DCCTM Middle Grades Math Bowl Item Specifications

MA.6.NSO.4.2 Extend previous understanding of multiplication and division to compute products and quotients of positive fractions by positive fractions, including mixed numbers, with procedural fluency.

MA.6.AR.3.5 Apply ratio relationships to solve mathematical and real-world problems involving percentage using the relationship between two quantities.

MA.6.GR.2.2 Solve mathematical and real-world problems involving the area of quadrilaterals and composite figures by decomposing them into triangles or rectangles.

MA.7.AR.3.1 Apply previous understanding of percentages and ratios to solve multi-step real-world percent problems.

MA.7.NSO.2.1 Solve mathematical problems using multi-step order of operations with rational numbers including grouping symbols, whole-number exponents, and absolute value.

MA.7.DP.2.4 Use a simulation of a simple experiment to find experimental probabilities and compare them to theoretical probabilities.

MA.7.GR.1.5 Solve mathematical and real-world problems involving dimensions and areas of geometric figures, including scale drawings and scale factors.

MA.7.DP.1.3 Given categorical data from a random sample, use proportional relationships to make predictions about a population.

MA.8.NSO.1.4 Express numbers in scientific notation to represent and approximate very large or very small quantities. Determine how many times larger or smaller one number is compared to a second number.

MA.8.NSO.1.7 Solve multi-step mathematical and real-world problems involving the order of operations with rational numbers including exponents and radicals.

MA.8.AR.1.1 Apply the Laws of Exponents to generate equivalent algebraic expressions, limited to integer exponents and monomial bases.

MA.8.AR.2.1 Solve two-step linear inequalities in one variable and represent solutions algebraically and graphically.

Event Cognitive Complexity -Individual Event (Multiple Choice=100%)

Grade	Low	Moderate	High
6th	15%	55%	30%
7/8th	17%	45%	38%

Event Cognitive Complexity -Team Event (Short Response=100%)

Grade	Low	Moderate	High
6th	30%	30%	40%
7/8th	25%	25%	50%

Sample Questions

1) Thirty-three minutes after 9 am is how many minutes before noon?
   A) 140   B) 100   C) 147   D) 125

2) The sum of three distinct prime numbers is 40. What is the product of these three prime numbers?
   A) 323   B) 434   C) 242   D)595

3) 30% of 40% is what percent?
   A) 9%   B) 10%   C) 12%   D) 14%

4) 1.5m + 60cm + 0.02km is equal to how many meter?
   A) 32.4 m   B) 22.1 m   C) 47.1 m   D) 17.8 m

5) The total value of 2x nickels and x dimes is $0.60 when x is what value?
   A) 4   B) 7   C) 5   D) 3

6) The sum of 10 consecutive integers is Q. Ten times the smallest of these is R. What is the value of Q-R?
   A) 45   B) 39   C) 27   D) 18

7) Eighteen chips are placed in three stacks. The second stack has three more than the first. The third stack has one-half as many as the first. How many chips are in the second stack?
   A) 7   B) 8   C) 9   D)10

8) In 2009, Sebastian invested $100 for two years. During the first year his investment suffered a 15% loss, but during the second year the remaining investment showed a 20% gain. Over the two-year period, what was the change in Sebastian's investment?
   A) 5% loss   B) 2% loss   C) 1% gain   D) 2% gain   E) 5% gain

9) For how many positive integer values of n are both n/3 and 3n three-digit whole numbers?
   A) 12   B) 21   C) 27   D) 33   E) 34

10) There are 400 marbles in a bag. They are yellow, pink, and blue. If the probability of picking pink is .4 and the probability of picking a blue marble is .5, how many yellow marbles are there?
    A) 20   B) 30   C) 40   D) 50   E) 60

11) The eight-digit number 79,12A,504 is divisible by 6. What are the possible values of "A"?
    A) 2,5,8   B) 1,3,5   C) 3,6,9   D) 2,4,6   E) 1,4,6

12) A wheel on a racing bike has a diameter of 28 inches. How many complete revolutions will the wheel make in one mile?
    A) 560   B) 890   C) 720   D) 654   E) 398

13) How many of the positive integer factors of 432 are perfect squares?
    A) 4   B) 5   C) 8   D) 7   E) 6

We will provide pencils, calculators, and lots of fun!

Answers: (1)C, (2)B, (3)C, (4)B, (5)D, (6)A, (7)C, (8)D, (9)A, (10)C, (11)A, (12)C, (13)D