"Math Is Cool" Masters — 2020-21

5th Grade — May 12, 2021

Sponsored by: Columbia Basin College

GENERAL INSTRUCTIONS applying to all tests:

- *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:*
  - *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" Masters — 2020-21

5th Grade — May 12, 2021

Sponsored by: Columbia Basin College

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" Masters — 2020-21

5th Grade — May 12, 2021

Sponsored by: Columbia Basin College

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	99	What is sixty-four plus thirty-five?
2	750 [cents]	Janissa wants to buy five bottles of water. How much, in cents, will Janissa spend if each bottle is one dollar and fifty cents?
3	-17	What is the next term in the sequence: 15, 7, -1, -9, … ?
4	42 [cents]	If a bunch of seven bananas cost two dollars and ninety-four cents, how many cents is one banana?
5	81	Let 'A' represent the number of positive two-digit integers and let 'B' represent the number of positive one-digit integers. What is the value of A – B ?
6	152 [cents]	Riley has three quarters, two dimes, five nickels, and thirty-two pennies. How many cents does she have in all?
7	0	On a coordinate plane, the point with coordinates (2, -3) is translated four units to the left, then five units up. What is the sum of the coordinates of the new point?
8	30	A state math competition has six final competitors. If each competitor fist-bumps each other competitor once before and once after the competition, how many fist-bumps were exchanged?

"Math Is Cool" Masters — 2020-21

5th Grade — May 12, 2021

Sponsored by: Columbia Basin College

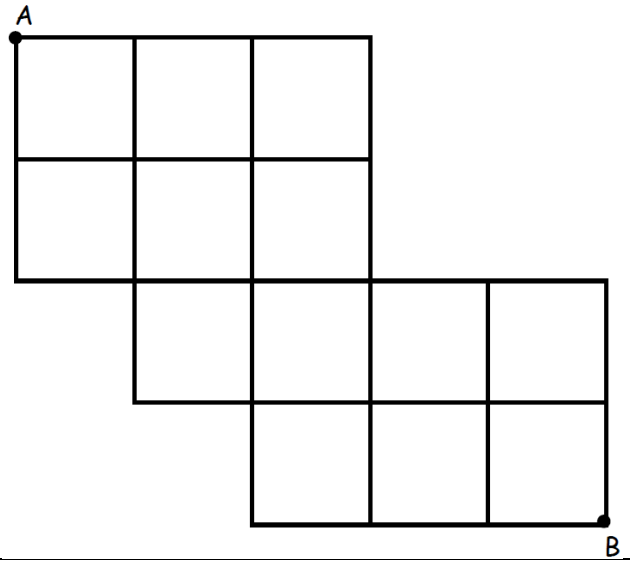
Individual Contest

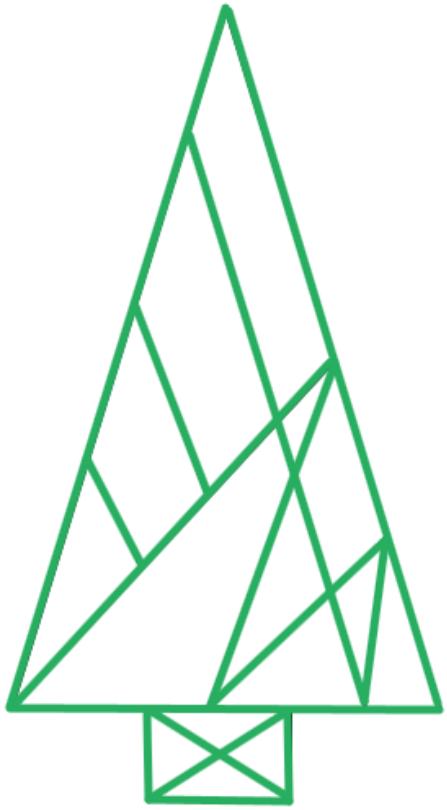
Record all answers on the colored cover sheet. 35 minutes, 40 problems, ~92% of individual score.
No talking during this individual test. A 5-minute time warning will be given.

	Questions 1-30: 2 points each
1	Joseph attends an average of 3 Comic-Con events each month. How many Comic-Con events would he attend in 18 months?
2	The Mad Hatter has a tea party for his "unbirthday". He drinks 15 cups of tea, Alice drinks 13 cups, the March Hare drinks 9 cups, and the Dormouse drinks 7. What is the median number of cups of tea consumed at the party?
3	Rancher Bill is counting his cows using his "cowculator". He has three pens of cows. If one pen has 35 cows, another has 25 cows, and the third pen has 43 cows in it, how many total cows does Bill have?
4	If a crate can hold 70 apples, how many apples can 4 crates hold?
5	Chinmayi has 19 pieces of candy and wants to give an equal number of whole pieces of candy to her 4 friends. How many whole pieces of candy will she have left over when she gives each of her friends the maximum possible equal number of whole pieces of candy?
6	Sinan had 28 balloons and lost 25% of them during a windstorm. How many does he have left?
7	Kayla has $17.46. She went shopping at Maths "R" Us and bought some Tools of Math Construction. She purchased two protractors for $1.19 each, one compass for $3.27 and three rulers for $2.11 each. After her purchase, how many cents does she have left over?
8	Billy, Bobbie, and Brenda are sharing a pie. Billy ate 1/4 of the pie, Bobbie ate 1/2 of the pie, and Brenda ate 1/6 of the pie. The amount of pie remaining can be written as a reduced common fraction with the form A/B. What is A + B?
9	On her 18-mile one-way commute to college, 6.5 miles into the trip, Jessica realized she had forgotten her Statics book. She went back home and got it, and started back to college. When she was 3.5 miles from school, she realized she had forgotten her calculator. She went back home and got it. After getting her calculator, she successfully made it to her college. How many total miles did she travel getting to college?
10	It takes 3.5 ounces of gold to make a ring. How many whole rings can made from two pounds of gold?
11	Kumiko's egg factory produces 504 eggs per day. How many dozen eggs does the factory produce in 12 days.

12	It takes 3/4 of a square yard of material to make a Halloween costume. How many complete costumes can be made with 24 square feet of material?
13	Dwight argued with his co-worker Jim from 2:44 p.m. until 6:13 p.m. the same day. In the middle of the argument, they took a 10 minute break from arguing while Dwight got his stapler out of the Jell-O. How many minutes did Dwight and Jim spend arguing?
14	Albert does 30 math problems every Monday, 10 math problems on every day of the week that begin with a "T", and 20 math problems on every day of the week that begins with an "S". How many math problems would he do in 28 days?
15	John's new vehicle, a Toyota Prius Eco, can travel 56 miles per gallon of gasoline. John is planning a roundtrip drive to visit his grandmother, who lives 196 miles away. How many gallons of gas will it take for the round-trip journey?
16	What is 154th letter in the infinite sequence: MATHISCOOLROCKSMATHISCOOLROCKSMAT…. Enter your answer as an integer using the following code: M = 1, A = 2, T = 3, H = 4, I = 5, S = 6, C = 7, O = 8, L = 9, R = 10, K = 11 Only enter the integer as your answer.
17	The product of 300 positive counting numbers is 300. What is the largest possible sum of the numbers? Numbers can be repeated.
18	The sum of Biff and Eho's age is 63 years. Eho is 7 years older that Biff. Hold many years old is Biff?
19	This year at the Bloomsday 12-kilometer race, Arturo finished in 20,321st place. He was 31,822 places in front of the last-place finisher. How many people ran the race?
20	Tealah opened up her book to start reading again and noticed the product of the two consecutive page numbers where her book was opened up to was 5,402. What is the smallest of the two consecutive page numbers?
21	On June 1st, both events A and B occurred. If event A occurs every 12 days and event B occurs every 15 days, the first time both events occur on the same day again will be on a particular month and day. Let the month number = C and the day of the month = D. What is C + D? For example, January = 1, February = 2, and so on.
22	Anthony went to the store to buy accessories for his new Apple iPhone 11. He bought a screen protector, a car charger and a phone wallet. The car charger cost $9 more than the screen protector, and the phone wallet cost $14 more than the car charger. The three items together cost $53. How many dollars does the screen protector cost?
23	A group of students are standing equally spaced in a circle. While counting off in sequential order, starting with number 1, the student directly across from student 22 is student 11. How many students are in the circle?
24	Ferny the frog fell into a well 70 feet deep. Each day, Ferny is able to crawl up the side of the well 124 inches. Each night, Ferny slides back down into the well 84 inches. How many days will it take Ferny to reach the top of the well?

25	What is the largest possible remainder when a counting number is divided by 16?
26	Wayne had lots of friends coming over for dinner, so he decided to double the radius of the circular pizza he normally cooks. How many times bigger is the area of the new larger pizza, compared to the usual sized pizza?
27	Deepesh can only use the numbers 2, 3, 7, 8 and 9. The digits can be repeated. How many distinct 2-digit even numbers can he form?
28	What number between 1 and 100 has a remainder of 1 when divided by 18 and a remainder of 3 when divided by 5?
29	In a survey of the math team members at the Differential School of Geometry, 64 are in the computer programming club, 94 are on the cross-country team and 58 are in band. Also, 28 are part of both computer programing and band, 26 are part of both computer programing and cross-country and 22 are part of both cross-country and band. Additionally, 14 members are involved in three activities. How many students are only in one activity?
30	Will's basketball team is playing a basketball game at Hoopfest. The team that scores 21 points first wins. Will's team scored the first point, then the other team scored two points, then Will's team scored 2 points, then the other team scored 3 points, then Will's team scored 3 points, then the other team 4 points etc. If this pattern continues, what will the score of the losing team when the winning team has 21 points?
Continued on next page.	

Challenge Questions: 3 points each	
31	James is running around a track in the opposite direction as Joe. Joe can run one lap in 1 minute and 15 seconds and meets James every 30 seconds. How long, in seconds, does it take James to run one lap?
32	Avisha has ridden her bike 5 miles plus three-fourths the whole distance of the trip, and still has 7 miles to go. How many miles is the whole trip?
33	Write the repeating decimal 0.444444… as a reduced common fraction in the form A/B. What is A + B?
34	Jessica, Owen, Luana, and Will are going to run a race. The probability of Jessica winning is 3/10, the probability of Owen winning is 2/5, the probability of Luana winning is 1/5, and the probability of Will winning is 1/10. On the day of the race, Will was unable to race. The probability that Luana will win the race can be written as a reduced common fraction in the form A/B. What is A + B?
35	The smallest angle between the hour hand and the minute hand on a clock when it is 4:15 pm can be written as A.B, where A is a 2-digit integer and B is a 1-digit integer. What is A + B ?
36	The ratio of cars to bicycles in a municipal parking lot is 3:5. After six cars had left, the ratio of cars to bicycles is 1:2. How many bicycles are in the parking lot?
37	A chicken starts at point "A" and travels to point "B" by only traveling to the right or down along the pathways. How many different paths could the chicken travel while going from point "A" to point "B"? 
38	Ermina, Edgar, Elliot and Erika are playing a dice game with a fair 6-sided die. They play in the order their names are listed. Each of them rolls the die one time. If anyone rolls a 4, they are the winner and the game is over. If any number other than a 4 is rolled, the die is passed to the next person until someone rolls a 4. The probability that Erika wins can be written as a reduced common fraction in the form A/B. What is A + B?

39	Count the total number of triangles that can be made from this Christmas tree, including triangles made up of smaller pieces. 
40	The set of numbers shown here has the same range and mean (average). What is the sum of all possible values of x? The numbers are not necessarily listed in increasing numerical order. {60, 70, 80, 90, x}

"Math Is Cool" Masters – 2020-21

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	54 [Comic-Cons]
2	11 [cups]
3	103 [cows]
4	280 [apples]
5	3 [pieces of candy]
6	21 [balloons]
7	548 [cents]
8	13
9	60 [miles]
10	9 [rings]
11	504 [dozens]
12	4 [costumes]
13	199 [minutes]
14	360 [math problems]
15	7 [gallons]

	Answer
16	4
17	599
18	28
19	52,143 [people]
20	73
21	37
22	[$] 7
23	22 [students]
24	19 [days]
25	15
26	4
27	10 [numbers]
28	73
29	106 [students]
30	20 [points]

	Answer
31	50 [seconds]
32	48 [miles]
33	13
34	11
35	42
36	60 [bicycles]
37	96 [paths]
38	796
39	27 [triangles]
40	175

5th Grade

May 12, 2021

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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

May 12, 2021

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

"Math Is Cool" Masters — 2020-21

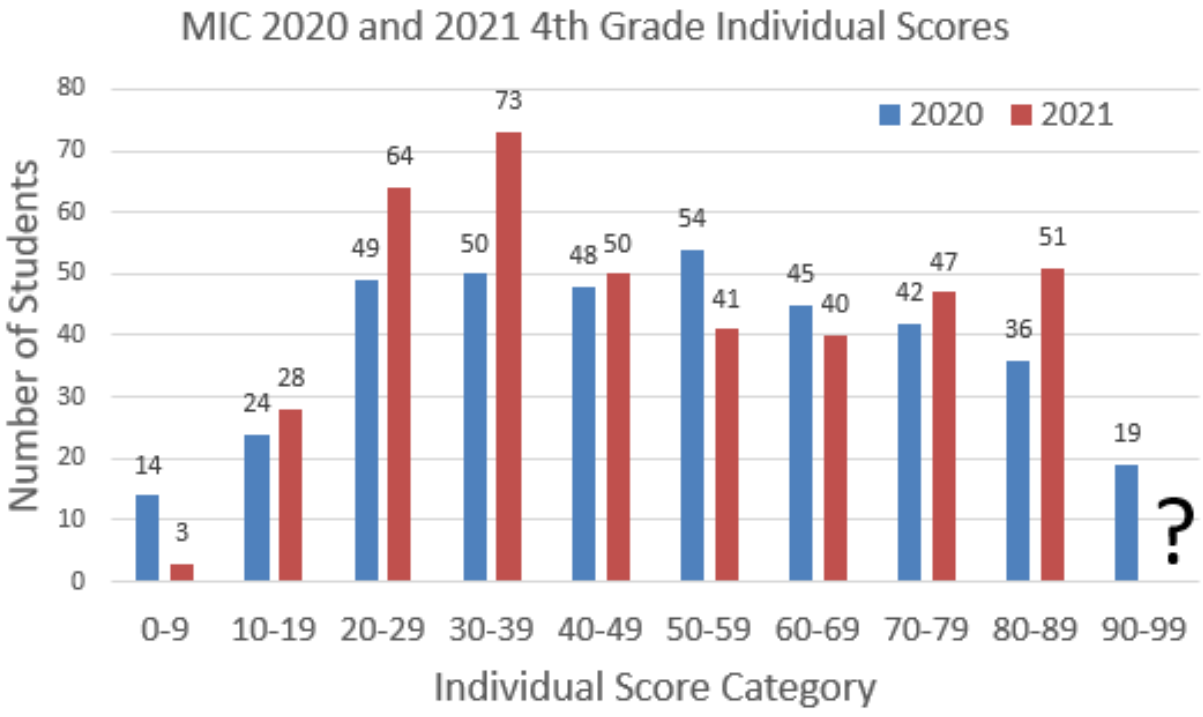
5th Grade — May 12, 2021

Sponsored by: Columbia Basin College

Team Multiple Choice Contest

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

In spring of both 2020 and 2021, the Math Is Cool (MIC) 4th grade Championship competitions were held online. The following graph compares the Individual scores for all participants in these two online contests.



1 In 2020, which scoring category had the highest number of students?

A) 20-29 B) 30-39 C) 40-49 D) 50-59 E) Answer not given.

2 The number of students who scored between 90-99 in 2021 was two more than twice the number who scored between 90-99 in 2020. How many total students scored between 90-99 in 2021?

A) 19 B) 38 C) 40 D) 46 E) Answer not given.

3 How many more students participated in 2021 than in 2020?

A) 52 B) 54 C) 56 D)58 E) Answer not given

4 What is the ratio of the number of students who scored between 30-39 in 2021 to the number of students who scored between 30-39 in 2020? Round off your answer to one decimal place.

A) 1.3 B) 1.5 C) 1.8 D) 1.9 E) Answer not given.

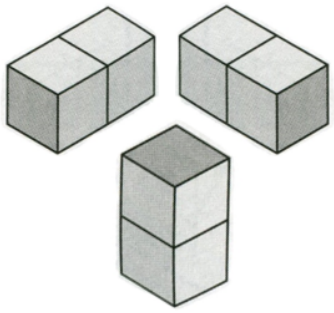
Continued on Next Page

USE THE FOLLOWING INFORMATION TO SOLVE PROBLEMS #5 THROUGH #7.

Unique arrangements of cubes can be made by following these rules:

1) Each cube in an arrangement must completely touch at least one other cube face to face. Therefore, no one-cube arrangements are possible, and there are no partial face to face arrangements.

Examples of NOT unique arrangements

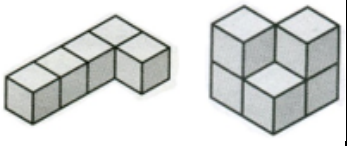


2) For an arrangement to be unique, it must be different from other arrangements even if it is flipped and/or rotated in any direction. For example, the three arrangements shown at the top right are the same, so they are not unique.

There are two types of arrangements, rectangular and non-rectangular. Rectangular arrangements consist of cubes that form a rectangular prism. Non-rectangular arrangements include any shapes that are not a rectangular prism. See the examples shown at the bottom right.

Rectangular:

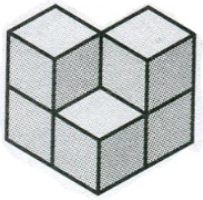
Non-Rectangular:



5 Using four cubes, how many unique rectangular arrangements are possible?

A) 1 B) 2 C) 3 D) 5 E) Answer not given.

6 Each side length of an individual cube is 1 centimeter. What is the total exposed surface area, in square centimeters, of this non-rectangular arrangement composed of 5 cubes? Include the bottom surface in the calculation.



A) 19 cm^2 B) 20 cm^2 C) 21 cm^2 D) 22 cm^2 E) Answer not given.

7 Using five cubes, how many unique arrangements are possible, if all of the cubes must be lying on the same surface (in other words, no stacking of cubes is allowed). Include both rectangular and non-rectangular arrangements.

A) 9 B) 10 C) 11 D) 12 E) Answer not given.

Continued on Next Page

	USE THE FOLLOWING INFORMATION TO SOLVE PROBLEMS #8 THROUGH #10. Some positive integers can be obtained by summing a certain number of consecutive whole numbers. Remember that the set of whole numbers is {0, 1, 2, 3, …}. For example, there are two ways to obtain a sum of 6 by adding consecutive whole numbers: Adding 3 consecutive whole numbers: 1 + 2 + 3 = 6 Adding 4 consecutive whole numbers: 0 + 1 + 2 + 3 = 6 Consecutive means "in a row", and inclusive means "including the given end points".
8	How many ways can a sum of 7 be obtained by adding at least two consecutive whole numbers? A) 0 B) 1 C) 2 D) 3 E) Answer not given.
9	How many ways can a sum of 15 be obtained by adding at least two consecutive whole numbers? A) 0 B) 1 C) 2 D) 3 E) Answer not given.
10	How many integers from 1 to 25, inclusive, CANNOT be obtained by adding at least two consecutive whole numbers? A) 2 B) 3 C) 4 D) 5 E) Answer not given.

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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	D
2	C
3	C
4	B
5	B
6	D
7	D
8	B
9	E (4 ways)
10	C

"Math Is Cool" Masters — 2020-21

5th Grade — May 12, 2021

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" Masters — 2020-21

5th Grade — May 12, 2021

Sponsored by: Columbia Basin College

Team Contest

1	At the U-Pick strawberry orchard, Aditi picked 142 strawberries and Rizwan picked 53 strawberries. They ate some strawberries on the way home. When they got home, they had 74 strawberries left. How many strawberries did they eat on the way home?
2	What is 2021_3 as a base 10 number? Do not include the base 10 in your answer.
3	Farmer Seth is making a rectangular pen for his pet pig using a total of 60 yards of fencing. What is the largest possible area of the pen in square yards?
4	Eho is buying new flooring tiles for his kitchen. His kitchen is 16 feet by 17 feet. Each box of tiles contains 15 tiles, which each measure 1 foot by 1 foot. Partial boxes are not sold. How many boxes of tiles will Eho need to complete his project?
5	Alex buys 4 wood planks. If each of the wood planks measure 6 feet by 6 inches by 2 inches, how many cubic inches of wood did she buy?
6	Lisa bought a gift for $48. With tax she paid $51.84. Lisa paid T % sales tax. What is T ?
7	A rectangular swimming pool is going to be built with a 2 feet wide concrete border. If the pool's length is 9 feet and its width is 6 feet, what is the area of the border in square feet?
8	In a triangle with integer side lengths, one side is twice as long as another side, and the length of the third side is 12. What is the positive difference between the greatest possible perimeter of the triangle and the least possible perimeter of the triangle?
9	Laptop serial numbers have 5 characters, starting with two letters and ending with three digits. If no two consecutive digits can be the same, how many possible serial numbers are there?
10	A is the sum of the following infinite geometric series: 16, 8, 4, 2, 1, … B is the 2021st term of the following arithmetic sequence: -17, -13, -9, -5, … What is the value of B – A?

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5th Grade — May 12, 2021

Key

Team Contest – Answer Key

5th Grade

	Answer
1	121 [strawberries]
2	61
3	225 [square yards]
4	19 [boxes]
5	3456 [cubic inches]
6	8
7	76 [square feet]
8	18
9	547560
10	8031

"Math Is Cool" Masters — 2020-21

5th Grade — May 12, 2021

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

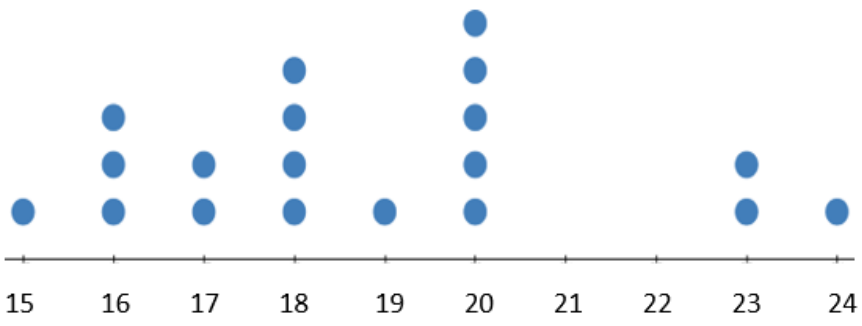
	Answer	Scorer 2 0 or 1	Scorer 1 0 or 1
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
5th Grade	**TOTAL:**		

"Math Is Cool" Masters — 2020-21

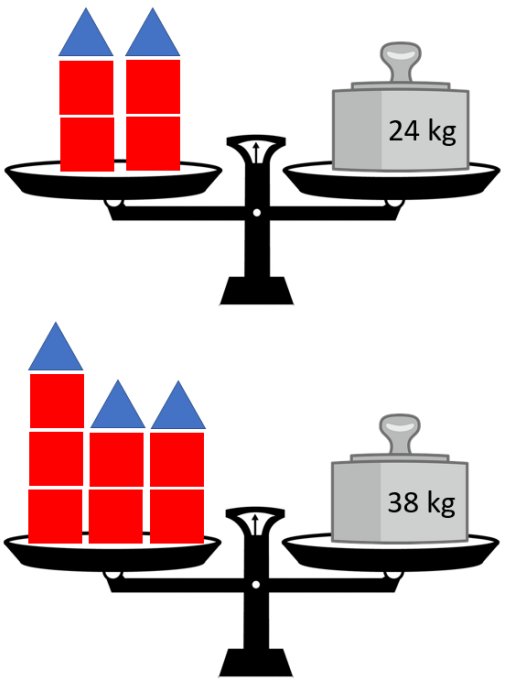
5th Grade — May 12, 2021

Sponsored by: Columbia Basin College

Linda Moore Triple Jump

1	Biff bought a shirt and pair of pants for a total of $32. He paid 3 times as much for the pants as he did the shirt. How much did he pay for the shirt in dollars?
2	Four rectangles each have a width of 3 inches. Their lengths are 15, 25, 35 and 45 inches, respectively. What is the sum of the areas of the four rectangles, in square inches?
3	A 6 centimeter by 10 centimeter rectangular piece of paper has a 2 centimeter by 2 centimeter square cut out from each corner. After the corners of the paper have been removed, what is the perimeter, in centimeters, of the remaining figure?
4	The dot plot shows quiz scores in Mrs. Stephenson's Statistics class. What is the median of these scores? 
5	Packard and Tim divided an extra-long Tootsie Roll in a 3:2 ratio. If Packard's piece was 4 cm longer than Tim's, how long was the entire Tootsie Roll, in centimeters?
6	Find the sum of all prime numbers between 0 and 100 which have a remainder of 3 when divided by 15.
7	How many integers between 100 and 200 are multiples of 3 or 7?
8	A farmer is preparing for spring planting of his barley crop. Size of seed and seed density changes from year to year as well as the number of viable seeds that will sprout and produce a plant in the field. After running soil tests, the farmer has determined that 95% of the seeds will sprout. There are 14400 seeds in 48 pounds of barley seed. His goal is to have 30,210 sprouting seeds per acre. How many pounds of barley seed per acre should the farmer plant to achieve his goal?

Continued on next page.

9	In the following diagram, both scales are evenly balanced. All red squares weigh the same amount, and all blue triangles weigh the same amount. What is the weight of one red square, in kilograms? 
10	The math team at Walkertown Elementary School is having a pizza party to celebrate their successful year of competitions. They need a minimum of 12 pizzas, but can only spend a maximum of $96. Pizzas from Keno's Pizza cost $6 for cheese and $12 for meat lovers. How many different combinations of pizza orders could they place? For example, one combination would be 12 cheese pizzas and 2 meat lover pizzas. They must have at least 12 pizzas, but they do not have to spend all of the money.

"Math Is Cool" Masters — 2020-21

5th Grade — May 12, 2021

Key

Linda Moore Triple Jump – Answer Key

5th Grade

	Answer
1	8 [$]
2	360 [sq. inches]
3	32 [cm]
4	18
5	20 [cm]
6	3
7	42
8	106 [lbs]
9	2 [kg]
10	15 [combinations]

"Math Is Cool" Masters — 2020-21

5th Grade — May 12, 2021

Final Score *(out of 10)*

Room # _____ School Name _____ Team # _____

Linda Moore Triple Jump – 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" Masters — 2020-21

5th Grade — May 12, 2021

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" Masters — 2020-21

5th Grade — May 12, 2021

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" Masters — 2020-21

5th Grade — May 12, 2021

Sponsored by: Columbia Basin College

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	What is sixty-four plus thirty-five?	99
2	Janissa wants to buy five bottles of water. How much, in cents, will Janissa spend if each bottle is one dollar and fifty cents?	750 [cents]
3	What is the next term in the sequence: 15, 7, -1, -9, … ?	-17
4	If a bunch of seven bananas cost two dollars and ninety-four cents, how many cents is one banana?	42 [cents]
5	Let 'A' represent the number of positive two-digit integers and let 'B' represent the number of positive one-digit integers. What is the value of A – B ?	
6	Riley has three quarters, two dimes, five nickels, and thirty-two pennies. How many cents does she have in all?	152 [cents]
7	On a coordinate plane, the point with coordinates (2, -3) is translated four units to the left, then five units up. What is the sum of the coordinates of the new point?	
8	A state math competition has six final competitors. If each competitor fist-bumps each other competitor once before and once after the competition, how many fist-bumps were exchanged?	30

"Math Is Cool" Masters — 2020-21

5th Grade — May 12, 2021

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Key

COLLEGE BOWL ROUND #1

#	Problem	Answer
1	Yazmin is making coffee. In every batch, she uses two parts sugar and three parts creamer. How many parts of sugar will she need if she uses 36 parts creamer?	24 (parts)
2	A drawing has 6 pentagons and 3 triangles. None of the figures are touching each other. How many total sides are in the drawing?	39
3	How many counting numbers are factors of forty-two?	8
4	How many seconds are in $4\frac{1}{2}$ hours?	16,200 (seconds)
5	Sally, Allie, Dally and Riley are at the movie theatre. How many ways can they seat themselves in a row of four seats if Dally and Allie have to sit together?	12 (ways)
6	What is the smallest integer greater than one that is both a perfect square and a perfect cube?	64
7	How many diagonals can be drawn in a regular hexagon?	9
8	How many of the numbers in the following set are prime? {18, 4, 2, 5, 9, 19, 14}	3
9	Tim is 11 years old. Jennifer is 22 years old. How old will Tim be when Jennifer is 40?	29
10	Vishal reads all the pages in a chapter of a book, starting at the top of page 40 and ending at the bottom of page 60. How many pages did Vishal read?	21 [pages]

"Math Is Cool" Masters — 2020-21

5th Grade — May 12, 2021

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Key

COLLEGE BOWL ROUND #2

#	Problem	Answer
1	What number is exactly halfway between 13 and 29?	21
2	What is the largest prime factor of 85?	17
3	What is the area of a right triangle with legs 4 and 6?	12
4	Melody is thinking of a number. If she triples the number and subtracts seventeen, she gets 52. What is her number?	23
5	Angie is taller than Benji, Carlie is shorter than Don, and Evie is between Carlie and Frankie in height. Benji is taller than Frankie, Sally is taller than Don, and Carlie is taller than Frankie. Who is the shortest in this group? Your answer should be an integer: Angie = 1, Benji = 2, Carlie = 3, Don = 4, Evie = 5, Frankie = 6	6
6	The sum of two consecutive odd numbers is 116. What is the smaller of the two numbers?	57
7	What is the measure, in degrees, of the angle that is supplementary to a 51 degree angle?	129 [degrees]
8	What is the sum of the five smallest prime numbers?	28
9	What is the sum of X and Y in the following arithmetic sequence? 4, 1, -2, -5, X, Y, …	-19
10	Yulia takes five math tests. Her scores are as follows: 85, 90, 93, 90 and 98. What is the range of her scores?	13

"Math Is Cool" Masters — 2020-21

5th Grade — May 12, 2021

Sponsored by: Columbia Basin College

Key

COLLEGE BOWL ROUND #3

#	Problem	Answer
1	Stephen is going to drive his golf cart 48 miles to a Billie Eilish concert. He drives at a speed of 12 miles an hour. How many hours will it take him to get to the concert?	4 (hours)
2	If A equals 8 and B equals 13, evaluate the expression: $A^2 + 2B$.	90
3	A toolbox has a length of 20 inches, a width of 6 inches, and a height of 9 inches. What is the volume of the toolbox in cubic inches?	1080
4	Solve for the value of x in the following equation: $17x + 8 = 110$	$x = 6$
5	A square checkerboard has 17 rows and 17 columns of congruent squares, alternating black and white. If at least one corner square is black, how many of the squares are black?	145 (squares)
6	Zimeng has six standard U.S. coins in his pocket. If he has no more than two of any type of coin, what is the smallest number of cents he could have in his pocket?	32 [cents]
7	Rebecca fell asleep at 2:38 pm and took a nap until 7:13 pm on the same day. How many minutes did she sleep?	275 [minutes]
8	What is the remainder when 267 is divided by 7?	1
9	During a leap year, in which month does the 123rd day of the year occur? Answer as an integer according to the month number: January = 1, February = 2, and so on.	5
10	How many multiples of 9 are there between 1 and 150?	16

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)	6:05 - 6:10	Relay #1
4:05 - 4:15	Orientation (Gym)		
4:15 - 4:20	Students go to testing rooms		
4:20 - 4:35	Mental Math		
4:35 - 5:15	Individual Test		
5:15 - 5:35	Team M.C. Test		
5:35 - 5:55	Team Test		
5:55 - 6:05	Relay Practice		

6:10 - 6:15	Relay #2
6:15 - 6:40	Proctors get dinner in proctor room
6:45 - 6:55	College Bowl #1
6:55 - 7:05	College Bowl #2
7:05 - 7:15	College Bowl #3
7:15 - 7:25	College Bowl #4
7:25 - 7:35	College Bowl #5
7:35 - 7:45	College Bowl #6
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. Relay Tests

Configuration: Columns of 4 desks, one behind the other.

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

Duration: 5 minutes per relay

Give Time warning at: 30 seconds

Number of questions: 4 total per relay (~1 per person/relay)

Proctor Actions: Ensure appropriate test-taking behavior. Score Relays #1 and #2 at the end of each Relay (without showing any answers to students).

Key Points: No talking allowed. Students may not turn around. Students may only pass the answer sheet back (no work or notes). Proctor: circle the point value earned for each answer (0 or 1 or 2). Teams of 3 sit in positions 2, 3, & 4.

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.

Keep Relay answers secure while you score the Relays because answers for all three Relays are on the same sheet. 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. ***Relays:***
     1. 4 - blank Relay answer sheet packets (with cover sheet/instructions)
     2. 4 - Practice Relay test sets, 4 - Relay #1 test sets, and 4 – Relay #2 test sets (each set has 4 sheets for positions 1-4)
     3. Relay Answer Key (in the Proctor Packet)
   - 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.

Relay Tests

24. Arrange each team of four students so that their desks are right behind each other and all facing the front of the room. For example, person 1 will be at the front of the line facing the front of the room. Person 2 will be right behind person 1 so that they are facing the back of person 1's head, etc. Teams of three sit in positions 2, 3, and 4. Teams of two sit in positions 2 and 4.
25. Pass out the packet of answer sheets to person 1 of each team. Have them fill out the top of all three answer sheets. They will use these sheets to record **only their final answer** and will pass only this answer sheet back to the next person. There is NO TALKING during the Relays and students MAY NOT look behind them – they must always be facing forward. Students may not change positions, nor leave the room, between Relays.
26. Once the top of the answer sheets are filled out, you may pass out the practice Relay questions to the appropriate people. Make sure person 1 gets the "person 1" piece of paper, etc. The questions must remain face down until it is time to start.

27. Read the "RELAY" instructions (in the Proctor Packet) to the students and begin the testing at the appointed time.

28. Once the Relay begins, everyone from the team may turn their sheet over and start working. They can use their slip of paper for scratch paper and it must never be passed back to the next person. The time allotted for each Relay is 5 minutes, so be sure you keep track of the time. Position yourself behind person 4 and be ready to collect each team's answer sheet once they complete the Relay or the time is up.

29. PRACTICE RELAY — This round is being done to teach the students how to do the math Relays, so this round is **not** to be scored. Address any questions that arise and correct the students if they misunderstood the procedures. Practice Relay answer sheets may be recycled.

30. RELAY #1 — Make sure that you are passing out Relay #1. Make sure the question sheets are face down and that each person has the correct sheet (i.e., person 1 has the person 1 sheet, etc.).

    Scoring: Questions #1, #2, #3: 1 point if the answer is correct
    Question #4: 2 points if the answer is correct
    Total possible: 5 points for each Relay round

    Circle the points for each question and fill in the total on the answer sheet. Lay out all of the answer sheets from this Relay so you can pair up the Relay #2 sheets by team.

31. RELAY #2 — Repeat the same process as for Relay #1.

32. At the conclusion of Relay #2, release the students for their break. Staple the pairs of answer sheets for each team together and hand off the set of Relay answer sheets to the runner. 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.

33. 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.

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

Dinner Break

35. 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

36. 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).
37. 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.
38. 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.
39. 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.
40. Who is keeping score? Who is keeping track of the time? YOU ARE !!!
41. 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.
42. If you mis-read a question, replace it with one of the extra questions.
43. 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.
44. At the conclusion of all College Bowl rounds, get the score sheets promptly to the scoring room (either yourself or via a runner).
45. 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.
46. 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:
  - 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.

Relay Instructions

There is no talking during this event and you must always be facing forward.

Person #1 will be given answer sheets and will need to fill out the top portion of each. The proctor will hand out a strip of paper to each person. These need to be face down on your desk until it is time for the Relay to start. Once the Relay begins, everyone may turn over their strip of paper and begin working, but first make sure you have the right person number.

Person #1 receives a full problem to solve. Questions 2-4 will be missing a number and will show the acronym "TNYWG" (meaning "the number you will get") *[Proctor: write this on the board]* as a placeholder in the problem statement. The answer for the previous question (i.e., received from the teammate in front of you) should be inserted into the problem statement in place of "TNYWG."

Person #1 will have problem #1 on his/her paper. Person #2 will have problems #1 and #2 printed on his/her paper. Person #3 will have problems #2 and #3 on his/her paper and Person #4 will have problems #3 and #4 on his/her paper.

You may write on the strip of paper to come up with answers to the problems on your strip of paper. However, when person #1 figures out his/her problem, he/she will record ONLY his/her final answer on the answer sheet and pass only the answer sheet back (without turning around) to the person #2.

Person #2 has the option of changing Person #1's answer if he/she wants, by crossing it out and putting a new answer. Once Person #2 records at least an answer for problem #2 on the answer sheet, he/she passes only the answer sheet behind to Person #3. Repeat these steps until person #4 puts an answer on the answer sheet and gives it to the proctor.

Each teammate has the option of changing any answers on the answer sheet when they have it in their possession, but once it is passed back, they will not see the answer sheet again.

Teams with only three members can position themselves in positions 2, 3, and 4 to provide answers for all four problems. Teams of two can sit in positions 2 and 4.

The raw score will be 1 point for correct answers to problems 1-3 and 2 points for question 4. <u>Any non-answer text (i.e., scratch work or notes) on the answer sheet will result in a score of 0 for the entire Relay.</u>

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