

2013 Collaborative Middle School Tournament

Round 4

Tossups

1. COPI vesicles depart from this organelle's *cis* face, while at its *trans* face, proteins being sent to the lysosome are tagged with mannose-6-phosphate. B-cells rely on these organelles to secrete antibodies, and most products of the rough (*) ER are sent here for modification. For 10 points, name this organelle made of cisternae that serves as the sorting and packaging center of the cell.

ANSWER: Golgi apparatus/complex/body

2. This mountain range is home to the threatened spectacled bear, and large silver mines were found near this range's city of Potosí. The farthest point on the surface from Earth's center is this range's Chimborazo. Its highest peak is (*) Aconcagua, and it is home to Lake Titicaca. Cities in this mountain range include Sucre, La Paz, and Quito. For 10 points, name this mountain range along the Western coast of South America.

ANSWER: the Andes

3. Isis once forced this god to reveal his name in return for healing a snakebite. This god was the ancestor of all members of the Ennead, which included his children Shu and Tefnut and his grandchildren Geb and Nut. This god's base of worship was (*) Heliopolis, and with the help of Set, this god fends off the attack of the snake Apep as he travels across the sky in his solar barge. For 10 points, name this Egyptian sun god.

ANSWER: Ra [accept Re or Amun-Ra or Atum-Ra]

4. In book one of this work, the word Pandemonium is first used to describe Satan's palace. Satan eventually tricks Uriel into letting him escape, and he makes his way to earth to tempt mankind. The archangel Michael leads mankind out of the (*) garden in, for 10 points, what John Milton epic poem that chronicles the fall of Adam and Eve?

ANSWER: Paradise Lost

5. This unit has gram and kilogram types depending on the amount of water used to define it. Its name is based on the Latin word for "heat". The gram type is a little over four joules, a unit that has in many contexts become a more common unit of (*) energy than this one. For 10 points, name this unit whose kilogram type is also known as the dietary type and is still used to measure the energy content of food.

ANSWER: calorie

6. This artist referenced his sister's tuberculosis in his *The Sick Child*, part of a series called *The Frieze of Life*. His best-known painting, which is set on a bridge, has a red sky potentially inspired by the volcanic eruption of Krakatoa; the main figure of that painting is shown with his (*) mouth ajar as he puts his hands to his face.

For 10 points, name this Norwegian painter of *The Scream*.

ANSWER: Edvard Munch [MOONK]

7. During this war, Andrew Jackson defeated the Creek at the Battle of Horseshoe Bend. Tecumseh died during the Battle of the Thames in this war. The White House was burned by the British Army during this war. Francis Scott Key composed the (*) "Star Spangled Banner" during this conflict. Impressment of U.S. sailors was a major cause of this war. For 10 points, what 19th-century war between the U.S. and Britain was named for the year it began?

ANSWER: War of 1812

The 2013 Collaborative Middle School Tournament was written and edited by Ankit Aggarwal, the Bainbridge Academic Team, Scott Blish, Kristin Burns, Ben Chametzky, Aaron Dos Remedios, Michael Falk, Brad Fischer, Jonah Greenthal, Abid Haseeb, Kathy Hempel, Matthew Hill, Jeff Hoppes, Mike Laudermith, Colin McNamara, Michael Menkhous, Jacob O'Rourke, Zach Pace, Aakash Patel, Jeff Price, David Reinstein, David Riley, Ryan Rosenberg, Ethan Russo, Ezra Serrins, David Shoemaker, Adam Sperber, Kristin Strey, Brittany Trang, Tristan Willey, Nolan Winkler, Ben Zhang, and possibly some other people.

2013 CMST - Round 4

8. **This object was delivered not with an inflatable "airbag" system like its predecessors, but with a "sky crane" system that was untested prior to its deployment, which was called "Seven Minutes of Terror." Its arrival at Gale Crater on August 6, 2012 was observed by the Odyssey orbiter.** (*) For 10 points, name this semi-autonomous, car-sized rover currently conducting experiments on a certain red planet.

ANSWER: Curiosity rover [or Mars Science Laboratory; or MSL]

9. **In this novel, the protagonist lies about what happened to an amethyst brooch so she can go to a picnic. That protagonist makes up names like Willowmere for locales around her village and inadvertently gets her friend Diana Barry drunk on "raspberry cordial."** (*) For 10 points, name this novel about a redheaded orphan adopted by Marilla and Matthew Cuthbert of Avonlea on Prince Edward Island, a novel by Lucy Maud Montgomery.

ANSWER: Anne of Green Gables

10. **Two people voted for Allen West instead of voting to keep this man in his current position in 2013. Some conservatives accused him of violating the so-called Hastert Rule in 2013 when he allowed votes on Hurricane Sandy relief and the (*) Violence Against Women Act.** For 10 points, name this Republican who sat behind President Obama during the State of the Union, the current Speaker of the House.

ANSWER: John Boehner [prompt on "Speaker of the House" or "House Speaker"]

11. **In this work, Quimbo and Sambo violently beat the protagonist and Eliza escapes over the Ohio River with her baby. This work's title character meets Augustine after he saves little Eva St. Clare from drowning. He is sold to Master Haley and to (*) Simon Legree.** For 10 points, name this book about a slave whose death sets the Shelbys' slaves free, a book by Harriet Beecher Stowe.

ANSWER: Uncle Tom's Cabin; or, *Life among the Lowly*

12. **The first president of this nation, Douglas Hyde, was elected thanks to the founder of the Fianna Fail party, the Taoiseach ["tee-shock"] Eamon de Valera. Earlier, this country's members of Sinn Fein started the Easter Rising, and William Gladstone supported its "Home Rule." Michael Collins led this country's (*) IRA.** For 10 points, name this country which shares its island with part of the United Kingdom and whose capital is Dublin.

ANSWER: Republic of Ireland

13. **One character on this show was a model who dated a girl named Marta before taking a job as a doorman. Another character on this show spent 3 days in law school and repeatedly sets things on fire. One of the main character's friends is a tech (*) wizard with an overbearing mother, while the other is a meat-addicted delinquent who co-hosts the title show.** For 10 points, name this Nickelodeon sitcom starring Miranda Cosgrove as the host of an internet webcast.

ANSWER: iCarly

14. **Franz Schubert's three symphonies in this key are nicknamed Tragic, Little, and Great. Mozart's Jupiter Symphony and Bach's first Prelude from The Well Tempered Clavier are in this major key, whose relative minor is A minor. Instruments pitched in this key include the bassoon, oboe, and flute. A scale in this key played on piano only hits (*) white keys.** For 10 points, name this musical key that contains no sharps or flats.

ANSWER: C major [prompt on "C" before "major key" is mentioned; do not prompt on or accept "c minor"]

2013 CMST - Round 4

15. **This country underwent the 14 July Revolution in 1958 to eliminate its monarchy. A border dispute with Iran near the Shatt al-Arab led to hundreds of thousands of casualties in a 1980s war. In 1990, this country tried to annex (*) Kuwait but was stopped by a coalition headed by the United States. For 10 points, name this country now headed by Nouri al-Maliki and Jalal Talabani that was recently led by Saddam Hussein.**

ANSWER: Iraq

16. **This type of respiration takes place when limited oxygen is available. It is used to make sauerkraut, kimchi, and yogurt, and can be carried out by (*) microorganisms such as yeast. For 10 points, name this process in which sugars are converted into ethanol, examples of which include the conversion of grapes to wine and wheat to beer.**

ANSWER: fermentation [accept word forms; prompt on "anaerobic" respiration]

17. **The practice of kapparot associated with this holiday sees a donation to the poor, while the Tetragrammaton or Ha-Shem was pronounced by the High Priest of the Great Temple on this day. The last of the five services occurring on this day is the Neilah. People try to transfer their sins away and recite the Kol Nidre prayer before its beginning. Occurring on the 10th of Tishrei, it concludes the (*) High Holy Days. For 10 points, name this Jewish Day of Atonement.**

ANSWER: Yom Kippur [or Yom ha-Kipurim; prompt on Jewish "Day of Atonement" before mention]

18. **The independence of this commonwealth has been sought by Rubén Berríos, while an opposite approach has been pushed by its New Progressive Party under Pedro Pierluisi. In 2012, this commonwealth elected Alejandro García Padilla as governor and voted in a referendum to end its territorial status. (*) For 10 points, name this Caribbean Island, a United States territory that may someday become the 51st state.**

ANSWER: Puerto Rico

19. **Blaise Pascal names a theorem about these shapes inscribed in conic sections. Benzene's shape is a regular one of these polygons, and graphene consists of carbon atoms arranged in this shape. It has more sides than any other regular polygon that tessellates a plane. Internal angles of (*) 120 degrees are found in the regular type of, for 10 points, what shape found in honeycombs that has six sides?**

ANSWER: hexagons

20. **One novel by this writer is about a man who enters an extinct volcano in Iceland and emerges in Italy. In another novel by him, a detective named Fix is suspicious of the protagonist, Phileas Fogg. In another work, Pierre Arronax narrates on the (*) *Nautilus* about Captain Nemo. For 10 points, name this author of *A Journey to the Center of the Earth*, *Around the World in Eighty Days*, and *Twenty Thousand Leagues Under the Sea*.**

ANSWER: Jules Verne

Extra. **This man defeated Caleb Boggs in a 1972 Senate election; the following month his wife and daughter were killed in an accident. In 2013, he and John Lewis led a re-enactment of the Selma civil rights march, and in 2012 he said on national television, "With all due respect, that's a bunch of (*) malarkey." He now heads a Gun Violence Task Force. For 10 points, name this former Delaware Senator who is currently the Vice President.**

ANSWER: (Joseph Robinette) "Joe" Biden

2013 CMST - Round 4

Bonuses

1. Franz Sussmayr took over the composition of a Requiem mass after this event, which some have theorized was triggered by Antonio Salieri.

[10] Name this event that took place on the night of December 4th, 1791, in Vienna.

ANSWER: the **death of** Wolfgang Amadeus **Mozart** [accept logical equivalents]

[10] Mozart died roughly two months after conducting the premiere of this opera, in which Tamino plays the title instrument to help pass the trials of water and fire. An aria in this work sung by the Queen of the Night hits the F above high C.

ANSWER: The **Magic Flute** [or Die **Zauberflöte**]

[10] Mozart's last completed concerto was for this single-reed woodwind instrument that, today, is tuned in B-flat.

ANSWER: **clarinet**

2. This region was discovered as a result of Rutherford's gold foil experiment. For 10 points each:

[10] Name this dense central region of an atom that contains protons and neutrons. Electrons are found in a cloud around this region.

ANSWER: atomic **nucleus** [or atomic **nuclei**]

[10] Protons and neutrons each consist of three of these particles. A proton has two up and one down examples of them, while a neutron has one up and two down.

ANSWER: **quarks**

[10] This form of radioactive decay occurs when a nucleus emits a particle that consists of two protons and two neutrons.

ANSWER: **alpha** decay

3. This man rose to power by commanding the Long March and by defeating Chiang Kai-shek's Kuomintang. For 10 points each:

[10] Name this longtime chairman of the Chinese Communist Party who authored the Little Red Book.

ANSWER: **Mao** Zedong [or **Mao** Tse-tung]

[10] This economic and social campaign beginning in 1958 sought to rapidly transform China from an agrarian economy to modern communist society. It failed miserably.

ANSWER: **Great Leap Forward** [or **Da Yue Jin**]

[10] The removal of this group from power is generally seen as the end of the Cultural Revolution. Chairman Mao's third wife, Jiang Qing, led this faction of the Chinese Communist Party.

ANSWER: **Gang of Four** [or **Siren Bang**]

4. One person murdered in this work is discovered stuffed inside a chimney. For 10 points each:

[10] Identify this short story about C. Auguste Dupin, who finds an orangutan hair at the scene of the brutal murder of two women.

ANSWER: *The **Murders in the Rue Morgue***

[10] This author of *The Murders of the Rue Morgue* and *The Cask of Amontillado* also wrote about a man mourning the death of Lenore who is visited by a raven in the middle of the night.

ANSWER: Edgar Allan **Poe**

[10] The narrator of this Poe short story unwittingly helps Roderick entomb his still-alive sister, Madeline. Roderick is slowly driven mad by his guilt, and the narrator flees the house, seeing it split in two before it collapses.

ANSWER: *The **Fall of the House of Usher***

2013 CMST - Round 4

5. Name these Russian tsars, for 10 points each.

[10] Some historians believe this tsar lost his sanity when his wife died in 1560. His son Feodor's unsuccessful reign led to the Time of Troubles.

ANSWER: **Ivan the Terrible** [or **Ivan IV**]

[10] This tsar moved the Russian capital from Moscow to a city named for him. He also defeated the Swedish Empire in the Great Northern War.

ANSWER: **Peter the Great** [or **Peter I**]

[10] This tsar, the last of the Romanov dynasty, was killed along with his wife and children in 1918 prior to the formation of the Soviet Union.

ANSWER: **Nicholas II**

6. His enemies, the Silence, try to make his death by the shores of Lake Silencio a fixed point in time. For 10 points each:

[10] Name this main character of a BBC show, who travels space and time in a blue police box.

ANSWER: The **Doctor** [accept **Doctor Who**]

[10] In the most recent mid-season finale, the Doctor was permanently separated from his companions through the actions of these creatures, who kill by sending their victims back in time and absorbing their time energy.

ANSWER: **Weeping Angels** [prompt on "Angels"]

[10] The Weeping Angels first appeared in the third-season episode "Blink," at which point the Doctor was played by this Scottish actor, who also played Barty Crouch, Jr. in *Harry Potter and the Goblet of Fire*.

ANSWER: David **Tennant**

7. This poem opens on Good Friday in 1300, when the main character is attacked by a lion, a leopard, and a she-wolf in the woods. For 10 points each:

[10] Identify this poem, the masterpiece of Dante Alighieri, composed of segments named *Inferno*, *Purgatory*, and *Paradise*.

ANSWER: *The Divine Comedy* [or just *Commedia*]

[10] In *Paradise*, Dante is led through heaven by this muse of his. This woman "looks at the eternal fountain" after smiling at Dante, symbolizing her purity.

ANSWER: **Beatrice Portinari** [accept either]

[10] In the ninth circle of Hell, Satan is described as chewing three traitors in his mouth, while trapped in a lake of ice. Name any of the three.

ANSWER: **Cassius**, **Brutus**, or **Judas** Iscariot

8. For 10 points each, name these operating systems:

[10] Apple computers generally run this operating system, whose releases are named for big cats.

ANSWER: Mac **OS X** ["O S ten", but accept **OS X**; prompt on **Mac OS**]

[10] This operating system's namesake kernel was created by Linus Torvalds in 1991. Its mascot is Tux the penguin.

ANSWER: **Linux**

[10] This latest version of Windows has an interface built on Metro, which is designed for tablets.

ANSWER: Windows **8**

2013 CMST - Round 4

9. This deity's wife is Saraswati and he is traditionally depicted with four heads and four arms. For 10 points each:

[10] Name this creator god of Hinduism.

ANSWER: **Brahma** [do not accept **Brahman**]

[10] This other god takes the form of ten avatars, which include Krishna and Rama. He is often depicted as having blue skin.

ANSWER: **Vishnu** [accept **Visnu**]

[10] Brahma and Vishnu are two of the three gods that make up the trimurti in Hinduism, a religion from this country.

ANSWER: **India**

10. This building located in Washington, DC, was struck by a plane in the September 11th attacks. For 10 points each:

[10] Identify this building that belongs to the U.S. military and is named after its distinctive five-sided shape.

ANSWER: The **Pentagon** [accept any answer that includes "Pentagon"]

[10] The Pentagon is home to this Cabinet department. Robert Gates was head of this department under both President Bush and President Obama.

ANSWER: Department of **Defense** [do not accept Department of War]

[10] The Secretary of Defense is advised by this position, the highest-ranking officer in the military. This position is the chairman of a committee that contains the head of each branch of the US military.

ANSWER: **Chairman of the Joint Chiefs of Staff** [prompt on a partial answer]

11. Paper and pencil ready. N factorial is defined as the product of the numbers from 1 to n. Answer these questions involving factorials, for 10 points each.

[10] What is 5 factorial?

ANSWER: **120**

[10] What is the units digit of 16 factorial?

ANSWER: **0**

[10] Find the value of 9 factorial divided by 7 factorial.

ANSWER: **72**

12. Name these high-ranking Congressmen, for 10 points each.

[10] This Nevada Democrat is the Senate Majority Leader.

ANSWER: Harry **Reid**

[10] This Virginia representative is the only Jewish Republican in Congress. He is the current House Majority Leader.

ANSWER: Eric **Cantor**

[10] This Kentucky Senator is the Senate Minority Leader. He was quoted as saying "Our main goal is to make Barack Obama a one-term President".

ANSWER: Mitch **McConnell**

13. This sculptor depicted six would-be martyrs with nooses around their necks in *The Burghers of Calais* [kah-lay]. For 10 points each:

[10] Name this Frenchman who also created *The Thinker* and *The Three Shades*.

ANSWER: (François-)Auguste(-René) **Rodin** [roh-DAHNN]

[10] Drawing from the story of Paolo and Francesca da Rimini, Rodin sculpted a work which shows two lovers in an embrace while performing this action. Gustav Klimt painted a brightly-colored painting titled after this action.

ANSWER: **kissing** [accept *The Kiss*; accept clear equivalents]

[10] *The Thinker*, *The Kiss*, *The Burghers of Calais* and *The Three Shades* were parts of an unfinished Rodin work that was named after the "gates" of this location.

ANSWER: **Hell** [accept *The Gates of Hell* or *La Porte de l'Enfer*]

2013 CMST - Round 4

14. For 10 points each, answer these questions about the Quimby Family and friends.

[10] This younger sister of Beezus once made herself a crown out of burrs in order win a spot in a television commercial.

ANSWER: **Ramona**

[10] The Quimby family was created by this author who featured Ramona and Beezus in a series of 8 books.

ANSWER: Beverly **Cleary**

[10] This friend of the Quimby's likes to play Beezus in chess, and has a dog named Ribsy. Cleary also wrote a series of books based on him.

ANSWER: **Henry Huggins** [accept either underlined part]

15. Radiometers have shown this planet to have a surface temperature of nearly 900 degrees Fahrenheit. For 10 points each:

[10] Name this planet, whose first close temperature observations were made by the 1962 NASA probe Mariner 2.

ANSWER: **Venus**

[10] Venus's surface cannot be directly observed from Earth because of its clouds made of this acid with chemical formula H₂SO₄ (H-2-S-"oh"-4).

ANSWER: **sulfuric** acid [do not accept "sulfurous acid"]

[10] Venus is one of only two planets which rotate about their axis in this way -- opposite to the direction of their orbits.

ANSWER: **retrograde** motion [the other planet whose rotation is retrograde is Uranus]

16. This man served Eurystheus after killing his wife Megara. For 10 points each:

[10] Name this incredibly strong son of Alcmene who performed twelve labors in Greek mythology.

ANSWER: **Heracles** [or **Hercules**]

[10] The first of Heracles' labors was to kill this animal, which could not be harmed by weapons due to its hide. Heracles killed it by strangling it and then used its claws to skin it.

ANSWER: **Nemean Lion**

[10] The second of Heracles' labors was to kill this many-headed and poisonous monster. However, each head that Heracles cut off regenerated, until his nephew Iolaus burned the stumps of this creature's heads.

ANSWER: **Hydra** of Lerna [or Lernean **Hydra**]

17. Name these criminals from American history, for 10 points each:

[10] This leader of the Chicago Outfit was sent to Alcatraz for tax evasion. He was responsible for much of the Chicago bootlegging operation during Prohibition and was pursued by Eliot Ness' Untouchables.

ANSWER: (Alphonse Gabriel) "Al" **Capone**

[10] This New Mexico gunslinger, who was shot by Pat Garrett, had been involved in the Lincoln County War as a member of the Regulators.

ANSWER: **Billy the Kid** [accept William H. **Bonney** or William Henry **McCarty**, Jr. or Henry **Antrim**]

[10] This man, portrayed in the film *Public Enemies*, was a notorious bank robber during the Great Depression. He was pursued by the Untouchables and the federal agent Melvin Purvis, who shot him outside a theater in 1934.

ANSWER: John Herbert **Dillinger**, Jr.

2013 CMST - Round 4

18. This model was first described in a one-page paper in the April, 1953 volume of the journal *Nature*. For 10 points each:

[10] Name this two-stranded structure of the DNA molecule in which bases are on the inside and sugar-phosphate backbones run along the outside.

ANSWER: **double helix** [prompt on "helix"]

[10] Using the X-ray photos taken by Rosalind Franklin, these two scientists developed the double helix model.

ANSWER: James **Watson** & Francis **Crick** [either order; prompt on partial answer]

[10] In the double helix, the base guanine pairs with this other nitrogenous base.

ANSWER: **cytosine** [or **C**]

19. Tom Joad breaks parole in order to set out for this state. For 10 points each:

[10] Name this western state that was the destination of the Joads and many other Oklahoma farmers in *The Grapes of Wrath*.

ANSWER: **California**

[10] The author wrote *The Grapes of Wrath* in addition to writing about Caleb and Aron Trask in *East of Eden*.

ANSWER: John **Steinbeck**

[10] This other Steinbeck novel tells of the friends Lennie Small and George Milton. Lennie loves soft things and accidentally kills Curley's wife.

ANSWER: **Of Mice and Men**

20. Name these tiny European nations, for 10 points each.

[10] This enclave in the Pyrenees Mountains between France and Spain is jointly ruled by the President of France and the Bishop of Urgel in Spain.

ANSWER: **Andorra**

[10] Located on Mount Titano and completely surrounded by Italy, this nation bills itself as the "world's oldest republic." In 1945, it installed the world's first democratically-elected Communist government, which held power for 12 years.

ANSWER: (Most Serene Republic of) **San Marino**

[10] This one-square-mile nation, the world's second-smallest, features the neighborhood of Monte Carlo and a glamorous casino that its citizens are forbidden by law to gamble in.

ANSWER: **Monaco**

Extra. These molecules can be synthesized from ketones [KEE-tones] or aldehydes [al-duh-HIDES] and all contain an NH₂ group. For 10 points each:

[10] Name these molecules that compose the primary structure of proteins. Twenty of these molecules are used to create proteins in the human body.

ANSWER: **amino acids**

[10] In the tertiary structure of proteins, covalent linkages can be formed between two cysteine [SIS-teen] amino acids making a bridge named for two of this element. Its chemical symbol is S.

ANSWER: **sulfur** [or **S** or **disulfide bridges**]

[10] Many diseases are caused by the substitution of an incorrect amino acid. In this disease, glutamic acid is replaced at the sixth residue by valine, resulting in red blood cells taking an abnormal shape.

ANSWER: **sickle cell** anemia