

Froshmore Science

Round One

Read only for Round One

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 One 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. SOCIAL STUDIES: A traveler who practiced this religion visited Kievan Rus and called its people "The filthiest of God's creatures." Another practitioner of this religion caused runaway inflation in Italy and was * Mansa Musa. What is this religion, whose followers undertake the Hajj to Mecca?

ANSWER: **Islam**

BONUS BONUS: What Islamic scholar and traveler collected his journeys, including one to the Mali Empire, in the *Rihla*?

ANSWER: **Ibn Battuta**

- _____ 2. SCIENCE What is the green pigment, found in the chloroplasts* of plant cells, that is essential for capturing light energy during photosynthesis? This pigment is broken down in the fall allowing other pigments to give leaves their fall color.

ANSWER: chlorophyll

BONUS BONUS SCIENCE What gas is released as a byproduct of photosynthesis?

ANSWER: oxygen

- _____ 3. MATHEMATICS: What is the term for an angle formed by two chords intersecting on the circle?

ANSWER: **Inscribed** (angle)

BONUS BONUS: A tangent line intersects a chord at a point on the circle. What is that point called?

ANSWER: **Point of Tangency**

- _____ 4. SCIENCE Charles's law states that, at constant pressure, the volume of a gas is directly proportional to this measured quantity.* What is this quantity that you usually might check before leaving the house for the day.

ANSWER: (absolute) **temperature**

BONUS BONUS SCIENCE Which gas law states that pressure is inversely proportional to volume for a gas at constant temperature?

ANSWER: Boyle's Law

- — — 5. HUMANITIES: Albert Spaulding claimed that a sport with this name was too slow for American sensibilities. A dog with this name was killed by its owner,* South Dakota governor Kristi Noem. What is this name, which is shared by a British bat-and-ball game and an annoying nocturnal insect whose sound sometimes connotes a bad joke?

ANSWER: Cricket

- BONUS BONUS: The Crickets were the backing band for what early rock-and-roll musician of the song "Everyday?"

ANSWER: (Buddy) Holly

- — — 6. SCIENCE Liam measures the pH of a substance to determine whether it is acidic or basic and finds it to be 4.50.* Is this substance acidic or basic?

ANSWER: acidic

- BONUS BONUS SCIENCE What ion increases in concentration in a solution as pH decreases?

ANSWER: hydrogen ion (H⁺)

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. SOCIAL STUDIES: This man avoided a riot by putting on his glasses before delivering the Newburgh Address. This man organized the Culper Ring of* spies. Who is this man, who lost the Battle of Fort Necessity in the French and Indian War and won the Battle of Yorktown to end the American Revolutionary War?

ANSWER: (George) Washington

- BONUS BONUS: One of George Washington's aides-de-camp was what South Carolina born anti-slavery activist who was killed at the Battle of the Combahee River?

ANSWER: (John) Laurens

- — — 8. POP/CE: He was nicknamed "Charlie Hustle" prior to his death in 2024. He was a professional baseball player and manager. Name the man who was permanently banned from the game for betting on it.

ANSWER: Pete Rose

- BONUS BONUS: Pete Rose is ineligible for which Major League baseball honor?

ANSWER: Hall of Fame

- _____ 9. MATHEMATICS COMPUTATION: The area of a circle is 196π square meters. What is the circumference in terms of pi and meters?

ANSWER: **28π** (m)

- BONUS BONUS COMPUTATION: The longest chord of a circle is 8 inches long. Using 3.14 as an approximation for pi, what is the area of the circle in square inches to the nearest square inch?

ANSWER: **50** (in^2)

- _____ 10. SCIENCE This phenomenon occurs when the crest of one wave overlaps with the crest of another wave,* resulting in a larger amplitude. It is one of the two types of interference that can happen when waves meet. Name this type of interference that increases the amplitude of the resulting wave.

ANSWER: constructive interference

- BONUS BONUS SCIENCE What property of a wave, often measured in meters, represents the distance between two consecutive crests or troughs?

ANSWER: wavelength

- _____ 11. FINE ARTS: The early silent film *A Trip to the Moon* was produced by the Star Film Company in this country. *The 400 Blows* and * *Breathless* are films from this country, whose early silent era included the films of Georges Milies. Francois Truffaut and Jean-luc Goddard are directors from what country?

ANSWER: (Republic of) France

- BONUS BONUS: French New Wave film critic Jacques Rivette particularly hated the work of what Japanese director of *Seven Samurai* and *Yojimbo*?

ANSWER: (Akira) Kurosawa [accept names in either order, but Kurosawa is required]

- _____ 12. SCIENCE What is the two-word term for the type of asexual reproduction that occurs when a single-celled organism like a bacterium divides* to produce two identical daughter cells?

ANSWER: binary fission

- BONUS BONUS SCIENCE Name one other form of asexual reproduction, where a new organism grows from a part of the parent and then detaches.

ANSWER: budding (or fragmentation)

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. SOCIAL STUDIES: A beach with this name was the center of the 5 landing sites on D-Day. The modern-day state of Ghana was created from a colony named the “Coast” of * this material. What is this metal which names a “Cross” in a speech by William Jennings Bryan?

ANSWER: **Gold**

BONUS BONUS: What US President took the US Dollar off the Gold Standard?

ANSWER: (Richard) **Nixon**

- _____ 14. SCIENCE This organelle, known as the "control center" of the cell,* houses the cell's genetic material in the form of DNA. Name this organelle that is divided during mitosis.

ANSWER: nucleus

BONUS BONUS SCIENCE Which part of the nucleus is responsible for producing ribosomes?

ANSWER: nucleolus

- _____ 15. MATHEMATICS COMPUTATION: Find 100th term in this arithmetic sequence: 2, 5, 8, 11, 14, ... [READ: two five eight eleven fourteen dot dot]

ANSWER: **299**

BONUS BONUS: Find the sum of the first 100 terms in that arithmetic series: 2 + 5 + 8 + ...+ 299
[READ “two plus five plus eight plus dot, dot, dot, plus two hundred ninety-nine”]

ANSWER: **15,050**

- _____ 16. SCIENCE This scientist is known for developing the periodic table by arranging elements in order of increasing atomic mass.* He left spaces for elements that had not yet been discovered, and his table helped predict the properties of unknown elements. Who was this Russian scientist?

ANSWER: Dmitri **Mendeleev**

BONUS BONUS SCIENCE What scientist is credited with organizing the periodic table by atomic number instead of atomic mass?

ANSWER: Henry Moseley

- _____ 17. POP/CE: This country is redrawing its borders with Italy* due to melting glaciers. Large-scale melting has caused the borders between the countries to shift. Name the other European country known for the high peaks of the Alps.

ANSWER: **Switzerland**

BONUS BONUS: What is the capital of Switzerland?

ANSWER: **Bern**

- ____ 18. LITERATURE: **She was the first Black woman to win the Nobel*** Prize in Literature. Her novel *Beloved* was a bestseller for 25 weeks. Name the woman who also wrote *The Bluest Eye* and *Song of Solomon*.

ANSWER: **Toni Morrison**

BONUS BONUS: For which ivy league college in New Jersey was Toni Morrison a professor?

ANSWER: **Princeton**

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. SCIENCE **This type of galaxy is characterized by its arms that extend out from a central bulge.*** The Milky Way is an example of this type of galaxy. Name this type of galaxy.

ANSWER: **spiral** galaxy

BONUS BONUS SCIENCE Name the closest spiral galaxy to the Milky Way.

ANSWER: **Andromeda** Galaxy

- ____ 20. SOCIAL STUDIES: **A crisis named for this month resulted from the kidnapping of British Trade Commissioner James Cross. A Revolution named for this month saw the overthrow of a government led by *** Alexander Kerensky. What is this month, which names the revolution in which the Bolshevik Party took power in Russia?

ANSWER: **October**

BONUS BONUS: In October 1911, the Xinhai Revolution overthrew what final Chinese Dynasty?

ANSWER: **Qing** (Dynasty) [pronounced Ching]

- ____ 21. SCIENCE **This type of celestial body is composed mostly of rock and metal,*** and orbits the sun between Mars and Jupiter. Its discovery led to the realization that not all planets orbit in the same way. Name this group of objects.

ANSWER: asteroids

BONUS BONUS SCIENCE Name the largest asteroid in the asteroid belt.

ANSWER: Ceres

- _____ 22. MATHEMATICS COMPUTATION: Cameron went to the Burger Barn and bought six burgers and three shakes for \$33.00. What does it cost for one shake if burgers are \$4 each?

ANSWER: **\$3**

- BONUS BONUS COMPUTATION: Next Cameron went to Candyland and bought two pounds of licorice and three pounds of taffy. How much did he pay if taffy is \$2.25 per pound and licorice is \$.35 per ounce?

ANSWER: **\$17.95**

- _____ 23. SCIENCE According to this principle, if the net external force on an object is zero, the object will either remain at rest* or continue to move at a constant velocity. This principle is often illustrated by the example of a hockey puck sliding on ice. Name this principle, also known as Newton's First Law of Motion.

ANSWER: law of inertia

- BONUS BONUS SCIENCE Which of Newton's laws states that force equals mass times acceleration?

ANSWER: Newton's Second Law of Motion

- _____ 24. FINE ARTS: One of these animals is shown "Frightened by Lightning" in a painting by Eugene Delacroix. Proof that these animals fully leave the ground while running was shown in a film by * Eadweard Muybridge. What are these animals, featured in statues like Gattamelata and other equestrian statues?

ANSWER: **Horse**

- BONUS BONUS: A large equestrian statue of Francesco Sforza was planned by what Italian Renaissance artist of *The Vitruvian Man*?

ANSWER: **Leonardo** (da Vinci) [also accept da Vinci]

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 physical principle, associated with Newton's First Law, describes the tendency of an object to remain at rest or in uniform motion unless acted upon by an external force?

ANSWER: inertia

SCIENCE In physics, what term describes the product of an object's mass and its velocity, often represented by the symbol "p"?

ANSWER: momentum

SCIENCE What is the term for the smallest unit of life, which can function independently or as part of a multicellular organism?

ANSWER: cell

SCIENCE In cellular respiration, glucose and oxygen are converted into energy, water, and what gas that is expelled as a waste product?

ANSWER: carbon dioxide (CO_2)

SCIENCE In astronomy, what is the term for a cloud of gas and dust in space, often serving as a birthplace for new stars?

ANSWER: nebula

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