2012 Collaborative Middle School Tournament
Round 3

Tossups

1. The period of a spring is given by two pi times the square root of this quantity over the spring constant. Heat transfer is equal to the specific heat times the change in temperature times this quantity. A "rest" type is multiplied by the square of the speed of light to give energy. For 10 points, name this quantity that is the "m" in "E equals m c squared."
ANSWER: **mass** [accept **inertia** before "m" is read; prompt on **m** before mentioned]

2. One of these landforms "of Tehuantepec" (teh-WAHN-teh-pek) is found in the Mexican states of Oaxaca (wah-HAH-kah) and Veracruz. One "of Kra" connects the Malay Peninsula to the rest of Asia. The Suez Canal was built across one of these landforms separating the Red and Mediterranean Seas. For 10 points, name these narrow strips of land that connect larger land masses, another of which is the country of Panama.
ANSWER: **isthmus** [accept **isthmi**]

3. One king of this name had his ministers Thomas Cromwell and Thomas More executed. The seventh king of this name founded the Tudor dynasty after he won the Battle of Bosworth Field. His son of this name left the Catholic Church so that he could divorce Catherine of Aragon and marry Anne Boleyn. For 10 points, give this name of several English kings, the eighth of whom had six wives.
ANSWER: **Henry** [accept **Henry VII** or **Henry VIII**]

4. By definition, this type of object does not clear the neighborhood around its orbit. Haumea (how-MAY-uh), found in 2003, and Makemake (MAH-keh-MAH-keh), found in 2005, are two examples found in the Kuiper (KYE-per) Belt. An object similar to those two was "downgraded" to this status in 2006. For 10 points, Eris and, since 2006, Pluto are what type of celestial body that is smaller than a true planet?
ANSWER: **dwarf planet** [accept **dwarf** after "planet" is read but prompt before; do not accept "planet" by itself]

5. This frequent collaborator of Dave McKean won both the Carnegie and Newbery Medals for a book about a crypt full of Sleer being explored by Nobody Owens. In another book, he wrote about the retired actresses Miss Forcible and Miss Spink; Mr. Bobo, the owner of a disappointing mouse circus; and a girl's "other mother" who has black buttons for eyes. For 10 points, name this author of *The Graveyard Book* and *Coraline*.
ANSWER: Neil **Gaiman**

6. The four quarters of this person's residence were each dedicated to a different god. This ruler's forces were nearly done in by enemy chariots when crossing the Orontes at the Battle of Kadesh. This son of Seti I built several complexes, including a tomb in the Valley of the Queens for his wife Nefertari. For 10 points, name this nineteenth dynasty Egyptian pharaoh, known as "Ozymandias" in Greek.
ANSWER: **Ramses II** [accept **Ramses the Great** or **Rameses II**, prompt on **Ramses**; prompt on **Ozymandias** before mentioned]

7. An operation of this name can be performed on two matrices, one of which has an equal number of rows to the other's number of columns. Although this operation is not uniquely defined for vectors, two approximations are the cross product and the dot product. This operation is governed by the distributive property. For 10 points, identify this arithmetic operation, the inverse of division.
ANSWER: **multiplication** [accept **matrix multiplication** in the first sentence]

8. According to one myth, this figure used the eye of the Graiae (GRAY - eye) as a bargaining tool in order to learn the location of the Hesperides. He was born after his mother, Danae, was impregnated by Zeus in the form of a golden shower. This figure defeated Cetus, after which he married Andromeda. After this hero slew his most famous foe, Pegasus was born from her blood. For 10 points, name this slayer of Medusa.
ANSWER: **Perseus**

9. In one work by this composer, the title character slices an anvil in half and kills the dragon Fafner with the sword Nothung (NO-tung); in another opera, Brunnhilde rides into a funeral pyre that burns Valhalla. Those two operas by this composer join another that includes "The Ride of the Valkyries" in a four-opera work. For 10 points, name this German composer of *Siegfried* and *Gotterdamerung* (GOTT-err-DAM-err-ung), part of the Ring of the Nibelung (NEE-buh-lung) cycle.
ANSWER: Richard **Wagner** (ree-kart VAHG-ner)

10. Mack, Dora, and Lee Chong try to throw a party for Doc in this author's novel *Cannery Row*. This author wrote about Kino's encounter with the title object in *The Pearl*. Two migrant workers, George and Lennie, are the main characters in his *Of Mice and Men*; another work features the Joad family and other "Okies." For 10 points, name this American author of *The Grapes of Wrath*.
ANSWER: John **Steinbeck** [accept ***Cannery Row**￼* before it is read]

11. In the Gospel of James, this Biblical figure is described as the child of Anna and Joachim. At the First Council of Ephesus, this figure was given the epithet Theotokos, or "God-Bearer." Martin Luther described this person as "the highest woman." This woman is held to be free from original sin under the doctrine of Immaculate Conception. For 10 points, name this mother of Jesus of Nazareth.
ANSWER: Blessed **Virgin Mary** [or **Mary, Mother of God**; or **Saint Mary**; or **Mother Mary**; or obvious equivalents to **Mary** the **mother** of **Jesus** before read; prompt on **Mary**; prompt on **Our Lady**; prompt on **Mother of the Church**; prompt on **Queen of Heaven**; do not accept "Mary Magdalene"]

12. The three types of this material differ by their mineral and gas content; rhyolitic and andesitic types contain more silicon dioxide and are more viscous. The basaltic type is hottest, forms due to partial melting in the mantle, and flows fastest. Once any type reaches the planet's surface, it is known as lava. For 10 points, name the molten rock which forms beneath volcanoes.
ANSWER: **magma** [prompt on **lava** before it is mentioned]

13. In this painting, the colonial print and flowers on the woman's dress symbolize domestic care and the traditional role of women in society. The two figures in this work were modeled after the artist's dentist and sister. The man has a cross look on his face and symbolizes hard labor by holding a pitchfork. For 10 points, name this work by Grant Wood, which symbolized America in the 1930s.
ANSWER: *American Gothic*

14. A group from Muskogee, Oklahoma is believed to be the first to produce and sell these items popularly sold as a fundraiser for an organization founded by Juliette Gordon Low in 1912. In 1922, *American Girl* magazine published an article with recipes for them and advice on how much troops should charge for this product. For 10 points, identify these baked goods sold in varieties such as Thin Mints and Samoas.
ANSWER: Girl Scout **Cookies**

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15. The distribution of these items was outlawed in Mumbai, India after a 2005 flood was partly blamed on blocked drains throughout the city. In 2011, Italy was the first European nation to completely ban their distribution, though biodegradable ones are still legal. For 10 points, identify these items banned in Seattle as of July 2012, though consumers will still be able to purchase paper ones, or use their own cloth ones.
ANSWER: non-biodegradable **plastic bag**s [prompt on **bag**s]

16. One chytrid (KYE-trid) member of this group has been blamed for the worldwide decline in frog populations, and the Salem witch trials have been blamed on another species that infests rye with ergot. Lichens consist of algae and a member of this kingdom, whose species reproduce through spores and have hyphae bodies with chitin cell walls. For 10 points, name this kingdom of important decomposers like molds, yeasts, and mushrooms.
ANSWER: **Fungi** [or **fungus**]

17. The protagonist of this story is attacked with fire tongs shortly after a farmer rescues him from a freezing lake. This story ends with the main character meeting a group of children and swimming in a garden after being surprised by his reflection. A bird is rejected for being too big and for looking like a turkey in, for 10 points, what Hans Christian Andersen story about a character who grows up to become a swan?
ANSWER: "The **Ugly Duckling**"

18. This event was orchestrated by Isoroku Yamamoto in an attempt to prevent American interference in the Japanese invasion of the Dutch East Indies. The date on which it occurred "will live in infamy," according to a Franklin Roosevelt speech. The U.S.S. Arizona Memorial is dedicated to over 1,100 Americans killed in this event. For 10 points, identify this December 7, 1941 attack on a United States naval base in Hawaii.
ANSWER: the attack on **Pearl Harbor** [accept logical equivalents]

19. The plan for this city was designed by the French architect Pierre L'Enfant. The Anacostia River flows across the eastern side of this city, whose Orange and Blue metro lines pass through Foggy Bottom. This city is encircled by a "Beltway" that crosses Montgomery County, Maryland and then enters Virginia. For 10 points, the Lincoln Memorial is found in what national capital on the Potomac River in the District of Columbia?
ANSWER: **Washington**, DC [prompt on **District of Columbia** before read]

20. In this novel the narrator's father shoots Tim Johnson, a rabid dog. The narrator and her brother are attacked on the way home from a Halloween pageant, but are saved by Boo Radley. In this book, Tom Robinson is falsely accused of raping Mayella Ewell; he is defended by attorney Atticus Finch, but is convicted. For 10 points, name this novel narrated by Scout Finch, written by Harper Lee.
ANSWER: *To Kill a Mockingbird*

Extra. This poem's original form notes that the speaker and his addressee have "rin about the braes" and "paidl't i' the burn." The speaker of this poem written in Scottish dialect claims that they will "take a cup of kindness yet" and asks, "Should auld acquaintance be forgot, and never brought to min'?" For 10 points, name this Robert Burns poem that is often sung on New Year's Eve.
ANSWER: "**Auld Lang Syne**"

Bonuses

1. "It sits looking over harbor and city on silent haunches and then moves on." For 10 points each:
[10] Name this phenomenon that according to a poem "comes on little cat feet."
ANSWER: **fog**
[10] "Fog" was written by this poet who called Chicago, "Hog butcher for the world."
ANSWER: Carl **Sandburg**
[10] Sandburg won a Pulitzer Prize for a six-volume work of this type about Abraham Lincoln.
ANSWER: **biography**

2. Battle in this war included Tannenberg and Verdun. For 10 points each:
[10] Name this devastating 1914-1918 war that saw the first uses of tanks and poison gas in warfare.
ANSWER: **World War I** [or **WWI**; or the **First World War**; or the **Great War**]
[10] This dual-monarchy started World War I when it invaded Serbia. Along with Germany and the Ottoman Empire it was a main member of the Central powers.
ANSWER: **Austria-Hungary** [or **Austro-Hungarian** Empire; prompt on partial answer]
[10] Austria-Hungary invaded Serbia after this Austrian archduke was assassinated by a Serbian nationalist in Sarajevo.
ANSWER: Archduke Franz **Ferdinand** [or Archduke Francis **Ferdinand**]

3. For 10 points each, name these mathematicians.
[10] Pi is sometimes known as the constant of this ancient Greek mathematician, and solids that have two types of faces are named after him, just as solids with one type of face are named after Plato.
ANSWER: **Archimedes**
[10] This 13th-century Italian is the namesake of a sequence of numbers that begins 1, 1, 2, 3, 5, etc. Each number is the sum of the two preceding numbers.
ANSWER: Leonardo Bigollo **Fibonacci** (or Leonardo **Pisano**; or **Leonardo of Pisa**; prompt on **Leonardo**]
[10] This mathematician claimed he could prove that there are no nice solutions to $a^n+b^n=c^n$ ("a to the n plus b to the n equals c to the n") when n is a whole number greater than 2, which became known as his last theorem and took centuries to prove.
ANSWER: Pierre de **Fermat**

4. For 10 points each, name these companies that had rough years in 2011.
[10] This company's Playbook tablet did not catch on, and its Blackberry continued to lose market share.
ANSWER: **Research in Motion** [or **RiM**]
[10] This company thought of creating a subsidiary called Qwikster to handle its DVD rentals so customers would have to subscribe separately to its streaming service, but backed down.
ANSWER: **Netflix**
[10] This department store chain merged with Kmart in 2005 and has converted several Kmarts into its Essentials line of stores.
ANSWER: **Sears** Holding Company [accept **Sears, Roebuck**, and Company]

5. Every able-bodied Muslim is required to take this pilgrimage at least once in their lifetime. For 10 points each:
[10] Identify this fifth pillar of Islam, a required trip to certain cities in Saudi Arabia.
ANSWER: **Haj**j [do not accept "hajji," since that term refers to the person on the pilgrimage, not the pilgrimage itself]
[10] The destination of the Hajj is this holiest city of Islam, from which Muhammad fled during the Hijra.
ANSWER: **Mecca**
[10] Immediately after arriving in Mecca, pilgrims walk around this ancient house of worship, Arabic for "cube," which was built by Abraham according to the Qur'an.
ANSWER: **Ka'aba** [or **Kaaba**; or **Ka'ba**; or **Qaaba**]

6. There are 46 of these structures inside the nucleus of a normal human body cell. For 10 points each:
[10] Name these coiled DNA structures whose X and Y types form the twenty-third pair.
ANSWER: **chromosome**
[10] Digital images captured in a microscope can be used to build one of these pictures in which the chromosomes are paired up and arranged by size and shape.
ANSWER: **karyotype**
[10] A karyotype showing three copies of chromosome 21 can be used to diagnose this condition, characterized by eyelid creases, short stature, and mental retardation.
ANSWER: **Down**'s syndrome [or **trisomy 21**; prompt on **trisomy**]

7. According to this civilization's mythology, it was founded on a site where an eagle was perched on a cactus. For 10 points each:
[10] Identify this empire of central Mexico with capital at Tenochtitlan.
ANSWER: **Aztec** Empire
[10] The Aztecs were defeated by this Spanish conquistador, who had taken Montezuma II prisoner.
ANSWER: Hernán **Cortés**
[10] Hernán Cortés was mistaken by Montezuma for this god, the twin brother of Xolotl (sho-LOW-tuhl) whose name means "feathered serpent."
ANSWER: **Quetzalcoatl**

8. This composer of the *Academic Festival Overture* and the *Tragic Overture* was so inspired by Beethoven that his first symphony is often nicknamed "Beethoven's Tenth." For 10 points each:
[10] Name this 19th-century German composer who wrote "Good evening, good night," a famous lullaby.
ANSWER: Johannes **Brahms**
[10] Towards the end of his career, Brahms wrote several pieces for this instrument. In the 20th century, this single-reed instrument was played by jazz performers Artie Shaw and Benny Goodman.
ANSWER: **clarinet**
[10] Brahms wrote a series of variations on a caprice written by this Italian violin virtuoso. Sergei Rachmaninoff also wrote a *Rhapsody on a Theme of* this composer.
ANSWER: Niccolo **Paganini**

9. This part of speech is used in the majestic plural. For 10 points each:
[10] What words are used to substitute for nouns or noun phrases?
ANSWER: **pronoun**s
[10] This type of pronoun is generally used when the object of a sentence is the same as the subject. They end with 'self' or 'selves'.
ANSWER: **reflexive** pronouns
[10] This term refers to nouns that are replaced by pronouns.
ANSWER: **antecedent**s

10. For 10 points each, answer the following about the office of Vice President.
[10] According to the Constitution, the Vice President is the President of this upper house of the U.S. Congress.
ANSWER: **Senate**
[10] This Amendment, ratified in 1804, requires separate elections for President and Vice President.
ANSWER: **Twelfth** Amendment [accept Amendment **XII**]
[10] This man became the first person to succeed from Vice President to President following the death of William Henry Harrison.
ANSWER: John **Tyler**

11. This is a computation bonus. Consider the parabola generated by the equation y equals x squared minus 10 x plus 24. For 10 points each:
[10] What are the x-intercepts?
ANSWER: **4** and **6** [accept **(4,0)** and **(6,0)**; prompt if only one answer is given]
[10] What is the y-intercept?
ANSWER: **24** [accept **(0,24)**]
[10] What is the x-coordinate of the vertex?
ANSWER: **5** [accept **(5, -1)**]

12. For 10 points each, answer the following about Expressionist artwork.
[10] In this work by Gustav Klimt, two figures are seen doing the title action while draped in bright yellow robes.
ANSWER: *The **Kiss*** [or *Der **Kuss***]
[10] This painter, nicknamed Jack the Dripper, was famous for works such as *No. 5, 1948* which was sold for a record 140 million dollars in 2006.
ANSWER: (Paul) Jackson **Pollock**
[10] Marc Chagall painted many works on this medium, the first major project being done in the Church of Assy.
ANSWER: stained glass **window**s [accept stained glass]

13. This man began his career drawing political cartoons during the Korean War, and wrote the Johnny Cash song, "A Boy Named Sue. For 10 points each:
[10] Name this versatile author whose poetry anthologies include *Falling Up* and *A Light in the Attic*.
ANSWER: Shel(don Allan) **Silverstein**
[10] This first children's anthology by Silverstein features poems about Jimmy Jet, who turns into a television, and Joey, who threw a stone at the sun.
ANSWER: *Where the Sidewalk Ends*
[10] Silverstein's best-selling book is this picture book about a large plant that fulfills the needs of a boy as he passes through life's stages.
ANSWER: *The **Giving Tree***

14. Many of these elements are brittle and/or semiconductors. For 10 points each:
[10] Name these elements with many intermediate properties. They are found along the Zintl line, a diagonal line on the Periodic Table starting from boron.
ANSWER: **metalloid**s [prompt on **semimetals**; do not accept or prompt on "metals"]
[10] This metalloid semiconductor is the one most often used in integrated circuits, though gallium and germanium are also used.
ANSWER: **silicon** [or **Si**]
[10] This process of adding an impurity such as boron or arsenic to a semiconductor is done to control its properties.
ANSWER: **doping** [accept other word forms, e.g., **dope**; accept **doped** semiconductor]

15. Because of a lockout, this league's 2011-12 season was reduced from 82 to 66 games. For 10 points each:
[10] Name that league, home of players such as Kevin Durant and LeBron James.
ANSWER: **NBA** [or **National Basketball Association**]
[10] This man, the NBA's commissioner, led the owners' side in the lockout negotiations.
ANSWER: David **Stern**
[10] During one impasse in lockout negotiations, David Stern compared the NBA situation to this two-word phrase denoting a global cooling following the detonation of certain weapons.
ANSWER: **nuclear winter**

16. Henry Clerval and the title character's brother William are both strangled in this work. For 10 points each:
[10] Name this novel in which the title Swiss scientist creates an eight-foot tall monster.
ANSWER: *Frankenstein; or, the Modern Prometheus*
[10] Give the shared last name of Mary, the author of *Frankenstein*, and her husband Percy, a poet who wrote "Ode to the West Wind" and "Adonais" (ADD-oh-NAY-iss).
ANSWER: **Shelley**
[10] After Victor Frankenstein refuses to give the monster a companion, the monster promises to visit him after this ceremony. He makes good on his promise by strangling Elizabeth Lavenza.
ANSWER: Frankenstein's **wedding** [or obvious equivalents; accept "I will be with you on your **wedding night**"]

17. For 10 points each, name these rivers that flow through Germany.
[10] This river flows near the cities Bonn and Mannheim and empties into the North Sea near the Dutch city of Rotterdam.
ANSWER: **Rhine** River [or **Rhein**]
[10] This second-longest river in Europe begins in Germany's Black Forest and flows through four capital cities: Vienna, Budapest, Bratislava, and Belgrade.
ANSWER: **Danube** River [or **Donau**]
[10] Along with the Neisse, this river that flows into the Baltic Sea is recognized as an official boundary between Germany and Poland.
ANSWER: **Oder** River [or **Odra**]

18. James Monroe and Robert Livingston signed the treaty that carried out this transaction. For 10 points each:
[10] Name this 1803 "purchase" that resulted in the U.S. acquisition of territory on the west bank of the Mississippi, including the city of New Orleans.
ANSWER: **Louisiana** Purchase
[10] The Jefferson administration sent a "Corps of Discovery" to explore the new territories. The expedition traveled up the Missouri River and crossed the northern Rockies under the leadership of these *two* men.
ANSWER: Meriwether **Lewis** and William **Clark** [accept in either order; prompt on either given alone]
[10] Lewis and Clark were helped on their journey by this Shoshone woman, the wife of a French-Canadian fur trader.
ANSWER: **Sacajawea** [or **Sakakawea**]

19. The existence of this planet was predicted based on the orbit of Uranus. For 10 points each:
[10] Name this planet now considered the farthest planet from the sun in our solar system.
ANSWER: **Neptune**
[10] This is by far the largest moon of Neptune.
ANSWER: **Triton**
[10] Triton's orbital motion is of this type, meaning that it is opposite the direction of rotation of its planet.
ANSWER: **retrograde**

20. For 10 points each, identify these common attributes of deities across myth systems.
[10] Gods of this phenomenon include a deity owns Vajra (VAHZH-rah), Indra, and a deity suckled by Amaltheia as a youth, Zeus.
ANSWER: **thunder** [accept **lightning**]
[10] This realm is ruled by a deity that tossed a flayed horse's head into his sister's residence, Susano'o (soo-sah-NOH-woe), and a god given the epithet "Earthshaker," Poseidon.
ANSWER: **ocean**s [accept **sea**s; prompt on **water**; prompt on **storm**s]
[10] Iris is the Greek goddess of these objects. Bifrost, a bridge in Norse myth, is said to be made of one of these objects that is considered God's promise to Noah in Genesis.
ANSWER: **rainbow**s

Extra. This goddess was often associated with owls, and her shield was the Aegis. For 10 points each:
[10] Name this Greek goddess of wisdom to whom the Parthenon was dedicated.
ANSWER: Pallas **Athena**
[10] This goddess was the Roman equivalent of Athena. She is one of the virgin goddesses along with Diana and Vesta.
ANSWER: **Minerva**
[10] Athena became irate when this mortal wove a flawless tapestry showing the transgressions of the gods. She later turned this figure into a spider.
ANSWER: **Arachne**