

Froshmore Science

Round Two

Read only for Round Two

Officials Checklist and reminders:

- 1.) Review this checklist and reminders document and the rules flow chart. _____
- 2.) Pencils and fresh scratch paper for each participant _____
- 3.) Timer instructions _____
- 4.) Identify the head coach for each team. _____
- 5.) Identify the team captain. _____
- 6.) Review the pumpernickel rule _____

Accept only the answer to the bonus question that comes from the captain.

The captain may defer to another team member to give the answer to the bonus question.

If you want them to indicate a deferral in a specific way – tell them at the beginning of the match. “If you are going to defer on a bonus question, please do so by”

Coaches may use an ipad or table to keep score (I've sent out an excel score sheet) They may not use their ipad, phone or other technology to look up answers, send or received text messages or emails or to make calls during competition.

Before you begin, remind students that on a toss-up question they must buzz-in and be recognized before giving the answer and that they may NOT confer on a toss-up. You may only confer on a bonus question.”

When you read a toss-up question – identify the subject, then read the question.

If the team member buzzes-in before the question is completed and the answer is incorrect, say ‘incorrect, I will finish the question’ then finish reading the question.

If you have finished reading the question when the first team buzzes-in and gives an incorrect response say ‘incorrect,’ look at the second team call them by team name and say ‘_____ I have finished the question’

If the time has expired, their response should be to immediately buzz-in to be recognized. If there is still time (5 seconds for a regular question 15 on a math computation) they have the remaining time to buzz. If the toss-up question is not answered correctly by either team, give the correct answer. Do NOT read the bonus question, go on to the next toss-up. **If you need a replacement question for this subject, you may use the unused bonus.**

The first time you read a bonus question for each team say ‘Here is your bonus question, you do not need to buzz-in. Remember you may confer on this question, and I will take the answer from the team captain.’

There is NOT a penalty for buzzing during a bonus question.

When the time for conferring has expired (10 seconds – 15 on math or science computation) **call for the answer.** Say, ‘Captain?’ or ‘answer please’ (or something similar). If they do not give you an immediate answer say ‘time’ and give the correct answer.

There is no limit to the number of team members a team substitutes.

On a toss-up question, do not give the correct response until you have given both teams an opportunity to answer the question.

Leading articles such as "the," "an," and "a" are not required (e.g., Tale of Two Cities is an acceptable answer for The Tale of Two Cities). However, if an article is given, it must be the correct one.

Plural/Singular answers are acceptable unless otherwise delineated.

Last names are acceptable, except where there is more than one common person in the same field. Prompt for more information by saying – ‘more’ or ‘more specific’.

Questions requiring additional computation time (15 seconds) have computation in the subject line - MATH COMPUTATION: or SCIENCE COMPUTATION: or BONUS

COMPUTATION: (If it needs it and we forgot it, add it!)

Math or Science questions that do not require computation and receive regular question time (5 for toss-up and 10 for bonus) do not have computation in the subject line - MATH: or SCIENCE: or BONUS

Explain the addition of the word Computation to the timer and the team at the beginning of the tournament. After the first question containing COMPUTATION: You may choose to say only Computation if you wish.

Give your stall count before the game starts. A stall count is the amount of time allowed for the student to begin their answer once you've called on them. "My stall count is _ _ _." Fill in the blanks with your count. Do you count 1, 2, stall? 1, 2, 3, stall? Do you say stall on the upbeat of the 3rd second or the downbeat? My preference is you count 1(1001), 2(1002), 3(1003) with stall being called on the downbeat of 3. (Down beat being the end of the 1003 with 100stall. You do not have to say the 1000 or the second 1, 2 or 3 out loud. You do need to make some type of physical indication - head nod, hand count (like a basketball referee counting the backcourt) even a foot tap. But do something so the student can see the seconds slipping away. This also helps with consistency. Neither team can say the other team received more time before a stall was called. When an immediate answer is expected 1 second is adequate time to allow before a stall is called.

"Welcome to Round Two of the tournament. I am _____, your moderator. (if you have a judge, timer and scorekeeper, introduce them as well) Our two teams are _____ and _____. Head coaches, will you please stand. A protest may be lodged only by the head coach." (run a buzzer check) "Students, remember, you may not give an answer until you are recognized. If you do so, it will be ruled as an incorrect response, even if your answer is correct. Explain the timing for Math or Science Computation: (see instructions) Good sportsmanship is expected from **all** players, substitutes, coaches, spectators and parents. Except for using the excel spreadsheet to keep score, you may not use computers, smart phones, iPad, etc. during the competition. Turn off all and put away all electronics at this time. Remember a player will be removed for the remainder of the game if any device is found at the table. (pause) Are there any questions? Let's begin."

- _____ 1. SCIENCE This quantity, often denoted by the letter v is a vector quantity that describes both the speed and direction of an object's motion. Unlike speed, it can have positive, negative, or zero values depending on direction. What is this measure of an object's rate of change of displacement?

ANSWER: velocity

BONUS BONUS SCIENCE CALCULATION If an object travels 90 meters north in 20 seconds, what is its average velocity?

ANSWER: 4.5 meters per second north

- _____ 2. FINE ARTS: A 1973 Peter Bogdanovich film is named for a “Moon” of this material. Rings of this material title a song which includes the line, “I like shiny things” and is by * Taylor Swift. What is this material, usually made from wood pulp and used in the creation of books?

ANSWER: Paper

BONUS BONUS: “Paper” is also the name of a song from *Order in the Court* by what American hip-hop artist of “Ladies First” and “Nature of a Sista?”

ANSWER: (Queen) Latifah [also accept Dana Owens]

- _____ 3. SCIENCE This layer of the Earth's atmosphere contains the ozone layer,* which absorbs most of the Sun's harmful ultraviolet radiation. It is located above the troposphere and below the mesosphere. Name this atmospheric layer.

ANSWER: stratosphere

BONUS BONUS SCIENCE Name the phenomenon caused by the interaction of charged particles from the Sun with Earth's magnetic field.

ANSWER: aurora borealis or aurora australis

- _____ 4. SOCIAL STUDIES: One of Idi Amin's claimed titles was “King of” this country. This country was joined with its southern neighbor in the 1707 Act of Union and its earlier independence movement was led by * Robert the Bruce and William Wallace. The Jacobite Uprising took place in what constituent country of the UK?

ANSWER: Scotland

BONUS BONUS: The Scottish Jacobite Uprising sought the return of what royal house to the British throne? Its kings included James I and Charles II.

ANSWER: Stuart

- ____ 5. SCIENCE This term refers to an organism that has two different alleles* for a specific trait, such as "Bb" or "Pp." Give this term, which contrasts with homozygous.

ANSWER: heterozygous

- BONUS BONUS SCIENCE What do we call the physical appearance or expression of a trait in an organism?

ANSWER: Phenotype

- ____ 6. MATHEMATICS COMPUTATION: A bag contains 22 red marbles, 26 blue marbles, and 12 white marbles. What is the reduced probability, as a fraction, of drawing out one marble and it is NOT red?

ANSWER: **19/30**

- BONUS BONUS COMPUTATION: One box contains four red chips and two black chips. A second box contains three red chips and three black chips. If one chip is drawn out of each box, what is the reduced probability, as a fraction, of drawing two black chips?

ANSWER: **1/6**

END OF FIRST QUARTER

*The score at the end of the first quarter is
Team one _____ Team two _____*

Are there any questions?

(pause and look at the coaches if there are no protests proceed)
"Coaches... you may substitute if you wish.

- ____ 7. SCIENCE This structure, located in the brainstem, regulates essential functions like heart rate, breathing, and digestion.* It also serves as a relay station for signals traveling between the spinal cord and higher brain regions. What is this structure, which is located just above the spinal cord?

ANSWER: medulla oblongata

- BONUS BONUS SCIENCE Name this collective term for the three layers of connective tissue membranes that surround the brain and spinal cord.

ANSWER: meninges

- ____ 8. HUMANITIES: A popular card game from this country has a name which translates to "Fighting the Landlords." This country's local chess variant is called Animal Chess or * Xiangqi. Stones without available liberties are captured in Go, a board game originating in what Asian country?

ANSWER: China

- BONUS BONUS: This country's board game Renju uses stones like Go. What is this other Asian country whose local chess variant is called Shogi?

ANSWER: Japan

- _____ 9. POP/CE: **The mayor of this US city was indicted*** on federal criminal charges. Eric Adams is accused of accepting campaign donations from Turkey and other foreign governments. Name the city where Adams was a cop before he became mayor.

ANSWER: **New York City**

- BONUS BONUS: Which US Representative from New York called on Adams to resign?

ANSWER: **Alexandria Ocasio-Cortez**

- _____ 10. SOCIAL STUDIES: **The Battle of the Overpass was sparked by a demonstration of workers in factories that produce these things. Production line innovations led to the mass production of these things at places like the * River Rouge Plant.** What are these things, whose production is performed by companies like Ford and Toyota?

ANSWER: **Cars** [also accept Automobiles or similar]

- BONUS BONUS: The Battle of the Overpass was fought between Ford security and members of what labor union which represents laborers in the auto industry?

ANSWER: **United Auto Workers** [also accept UAW]

- _____ 11. SCIENCE **This process converts glucose into two molecules of pyruvate, yielding a net gain of two ATP molecules.*** Name this process that takes place in the cytoplasm of cells and is the first step of cellular respiration.

ANSWER: glycolysis

- BONUS BONUS SCIENCE In which organelle does the majority of cellular respiration take place?

ANSWER: mitochondrion (or mitochondria)

- _____ 12. MATHEMATICS: In a set of data including twenty numbers, the number six appears more than any other number. What is the M word for the number six?

ANSWER: **Mode**

- BONUS BONUS: In the twenty numbers, the largest number is twenty-one and the smallest number is three. What term is found by subtracting three from twenty-one?

ANSWER: **Range**

END OF FIRST HALF

*The score at the end of the first half is
Team one _____ Team two _____*

Are there any questions?

(pause and look at the coaches if there are no protests proceed)
"Coaches... you may substitute if you wish.

- _____ 13. SCIENCE This force always acts perpendicular to the surface* and is responsible for supporting the weight of an object resting on a surface. It counteracts the force of gravity and adjusts based on the angle of the surface. Identify this force, which is often denoted with the letter *N*.

ANSWER: normal force

- BONUS BONUS SCIENCE What force acts opposite to the direction of motion and resists the movement of an object sliding across a surface?

ANSWER: friction

- _____ 14. LITERATURE: It takes place in the late 19th century, when European powers colonized and exploited Africa* for its resources. In the book, Charles Marlow tells his listeners the story of his assignment as steamer captain. Name the Joseph Conrad novella.

ANSWER: Heart of Darkness

- BONUS BONUS: Which African river is Marlow traveling to search for an ivory trader?

ANSWER: Congo

- _____ 15. SCIENCE This planet is the fourth from the Sun* and is often called the "Red Planet" due to its reddish appearance. It has the largest volcano and canyon in the solar system. Name this planet.

ANSWER: Mars

- BONUS BONUS SCIENCE Name the largest volcano on Mars, which is about 13.6 miles high.

ANSWER: Olympus Mons

- _____ 16. SOCIAL STUDIES: This US state was the site of a 1919 molasses flood. This state was represented in the senate by Great Triumvirate member * Daniel Webster. Cotton Mather led Witch Trials at Salem in what US state which saw the battles of Lexington and Concord?

ANSWER: Massachusetts

- BONUS BONUS: Massachusetts senator Daniel Webster was joined in the Great Triumvirate by John C. Calhoun of South Carolina and Henry Clay of what state?

ANSWER: Kentucky

- _____ 17. SCIENCE This element is the most abundant gas in Earth's atmosphere,* making up about 78% of it. It is essential for one of several cycles of matter and is often found in fertilizers and proteins. What is this element with atomic number 7.

ANSWER: nitrogen

- BONUS BONUS SCIENCE What noble gas makes up around 0.93% of the atmosphere?

ANSWER: argon

- _____ 18. MATHEMATICS COMPUTATION: At Cars-R-Us, a 2007 Camaro is listed at \$9000. If Frank negotiates the price down to \$7650, what percent discount did Frank receive?

ANSWER: 15 (%)

- BONUS BONUS COMPUTATION: Frank renovated the Camaro and resold it at a profit of 20 percent. How much did he make on that sale?

ANSWER: \$9,180

END OF THIRD QUARTER
The score at the end of the third quarter is
Team one _____ Team two _____

Are there any questions?

(pause and look at the coaches if there are no protests proceed)
"Coaches... you may substitute if you wish.

- _____ 19. FINE ARTS: This artist's sculpture *The Sun* was one of several displayed at the Kew Botanical Gardens in London. A garden named for, and showing many works of, this artist is located near the Space Needle in * Seattle. Who is this American glass artist whose sculptures are on permanent display in the Oklahoma City Museum of Art?

ANSWER: (Dale) Chihuly

- BONUS BONUS: In addition to the permanent Chihuly exhibit, OKCMOA featured a temporary exhibit of works by what African-American artist of Barack Obama's official presidential portrait?

ANSWER: (Kehinde) Wiley

- _____ 20. POP/CE: He's the first musician to be honored with a statue at the United States* Capitol. The statue depicts the *I Walk the Line* singer with a Bible in one hand and a guitar slung over his back. Name the country singer nicknamed "The Man in Black".

ANSWER: Johnny Cash

- BONUS BONUS: Each state can donate two statues to the Capitol. Oklahoma donated one of which famous Native American?

ANSWER: Sequoyah

- _____ 21. SCIENCE This phenomenon occurs when the moon moves directly between the Earth and the sun,* temporarily blocking out part or all of the sun's light. It can only happen during a new moon phase, when the moon's shadow falls on the Earth's surface. What is this event causes a dramatic drop in light and temperature in areas directly in its path?

ANSWER: solar eclipse

- BONUS BONUS SCIENCE In a solar eclipse, what is the name of the dark shadow cast on Earth by the moon?

ANSWER: umbra

- _____ 22. SOCIAL STUDIES: The Thermidorian Reaction took place during this broader event. This event included changes to the calendar and the rise of the Committee for Public Safety and its * Reign of Terror. What is this event which included the Storming of the Bastille and led to the overthrow of the Bourbon monarchy centered in Paris?

ANSWER: French Revolution

- BONUS BONUS: The Committee for Public Safety was led by what man who was executed during the Thermidorian Reaction after shattering his jaw in a failed suicide attempt?

ANSWER: (Maximilien) Robespierre

- _____ 23. SCIENCE This type of bond is formed when one atom transfers an electron to another atom,* typically between a metal and a nonmetal. This type of bond creates oppositely charged ions that attract each other. What type of bond is this?

ANSWER: ionic bond

- BONUS BONUS SCIENCE What type of bond forms between atoms that aren't really attracted to their electrons and results in a "sea of electrons"?

ANSWER: metallic bond

- _____ 24. MATHEMATICS COMPUTATION: Solve for x: $x^2 + 4x = 96$

ANSWER: (x =) 8, -12 [eight; negative twelve] Must have both answers]

- BONUS BONUS COMPUTATION: Solve for x: $3x^2 - 32x + 20 = 0$

ANSWER: (x =) 10, 2/3 [ten , two-thirds] must have both answers]

END OF GAME

The score at the end of the game is

Team one _____

Team two _____

If there is a tie allow for substitution before you ask the tie-breaker questions. Read all 5 to determine the winner.

Tie Breakers

SCIENCE What type of bond forms when atoms share pairs of electrons, commonly occurring between nonmetals?

ANSWER: covalent bond

SCIENCE What is the name of the process in which a liquid changes into a gas at temperatures below its boiling point, such as when water gradually disappears from an open container?

ANSWER: evaporation

SCIENCE In chemistry, what term refers to the amount of energy required to remove an electron from an atom in the gaseous state, typically increasing across a period?

ANSWER: ionization energy

SCIENCE Earth's atmosphere has multiple layers; in which layer do most weather events, like clouds and storms, occur?

ANSWER: troposphere

SCIENCE What term refers to a large, rotating storm system that forms over warm ocean waters and has wind speeds of at least 74 miles per hour?

ANSWER: hurricane

***Are there any questions? (pause and look at the coaches if there are no protests proceed)
This ends the game. "***