio (only) in numeric form; solves unit rate problems in a straight-forward context (division).

640

Does Not Meet the Standard Can only name common pairs of factors of a given number (e.g., 12 = 3 x 4); uses decimals to separate numbers (e.g., ¾ = 3.4); sees decimal in money context only; solves ratio or rate problems as multiplication and division problems.

601

7th Grade

799

Meets State Standard

Exceeds the Standard Conceptual understanding of rational numbers including justification of why a number is rational; solves non-routine (complex) problems/situations using rational numbers.

760

Meets the Standard Recognizes rational numbers in various forms and converts between forms; compares positive and negative rational numbers; solves multi-step problems involving rational numbers in routine problems/situations including proportions; understands that absolute value is the distance from zero.

750

Does Not Meet State Standard

Partially Meets the Standard Changes numbers in fractional form to decimal form and uses to compare; recognizes common repeating decimals and perfect squares under 100 as rational; solves multi-step problems involving familiar rational numbers when all relevant information is present and the question is clearly defined.

740

Does Not Meet the Standard Changes numbers in fractional form to decimal form by dividing; recognizes that short terminating decimals, fractions, and whole numbers are rational; recognizes familiar numbers as rational; recognizes that a negative numbers is less than a positive number; solves one-step problems with integers; uses a set of defined steps to find a missing number in a given proportion.

701

8th Grade

899

Meets State Standard

Exceeds the Standard Conceptual understanding of real numbers.

861

Meets the Standard Recognizes real numbers in various forms; compares real numbers; generates equivalent expressions involving rational numbers in routine problems/situations, including scientific notation.

850

Does Not Meet State Standard

Partially Meets the Standard Recognizes familiar rational and irrational numbers.

840

Does Not Meet the Standard Recognizes fractions and terminating decimals as rational numbers.

801