"Math Is Cool" Championships — 2023-24

4th Grade — March 2024

Sponsored by:

GENERAL INSTRUCTIONS applying to all tests:

- *Good sportsmanship is expected throughout the competition by <u>all</u> involved (competitors and observers). Display of poor sportsmanship will result in disqualification.*
- *Competitors may not use calculators or any other aids on any portion of this contest.*
- *Unless stated otherwise:*
  - *All answers are integers, and any non-integer answers will be "coded" as integers.*
  - *For 5th grade and up, all fractions and ratios must be reduced to simplest form, all radicals must be simplified, and all denominators must be rationalized.*
  - *Do not round or approximate answers. Leave answers in terms of π or other irrational quantities (e.g., √2), where applicable.*
- *Units are not necessary as part of your answer, However, if you choose to use units, they must be correct.*
- *Record all answers on the colored cover sheets in the answer column only.*
- ***Be sure that the student name, school, team number, etc. has been filled out at the top of each answer sheet.***
- *Tests will be scored as a 0 if answers are not recorded correctly on the answer sheets.*
- *Blank answer sheets and answer sheets with no name will be scored as a 0.*

FINAL SCORES AND AWARDS

Individual awards are determined by both the Mental Math and Individual Test scores. Individual ties are broken based on the following, in this order: total scaled individual points, total number of correct answers on the Individual Test, Mental Math raw score, number of correct answers from Individual Test #31-40, number of correct answers from Individual Test #16-30, highest numbered question answered correctly on the Individual Test working backwards from #40.

Team (School) awards are based on the highest score from amongst each of the school's "teams of 4 students" in each event and is calculated as 2·(Sum of highest 3 Mental Math scores) + 2·(Multiple Choice) + 6·(Team) + 1·(Triple Jump) + 1·(College Bowl), for approximate weights of 25%, 20%, 30%, 15% and 10% respectively. Team ties are broken based on highest event score in order of the events, starting with Mental Math.

MENTAL MATH TEST - 30 sec./quest., 8 problems, ~8%/25% of individ./team scores

The proctor will read each question twice. You may not do any writing or talking while arriving at a solution. Record only your answer on your answer sheet. You may not change, cross out, erase, or write over an answer once you have written it down. The maximum wait time is 30 seconds after completion of the second reading of the question. Correct answers receive 1 point.

INDIVIDUAL TEST - 35 minutes, 40 problems, ~92% of individual score

When you are prompted to begin, tear off the colored answer sheet and begin testing. No talking during this individual test. You will be given a 5 minute time warning. Correct answers receive 2 points for problems 1-30 and 3 points for 31-40 (in the scaled score).

"Math Is Cool" Championships — 2023-24

4th Grade — March 2024

Final Score *(out of 8)*

Room # _____ **School Name** _____ **Student Name** _____ **Team #**

Mental Math – ~25% of team score & ~8% of individual score

All students in the room will concurrently be asked the same eight questions in this individual test. When it is time to begin, the proctor will read the first question twice. You may not do any writing or talking while arriving at a solution. Once you have a solution, record it on the sheet in front of you. ***You may not change or cross out answers once you have written an answer down. If there are eraser marks, write-overs, or crossed-out answers, they will be marked wrong.*** *Once all students have laid their pencils on the desk, another question will be asked. If a student doesn't lay his or her pencil down, the maximum wait time is 30 seconds after completion of the second reading of the question before the next question is read. You may continue to work on a problem (in your head) while the next question is being read. The raw score is 1 point per correct answer.*

STUDENT: DO NOT WRITE IN SHADED REGIONS (or anywhere else, other than the answer box)

	Answer	Scorer 2 0 or 1	Scorer 1 0 or 1
1			
2			
3			
4			
5			
6			
7			
8			
4th Grade	**TOTAL:**		

"Math Is Cool" Championships — 2023-24

4th Grade — March 2024

Key

Mental Math Contest – Answer Key

30 seconds per question – ~25% of team score & ~8% of individual score

SCORERS — Write-overs, Cross-outs, and Erasures Must be Marked Incorrect (0)
Bracketed items […] in the answer key are optional.

4th Grade

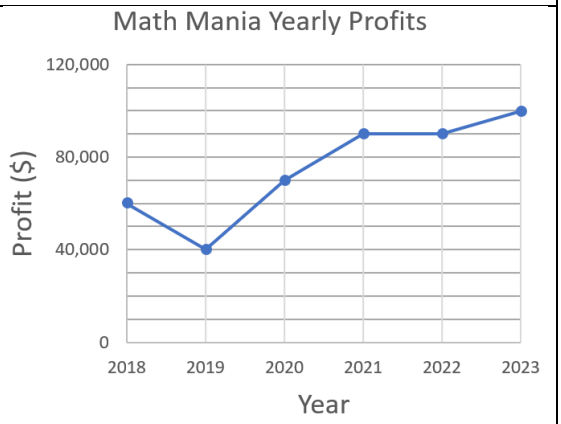
	Answer	
1	17508	Write down the number seventeen thousand five hundred eight.
2	22	What is the next number in the following sequence? Two, seven, twelve, seventeen, and so on.
3	80	Four thousand eighty-one equals four thousand one plus what number?
4	4 [cm]	A rectangle has an area of twenty-four square centimeters, and a length of six centimeters. How many centimeters is the width of the rectangle?
5	23	What is the value of x plus twelve when x equals eleven?
6	50 [cm]	A piece of rope measuring four meters is cut into eight equal lengths. In centimeters, how long is each piece?
7	105 [years]	Daniel asks his great-grandpa how old he is. He responds, "My age is the product of the first 3 odd prime numbers." How old is Daniel's great-grandpa, in years?
8	11220 [cents]	At the mall, Vivien's mom bought her a pair of shoes that cost one hundred twenty dollars. They had a fifteen percent off coupon which was applied pre-tax. After adding the ten percent sales tax, what is the total amount that Vivien's mom paid, in cents?

"Math Is Cool" Championships — 2023-24

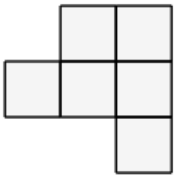
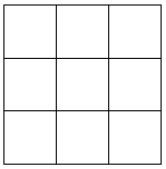
4th Grade — March 2024

Individual Contest

Record all answers on the colored cover sheet. 35 minutes, 40 problems, ~92% of individual score.
No talking during this individual test. A 5-minute time warning will be given.

	Questions 1-30: 2 points each
1	Round 2,023,202 to the nearest thousand.
2	When Justin first started going to the gym, he could bench press 90 pounds. Now, he can bench press 225 pounds. How many more pounds can he bench press now than when he started?
3	How many lines of symmetry does this figure have? 
4	Carter needs to eat less than 500 calories a day for his diet. An orange has 70 calories. What is the maximum number of oranges he can eat without going over his calorie limit?
5	What is the mode of the following set of numbers: 2, 17, 3, 5, 11, 3, 7, 13
6	Evaluate: $20 + (2 \times 3)$
7	Peter has 31 fantasy books, 46 sci-fi books, and 23 realistic fiction books. If he selects a book at random, what is the probability, as a percentage, that Peter picks a fantasy book?
8	What is the area in square meters of a rectangle with length 6 meters and width 3 meters?
9	What number comes next in the following sequence? 1, 2, 2, 3, 3, 3, 4, 4, 4, …
10	How many of the following numbers are multiples of 5? 70, 75, 99, 110, 331, 490, 923, 955
11	The line graph shows the yearly profits for the Math Mania company over the last 6 years. In dollars, how much more did the company earn in 2021 compared to 2019? 
12	What is 10% of 120?

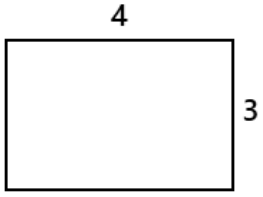
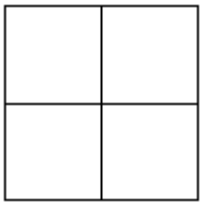
Continued on next page.

13	Olina wants to buy a new bandana to start the school year. The bandana costs $6.95, and she pays with a 10-dollar bill. If she receives her change entirely in nickels, how many nickels does she receive?
14	The figure shown here is made up of squares that measure 1 inch on each side. What is the outer perimeter of the shape, in inches? 
15	Namita and Darsha each have a candy box. Namita said, "If you give me one of your candies, we would both have the same number of candies". Darsha said, "If you hadn't eaten all of yours already, you would have some left!" How many candies does Darhsa have?
16	Sonit drew the grid shown here, which is made up of unit squares. How many total squares of any size are in the grid? 
17	What number comes next in the following number pattern? 15, 15, 10, 30, 30, 20, 60, 60, 40, …
18	Ivy is making pencils in woodshop class. The lengths of her first 4 pencils, in centimeters, are: 12.5, 13.5, 15, and 15. What is the mean length of her pencils, in centimeters?
19	Evaluate: $\frac{4}{5} \times 20$
20	How many positive integers can be put in the blank to make the inequality below true? $3 \times \_ + 2 < 23$
21	Luke's biscuit recipe calls for 2 cups of self-rising flour, $\frac{1}{2}$ cup of butter, and 6 tablespoons of milk to make 1 batch. If he has 8 cups of flour, 2 cups of butter, and 20 tablespoons of milk, how many full batches of biscuits can he make?
22	A sequence begins: 11, 11011, 11100111, 11110001111, and the pattern continues. What is the sum of the digits in the 23rd number in the sequence?
23	The following table shows the number of students per grade at Garfield High School. If 10% of 9th graders, 20% of 10th graders, 10% of 11th graders, and 5% of 12th graders are on the math team, how many total students from Garfield High are on the math team? **Grade** / **Number of Students** 9th: 150 10th: 200 11th: 250 12th: 200
24	Connor and George each choose a different integer from 1 to 10 without telling each other. Their conversation goes as follows: Connor: "My number is divisible by 4." George: "Well then, I now know your number." Connor: "Well, I know your number also." Assuming perfect logic from both of them, what is the sum of Connor's and George's numbers?

Continued on next page.

25	Araceli's favorite 3 chords on his guitar are E, A, and D, but she likes A the most. In how many different orders can Araceli play a series of 4 of her favorite chords, if she plays E and D once each and plays A twice?
26	If $x = 1$, what is the value of $2x^2 + 3x + 1$?
27	At camp, Levi can choose one of five possible classes for his first period: Archery, Swimming, Track and Field, Basketball, or Meditation. He then chooses a different one of the five classes for his second period. He can then choose one of three possible activities, Hiking, Volleyball, or Frisbee, to do after that. How many different schedules can Levi choose?
28	If you pick a random whole number from 1 to 20 inclusive (including 1 and 20), what is the probability that it is prime, as a percentage?
29	A quadrilateral has 4 interior angles, measuring 120°, 110°, x°, and x°. What is the measure of each angle x, in degrees?
30	In how many different ways can you make 1 dollar using only nickels and dimes?

Challenge Questions: 3 points each

31	Evaluate the sum of the integers between 30 and 40 inclusive.
32	Alden, Miles, and Nathan, all weigh themselves. Alden and Miles weigh the same, and Nathan is 140 pounds less than the sum of Miles and Alden's weights. If all three of them stand on the scale together, their combined weight is 340 pounds. In pounds, how much does Miles weigh?
33	The rectangle has side lengths 3 and 4 units. What is the length of the diagonal of the rectangle, in units? 
34	Max is trying to color a 2 by 2 grid of squares. He can color each individual square red or blue, and he colors every square. He has to have at least one square colored blue and one square colored red. How many possible ways can Max color the grid? The grid is in a fixed location, it cannot be rotated. 
35	When a certain 2-digit number is divided by 3 or 5, the remainder is 1. The sum of the digits of this number is 13. What is the number?
36	An equilateral triangle with perimeter 6 inches is divided into 4 smaller congruent equilateral triangles. What is the perimeter in inches of one of the 4 smaller triangles?
37	In a leap year (such as 2024), on which date of a month would exactly 2/3 of the year have elapsed? To be clear: your answer should consist only of the date, a positive integer. Do not include the month in your answer.
38	What is the sum of the mean and the median of the list of all the positive odd integers less than 100?

Continued on next page.

39	Haruta is singing 3 songs for a competition. He times each song, and the combined length that he finds is 9 minutes and 36 seconds, but his stopwatch is inaccurate. For every 8 seconds it records, 9 seconds pass in real life. For the competition, Haruta is only permitted to be on stage for 10 minutes. If he has to include a 30 second introduction along with his three songs, how many seconds will he be over the limit?
40	What is the largest whole number less than 1000 that is divisible by each of the first 4 prime numbers?

"Math Is Cool" Championships – 2023-24

KEY

Individual Contest – Answer Key

SCORERS: Bracketed […] items in answer key are optional. Just mark the score as 0 or 1 and add up those values to reflect total correct.
First Scorer – use the right-hand columns so 2nd scorer can do a blind scoring.

	Answer
1	2,023,000
2	135 [pounds]
3	1 [line of symmetry]
4	7 [oranges]
5	3
6	26
7	31 [percent]
8	18 [square meters]
9	4
10	5 [numbers]
11	50,000 [$]
12	12
13	61 [nickels]
14	12 [inches]
15	2 [candies]

	Answer
16	14 [squares]
17	120
18	14 [centimeters]
19	16
20	6 [positive whole numbers]
21	3 [batches of biscuits]
22	46
23	90 [students]
24	12
25	12 [orders]
26	6
27	60 [possible schedules]
28	40 [%]
29	65 [degrees]
30	11 [ways]

	Answer
31	385
32	120 [pounds]
33	5 [units]
34	14 [ways]
35	76
36	3 [inches]
37	31
38	100
39	78 [seconds]
40	840

4th Grade

March 2024

"Math Is Cool" Championships – 2023-24

Total Correct (all columns)

Room # _____ SCHOOL NAME _____ STUDENT NAME _____ Team # _____

Individual Contest – Score Sheet

STUDENTS: DO NOT WRITE IN SHADED REGIONS

	Answer	1 or 0	1 or 0
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			
1-15 TOTAL:			

	Answer	1 or 0	1 or 0
16			
17			
18			
19			
20			
21			
22			
23			
24			
25			
26			
27			
28			
29			
30			
16-30 TOTAL:			

	Answer	1 or 0	1 or 0
31			
32			
33			
34			
35			
36			
37			
38			
39			
40			
31-40 TOTAL:			

4th Grade

March 2024

Scorers: Just score as 0 or 1 and add up those values (i.e., just work with number correct).

"Math Is Cool" Championships — 2023-24

4th Grade — March 2024

Team Multiple Choice Contest

USE THE FOLLOWING INFORMATION TO SOLVE PROBLEMS #1 THROUGH #4.

Derek wants to make a meal plan for a keto diet. Shown here is a list of foods and their nutritional values per 100 grams (g):

Item	Total Fat	Sodium	Total Carbohydrate	Protein
Eggs (per 100 g)	10g	130mg	2g	12g
Milk (per 100 g)	3g	86mg	10g	6g
Avocados (per 100 g)	15g	7mg	9g	2g
Walnuts (per 100 g)	65g	2mg	14g	16g
Strawberries (per 100 g)	0.5g	1mg	8g	1g

1. How much fat would be found in 200 grams of eggs?

   A) 10 g B) 20 g C) 100 g D) 200 g E) Answer not given.

2. What percentage of milk is carbohydrate?

   A) 0.1 % B) 1 % C) 10 % D) 100 % E) Answer not given.

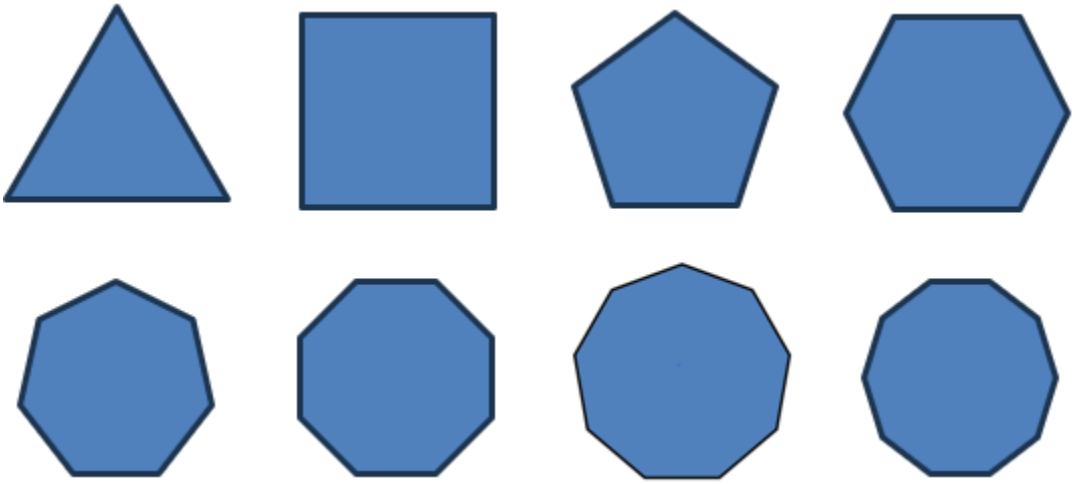
3. A keto diet is characterized by foods that have lots of fat, but low amounts of carbohydrates. Which one of the five given items would Derek pick if he wanted the highest fat to carbohydrate ratio?

   A) Eggs B) Milk C) Avocados D) Walnuts E) Strawberries

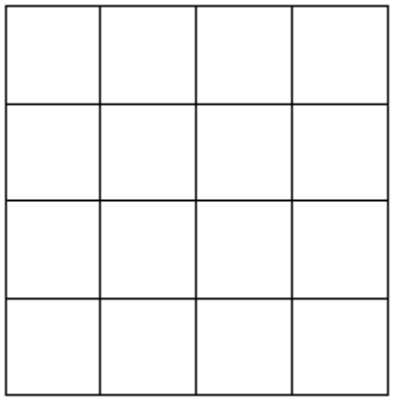
4. Derek eats 180 grams of protein each day. On a certain day, he gets 4/9 of his daily protein from walnuts. If one walnut is 2g, how many walnuts did he eat?

   A) 5 B) 80 C) 250 D) 500 E) Answer not given.

Continued on Next Page

	USE THE FOLLOWING INFORMATION TO SOLVE PROBLEMS #5 THROUGH #7. A mathematical set of cookie cutters contains one of each of the regular polygons with n sides, where n is between 3 and 10, inclusive. 
5	In this set, what is the total number of sides of all the cookie cutters combined? A) 45 B) 49 C) 52 D) 54 E) Answer not given.
6	Rohit decided to make 8 dozen octagon cookies and $5\frac{1}{3}$ dozen pentagon cookies. How many more octagon cookies does he have than pentagon cookies? A) 32 B) 64 C) 96 D) 160 E) Answer not given
7	The heptagon (7 sides), octagon (8 sides) and nonagon (9 sides) all have the same side length of 3 centimeters. Rohit decided to glue together one edge of the heptagon to one edge of the octagon. He then glued the opposite edge of the octagon to one edge of the nonagon. What is the outer perimeter of the new shape, not counting the glued edges? A) 20 cm B) 60 cm C) 72 cm D) 84 cm E) Answer not given.

Continued on Next Page

	USE THE FOLLOWING INFORMATION TO SOLVE PROBLEMS #8 THROUGH #10. Julie owns a group of 16 red pandas, and also has a grid of 16 pens to keep them in, as shown below. Each panda goes into a separate pen at night to sleep.  
8	The average weight of the pandas is 12 pounds. How much do all of the pandas weigh together? A) 12 lbs B) 48 lbs C) 148 lbs D) 192 lbs E) Answer not given.
9	Every night, Julie puts one panda into each pen at bedtime. What is the maximum amount of pandas Julie can put into pens without having a full row of 4 pandas or a full column of 4 pandas? Diagonals do not count as a row or a column. A) 9 B) 10 C) 11 D) 12 E) Answer not given.
10	One night as she put the pandas to bed, Julie randomly selected each time which open pen to put the next panda in. What is the probability that the first 4 pandas ended up in the top row of the grid? A) 12/1024 B) 24/1024 C) 4/1820 D) 1/1820 E) Answer not given.

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Key

Team Multiple Choice Contest – Answer Key

4th Grade

Correct responses are worth 2 points, incorrect responses are worth -1 point, and absence of a response is worth 0 points.

	Answer
1	B
2	C
3	A
4	C
5	C
6	A
7	B
8	D
9	D
10	D

"Math Is Cool" Championships — 2023-24

4th Grade — March 2024

Final Score *(out of 20)*

Room # _____ **School Name** _____ **Team #** _____

Team Multiple Choice Contest – 15 minutes – ~20% of team score

This test is the only test where you will be penalized for incorrect responses. You will receive two points for a correct letter response, zero points for leaving it blank, and minus one point for an incorrect response. When you are prompted to begin, tear off the colored answer sheet, pass out a copy of the test to each team member, and begin testing. ***ONLY a letter response should be listed as an answer on this answer sheet.***

Correct responses are worth 2 points, incorrect responses are worth -1 point, and absence of a response is worth 0 points.

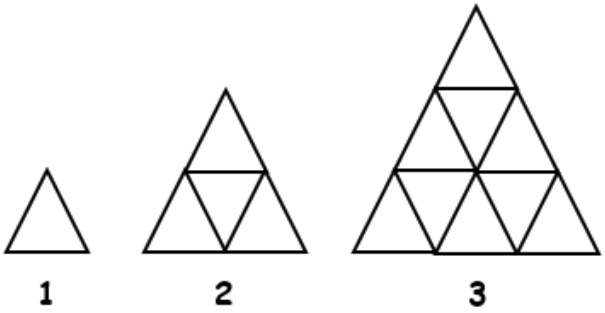
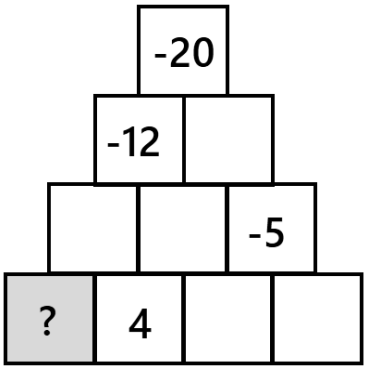
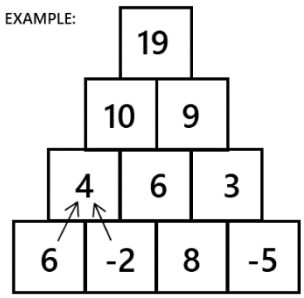
STUDENTS: DO NOT WRITE IN SHADED REGIONS

		Scorer 2	Scorer 1
Answer		-1, 0, or 2	-1, 0, or 2
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
4th Grade	**TOTAL:**		

"Math Is Cool" Championships — 2023-24

4th Grade — March 2024

Team Contest

1	Tiny the giant has grown $1\frac{1}{2}$ inches every year for the past 20 years. Twenty years ago, he was 53 inches tall. How tall is he now, in inches?
2	The side lengths of a rectangular prism are 6, 8, and 10 meters. What is its volume, in cubic meters?
3	Andrei, Bridger, Colin, Dhruv, and Evan placed in some order, 1, 2, 3, 4, and 5 at a wrestling meet. If Evan was 3 places ahead of Colin, Andrei was 2 places ahead of Dhruv, and Evan did not win the meet, what place did Dhruv get? Give your answer as a place number: 1, 2, 3, 4, or 5.
4	The following pattern is made from congruent triangles. The first shape has one triangle. The second shape has four congruent triangles, and so on. How many congruent triangles will be in the 4th shape in the pattern?  1 2 3
5	What is the greatest odd factor of 30?
6	In the example number tower shown bottom right, each square is made by adding the numbers in the two squares below it. For example, 6 + (-2) = 4. In the following number tower, which follows the same pattern, what number goes in the shaded square?  

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7	A sequence that starts with 3 increases by 7 each following term, starting with 3, 10, 17, … What is the 100^{th} number in this sequence?
8	The average of 3 whole numbers is a whole number. One of the numbers is 2, and the other two numbers are the same as each other, and not equal to 2. If the average of the three numbers is less than 10, how many different values could the other two numbers equal?
9	In how many ways can you make 1 dollar using only quarters, dimes, and nickels?
10	In Mr. Kostenko's history class, the number of blue-haired students is 8 more than half the number of green-haired students, and the number of green-haired students is 8 more than half the number of blue-haired students. How many students are in Mr. Kostenko's history class, if only 3 of them do not have blue or green hair?

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4th Grade — March 2024

Key

Team Contest – Answer Key

4th Grade

	Answer
1	83 [inches]
2	480 [cubic meters]
3	3[rd place]
4	16 [triangles]
5	15
6	-13
7	696
8	3 [different values]
9	29 [ways]
10	35 [students]

"Math Is Cool" Championships — 2023-24

4th Grade — March 2024

Final Score *(out of 10)*

Room # _____ **School Name** _____ **Team #** _____

Team Contest – 15 minutes – ~30% of team score

When you are prompted to begin, tear off the colored answer sheet and give a copy of the test to each of your team members and begin testing. Each problem is scored as a 1 or 0. Record all answers on this colored answer sheet.

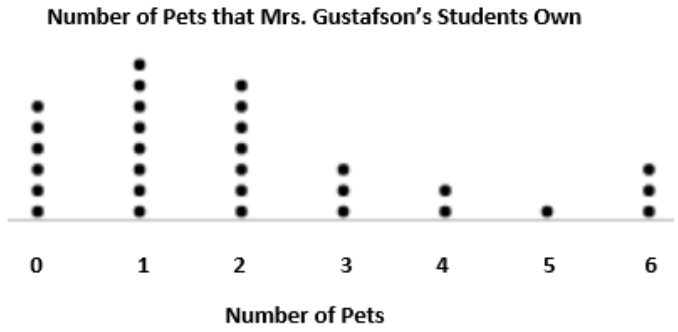
STUDENTS: DO NOT WRITE IN SHADED REGIONS

	Answer	Scorer 2 0 or 1	Scorer 1 0 or 1
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
4th Grade	**TOTAL:**		

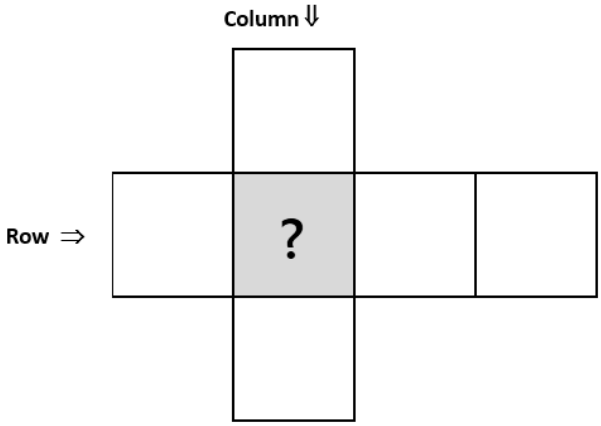
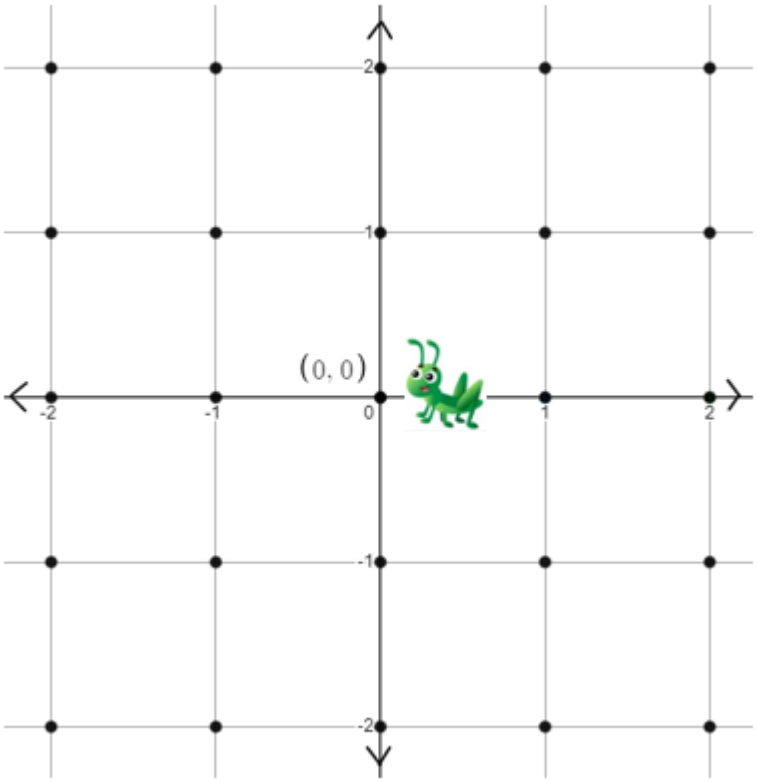
"Math Is Cool" Championships — 2023-24

4th Grade — March 2024

Linda Moore Triple Jump

1	Evaluate the following: $(5 \times 10000) + (4 \times 1000) + (3 \times 100) + (2 \times 10) + 1$
2	When the following numbers are put in order from smallest to largest, what is the third largest number? 18460 2082 2190 434 20623 19 2024
3	A number pattern starts with 1, 3, and each following number is the sum of the previous 2. For example, the 3rd number is 1 + 3 = 4. What is the seventh number in the pattern? Pattern: 1, 3, 4, 7, …
4	Amina swims each lap of her 20-lap freestyle race in 30 seconds. After swimming for 3 minutes, how many more laps does she have to swim?
5	Mrs. Gustafson's class took a survey on how many pets each student owns. The results are shown in the graph, with each dot representing one student. How many students own two or more pets? 
6	What is the largest number of 1 cm by 3 cm rectangles that can fit in a 5 cm by 7 cm rectangle, with none of the rectangles overlapping?
7	Three friends eat at a restaurant and the bill comes to $150. If they give the waiter an 18% tip, then split the bill evenly, how much, in dollars, does each friend pay?

Continued on next page.

8	Put each of the following numbers into exactly one square, so that the numbers in the column and the numbers in the row each add up to 3. What number is in the shaded box? -6, -4, 1, 2, 3, 5 
9	Akaash can run one mile at a steady rate of 10 miles per hour, while Virun can run one mile at a steady rate of 9 miles per hour. If they both run one mile, starting at the same time, how many seconds after Akaash finishes will Virun finish?
10	A grasshopper is sitting on the point (0, 0) on the coordinate plane. He can hop exactly one unit at a time either up, down, left, or right. For example, from the starting point of (0, 0) he can hop to the points (1, 0), (0, -1), (-1, 0) or (0, 1). With the second hop, he could again go one unit in any direction. Starting at (0, 0), and taking exactly four hops, how many different paths can he take that will have him end up again at the point (0, 0)? 

"Math Is Cool" Championships — 2023-24

4th Grade — March 2024

Key

Linda Moore Triple Jump – Answer Key

4th Grade

	Answer
1	54321
2	2190
3	29
4	14 [laps]
5	16 [students]
6	11 [rectangles]
7	59 [dollars]
8	5
9	40 [seconds]
10	36 [paths]

"Math Is Cool" Championships — 2023-24

4th Grade — March 2024

Final Score *(out of 10)*

Room # _____ **School Name** _____ **Team #** _____

Linda Moore Triple Jump – 15 minutes – ~15% of team score

When you are prompted to begin, tear off the three colored answer sheets and give a copy of the test to each of your team members and begin testing. Record all answers on this colored answer sheet. This Submittal #1 will be collected after 5 minutes.

SUBMITTAL #1

STUDENTS: DO NOT WRITE IN SHADED REGIONS

	Answer	Scorer 2 0 or 1	Scorer 1 0 or 1
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
4th Grade	**TOTAL:**		

"Math Is Cool" Championships — 2023-24

4th Grade — March 2024

Final Score *(out of 10)*

Room # _____ School Name _____ Team # _____

Linda Moore Triple Jump – 15 minutes – ~15% of team score

This Submittal #2 will be collected after 10 minutes.

SUBMITTAL #2

STUDENTS: DO NOT WRITE IN SHADED REGIONS

	Answer	Scorer 2 0 or 1	Scorer 1 0 or 1
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
4th Grade	**TOTAL:**		

"Math Is Cool" Championships — 2023-24

4th Grade — March 2024

Final Score *(out of 10)*

Room # _____ School Name _____ Team # _____

Linda Moore Triple Jump – 15 minutes – ~15% of team score

This Submittal #3 will be collected after 15 minutes.

SUBMITTAL #3

STUDENTS: DO NOT WRITE IN SHADED REGIONS

	Answer	Scorer 2 0 or 1	Scorer 1 0 or 1
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
4th Grade	**TOTAL:**		

"Math Is Cool" Championships — 2023-24

4th Grade — March 2024

Room # _____ School Name _____ Team # _____

Total Score for Each Round

College Bowl #1 (10 Possible)	College Bowl #2 (10 Possible)	College Bowl #3 (10 Possible)

DO NOT USE TALLY MARKS ON THIS SHEET. WRITE THE TOTAL SCORE FOR EACH ROUND.

"Math Is Cool" Championships — 2023-24

4th Grade — March 2024

Room # _____ School Name _____ Team # _____

Total Score for Each Round

College Bowl #1 (10 Possible)	College Bowl #2 (10 Possible)	College Bowl #3 (10 Possible)

DO NOT USE TALLY MARKS ON THIS SHEET. WRITE THE TOTAL SCORE FOR EACH ROUND.

"Math Is Cool" Championships — 2023-24

4th Grade — March 2024

Proctor Copy

Mental Math Contest

MENTAL MATH – 30 seconds per question – ~25% of team score & ~8% of individual score

All students in the room will concurrently be asked the same eight questions in this individual test. When it is time to begin, the proctor will read the first question twice. You may not do any writing or talking while arriving at a solution. Once you have a solution, record it on the sheet in front of you. ***You may not change or cross out answers once you have written an answer down. If there are eraser marks, write-overs, or crossed-out answers, they will be marked wrong.*** *Once all students have laid their pencils on the desk, another question will be asked. If a student doesn't lay his or her pencil down, the maximum wait time is 30 seconds after completion of the second reading of the question before the next question is read. You may continue to work on a problem (in your head) while the next question is being read. The raw score is 1 point per correct answer.*

1	Write down the number seventeen thousand five hundred eight.	17508
2	What is the next number in the following sequence? Two, seven, twelve, seventeen, and so on.	22
3	Four thousand eighty-one equals four thousand one plus what number?	80
4	A rectangle has an area of twenty-four square centimeters, and a length of six centimeters. How many centimeters is the width of the rectangle?	4 [cm]
5	What is the value of x plus twelve when x equals eleven?	23
6	A piece of rope measuring four meters is cut into eight equal lengths. In centimeters, how long is each piece?	50 [cm]
7	Daniel asks his great-grandpa how old he is. He responds, "My age is the product of the first 3 odd prime numbers." How old is Daniel's great-grandpa, in years?	105 [years]
8	At the mall, Vivien's mom bought her a pair of shoes that cost one hundred twenty dollars. They had a fifteen percent off coupon which was applied pre-tax. After adding the ten percent sales tax, what is the total amount that Vivien's mom paid, in cents?	11220 [cents]

"Math Is Cool" Championships — 2023-24

4th Grade — March 2024

Key

COLLEGE BOWL ROUND #1

#	Problem	Answer
1	What is four thousand six hundred twenty-three rounded to the nearest hundred?	4600
2	What is the positive difference between the number of days in a week and the number of months in a year?	5
3	What is the area of a triangle with a base of four centimeters and a height of six centimeters, in square centimeters?	12 [cm^2]
4	How many two digit counting numbers are there?	90 [2-digit counting numbers]
5	Talia is reading a book. On the day she starts, she reads two pages. The next day, she reads four pages. She doubles the number of pages she reads every day until day five, when she reads the last thirty pages. How many total pages did she read?	60 [pages]
6	What is the mean of the following data set? Seven, four, five, five, five, two, ten, two	5 [= mean]
7	Hannah purchases a candy cane that costs one dollar and twenty cents before tax. If tax is five percent, what is the total price that she paid for the candy cane, in cents?	126 [cents]
8	The complement of angle x is fifty-one degrees. What is the measure of x, in degrees?	39 [degrees]
9	Terry practices the piano for five hours a day, except for Sundays, when he takes a break. How many hours a week does he practice?	30 [hours]
10	Four times four times twenty times twenty equals eighty times what number?	80

"Math Is Cool" Championships — 2023-24

4th Grade — March 2024

Key

COLLEGE BOWL ROUND #2

#	Problem	Answer
1	As a whole number, what is six and two-fifths plus four and three-fifths?	11
2	If Blake wakes up at six fifteen AM, and leaves for school at eight twenty AM, how many minutes did it take him to get ready?	125 [minutes]
3	The range of the ages of members of a local community service club is sixty-four years. If the oldest member is eighty-one years, what is the age of the youngest member, in years?	17 [years]
4	What is the length of the hypotenuse of a right triangle in units with leg lengths of eight and fifteen units?	17 [units]
5	What is the sum of all the whole numbers from one to twenty, including one and twenty?	210
6	In how many ways can the letters in the word ARRAY, spelled A-R-R-A-Y, be arranged?	30 [ways]
7	There are four blinks in three blanks, and four blanks in three blonks. How many blonks are in thirty-two blinks?	18 [blonks]
8	How many square numbers from one to one hundred, including one and one hundred, are odd?	5
9	If three angles in a quadrilateral are forty, fifty, and sixty degrees, what is the measure of the fourth angle, in degrees?	210 [degrees]
10	Sam has sixteen orange slices, while Tom has two. How many orange slices does Sam have to give Tom in order for Sam and Tom to have the same number of orange slices?	7 [orange slices]

"Math Is Cool" Championships — 2023-24

4th Grade — March 2024

Key

COLLEGE BOWL ROUND #3

#	Problem	Answer
1	What is three times two times one times zero?	0
2	What is the smallest prime number greater than 20?	23
3	How many nickels are equivalent to one dollar and fifteen cents?	23 [nickels]
4	Anthony was in fourth place in a race, but then passed the person in third place. The person in first place then sprained his ankle and had to exit the race. If the standings didn't change for the rest of the race, in what place number did Anthony finish in?	2 [place] [2nd]
5	Double a certain number is four more than that number. What is the number?	4
6	Will arranges his toy soldiers in rows of eight, but there were two left over. Then, he arranges them in rows of seven, but there was one left over. What is the fewest number of toy soldiers that Will could have?	50 [toy soldiers]
7	How many square feet are in one square yard?	9 [square feet]
8	The sum of the digits in the year twenty twenty-four is two plus zero plus two plus four equals eight. What is the next year whose digits sum to eight?	2033
9	On a five by five bingo board, in how many ways can you get a bingo, which is five numbers all in the same column, row, or diagonal?	12 [ways]
10	What is the perimeter in meters of a square patio that has an area of one hundred square meters?	40 [meters]

"Math Is Cool" Championships — 2023-24

4th Grade — March 2024

Key

COLLEGE BOWL ROUND #4

#	Problem	Answer
1	Evaluate twenty-four times thirteen.	312
2	An isosceles triangle has two base angles that measure forty-four degrees each. What is the measure of the largest angle in the triangle, in degrees?	92 [degrees]
3	What is the value of five cubed?	125
4	A geometric sequence begins with one, three, nine. What is the sum of the next two numbers in the sequence?	108
5	What is the maximum number of two inch by four inch tiles that can fit on a thirty-six inch by forty-eight inch board with no overlapping?	216 [tiles]
6	Eric buys four identical hot dogs and pays with a ten dollar bill. If he receives ten quarters, ten dimes, and ten nickels in change, how much did each hot dog cost, in cents?	150 [cents]
7	The radius of a circle is half the length of the side of a square. The square's perimeter is equal to the diameter of the circle multiplied by what number?	4
8	If a counting number from one to one hundred, including one and one hundred, is randomly selected, what is the probability in percent that it is less than fifty?	49 [%]
9	Abdul walks at a constant rate of four miles per hour. If it takes him one hundred twenty minutes to walk to the supermarket from home, how many miles is it from Abdul's house to the supermarket?	8 [miles]
10	What is the remainder when two hundred twenty-three is divided by seventeen?	2

"Math Is Cool" Championships — 2023-24

4th Grade — March 2024

Key

COLLEGE BOWL ROUND #5

#	Problem	Answer
1	What is the positive difference between seventy-seven and forty-nine?	28 [pos. difference]
2	A farmer had twenty-one sheep. During a storm, all but nine of them got scared and ran away. How many sheep does the farmer have left?	9 [sheep]
3	A pen costs one dollar and twenty cents, while an eraser is twenty cents. How many times more does the pen cost than the eraser?	6 [times]
4	It takes twelve days for twelve chickens to lay thirty-two eggs. How many days would it take six chickens to lay twenty-four eggs?	18 [days]
5	In degrees, what is the sum of the measure of the angle complementary to a sixty degree angle and the angle supplementary to a sixty degree angle?	150 [degrees]
6	How many different whole numbers have a square root between two and three, but not equal to two or three?	4 [numbers]
7	What is the sum of the first 10 positive odd integers?	100
8	The probability that it rains on any given day is twenty percent. As a percent, what is the probability that it does not rain on Saturday?	80 [%]
9	Asher writes down all of the digits in the whole numbers from one to fifteen, including one and fifteen. How many total digits did Asher write?	21 [digits]
10	An equilateral triangle has a perimeter of thirty-three units. In units, what is the length of one of its sides?	11 [units]

"Math Is Cool" Championships — 2023-24

4th Grade — March 2024

Key

COLLEGE BOWL ROUND #6

#	Problem	Answer
1	Evaluate twenty-nine plus thirty-three plus thirty-seven.	99
2	How many pints are in one gallon?	8 [pints]
3	A Rubik's cube is a cube with nine individual unit squares on each face. How many total unit squares appear on the faces of a Rubik's cube?	54 [unit squares]
4	Vishal tutors three students, Aiden, Brayden, and Caydn starting at one-thirty pm, three-fifteen pm, and five-forty-five pm, respectively. Each tutoring session lasts one hour. Between one-thirty pm and seven pm, how long is Vishal not tutoring, in minutes?	150 [minutes]
5	What is the mean of the following data set: Ninety, eighty-seven, ninety, ninety-three	90 [mean]
6	What is the largest number less than one hundred that is divisible by five and two?	90
7	In how many orders can four students line up at the classroom door, if Rosario insists on being first in line?	6 [orders]
8	What is the next number is the sequence that begins: sixty-four, fifty-six, forty-eight, forty, and so on?	32
9	In Sadie's drawer, she has four red socks, four black socks, and four blue socks. What is the fewest number of socks that she has to take out of the drawer at random to ensure that she has a pair of the same color of socks?	4 [socks]
10	What is the positive difference between eighty-four point three and fifty-two point three?	32

"Math Is Cool" Championships — 2023-24

4th Grade — March 2024

Key

COLLEGE BOWL – EXTRA QUESTIONS

#	Problem	Answer
1	What is the mode of the following data set? Seven, ten, one, eleven, ten, seven, one, ten	10 [mode]
2	Brooklyn eats three cloves of garlic every day in order to keep the vampires away. How many cloves of garlic does she eat in two weeks?	42 [cloves of garlic]
3	How many inches are in two and a half yards?	90 [inches]
4	What is the mean of all one-digit positive integers?	5
5	What is ten percent of fifty percent of four hundred?	20
6	A rectangle has a perimeter of ten centimeters and one side length equal to four centimeters. What is the area of the rectangle in square centimeters?	4 [sq cm]
7	An isosceles triangle has two base angles that measure forty-four degrees each. What is the measure of the largest angle in the triangle, in degrees?	92 [degrees]
8	How many multiples of twenty-three are between forty-eight and fifty-five?	0 [multiples]
9	A bacterial strain doubles in size every day. On day number twenty-four, the strain has completely filled its test tube. On day number what does the bacterial strain fills one-half of its test tube?	23 [day number] [23rd day]
10	A circle is inscribed in a square. If the side length of the square is 242 cm, what is the length of the radius of the circle, in centimeters?	121 [cm]

Proctoring Overview

You will receive a room packet envelope with the schedule and College Bowl rotations on the front. Each room packet includes:

1) the proctor instructions and the general instructions that you will be reading,
2) the proctor question/answers packet (this needs to be carefully controlled), and
3) sets of Mental Math, Individual, Multiple Choice, Team, and Relay test materials. (If not in the room packet, the proctor supervisor will provide blank scratch paper.)

When you receive the room packet, count to ensure that you have the correct number of tests for each event (16 Mental Math & Individual, 4 of each of the team events).

Key Points

- Act professional; focus on what you are doing.
- Your job is to proctor the students; that is, you administer tests, give time warnings, & monitor students for proper test taking behavior to ensure competition integrity and avoid issues like failing to put answers on the answer sheet.
- The proctor packet has Mental Math, Relay, and College Bowl questions/answers. Keep the packet secure! Avoid opportunities for competitors to see the tests or answers.
- Student/school names and team numbers are critical on the answer sheets. Make sure that students fill out such identifying information.
- Keep track of time, and provide appropriate time warnings. Keep to the schedule as close as possible. Wait between events, if needed.
- Read & know the rules—competitors & spectators will, and they will call you on it.
- On questions that you read, read smoothly, enunciate clearly, and don't read too fast.
- You will score the Relays.
- If unsure of how to deal with an issue/question/concern, flag down the proctor supervisor and ask.
- Be respectful of your classroom — leave it tidy and arranged exactly as you found it. We don't want any displeased teachers!!
- Use the quick-reference guide on the next page for room setup and key information.

Schedule

Each of the 6 events includes about 5 minutes at the start for reading instructions or rearranging the room.

3:30 - 4:00	Coaches register (Library)	6:15 - 6:40	Proctors get dinner in proctor room
4:05 - 4:15	Orientation (Gym)	6:45 - 6:55	College Bowl #1
4:15 - 4:20	Students go to testing rooms	6:55 - 7:05	College Bowl #2
4:20 - 4:35	Mental Math	7:05 - 7:15	College Bowl #3
4:35 - 5:15	Individual Test	7:15 - 7:25	College Bowl #4
5:15 - 5:35	Team M.C. Test	7:25 - 7:35	College Bowl #5
5:35 - 5:55	Team Test	7:35 - 7:45	College Bowl #6
5:55 - 6:15	Triple Jump	8:00 - 8:30	Awards Ceremony (Gym)

1. Mental Math

Configuration: Students at individual desks spread out in the classroom. Alternating desks, students not next to teammates.

Scheduled Time: 4:20-4:35 PM (read instructions & test)

Duration: 30 seconds per question maximum (beginning after the 2nd reading)

Give Time warning at: 5 seconds

Number of questions: 8 (all students do the same questions)

Proctor Actions: Read each question twice, reading clearly and not too fast. Start the 30 second clock after the 2nd reading.

Key Points: Start by reading "General Instructions" then Mental Math instructions. Make sure everyone writes their name, school & team number on the answer sheet. No talking allowed. Except for the answer, no is writing allowed. Collect answer sheets and organize by team number, then alphabetically by first name of competitor, & staple sheets for the same team together.

2. Individual Test

Configuration: Students at individual desks; same arrangement as for Mental Math.

Scheduled Time: 4:35 PM (read instructions), 4:40-5:15 (test)

Duration: 35 minutes

Give Time warning at: 5 minutes & 30 seconds

Number of questions: 40

Proctor Actions: Ensure appropriate test-taking behavior. Prep for next event (or furtively read College Bowl questions to yourself).

Key Points: Read "Individual Test" instructions. Make sure everyone writes their name, team number, school, proctor name, & room number down on the answer sheet. Collect answer sheets, organize by team, then alphabetically by first name of competitor, and staple sheets for same team together.

3. Team Multiple Choice Test

Configuration: Groups of 4 desks, with the groups spread out in the classroom.

Scheduled Time: 5:15 PM (read instructions), 5:20-5:35 PM (test)

Duration: 15 minutes

Give Time warning at: 5 minutes & 30 seconds

Number of questions: 10

Proctor Actions: Ensure appropriate test-taking behavior. Prepare for next event.

Key Points: Read Mult. Choice instructions. Students can talk quietly & work together.

4. Team Test

Configuration: Groups of 4 desks spread out in the classroom (same as Team Mult. Choice).

Scheduled Time: 5:35 PM (read instructions), 5:40-5:55 PM (test)

Duration: 15 minutes

Give Time warning at: 5 minutes & 30 seconds

Number of questions: 10

Proctor Actions: Ensure appropriate test-taking behavior. Prepare for next event.

Key Points: Read Team Test instructions. Need to have school & team number on answer sheet. Students can talk quietly & work together.

5. Triple Jump

Configuration: Groups of 4 desks spread out in the classroom.

Scheduled Time: 5:55 PM (read instructions), 6:00-6:15 PM (test)

Duration: 15 minutes

Give Time warning at: 30 seconds and 5 seconds before each of three submittals.

Number of questions: 10

Proctor Actions: Ensure appropriate test-taking behavior. Collect Submittals #1, #2 and #3 at 5, 10 and 15 minutes.

Key Points: Read Triple Jump instructions. Need to have school & team number on answer sheets. There are THREE answer sheets and submittals. Students can talk quietly & work together

6. College Bowl

Configuration: Row of 9 desks (side by side) at the front of the room (CBA device on center desk).

Scheduled Time: 6:45 PM (read instructions), 6:50-7:45 PM (test)

Duration: 45 seconds per question (30 seconds per question if there is only one team, who will be only going against the clock)

Give Time warning at: 5 seconds

Number of questions: 10 per round, 6 rounds total

Proctor Actions: Read each question twice, reading clearly and not too fast. Start 45 (or 30) second clock after the 2nd full reading. Mark tally on white board as questions are answered and transfer the numeric total to the score sheets.

Key Points: Event is collaborative, talking is allowed. For a wrong answer, just say, "That is incorrect." (no verbal/visual clues that could be interpreted by the other team to arrive at an answer).

Summary of MIC Proctoring

(for proctors to read to themselves)

Pass out materials (answer sheet/test packets, scratch paper) for the current event to individuals or teams (as appropriate) so they can fill in the name, school, and team number information (very important!). Tell students to not lift the cover sheet or turn over the paper until you give the signal to start. Read the general instructions as the first item at the beginning of the competition (before Mental Math). Read the event-specific instructions just prior to each event and ask if there are any relevant questions. After reading the instructions, you can signal students to begin. Make sure one proctor is watching the time and giving appropriate time warnings (e.g., "five minutes remaining"). At the end of the event, tell competitors to stop work. Collect, sort, & staple the answer sheets (as appropriate) and keep them secure until handed off to a runner.

For the Mental Math/Individual tests, arrange students scattered throughout the classroom with **no student next to another student from their own school**. For the team tests, students will be in groups of 4 desks. The Relay will require the desks arranged in columns (front to back). College Bowl will require a line of 9 desks side-by-side across the front of the classroom.

For College Bowl, place the College Bowl apparatus (CBA) on a central desk in the line of desks at the front (4 desks on either side of the central one). One proctor will likely need to hold the CBA in place during the College Bowl rounds. Turn the apparatus on by depressing the button or flipping the dip switch. Students may try out the CBA prior to the 1st question. Note: while one light is blinking, the other light is locked out. There is no need to "reset" the device, just let the light finish blinking and it is ready to go.

Do not read the answer for College Bowl when you read the question (they are both on the same page). In College Bowl, if an incorrect answer is given, simply say "That is incorrect" and do not give any other cues about the answer (e.g., don't say "sorry, you were close" or exhibit interpretable body language). If both teams fail to supply a correct answer, announce what the correct answer was.

If there is an irregularity (i.e., lack of honesty, poor sportsmanship), make a note of the circumstances, flag the answer sheet, and report the issue to the proctor supervisor.

At the end of the day, return the desks to their original arrangement, recycle any unwanted test materials & used scratch paper, erase any marks you made on the whiteboard, and generally make sure the classroom is tidied up. Return the CBA, the room packet envelope, the proctor instructions, the contest rules packet, the proctor packet of questions, extra scratch paper, and unused test material to the proctor supervisor.

Detailed Instructions for Proctors

Grades 4-8

NO CALCULATORS ALLOWED ON ANY TESTS!

1. Check to make sure you have everything in your packet.
   - A. ***Mental Math:***
     1. 16 - colored Mental Math answer sheets
     2. Mental Math questions with answers (in the Proctor Packet)
   - B. ***Individual Test:*** 16 individual tests, with colored answer sheets attached
   - C. ***Team Multiple Choice Test:*** 4 team multiple choice packets (stapled), each containing 4 tests plus one colored answer sheet on top
   - D. ***Team Test:*** 4 team test packets (stapled), each containing 4 tests plus one colored answer sheet on top
   - E. ***Triple Jump:***
     4 team test packets (stapled), each containing 4 tests plus three colored answer sheets on top (one per submittal).
   - F. **College Bowl:**
     1. 4 - College Bowl score sheets
     2. College Bowl questions – 6 rounds (in the Proctor Packet)
   - G. Scratch paper (to be handed out as needed, but try not to waste it)
   - H. Electronic College Bowl Apparatus (CBA; usually distributed at dinner break)

   ALL *COLORED* ANSWER SHEETS WILL BE COLLECTED BY YOU AND WILL BE TAKEN TO THE SCORING ROOM (by RUNNERS) AS SOON AS THEY ARE FILLED OUT BY COMPETITORS (AND PERHAPS GRADED BY YOU). COMPETITORS CAN KEEP ALL OF THE WHITE SHEETS, IF THEY WOULD LIKE (OTHEWISE COLLECT THEM FOR RECYCLE).

   If you are missing anything, you can go get it before the opening ceremony. After the opening ceremony, contact the proctor supervisor/scoring room.

2. Take a photo or draw a picture on the whiteboard of how the classroom is laid out (so that it can be returned to its original configuration following the competition). Then set up the classroom desks for the first event (Mental Math).

Respect the teacher whose room you are using. Do not touch their computer or other items. Do not erase anything on their board. Leave the room tidy & in the exact original layout.

Mental Math

3. Arrange desks in a configuration suitable for individual testing (rows/grid of desks all facing forward, students in separated/alternating desks).

4. Put the Mental Math answer sheets face up on the desks such that students are spread out. Wait for students to arrive. You can fill out the proctor name and room

number (and perhaps team numbers) on all blank answer sheets, if you like. Read over the questions so you will be prepared to read them out loud.

5. After students sit down, check to make sure that no one from the same team is seated next to each other (i.e., "Team xxx, raise your hands."). Ask them to move, if needed.
6. **Check to make sure that students put their full name, school name, team number, and room number on their answer sheet and that the information is legible**.
7. Read the "GENERAL INSTRUCTIONS" (in the Proctor Packet) to the students. Then, read the "MENTAL MATH" instructions (in the Proctor Packet) to the students.
8. Begin the testing. Read each of the eight Mental Math questions to all of the students in the room, per the instructions.
9. At the conclusion of Mental Math, collect the answer sheets. Organize the answer sheets by team number, then alphabetically by first name of competitor. Staple each team's set of four answer sheets together. Promptly hand the packets of answer sheets to your runner for conveyance to the scoring room.

Individual Test

10. The seating configuration will remain unchanged (no swapping seats).
11. Hand out Individual Test packets with the colored blank answer sheet facing up. **Check to make sure that students put their full name, school name, team number, and room number on their answer sheet and that the information is legible**.
12. Read the "INDIVIDUAL TEST" instructions (in the Proctor Packet) to the students and begin the testing at the appointed time.
13. While students are taking the Individual Test, monitor the students for proper test-taking behavior and watch the time to provide 5-minute and 30-second warnings. Make sure students are writing answers on the answer sheet (not the test question pages). During this time you can also get the Individual Multiple Choice tests ready, read through the rules of subsequent events, and (carefully/secretively) look ahead to review the College Bowl questions (i.e., to avoid stumbling over the wording when it comes time to read the questions aloud). You will have observers in the room watching the College Bowl rounds, so make sure you understand the rules, how timing works, etc.
14. At the conclusion of Individual Test, collect the answer sheets. Organize the answer sheets by team number, then alphabetically by first name of competitor. Staple each team's set of four answer sheets together. Promptly hand the packets of answer sheets to your runner for conveyance to the scoring room. Students may keep or recycle their test question packets.

Team Multiple Choice

15. Change the room set-up to groups of 4 desks together so students can work as a team.
16. Hand out the tests and have teams fill out the top portion of the answer sheet. **Check answer sheets to make sure they are filled out correctly (school, team #, etc.).**
17. Read the "TEAM MULTIPLE CHOICE" instructions (in the Proctor Packet) to the students and begin the testing at the appointed time.
18. Monitor the students for proper test-taking behavior (talking is allowed), watch the time, and provide 5-minute and 30-second warnings. While students are taking the Team Multiple Choice test, get the Team Tests ready.
19. At the conclusion of the test, collect the answer sheets & hand them off to the runner.

Team Test

20. Keep the same seating arrangement in groups of four. Hand out the Team Test packets and have teams fill out the information at the top of the colored answer sheet. **Check the answer sheets to make sure they are filled out correctly (school, team #, etc.).**
21. Read the "TEAM TEST" instructions (in the Proctor Packet) to the students and begin the testing at the appointed time.
22. Monitor the students for proper test-taking behavior (talking is allowed), watch the time, and provide 5-minute and 30-second warnings. While students are taking the Team Test, get the Relay tests ready.
23. At the conclusion of the test, collect the answer sheets & hand them off to the runner.

Triple Jump

24. Keep the same seating arrangement in groups of four. Hand out the Triple Jump Test packets and have teams fill out the information at the top of EACH OF THE THREE colored answer sheet. **Check the answer sheets to make sure they are filled out correctly (school, team #, etc**.).
25. Read the "Triple Jump TEST" instructions (in the Proctor Packet) to the students and begin the testing at the appointed time.
26. An Answer Sheet must be submitted every 5 minutes (labeled: Submittal #1, Submittal #2, Submittal #3). Give time warning at 30 seconds and 5 seconds prior to each submittal. Collect the submittals promptly at 5 minutes, 10 minutes and 15 minutes.
27. At the conclusion of the test, staple the three answer sheets for each team together in order: Submittal #1 (top), #2, #3 (bottom) & hand them off to the runner.

28. At the conclusion of the Triple Jump, release the students for their break. If there is anything left (i.e., answer sheets) that should have been taken to the scoring room, give those to the runner or have a proctor take it to the scoring room now.

29. Set up your room for the College Bowl rounds and tidy up the room before you go to break. Set up a line of 9 desks side by side facing the front of the room. One team will be on each side (doesn't matter which) and the College Bowl apparatus will be stuck down on the desk in the middle. Another row of 8 desks should be set up in the middle of the room for the two teams not competing in a round. Other desks should be moved to the back of the room in an orderly fashion for the spectators.

30. Take your packet of College Bowl questions with you during break to keep them secure! Do not leave them in the room!

Dinner Break

31. AT BREAK — Eat dinner in the proctor room. Pick up your College Bowl apparatus (CBA) at this time. If you haven't already, you may want to read over the College Bowl questions to make sure you will be able to pronounce everything properly. Return to your room in time to place the CBA in position.

College Bowl Rounds

32. Place the CBA on the middle desk of the line at the front of the room (you may want to moisten the suction cups with a film of water). One proctor may need to hold the device down (and do timing). Do not press the button to "reset" the CBA (it's an on/off switch).

33. You will have the same teams that were previously in the room for the duration of all College Bowl rounds — if you have an extra/different team, they are in the wrong room and can be disqualified if they hear the questions! Help get them to the correct room.

34. Fill out the score sheets for each team in your room with their school name and team number. Call up the first 2 teams according to the sequence on the room envelope.

35. You will be reading Round #1 questions to two teams while the other two teams (and any spectators) wait in the back of the room out of line of sight of the competitors. Refer to the College Bowl schedule (on your room envelope) to see which two teams compete in each round. If a round only has one team, they will be competing against the clock and thus will have 30 seconds to answer, not 45 seconds. Record the final scores for each team on their score sheets (which you hold on to) after each round. Rounds 2-6 work the same way. Refer to the schedule to make sure the correct teams are competing at the correct time. Don't get ahead of schedule (or behind, for that matter!). If you finish a round early, please wait until the appointed time to start the next round. If you have any problems (including anyone questioning the rules or a decision made by a proctor) contact the proctor supervisor.

36. Who is keeping score? Who is keeping track of the time? YOU ARE !!!
37. Read the "COLLEGE BOWL" instructions (in the Proctor Packet) to all the students (just one time), then begin the testing for each round at the appointed times.
38. If you mis-read a question, replace it with one of the extra questions.
39. If a parent/coach/student protests an answer, make a note of the situation (the test, the problem number, who answered, what their answer was, etc.) and kindly state that the coach should bring up the issue with the contest director. Proceed as normal, scoring the question based on the answer key.
40. At the conclusion of all College Bowl rounds, get the score sheets promptly to the scoring room (either yourself or via a runner).
41. Release your group to the awards ceremony no earlier than 7:45 PM to avoid causing a disruption to other rooms. Have students help re-set the room.
42. At the end of the day, return the desks to their original arrangement, collect all scratch paper, erase any marks you made on the whiteboard, and generally make sure the classroom is tidied up. Return the College Bowl apparatus, proctoring envelope, and residual material to the proctor supervisor.

General Instructions

- Good sportsmanship is expected throughout the competition by all involved (competitors and observers). Display of poor sportsmanship will result in disqualification.
- Competitors may not use calculators or any other aids on any portion of this contest.
- Unless stated otherwise: Note: for 2022 tests, all answers are integers.
  - Express all rational, non-integer answers as common fractions, except in problems dealing with money, where you should give the answer as a decimal rounded to the nearest cent.
  - For fifth grade and up, all fractions and ratios must be reduced to simplest form, all radicals must be simplified, and all denominators must be rationalized.
  - Do not round or approximate answers. Leave answers in terms of π or other irrational quantities (e.g., $\sqrt{2}$), where applicable.
- Units are not necessary as part of your answer, unless it is a problem that deals with time, in which case, AM or PM is required. However, if you choose to use units, they must be correct.
- Record all answers on the colored cover sheets in the answer column only.
- **Be sure that the student name, school, team number, etc. has been filled out at the top of each answer sheet.**
- Tests will be scored as a 0 if answers are not recorded correctly on the answer sheets.
- Blank answer sheets and answer sheets with no name will be scored as a 0.

Mental Math Instructions

All students in the room will concurrently be asked the same eight questions in this individual test. When it is time to begin, the proctor will read the first question twice. You may not do any writing or talking while arriving at a solution. Once you have a solution, record it on the sheet in front of you. **You may not change or cross out answers once you have written an answer down. If there are eraser marks, write-overs, or crossed-out answers, they will be marked wrong.** Once all students have laid their pencils on the

desk, another question will be asked. If a student doesn't lay his or her pencil down, the maximum wait time is 30 seconds after completion of the second reading of the question before the next question is read. You may continue to work on a problem (in your head) while the next question is being read. The raw score is 1 point per correct answer.

Individual Test Instructions

You will have 35 minutes to work on the Individual test, which consists of 40 questions. When you are prompted to begin, tear off the colored sheet and begin testing. Make sure your name and school are recorded on the answer sheet. The first 30 questions are worth two points each and questions 31-40 are worth 3 points each. Record your answers on the score sheet. No talking during the test. You will be given a 5 minute warning.

Team Multiple Choice Instructions

You will have 15 minutes to answer 10 multiple choice questions as a team. This test is the only test where you will be penalized for incorrect responses. You will receive two points for a correct letter response, zero points for leaving it blank, and minus one point for an incorrect response. When you are prompted to begin, tear off the colored answer sheet, pass out a copy of the test to each team member, and begin testing. **ONLY a letter response should be listed as an answer on this answer sheet.**

Team Test Instructions

You will have 15 minutes to answer 10 questions as a team. When you are prompted to begin, tear off the colored answer sheet and give a copy of the test to each of your team members and begin testing. Each problem is scored as a 1 or 0. Record all answers on this colored answer sheet.

Triple Jump Instructions

You will have 15 minutes to answer 10 questions as a team. However, you will submit a set of answers every 5 minutes. Notice that your answer sheets are labeled Submittal #1 (to be submitted after 5 minutes), Submittal #2 (to be submitted after 10 minutes) and Submittal #3 (to be submitted after 15 minutes). Each problem is scored as a 1 or 0 on each of the three submittals, for a total of 30 points. Answers that are written on one submittal sheet do NOT carry over to the next submittal sheet – they need to be entered again. You may change your answer for a question from one submittal to the next, if you feel that your previous answer was incorrect.

College Bowl Instructions

Read these to the competitors before the first round:

To maintain the integrity of the competition, spectators must stay in this room during a round of College Bowl questions. Once all readings for a round have been completed, you may leave.

All competitors must be facing the front of the room in one row. Teams not competing in the current round need to be behind the front row and in front of the spectators. All spectators need to be behind the competitors at the back of the room.

A maximum of ten questions per round will be scored. It is OK for both teams to score the same number of points! The proctor will record the points earned on each team's score sheet, which is retained by the proctor.

You may use scratch paper and pencil. You may talk with your team members while arriving at a solution.

An Electronic College Bowl Apparatus (CBA) will be used to identify the team who is first to have an answer.

During these rounds, each question will be read twice and a maximum time of 45 seconds after the second reading of the question is completed will be allowed for a team to answer. If a team buzzes in after the second reading and gives an incorrect response, the other team has the remainder of the 45 seconds to respond. A team is allowed only one attempt at buzzing in and answering per question. You may interrupt (buzz in) while a question is being read, however, if you do, the proctor will stop reading, and an immediate response is needed. If the correct response is given, the proctor will proceed to the next question. Otherwise, the question will be re-read for the other team, making sure it has two full readings. If an immediate response is not given after a team buzzes in, their lack of an answer in a timely manner is considered incorrect. In the event that only one team is competing in a round (i.e., one team is absent), the team competing will have a maximum of 30 seconds after the completion of the second reading in which to buzz in. The proctor will give a 5-second time warning.

Wait to be acknowledged by the proctor before giving an answer. This avoids the situation of blurting out an answer when the other team buzzed in first.

If two students from the same team answer at the same time with different answers, the answer will be considered incorrect.

If a problem arises with one of the questions, an extra question will be asked to replace that question.

If the round finishes early, you need to stay in the room for the remaining time.

Mental Math Questions

Relay Answers

College Bowl Questions/Answers