2011 Collaborative Middle School Tournament
Round 4

Tossups

1. This molecule coils around small proteins known as histones to form functional units known as nucleosomes. Topoisomerases (TOE-poe-"eye"-"SAW"-mer-ases) cleave and reform this molecule's phosphate backbone. Replication of this molecule involves a namesake polymerase (pawl-IM-er-ase) that adds nucleotides to a complementary strand. For 10 points, name this molecule in which adenine, thymine, guanine and cytosine base-pair to form a double helix shape.
ANSWER: **DNA** [or **deoxyribonucleic acid**]

2. This country's creation story involves a jeweled spear. Its indigenous religion holds sacred the Yasukuni (YAH-soo-KOO-nee) Shrine and Ise Jingu (EE-say JIN-goo), the latter of which is dedicated to the sun goddess Amaterasu (ah-MAH-ter-AH-soo). The *Kojiki* (ko-JEE-kee) gives the genealogy of this country's first emperor. *Kami* (KAH-mee) are worshipped in its indigenous religion, Shinto. For 10 points, Zen Buddhism is also popular in what Asian island nation?
ANSWER: **Japan** [or **Nihon**-koku; or **Nippon**-koku]

3. This novel features a commercial for Denham's Dentifrice. In this novel, the protagonist's wife Mildred wants to install a fourth wall-length television screen. At the end of this novel, the protagonist escapes from the Mechanical Hound and joins a group of hobos who note that he is the backup copy of Ecclesiastes. For 10 points, name this Ray Bradbury novel about Guy Montag, a fireman who reads books he is paid to burn.
ANSWER: ***Fahrenheit 451***

4. Lattice energy determines the strength of this chemical concept. High melting point and conduction as a liquid but not a solid are two properties of compounds held together by this interaction. It forms between atoms with an electronegativity difference of more than 1.7. For 10 points, name this type of bond that occurs between a positively and negatively charged chemical species, which is contrasted with a covalent bond.
ANSWER: **ionic** bond

5. This man wrote a requiem subtitled "To the words of the Holy Scriptures" after the deaths of his mother and his friend Robert Schumann. He composed the *Tragic Overture* and the *Academic Festival Overture*, and his first symphony is nicknamed Beethoven's Tenth due to its similarity in style. For 10 points, name this German composer of twenty-one *Hungarian Dances*, *A German Requiem*, and a namesake *Lullaby*.
ANSWER: Johannes **Brahms**

6. This man invaded Khwarezmia (kwar-EZZ-mee-uh) after gaining territory from the Kara Khitans. This man's successor sent one of his best generals, Subutai (SUE-bee-TIE), to attack territories controlled by Kievan Rus; that successor was Ogedai (OH-geh-DIE). This ruler was born with the name Temujin and he started campaigns against China that would be completed by his grandson, Kublai. For 10 points, name this ruler that united the Mongol Empire.
ANSWER: **Genghis** Khan [or **Chingis** Khan; accept Borjigin **Temujin** before it is read]

7. One character on this show is the alter ego of Max Modem, a fictional former '80's star. One recurring subplot on this show concerns a platypus named Perry, who regularly foils the schemes of Dr. Doofenshmirtz (DOOF-en-SHMEERTZ). Another regular character, Jeremy, is pined for by Candace, who continually tries and fails to "bust" her younger brothers. For 10 points, name this Disney Channel show about the title boy geniuses.
ANSWER: ***Phineas and Ferb***

8. This polity faced an uprising of wool workers known as the Ciompi (CHOMP-ee) Revolt. One ruler of this place was harassed by Charles VIII of France, who subsequently invaded it upon the death of another ruler, Lorenzo the Magnificent. One individual from this city ordered the Bonfire of the Vanities; that man was Girolamo Savonorola (JEER-oh-LAH-mo SAH-vone-ah-ROLL-ah). For 10 points, identify this Italian city home to the Medici family.
ANSWER: **Florence** [or **Firenze**]

9. One of this author's novels tells of Señor Gould, who turns over his silver mine in Costaguana to Nostromo. The title character of another of his works is first mate of the abandoned ship *Patna*. This author of *Lord Jim* created an antagonist who dies saying, "the horror…the horror…" For 10 points, name this Polish-born British author who wrote of Marlow's journey up a river to see Kurtz in *Heart of Darkness*.
ANSWER: Joseph **Conrad** [or Józef Teodor **Konrad** Korzeniowski]

10. In these objects an outside observer can only observe angular momentum, electric charge, and mass via the No-Hair theorem. They are surrounded by an accretion disk and are thought to contain a point of infinite density, or singularity, at their center. Their event horizon is the point inside which the escape velocity exceeds the speed of light. For 10 points, what objects are so massive that even light cannot escape them?
ANSWER: **black hole**s

11. This artist painted both the Parliament in London and Rouen Cathedral several times, to show the buildings in different light at different times of day. He painted the Japanese Bridge and other scenes from his garden at Giverny. A nineteenth-century art movement was named for his painting of a harbor at sunrise. For 10 points, name this French artist of *Waterlilies* and *Impression: Sunrise*.
ANSWER: (Oscar) Claude **Monet**

12. Explorers who searched for the source of this river include John Speke (SPEAK) and Richard Burton. Lake Tana in Ethiopia is the source of its eastern "Blue" branch, which joins the "White" branch in the Sudan. Gamal Abdel Nasser planned the construction of a "High Dam" on this river at Aswan. For 10 points, what river that flows into the Mediterranean provided water to the farmers of ancient Egypt?
ANSWER: **Nile** River

13. This figure died after he put on clothing stained with the blood of the centaur Nessus, whom he had earlier slain. As a child, he strangled two snakes that were sent to kill him. Later, he killed his wife, Megara, and his children in a fit of madness. His punishment included cleaning the Augean Stables and slaying the Nemean Lion. For 10 points, identify this Greek hero that completed twelve labors.
ANSWER: **Heracles** [or **Hercules**]

14. Menelaus's theorem can be used to prove that three points on a triangle form this construct. Degenerate hyperbolas form two of them. Perpendicular ones form four ninety degree angles at the point of intersection. The formula for one is y equals m x plus b. For 10 points, name this one-dimensional, straight object that can be formed from any two points.
ANSWER: **line** [accept **line segment**]

15. This main character of this work discovers that he prefers rotten food to fresh food, and after appearing at his sister's violin recital, he scares three lodgers. At the start of this work, the Manager visits because the main character has missed work by being locked in his room. For 10 points, name this novella by Franz Kafka, in which Gregor Samsa discovers one morning that he has turned into a bug.
ANSWER: *The **Metamorphosis*** [or *Die **Verwandlung***; or *The **Transformation***]

16. Dividing the square of the velocity by the radius gives the centripetal form of this quantity that is the second derivative of position. Newton's Second Law states that force equals mass times this quantity, and the form of it due to gravity is, on Earth, equal to 9.8 meters per second squared. For 10 points, name this quantity, equal to the change in velocity over time.
ANSWER: **acceleration** [prompt on **a**]

17. Saimaa (SAI-mah) is the largest lake in this nation. The Åland Islands are to the southwest of this country, and its major cities include Tampere (TAM-peh-ray), and Espoo (EHS-poh). To this country's west is the Gulf of Bothnia. This nation is north of its namesake gulf of the Baltic Sea, and to its east is Russia. For 10 points, name this country with a capital at Helsinki.
ANSWER: Republic of **Finland** [or **Suomen** tasavalta; or Republiken **Finland**; or **Suomi**]

18. This person spent over $1 million to "reintroduce" himself to voters of the state he was elected in. He narrowly won a fifth term in his position despite only beating his opponent in three districts. He failed to obtain the endorsement of his state's largest newspaper, the Las Vegas Review-Journal, which was obtained by his opponent, Sharron Angle. For 10 points, identify this current Senate Majority Leader from Nevada.
ANSWER: Harry Mason **Reid**

19. The main character in this book asks for a short sentence from Officer Short Shrift and receives the sentence "I am." The Lethargians from this book all live in The Doldrums. Other characters from this book include Alec Bings, the Humbug and the watchdog Tock. For 10 points, name this book illustrated by Jules Feiffer and written by Norton Juster, in which Milo travels to places like Dictionopolis and Digitopolis.
ANSWER: *The **Phantom Tollbooth***

20. This man negotiated a treaty that led to the withdrawal of British troops from the Northwest Territory. He ruled on a case that led to the Eleventh Amendment, *Chisholm v. Georgia*, and he later served as the governor of New York. With Alexander Hamilton and James Madison, he used the pseudonym "Publius" to publish the *Federalist Papers*. For 10 points, name this first Chief Justice of the United States.
ANSWER: John **Jay**

Extra. This book's characters receive food from Miep Gies (MEEP GHEEZ). In this book, the central character grows close to Peter van Pels. This book's first words are, "I hope I shall be able to confide in you completely," and all of its sections are addressed to "Kitty." It is set in the Secret Annex. For 10 points, name this personal journal about a teenage girl's experience of living in an attic during the Holocaust.
ANSWER: *The **Diary of a Young Girl*** [or *The **Diary of Anne Frank***; or anything else indicating a **diary** by **Anne Frank**; accept *The **Annex*** or *Het **Achterhuis*** until "Secret Annex"]

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Bonuses

1. This is the common name for the Old-Age, Survivors, and Disability Insurance program. For 10 points each:
[10] What federal program provides income to millions of retired people?
ANSWER: **Social Security**
[10] Social Security was first signed into law in 1935 by this President during his New Deal.
ANSWER: **F**ranklin Delano **Roosevelt** [or **FDR**; prompt on **Roosevelt**]
[10] This is the name of the payroll tax that funds Social Security. Only the first $106,800 of wages are subject to this tax.
ANSWER: **Federal Insurance Contributions** Act [or **FICA**]

2. Words of this type include "yell," and "jump," and in English, they take different endings based on their tense. For 10 points each:
[10] Name these "action words" which are found right after the subject in most English sentences.
ANSWER: **verb**s
[10] In the sentence, "The quick brown fox bought a sandwich," the verb "bought" is this type of verb, which takes a direct object, such as a sandwich.
ANSWER: **transitive** verb
[10] Adverbs such as "really" and "almost" can be used to modify verbs, but they can also modify this other part of speech.
ANSWER: **adjective**s [or **adverb**s]

3. In December 2010, the NCAA suspended Terrelle Pryor and four other college football players for selling some of their football-related memorabilia. For 10 points each:
[10] Identify the university those five players represent.
ANSWER: **Ohio State** University [or The Ohio State University **Buckeyes**]
[10] Ohio State is a member of this athletic conference, which will welcome Nebraska in the fall of 2011.
ANSWER: **Big Ten** Conference [do not accept "Big 12"]
[10] Ohio State won the 2011 edition of the Sugar Bowl against this SEC team, which featured receiver D.J. Williams and quarterback Ryan Mallett.
ANSWER: University of **Arkansas** [or Arkansas **Razorbacks**]

4. This ruler bore Caesarion while serving as Julius Caesar's mistress. For 10 points each:
[10] Who is this female Egyptian pharaoh from the Ptolemy dynasty who notably killed herself with a snakebite?
ANSWER: **Cleopatra** VII Philopator
[10] Cleopatra lost the Battle of Actium to this general, who later became the first emperor of Rome.
ANSWER: **Octavian** [or Gaius **Octavius** Thurinus; or Gaius Julius Caesar **Augustus**]
[10] This lover of Cleopatra had earlier fought alongside Julius Caesar at the Battle of Pharsalus and committed suicide following the loss at Actium.
ANSWER: Mark **Antony**

5. For 10 points each, answer the following about taxonomy.
[10] Aves and Reptilia are examples of this taxonomic rank which is more specific than a phylum but broader than an order.
ANSWER: **class**
[10] Cetacea (suh-TAY-shuh) and Rodentia (roe-DEN-shuh) are orders within this class of animals, which have hair and nurse their young with milk.
ANSWER: **Mammalia** [or **mammal**s]
[10] The most primitive mammals lay eggs and belong to this order that includes platypuses and echidnas.
ANSWER: **Monotremata** [or **monotreme**s]

6. This political party evolved into the Republican Party and was created by Henry Clay. For 10 points each:
[10] Name this party formed in opposition to Andrew Jackson. This political party nominated war heroes like Winfield Scott for President.
ANSWER: **Whig** Party
[10] This man was the first U.S. President to represent the Whig Party. He gave a long inaugural speech on a very cold day without a hat or coat and died of pneumonia one month later.
ANSWER: **W**illiam Henry **Harrison** [prompt on **Harrison**]
[10] This final U.S. President to represent the Whig Party assumed office upon the death of Zachary Taylor.
ANSWER: Millard **Fillmore**

7. This place included the cities of Sumer, Assyria, and Babylon. For 10 points each:
[10] Identify this region located in the Fertile Crescent between the Tigris and Euphrates Rivers.
ANSWER: **Mesopotamia**
[10] This son of Ea with fifty names was the patron god of Babylon. His grandfather, Anu, gave him the winds to play with and he became leader of the gods after defeating Tiamat.
ANSWER: **Marduk**
[10] This Babylonian goddess is equated with the Assyrian Astarte and the Sumerian Inanna.
ANSWER: **Ishtar**

8. For 10 points each, answer the following about a vehicle also known as the Space Transportation System.
[10] What series of reusable space vehicles first carried astronauts in 1981 and may be used for the last time in 2011?
ANSWER: space **shuttle**s
[10] In 1986, seventy-three seconds after launch, this space shuttle exploded, killing all seven crew members.
ANSWER: Space Shuttle **Challenger**
[10] This was the first space shuttle to carry astronauts. In 2003, while nearing the completion of its 28th mission, it broke apart, which also led to the deaths of all seven crew members.
ANSWER: Space Shuttle **Columbia**

9. This man's bands included his "Hot Five" and "Hot Seven." For 10 points each:
[10] Name this jazz musician, nicknamed "Satchmo." As a vocalist, he is famous for both scat singing and the song "What a Wonderful World."
ANSWER: Louis Daniel **Armstrong**
[10] Louis Armstrong is most famous for playing this brass instrument. Dizzy Gillespie played this instrument with its bell sharply bent upward.
ANSWER: **trumpet**
[10] Another notable jazz trumpeter is this man, whose albums include *Sketches of Spain*, *The Birth of the Cool*, and *Kind of Blue*.
ANSWER: Miles Dewey **Davis** III

10. This book features Eva Marie Olinski, a paraplegic sixth grade teacher. For 10 points each:
[10] Name this work about the Souls, an Academic Bowl team featuring Noah Gershom.
ANSWER: *The **View From Saturday***
[10] *The View From Saturday* and the book *From the Mixed-Up Files of Mrs. Basil E. Frankweiler* were both written by this author.
ANSWER: Elaine Lobl **Konigsburg**
[10] Both of those books won this prestigious medal for children's literature given by the same organization that awards the Caldecott Medal.
ANSWER: John **Newbery** Medal

11. This is a computation bonus. For 10 points each, evaluate the following exponents.
[10] Four raised to the third power.
ANSWER: **64**
[10] Four raised to the zeroth power.
ANSWER: **1**
[10] Four raised to the negative one-half power.
ANSWER: **1/2** [or 0**.5**]

12. This man became angry when he saw Johann Tetzel selling indulgences. For 10 points each:
[10] Name this German leader of the Protestant Reformation, who was condemned by Leo X in *Exsurge Domine* (EX-"surge"-AY DOE-min-AY).
ANSWER: Martin **Luther**
[10] Luther expressed his discontent by nailing this document to the Castle Church door in Wittenberg (VIT-ten-BERG).
ANSWER: **95 Theses** *on the Power and Efficacy of Indulgences* [or The **Ninety-Five Theses**]
[10] This Ecumenical Council from 1545 to 1563 was the Catholic Church's response to the Protestant Reformation.
ANSWER: Council of **Trent**

13. In this novel, "Laurie" Laurence becomes the only boy in the Pickwick Club. For 10 points each:
[10] Name this novel about the March sisters.
ANSWER: ***Little Women***
[10] Name the author of *Little Women*.
ANSWER: Louisa May **Alcott**
[10] This second-oldest of the March sisters, thought to be based on Alcott herself, ends up with Frederick Bhaer at the end of the novel.
ANSWER: **Jo**sephine

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14. This person was given command of the 7th Panzer Division, which earned the nickname "Ghost Division" under his command. For 10 points each:
[10] Name this Nazi general who lead the North Africa Corps and was nicknamed the "Desert Fox"
ANSWER: Erwin **Rommel**
[10] Bernard Montgomery's Eighth Army essentially destroyed Erwin Rommel's Africa Corps in 1942 at this site in Egypt.
ANSWER: (Battles of) **El Alamein**
[10] Some have linked Rommel to a plot to kill this Nazi leader and writer of *Mein Kampf* (MINE KOMPF) who ordered the elimination of all Jews in Europe.
ANSWER: Adolf **Hitler**

15. It can be seen thanks to dispersion, such as in a rainbow. For 10 points each:
[10] Give this name for the variety of colors in visible light, which are sometimes seen when white light is shown through a prism.
ANSWER: **spectrum** [accept word forms, such as **spectral**]
[10] This is electromagnetic radiation with a wavelength just shorter than the visible spectrum. It is largely responsible for sunburn.
ANSWER: **ultraviolet** light or radiation [accept **UV**]
[10] This is the elementary particle that makes up light and ultraviolet radiation. Calling it a particle is a bit of a misnomer because it also exhibits wave properties.
ANSWER: **photon**

16. For 10 points each, identify these African countries going through difficult political times.
[10] This country's 2005 elections were delayed until 2010, when Laurent Gbagbo (LAR-rent BAG-bow) refused to accept his defeat to Alassane Ouattara (ah-lah-SAH-nay wah-TAR-ah).
ANSWER: Republic of **Côte d'Ivoire** [or Republique de **Côte d'Ivoire**; or **Ivory Coast**]
[10] This small North African country's president, Zine El Abidine Ben Ali (zeen-AY EL ah-BID-een-AY BEN all-EE), fled in January after a month of major protests.
ANSWER: **Tunisia**n Republic [or al Jumhuriyah at **Tunisiyah**]
[10] Because of a 2011 referendum, this country will likely split in two. The genocide in its Darfur region received international attention.
ANSWER: Republic of the **Sudan** [or Jumhuriyat as-**Sudan**]

17. They can be classified as onto or one-to-one. For 10 points each:
[10] Identify these types of relations which give a single result for any given input.
ANSWER: **function**s
[10] This is the set of numbers that can be input into a given function. For the function the square root of the quantity x minus one, this set is all of the numbers greater than or equal to one.
ANSWER: **domain**s
[10] For a given function, this is another function that undoes the actions of the original function. For example, for the original function is x+3, this type of related function is x-3.
ANSWER: **inverse**

18. This statue in the Louvre depicts a goddess of love with a drapery wrapped around her waist. For 10 points each:
[10] Name this ancient Greek sculpture that is missing its arms.
ANSWER: **Venus** de **Milo** [or **Aphrodite** of **Melos**]
[10] The Venus de Milo was sculpted out of this metamorphic type of limestone. Other works in this material include the Lincoln Memorial and the sculptures from the Acropolis.
ANSWER: **marble**
[10] A common use of marble in both ancient and modern times is in these sculptures depicting a person's head, neck, and part of the upper body.
ANSWER: **bust**s

19. This man wrote about how the "best laid plans o' mice and men" go astray in "To a Mouse." For 10 points each:
[10] Name this poet of "A Red, Red Rose" and "Tam O'Shanter."
ANSWER: Robert **Burns**
[10] This Burns poem, which begins, "Should auld acquaintance be forgot, and never brought to mind?", is often sung on New Year's Eve.
ANSWER: "**Auld Lang Syne**"
[10] Burns was known for his use of the dialect of this part of the United Kingdom.
ANSWER: **Scotland**

20. It is found south of the Yukon and across the Rocky Mountains from Alberta. For 10 points each:
[10] Name this westernmost province of Canada.
ANSWER: **British Columbia**
[10] This most populous city in British Columbia is located on the Strait of Georgia. It is named after an 18th-century British naval officer.
ANSWER: **Vancouver**
[10] British Columbia's capital is not Vancouver but this island city named for Britain's longest-reigning queen.
ANSWER: **Victoria**

Extra. Scotland Yard was the first bureau to establish an agency for studying these identifying marks. For 10 points each:
[10] Name these surface imprints left by friction ridges on the epidermis. Immigrants and infants have to register theirs so that forensics agencies can uniquely identify a suspect at a crime scene.
ANSWER: **fingerprint**s [prompt on **print**s]
[10] This fingerprint pattern can be classified as radial or ulnar, and consists of ridges making a backward turn without twist.
ANSWER: **loop**s
[10] This other fingerprint pattern can be either single-cored or double-cored, and its ridges make a complete circuit.
ANSWER: **whorl**s