"Math Is Cool" Championships — 2021-22

5th Grade — March 2022

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:*
  - *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 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, 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.*

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 — 2021-22

5th Grade — March 2022

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			
5th Grade	**TOTAL:**		

"Math Is Cool" Championships — 2021-22

5th Grade — March 2022

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.

5th Grade

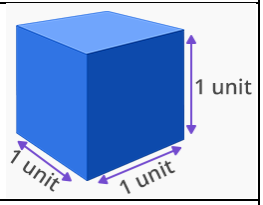
	Answer	
1	900 [cartons]	Jackson stacks 200 cartons an hour. If he stacks cartons for 4 and one-half hours, how many cartons has he stacked?
2	15 [students]	If 5% of the 300 students at Springfield Elementary School are on the math team, how many students are on the math team?
3	64 [sq. feet]	If the perimeter of a square is 32 feet, what is the area of the square in square feet?
4	7	What number is half-way between 3 and 11 on a number line?
5	16	What is the next number in the geometric series that begins: $\frac{1}{2}$, 1, 2, 4, 8, …?
6	36	If three fourths of my number is 27, what is my number?
7	8 [coins]	Seth has 7 quarters and his friend Gage has some dimes and nickels. What is the least number of coins that Gage must have for them to have at least $2.50 (two dollars and fifty cents) in total?
8	5 [integers]	How many 2-digit positive integers have digits that differ by 7?

"Math Is Cool" Championships — 2021-22

5th Grade — March 2022

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.

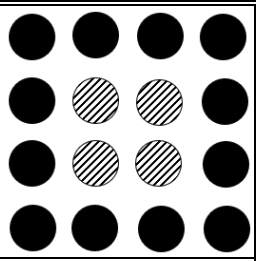
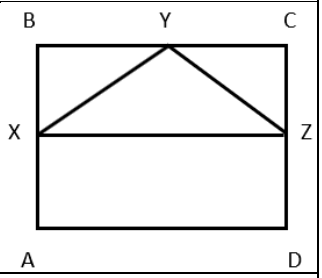
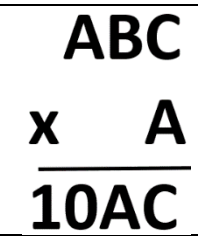
	Questions 1-30: 2 points each
1	Evaluate: 2 + 4 – 1 + 11 – 5
2	What digit is in the hundredths place of this number: 395.261
3	What is the area, in square centimeters, of a rectangle with side lengths 4 cm and 11 cm?
4	How many integers between 20 and 40 are divisible by 3?
5	What is the remainder when 2022 is divided by 5?
6	Each day, Pratyay spends $6.00 on boba tea. How much money will Pratyay spend on boba tea in one week, in dollars?
7	Niki wakes up at 7:30 am to start getting ready for school. She finishes getting ready at 8:52 a.m. How long does it take for Niki to get ready, in minutes?
8	What is the fewest number of these unit cubes that you would need to put together to make a larger solid cube composed of unit cubes? 
9	How many cups are in seven gallons?
10	Hannah can type 130 words in one minute. Assuming she types continually at this rate, how many words can she type in 2 hours?
11	Evaluate the expression: 17x + 18 when x = 3.
12	In her piggy bank, Anvita has two dollars worth of quarters, 40 cents worth of nickels, and five pennies. How many total coins does she have in her piggy bank?
13	What is the median of the following set of numbers? {1, 11, 4, 3, 11}
14	Find the next number in the sequence: 1, 5, 10, 16, 23, ___
15	What is 7 cubed?
16	Pinocchio's nose is four inches long. Every time he tells a lie it doubles in length. Every time he does a good deed it shrinks by 3 inches. How many inches long is his nose after telling two lies in a row followed by doing one good deed?

Continued on next page.

17	Out of 10 students on a math team, three students are randomly chosen to present their team award to the principal. What is the probability, in percent, that Jackson will be one of the three team members who is selected?
18	Packard takes three tests and receives scores of 82, 97, and 88. What is the mean of Packard's three test scores?
19	The side lengths of a right triangle are 9 units, 12 units, and 15 units. What is the area of the triangle in square units?
20	If the following numbers are arranged from smallest to biggest, what number is in the middle? 1, 49, 36, 13, 27.4, 14, $\frac{5}{2}$
21	How many feet are there in 89 yards?
22	Jade is supplying her homemade bagels to a local restaurant. Of the 96 total bagels, half of them are poppy-seed, a third of them are pumpkin spice, and the rest of them are whole wheat. How many whole wheat bagels are there?
23	Hanyi rolls a single 6-sided die. The probability that the number showing on the die is less than 4 can be written as a reduced common fraction with the form A/B. What is A + B?
24	How many of the digits 0 through 9 will make this a true statement, if the question mark is replaced with a single digit in the following number statement? $5{,}435{,}746 > 5{,}43?{,}046$
25	If 20 twips make a point, 6 points make a poppyseed, and 4 poppyseeds make a barleycorn, how many twips do I need to make one barleycorn and 5 poppyseeds?
26	A swimming pool contains 20,000 gallons of water. On Monday, 40% of the water is drained out. On Tuesday, 2/3 of the remaining water is drained out. How many gallons of water are left in the pool?
27	Violet has a bag containing 5 red jellybeans, 3 orange jellybeans and 2 blue jellybeans. She reaches in and randomly selects one jellybean. Without replacing the first jellybean, she reaches in again and randomly selects another jellybean. The probability that both of the jellybeans she selected are red can be written as a reduced common fraction A/B. What is A + B?
28	In degrees, what is the sum of the other two angles in a triangle that contains a 43 degree angle?
29	A 60 foot board is cut into two pieces. One piece is 12 feet longer than the other piece. How many feet long is the shorter piece?
30	Mario and Toad are racing towards each other on a straight road. Mario is going 7 mph, and Toad is going 4 mph. If they started at a distance of 77 miles apart, how many hours will it take until they meet?

Continued on next page.

Challenge Questions: 3 points each

31	This square array contains 16 dots arranged in 4 rows and 4 columns, with the solid colored dots on the outside edges of the array. If you use 36 dots to form a square array, how many dots will be on the outside edges of the array? 
32	The 5^{th} term of an arithmetic sequence is 18, and the 9^{th} term is 30. What is the 15^{th} term of the sequence?
33	A standard six-sided die is rolled three times and the results are recorded in order to create a three-digit number. How many different numbers greater than 500 can be created?
34	ABCD is a rectangle with area of 36 square cm. Points X, Y and Z are midpoints of the sides on which they are located. What is the area of triangle XZY in square cm? 
35	Angela's classmates talk a lot. If she has 26 classmates in addition to herself, and each classmate including Angela talks to each other classmate one time, how many total conversations will occur?
36	Each letter in the multiplication problem shown here represents a different digit. What is the value of A + B + C? 
37	Mr. Gooddad brought home a Costco-sized box of Goldfish crackers, packaged in individual serving bags. Over the weekend, his five kids together ate 2/3 of the bags of Goldfish. On Monday, his kids ate $\frac{1}{2}$ of the remaining number of bags of Goldfish. On Tuesday, each of his five kids put 3 bags of Goldfish into their lunch boxes and told Mr. Gooddad that he could have the rest. There were five bags of Goldfish left for Mr. Gooddad. How many bags were there initially, before any of them were eaten?
38	A regular polygon has interior angles measuring 135 degrees, and a side length of 3 cm. What is the perimeter of the polygon, in centimeters?
39	What is the units digit of $(1 + 2 + 3 + \ldots + 29 + 30)^2$?
40	Ishaan's favorite number has 3 digits. One digit is a prime number, one digit is a square number, and the third digit is neither prime nor square. Ishaan's favorite number is not divisible by 3. What is the greatest possible value of Ishaan's favorite number?

"Math Is Cool" Championships – 2021-22

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	11
2	6
3	44 [sq cm]
4	7
5	2
6	42 [$]
7	82 [minutes]
8	8 [cubes]
9	112 [cups]
10	15,600 [words]
11	69
12	21 [coins]
13	4
14	31
15	343

	Answer
16	13 [inches]
17	30 [%]
18	89
19	54 [sq units]
20	14
21	267 [feet]
22	16 [whole wheat bagels]
23	3 [=A+B]
24	6 [digits]
25	1080 [twips]
26	4000 [gallons]
27	11 [=A+B]
28	137 [degrees]
29	24 [feet]
30	7 [hours]

	Answer
31	20 [dots]
32	48
33	72 [numbers]
34	9 [cm^2]
35	351 [conversations]
36	12 [=A+B+C]
37	120 [bags]
38	24 [cm]
39	5
40	985

5th Grade

March 2022

"Math Is Cool" Championships – 2021-22

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:			

5th Grade

March 2022

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

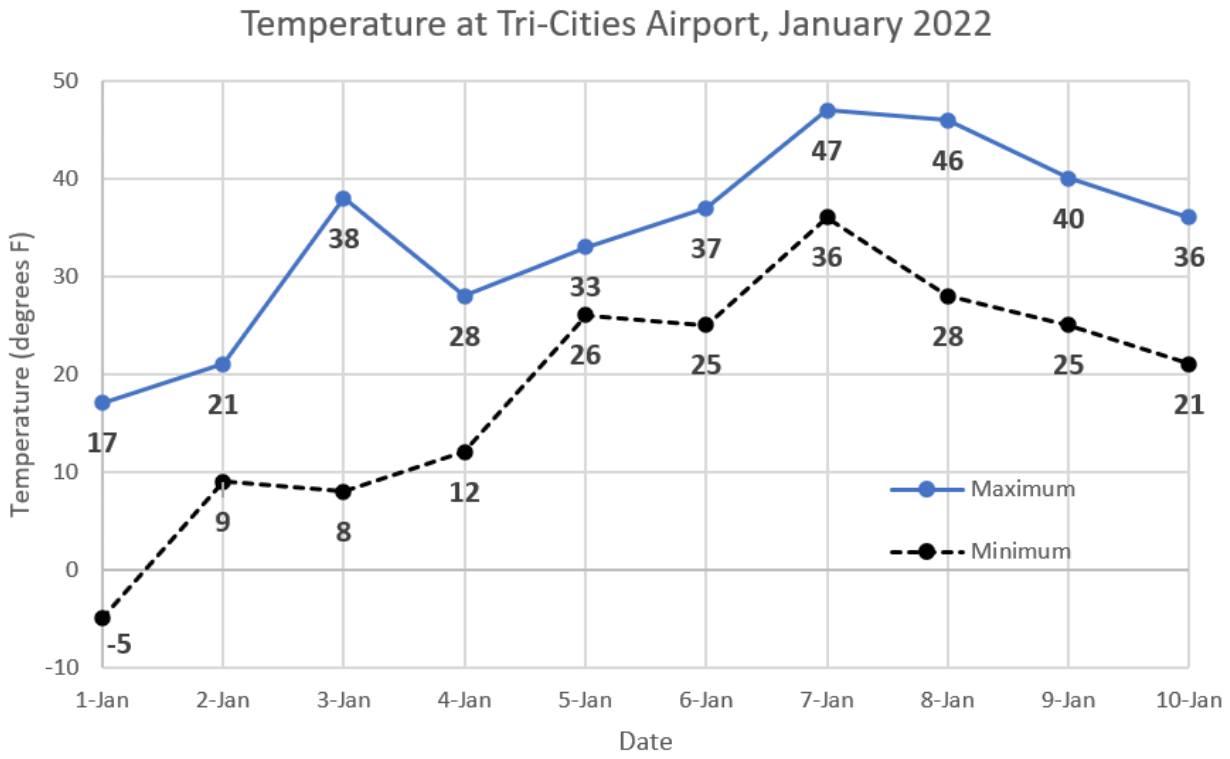
"Math Is Cool" Championships — 2021-22

5th Grade — March 2022

Team Multiple Choice Contest

USE THE FOLLOWING GRAPH TO SOLVE PROBLEMS #1 THROUGH #3.

The graph shows the daily temperatures in degrees Fahrenheit recorded at the Tri-Cities WA Airport weather station from January 1, 2022 through January 10, 2022. There are two values shown for each day, the maximum temperature, and the minimum temperature. Each data value in degrees Fahrenheit is indicated below the dot on the graph.



1 How many degrees Fahrenheit did the temperature rise on January 1, 2022, from the minimum temperature to the maximum temperature?

A) 5 °F B) 17 °F C) 22 °F D) 27 °F E) Answer not given.

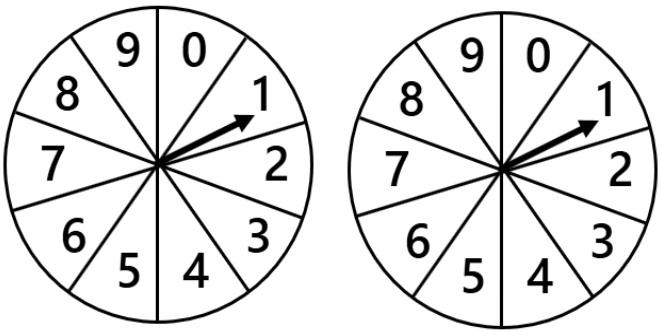
2 What percent of the days shown in the graph had a maximum temperature greater than the freezing level of 32 degrees Fahrenheit?

A) 10 % B) 20 % C) 60 % D) 70 % E) Answer not given.

3 What was the percent increase in the maximum temperature from January 6th to January 7th? Round your answer to the nearest percent.

A) 21 % B) 27 % C) 37 % D) 39 % E) Answer not given.

Continued on Next Page

	USE THE FOLLOWING INFORMATION TO SOLVE PROBLEMS #4 THROUGH #7. There are two circular spinners shown here, each of which has sections numbered 0 through 9, where the circle has been divided equally into 10 sections. Each spinner will be spun once, and the indicator arrow will randomly land on one section of the circle for each spinner. The two numbers showing on each spinner will be added to find the sum of the two values. For example, the sum shown on these two spinners is 1 + 1 = 2. 
4	What is the maximum sum possible when the two spinners are spun and the two numbers are added? A) 10 B) 16 C) 18 D) 20 E) Answer not given.
5	How many distinct (different) sums are possible when the two spinners are spun, and their numbers are added? For example, the spinners in the figure have a sum of 2, which is one possible sum. A) 18 B) 19 C) 20 D) 21 E) Answer not given.
6	Out of the possible sums that can occur when the two spinners are spun, and the resulting numbers are added, which sum is most likely to occur? A) 9 B) 10 C) 11 D) 12 E) Answer not given.
7	When both spinners are spun, and the resulting numbers are added, what is the probability of getting a sum of 2? A) 0 % B) 2% C) 2.5% D) 3% E) Answer not given.

Continued on Next Page

	USE THE FOLLOWING INFORMATION TO SOLVE PROBLEMS #8 THROUGH #10. The standard unit of liquid measurement in the metric system is the liter. In many countries of the world, liquids such as milk and juice are sold in liter containers. There are 1000 cubic centimeters in a liter. Therefore, a cubic carton that is 10 cm tall, 10 cm wide and 10 cm deep would hold a volume of 1000 cubic centimeters or 1 liter of liquid.
8	Consuela buys 2 liters of orange juice and 3 liters of whole milk. How many total cubic centimeters of liquid has she purchased? A) 5 B) 50 C) 500 D) 5000 E) Answer not given.
9	For a carton that has dimensions 10 cm tall, 10 cm wide and 10 cm deep, what is the total surface area of the carton in centimeters squared? A) 600 cm^2 B) 1000 cm^2 C) 1200 cm^2 D) 2000 cm^2 E) Answer not given.
10	Which of the following carton dimensions will also result in a total volume of 1 liter? A) 5 cm long, 4 cm wide, 25 cm tall B) 1 cm long, 2 cm wide, 100 cm tall C) 4 cm long, 5 cm wide, 50 cm tall D) 2 cm long, 5 cm wide, 50 cm tall E) Answer not given.

"Math Is Cool" Championships — 2021-22

5th Grade — March 2022

Key

Team Multiple Choice Contest – Answer Key

5th Grade

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

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

"Math Is Cool" Championships — 2021-22

5th Grade — March 2022

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.

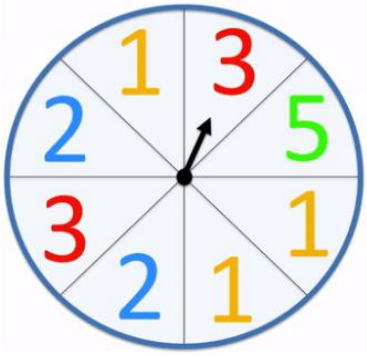
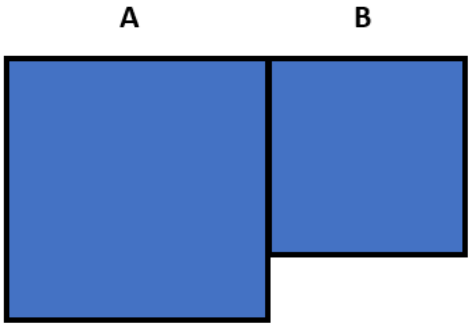
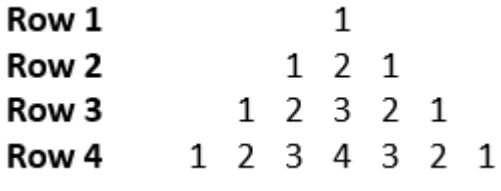
STUDENTS: DO NOT WRITE IN SHADED REGIONS

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

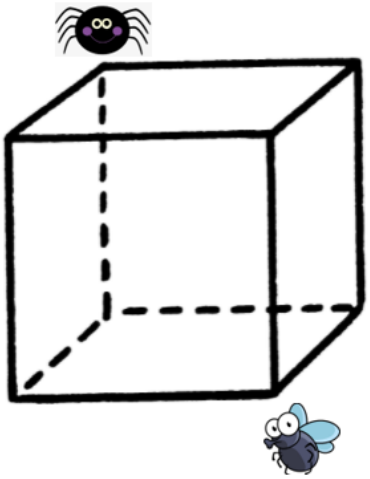
"Math Is Cool" Championships — 2021-22

5th Grade — March 2022

Team Contest

1	Aditya can review one math question in 30 seconds. How many questions can he review in 10 minutes?
2	The number spinner shown here is separated into eight sections of equal size. When the spinner is spun one time, what is the probability as a percent that it will land on a section containing the number 2? 
3	Gregg sold three loads of hay that weighed 4025 pounds, 3800 pounds and 4175 pounds, respectively. How many total pounds of hay did Gregg sell?
4	Square A has a side length of 4 units, and Square B has a side length of 3 units. After the squares have been glued together as shown to form a straight line across the top of the new figure, with no overlap of the squares, how many units is the perimeter of the new figure? 
5	What is the largest 2-digit positive integer that is divisible by 7?
6	A number pattern begins as shown in the figure and continues in the same manner for each row. What is the sum of the numbers in Row 10 of the pattern? 

Continued on next page.

7	Spidey the spider is located on one corner of a cube. He wants to travel to the opposite corner of the cube, to have lunch with his friend Fly McFly. He can only walk along the edges of the cube. He will walk along exactly three edges of the cube to get there. How many different paths can Spidey take on his journey to meet up with Fly? 
8	Consecutive numbers are whole numbers that follow in order such as 7, 8, 9. Find the three consecutive numbers such that the sum of the first and third number is 118. What is the smallest of the three numbers?
9	Eleanor can mow 600 square yards of grass in 1 $\frac{1}{2}$ hours. Working at this same rate, how many minutes would it take her to mow 600 square feet of grass?
10	Nathan is performing calculations on his calculator, but he doesn't know that it is broken. If the digit in the tens place of the output is odd, the calculator will replace it with a "6" For example, 6 + 9 = 15, but when he does this calculation on his calculator, it will output a 65, because it replaces the '1' with a '6'. Suppose Nathan adds two numbers AB and C on his calculator. A and C can represent any digit from 1 – 9, and B can be any digit from 0 - 9. If the calculator outputs "66", what is the largest possible sum of A, B, and C?

"Math Is Cool" Championships — 2021-22

5th Grade — March 2022

Key

Team Contest – Answer Key

5th Grade

	Answer
1	20 [questions]
2	25 [%]
3	12000 [lbs]
4	22 [units]
5	98
6	100
7	6 [paths]
8	58
9	10 [minutes]
10	24

"Math Is Cool" Championships — 2021-22

5th Grade — March 2022

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.

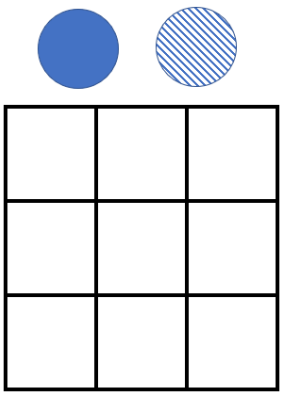
STUDENTS: DO NOT WRITE IN SHADED REGIONS

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

"Math Is Cool" Championships — 2021-22

5th Grade — March 2022

Linda Moore Triple Jump

1	If 89 sticks of gum are divided equally among 9 people, how many sticks of gum will be left over?
2	Yulia was 4 feet 7 inches tall at the beginning of 5th grade. She grew 2 inches per year for the next four years, until she reached her current height. How many inches tall is she now?
3	Samvedha can walk one mile in 10 minutes. What is Samvedha's walking speed in miles per hour?
4	Descartes Elementary School has 600 students. Out of these students, 30 of them are left-handed. The remaining students are right-handed. What percent of the students are right-handed?
5	An infinite sequence of numbers begins as follows: 1, 4, 3, 6, 5, 8, 7, … What is the sum of the next three numbers in the sequence?
6	Greta has a bag of gumdrops. There are 12 green gumdrops, 6 red gumdrops, 4 yellow gumdrops and 8 blue gumdrops. If she reaches into the bag and randomly selects one gumdrop, what is the probability in percent that she will get a red gumdrop?
7	A rectangle, which is not a square, has a perimeter of 8 units. If its side lengths are whole numbers, what is its area, in square units?
8	You have a gameboard consisting of nine squares, as shown here. Along with the board there are two discs, one solid and one striped. Each disc must be placed in its own square on the gameboard. How many different ways are there to place them in squares so that the striped disc is in the row right above the row containing the solid disc (but not necessarily in the same column)? 
9	Biff counts by 2s from 98 down to 0, and Eho counts by 5s from 0 up to 245. They start at the same time, with Biff saying '98' and Eho saying '0', and continue to say one number at exactly the same time. When Biff says '46', what number does Eho say?
10	Lily sells fresh baked goods at the local farmer's market to earn money for college. She sells two different kinds of "combo packs". The "Sweet Tooth Combo Pack" includes 5 cookies and 1 pie. The "Family Size Combo Pack" includes 6 cookies and 2 pies. On Monday, she sold a total of 11 "combo packs", and nothing else. In total, she sold 59 cookies and 15 pies. How many "Sweet Tooth" combo packs did she sell on Monday?

"Math Is Cool" Championships — 2021-22

5th Grade — March 2022

Key

Linda Moore Triple Jump – Answer Key

5th Grade

	Answer
1	8 [sticks]
2	63 [inches]
3	6 [mph]
4	95 [%]
5	31
6	20 [%]
7	3 [square units]
8	18 [ways]
9	130
10	7 [sweet tooth combo packs]

"Math Is Cool" Championships — 2021-22

5th Grade — March 2022

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			
5th Grade	**TOTAL:**		

"Math Is Cool" Championships — 2021-22

5th Grade — March 2022

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			
5th Grade	**TOTAL:**		

"Math Is Cool" Championships — 2021-22

5th Grade — March 2022

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			
5th Grade	**TOTAL:**		

"Math Is Cool" Championships — 2021-22

5th Grade — March 2022

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 — 2021-22

5th Grade — March 2022

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 — 2021-22

5th Grade — March 2022

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	Jackson stacks 200 cartons an hour. If he stacks cartons for 4 and one-half hours, how many cartons has he stacked?	900 [cartons]
2	If 5% of the 300 students at Springfield Elementary School are on the math team, how many students are on the math team?	15 [students]
3	If the perimeter of a square is 32 feet, what is the area of the square in square feet?	64 [sq. feet]
4	What number is half-way between 3 and 11 on a number line?	7
5	What is the next number in the geometric series that begins: $\frac{1}{2}$, 1, 2, 4, 8, …?	16
6	If three fourths of my number is 27, what is my number?	36
7	Seth has 7 quarters and his friend Gage has some dimes and nickels. What is the least number of coins that Gage must have for them to have at least $2.50 (two dollars and fifty cents) in total?	
8	How many 2-digit positive integers have digits that differ by 7?	5 [integers]

"Math Is Cool" Championships — 2021-22

5th Grade — March 2022

Key

COLLEGE BOWL ROUND #1

#	Problem	Answer
1	What is the remainder when ninety-two is divided by five?	2
2	On a four-day trip, Diane and Mindy together took four hundred and fifty-six photos. If Diane took exactly one-third of the photos, how many photos did Diane take?	152 [photos]
3	A circle has a diameter of 12 centimeters. The area of this circle is A times pi square centimeters. What is the value of A?	[A =] 36
4	Gregg's dog runs away from home at an average rate of three miles per hour. If he runs away from the house in a straight line for 80 minutes before he stops, how many miles away from the house has he traveled?	4 [miles]
5	How many seconds are there in one-half hour?	1800 [seconds]
6	Juan had $5.00 when he entered a toy store. He spent 20% of his money on a toy truck and had exactly enough money left to buy a toy car. How much did he spend on the toy car in dollars?	4 [$]
7	Solve for q in the following equation: 7q – 31 = 18 (seven times q minus thirty-one equals 18)	7 [q=]
8	A bag contains 3 red marbles, 6 blue marbles and 4 green marbles. Without looking in the bag, what is the least number of marbles that Sanjay needs to take out in order to ensure that he has at least 1 red marble?	11 [marbles]
9	What is the perimeter in centimeters of a regular octagon with side length 8 centimeters?	64 [cm]
10	Evaluate: twelve plus seven minus eleven.	8

"Math Is Cool" Championships — 2021-22

5th Grade — March 2022

Key

COLLEGE BOWL ROUND #2

#	Problem	Answer
1	If ten pizzas are shared equally among twelve people, and each pizza has 6 slices, how many slices does each person get?	5 [slices]
2	It takes Lizzy one hour to travel 60 miles. How many minutes does it take Lizzy to travel 15 miles?	15 [minutes]
3	What is the mean of the first four positive multiples of four?	10
4	The area of a square is 36 square units. If an equilateral triangle has the same perimeter as the square, what is the side length in units of the equilateral triangle?	8 [units]
5	If one newspaper and two comic books cost $8 together, and two newspapers and one comic book cost $7 together, how much does one newspaper and one comic book cost together, in dollars?	5 [$]
6	A road is ten feet wide, and the pavement is six inches deep. How many cubic feet of pavement are in a one-hundred-foot length of this road?	500 [ft^3]
7	A bag of gummy worms contains 3 yellow worms, 4 blue worms and 8 red worms. If one worm is randomly selected, what is the probability in percent of getting a yellow worm?	20 [%]
8	One Algebra book costs $45. Each carton contains 6 Algebra books. If there are 5 cartons of Algebra books, what is the total cost of these books in dollars?	1350 [$]
9	In the arithmetic sequence that begins: 1, 4, 7, 10, … what is the value of the 7th term?	19
10	Fiona has seven boxes of Pop-Tarts, each of which contain eight Pop-Tarts. If she gives away three of the boxes, how many Pop-Tarts does she have left?	32 [Pop-Tarts]

"Math Is Cool" Championships — 2021-22

5th Grade — March 2022

Key

COLLEGE BOWL ROUND #3

#	Problem	Answer
1	What is the sum of eight squared and eleven squared?	185
2	A cube has a side length of 2 feet. What is the total surface area of the cube in square feet?	24 [square feet]
3	Alice's cat sleeps from two-thirty PM to five-forty-five PM on Monday. How many minutes does Alice's cat sleep during this time?	195 [minutes]
4	The hit video game Among Them received a review score of eighty-four from Metacritic, seventy-five from Rotten Tomatoes, and ninety from IGN. What is the mean review score of the video game from these three sources?	83
5	The ratio of boys to girls in an after school club is 4:5. If there are 45 girls in the club, how many boys are there in the club?	36 [boys]
6	At Sam's Spaghetti Store, the employees get a discount of thirty percent. If Samantha, who is an employee, wants to buy three cartons of spaghetti that usually cost 20 dollars each, how much will she have to pay in dollars after her discount is applied?	42 [$]
7	There are ten squares in a bar of chocolate. If each person in a group of three people gets a different whole number of squares, what is the maximum number of squares any one person could get?	7 [squares]
8	What is the product of all positive prime numbers less than ten?	210
9	The Math is Cool problem writing team has four hours left to write the questions before the contest begins. How many minutes does the team have left?	240 [minutes]
10	What is the sum of the first nine odd counting numbers?	81

"Math Is Cool" Championships — 2021-22

5th Grade — March 2022

Key

COLLEGE BOWL ROUND #4

#	Problem	Answer
1	How many zeros are in the number thirty-four billion?	9
2	Mrs. Casto's kindergarten class goes to a pumpkin patch. PJ notices that 15% of the pumpkins are rotten. How many pumpkins are rotten if there are 300 total pumpkins?	45 [pumpkins]
3	My pet dog Hershey is three-fourths of a year plus 6 months old. How many months old is my pet dog Hershey?	15 [months]
4	How many ways are there to order the letters in the word 'School', spelled S-C-H-O-O-L?	360
5	Over the past 7 nights, Nathan slept for 8, 7, 8, 5, 6, 7, and 9 hours each night. What was the MEDIAN number of hours that Nathan slept over the past 7 nights?	7 [hours]
6	Gilbert has five t-shirts, seven pairs of pants, and two pairs of shoes. If one outfit consists of one t-shirt, one pair of pants, and one pair of shoes, how many different outfits can Gilbert make?	70 [outfits]
7	Webster the cat sleeps for two-thirds of the day, where a day is 24 hours. Webster spends one-half of his sleeping time in the living room. How many hours per day does Webster spend sleeping in the living room?	8 [hours]
8	What is the measure in degrees of the angle that is complementary to an angle with a measure of 53 degrees?	37 [degrees]
9	Grandpa Shark is twice as old as Mommy Shark. Mommy Shark is three times as old as Baby Shark. If Mommy Shark is 30 years old, what is the sum of Grandpa Shark and Baby Shark's ages in years?	70 [years]
10	What is six times four times 10 times 7 times 2 times 0 times 3 divided by 4?	0

"Math Is Cool" Championships — 2021-22

5th Grade — March 2022

Key

COLLEGE BOWL ROUND #5

#	Problem	Answer
1	How many odd integers are between eight and twenty-six?	9 [odd numbers]
2	The sum of two numbers is six hundred and forty-seven. If one of the numbers is three hundred and twenty-one, what is the other number?	326
3	What is the next number in this sequence? 30, 29, 26, 21, 14, …	5
4	One marble is chosen at random from a bag that has three red and five blue marbles. As a common reduced fraction, the probability that a red marble is NOT chosen equals A over B. What is the value of A plus B?	[A + B =] 13
5	A square has a perimeter of one hundred centimeters. What is the number of centimeters in the perimeter of a regular pentagon with the same side length as the square?	125 [cm]
6	Alice has exactly fifty cents. What is the smallest number of coins she could have, assuming she does not have any quarters, and she has more than one type of coin?	6 [coins]
7	If 'x' equals the number of days in the month of June, then what is three times 'x' (pause) minus 7?	83
8	What is the Least Common Multiple of 5 and 13?	65
9	Henry the cat loves roasted chicken. When he smells roasted chicken, he runs toward it at a rate of 4 meters per second. If Henry smells chicken, and the chicken is 100 meters away, how many seconds will it take him to get to the chicken?	25 [seconds]
10	What is one-half of 60% of 100?	30

"Math Is Cool" Championships — 2021-22

5th Grade — March 2022

Key

COLLEGE BOWL ROUND #6

#	Problem	Answer
1	What is the product of fifteen and one-third?	5
2	Micah plays Minecraft all ninety-two days of summer for three hours each day. How many hours of Minecraft does he play throughout the summer?	276 [hours]
3	What is the range of the following set of numbers: {31, 22, 99, 58, 124}	102
4	There are 8 green gloves, 3 yellow gloves, 5 blue gloves and 4 grey gloves in a box. If the gloves are pulled out of the box randomly one at a time, what is the least number of gloves that need to be pulled out to guarantee that at least two grey gloves have been pulled out?	18 [gloves]
5	Brayden wants to arrange the letters in the word NOPE, spelled N-O-P-E. However, he doesn't like words that start with the letter E. In how many ways can he arrange the letters N-O-P-E so that the letter E does not come first?	18 [ways]
6	There are six chickens in a chicken coop. Every day, one-third of the chickens each lay ten eggs, and the remaining chickens each lay 14 eggs. How many total eggs do the six chickens lay in one day?	76 [eggs]
7	What is the largest three digit integer that does not have any repeated digits?	987
8	If a tree is 2 yards, 4 feet and 5 inches tall, how tall is the tree in inches?	125 [inches]
9	Alice's cat eats one cup of food each day. How many days would it take Alice's cat to eat a gallon of food?	16 [days]
10	How many dimes have the same value as twenty-eight quarters?	70 [dimes]

"Math Is Cool" Championships — 2021-22

5th Grade — March 2022

Key

COLLEGE BOWL – EXTRA QUESTIONS

#	Problem	Answer
1	Joe has 23 cards. After he gives some away, he only has 17 cards left. How many cards did he give away?	6 [cards]
2	The number seven and two-thirds can be expressed as an improper fraction A over B. What is A + B?	26
3	A triangle has two sides of length 8 feet and 11 feet. The length of the third side is a counting number when measured in feet. What is the shortest length, in feet, that the third side could be?	4 [feet]
4	What is the probability in percent of drawing one white marble from a bag that contains 16 black marbles and 4 white marbles?	20 [%]
5	If it takes 13 seconds to fill a balloon with helium, how many balloons can be completely filled in 2 minutes?	9 [balloons]
6	A palindrome is a number whose digits read the same forwards and backwards. What is the smallest three digit palindrome?	101

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