

Round 2

First Half

(Tossup 1) **George Gamow modeled this structure as a “liquid drop” with uniform density. The binding energy required to break apart this structure is proportional to its mass defect. Geiger and Marsden discovered this structure after it (*) scattered a beam of alpha particles aimed at gold foil, allowing Ernest Rutherford to refute the “plum pudding” model. The strong force holds together, for ten points, what structure at the center of the atom made of protons and neutrons?**

ANSWER: atomic **nucleus** (accept atomic **nuclei**; prompt on “atom” until “discovered” is read, and do not accept or prompt it afterward)

(Bonus 1) Combustion reactions really turn up the heat. For ten points each,

[Part A] Combustion reactions involve a fuel burning in the presence of this gas, which makes up 21% of the air in the sky.

ANSWER: **oxygen** (accept **O2**)

[Part B] Oxygen reacts with fuel to produce carbon dioxide and this product, which can also be formed by igniting hydrogen and oxygen gases together.

ANSWER: **Water** (accept **H2O**)

[Part C] This general type of reaction occurs whenever heat is released to the environment, like in a combustion reaction. This type of reaction is represented by a negative delta H value.

ANSWER: **exothermic** (do not accept or prompt on endothermic)

(Tossup 2) **Harry Deterling cut up old railroad tracks to divert a train through this structure. A hot air balloon sewed together from bedsheets was made to bypass this structure in 1979. Openings along this structure such as (*) “Checkpoint Charlie” were patrolled by guards who shot attempted escapees along a “death strip” guarded by Soviet-aligned guards. For ten points, name this structure that divided a German city from 1961 to 1989.**

ANSWER: **Berlin Wall** (accept **Anti-Fascist Protective Rampart**)

(Bonus 2) This polity was victorious at the Battle of Agrigentum. For ten points each,

[Part A] Name this polity whose armies were often led by Consuls such as Scipio Africanus. ANSWER: **Rome** (Accept **Roman Republic**, do not accept “Roman Empire”)

[Part B] Rome fought the Punic Wars against this North African city, which was founded by the Phoenicians.

ANSWER: **Carthage**

[Part C] During the Second Punic War, Carthaginian general Hannibal Barca successfully used a pincer movement to win this great victory against Roman forces. Eight Roman legions were destroyed during this battle.

ANSWER: Battle of **Cannae**

(Tossup 3) **The assassination of Sweden's King Gustav III forms the plot of this composer's opera *A Masked Ball*. In an opera by this composer titled for a hunchbacked jester, the Duke of Mantua sings how women are fickle. (*)** Violetta dies of tuberculosis in another one of this composer's operas. Spanish gypsies sing the "Anvil Chorus" in this composer's *Il Trovatore*. For ten points, name this composer of operas such as *Aida* and *La Traviata*.

ANSWER: Giuseppe **Verdi**

(Bonus 3) Few shows reach the national consciousness the way this politically-themed hip-hop piece did when it exploded onto Broadway in 2015. For ten points each,

[Part A] Name this musical which had debuted, in a sense, years before when its composer and lyricist sang its opening song at a White House Poetry Jam.

ANSWER: **Hamilton**: An American Musical

[Part B] This graduate of Hunter Prep in New York City, a self-professed rap and theater nerd, created Hamilton.

ANSWER: Lin-Manuel **Miranda**

[Part C] Hamilton was not Miranda's first Broadway success. This musical about a Spanish-speaking neighborhood in north Manhattan won the 2009 Tony for Best Musical.

ANSWER: **In the Heights**

(Tossup 4) **Dr. Elwin Ransom journeys to Mars and Venus in works such as *Perelandra* and *Out of the Silent Planet*, part of this man's Space Trilogy. This author of the *The Screwtape Letters* also wrote numerous non-fiction works on (*)** theology. This author's best-known work is a series of fantasy novels centered on an English family that has been evacuated from London during World War II. For ten points, what author wrote *Mere Christianity* and *The Chronicles of Narnia*?

ANSWER: C. S. **Lewis**

(Bonus 4) For a time, Samuel Beckett acted as literary assistant to his fellow Irishman, James Joyce. For ten points each,

[Part A] Name this collection of short stories, all set in Joyce and Beckett's hometown. This collection contains *Araby*, *Ivy Day in the Committee Room*, and *The Dead*.

ANSWER: **Dubliners**

[Part B] The Jesuit-educated protagonist of this novel goes on to play a major part in Joyce's saga, *Ulysses*.

ANSWER: A **Portrait of the Artist as Young Man**

[Part C] Joyce wrote this gigantic, famously dense novel in a fabricated, dreamlike language composed of snatches of English combined with many other tongues.

ANSWER: **Finnegan's Wake**

(Tossup 5) **These objects are described by linear equations with three variables. Two lines that are not part of one of these objects are called skew. According to Euclid, any three points that are not collinear determine one of these surfaces. One of these surfaces called (*) “Cartesian” uses a coordinate grid to label its points with x - and y -coordinates. For ten points, identify this mathematical term for a flat surface.**

ANSWER: **plane**

(Bonus 5) The largest four-digit number in this system is 15. For ten points each, [Part A] Identify this number system in which the only digits are 0 and 1.

ANSWER: **binary** number system (prompt on base 2)

[Part B] The binary system is contrasted with this more standard system with 10 digits. A point named for this system separates a number’s whole-number and fractional parts.

ANSWER: **decimal** number system (prompt on base 10)

[Part C] The number eleven can be expressed in binary as this sequence of four digits.

ANSWER: **1011** (read as **[one zero one one]**, but be lenient)

(Tossup 6) **A cliff known as World’s End is located in this country’s Horton Plains National Park. The Sigiriya rock fortress in this country is located near the Dambulla cave system, built during the Polonnaruwa and (*) Anuradhapura periods of this country. A battle was fought at this country’s city of Jaffna between its army and the LTTE. For the point, name this island nation with capital Colombo at the tip of the Indian subcontinent.**

ANSWER: **Sri Lanka**

(Bonus 6) The ancient city of Merv was located in this modern-day country. For ten points each,

[Part A] Name this central Asian country where the Darvaza gas crater has burnt continuously since 1971.

ANSWER: **Turkmenistan**

[Part B] This city is the capital and largest city of Turkmenistan.

ANSWER: **Ashgabat**

[Part C] Most of Turkmenistan is covered by one of these features named the Karakum, which translates as “Black Sand” in Turkic languages.

ANSWER: **Deserts**

(Tossup 7) **A civil war in this empire was known as the War of the Two Brothers. One leader of this empire was defeated and captured at the Battle of Cajamarca, after which he tried to ransom himself by offering to fill a room with gold and silver. That leader of this empire, (*) Atahualpa, was later strangled by Spanish Conquistadors. Cuzco was the capital of, for ten points, what empire located in modern-day Peru which was conquered by Francisco Pizarro?**

ANSWER: **Inca** Empire

(Bonus 7) This man is the current leader of the Liberal Democratic Party. For ten points each,

[Part A] Name this current Prime Minister of Japan.

ANSWER: Shinzo **Abe** (accept names in either order)

[Part B] Shinzo Abe has frequently denied and downplayed crimes committed by Japan's forces during this war. The Yasukuni Shrine memorializes war criminals who committed atrocities during it.

ANSWER: **World War II**

[Part C] Shinzo Abe has held discussions over the Kuril Islands with this current president of Russia.

ANSWER: Vladimir **Putin**

Sixty-Second Rounds

The categories are . . .

1. The Great Gatsby
2. Vienna
3. Forces

THE GREAT GATSBY

Name the...

(1) Character who serves as the first-person narrator of *The Great Gatsby*. ANSWER: **Nick Carraway** (accept either underlined name)

(2) Woman that Gatsby is in love with who he first met in Louisville, Kentucky. ANSWER: **Daisy Buchanan** (prompt on Buchanan)

(3) Husband of that woman, a physically imposing man who was a former college football star at Yale. ANSWER: **Tom Buchanan** (prompt on Buchanan)

(4) Amateur golfer with a dubious reputation who has a relationship with the narrator of *The Great Gatsby*

ANSWER: **Jordan Baker** (accept either underlined name)

(5) Jewish mentor of Gatsby who fixed the 1919 World Series and refused to attend Gatsby's funeral. ANSWER: **Meyer Wolfsheim** (accept either underlined name)

(6) Copper mogul who took Gatsby aboard his yacht after meeting him near the shore of Lake Superior. ANSWER: **Dan Cody** (accept either underlined name)

VIENNA

Regarding the history and geography of the city of Vienna, name...

(1) The country of which it is the capital.

ANSWER: **Austria**

(2) The river on which it lies, being one of four national capitals to do so.

ANSWER: **Danube**

(3) The empire that unsuccessfully besieged it in 1683. ANSWER: **Ottoman** Empire (prompt on Turkish)

(4) The composer of the opera *Fidelio* and nine symphonies who is buried in Vienna.

ANSWER: Ludwig van **Beethoven**

(5) The last of the 5 good emperors of Rome, who died in Vienna in AD 180.

ANSWER: **Marcus Aurelius**

(6) The Austrian chancellor who presided over the Congress of Vienna. ANSWER: Klemens von **Metternich**

FORCES

Based on your knowledge of forces in physics, who or what was the...

(1) Force which makes objects fall at [negative 9.8 meters per second squared] -9.8m/s^2 ?

ANSWER: **gravity**

(2) Scientist who discovered the previously mentioned force thanks to a falling apple and also made three laws of motion?

ANSWER: Isaac **Newton**

(3) Property that is multiplied by acceleration to equal "force" and is measured in "kg"?

ANSWER: **mass**

(4) Force that resists movement when the surfaces of two objects slide onto each other?

ANSWER: **friction**

(5) Force that is the opposite of the centripetal force by extending outwards from the axis of rotation?

ANSWER: **Centrifugal** force

(6) Force that is perpendicular to an object's surface and is equal to [mg cosine theta] $mg \cos \theta$? ANSWER: **Normal** force

Second Half

(Tossup 8) **One of this man's works was originally titled 'A Child's Remembrance', while images such as the hermit thrush and Venus are used in another of this man's works which served as an elegy to President (*) Abraham Lincoln.** An all-powerful "I" serves as a narrator for one of this man's poems in Song of Myself. Often called the father of free verse, this is, for ten points, what American writer famed for his poetry collection Leaves of Grass?

ANSWER: Walt **Whitman**

(Bonus 8) This novel was inspired by the author's experience as a prisoner of war in Dresden, Germany when the city was firebombed by the Allies. For ten points each,

[Part A] Name this book in which Billy Pilgrim survives the Dresden bombing by taking refuge in a meat locker. He also believes that he is a time traveler who was kept, for a time, in an alien zoo.

ANSWER: **Slaughterhouse-Five**

[Part B] This American author of Slaughterhouse-Five created a fictional religion called Bokononism, practiced by many characters in his works.

ANSWER: Kurt **Vonnegut**

[Part C] In this Vonnegut novel, the protagonist ends up on the Caribbean island of San Lorenzo, where Bokononism is the dominant religion. The mysterious substance "ice-nine" is central to the plot of this book.

ANSWER: **Cat's Cradle**

(Tossup 9) **Fossilized teeth of the crocodylian *Sarcosuchus* suggest that it specialized in feeding on this prey. The first evidence of these organisms' reproductive behavior was a preserved nest found in the Gobi Desert. Recent findings indicate that many theropod examples of these animals had (*) feathers.** Boasting the largest creatures to have ever walked on land, for the point, name this group of animals that included *Velociraptor* and *Tyrannosaurus rex*.

ANSWER: **dinosaurs** (accept *Dinosauria*)

(Bonus 9) For ten points each, answer some questions about the Felidae family.

[Part A] This small wild cat native to the Americas is often kept as an exotic pet. Salvador Dali owned one of these animals named Babou.

ANSWER: **Ocelot**

[Part B] This big cat is a pigmentation variant of the Bengal tiger. This big cat is sometimes referred to as a "bleached tiger".

ANSWER: **White Tiger**

[Part C] This big cat is similar in appearance to the Jaguar. Two rare types of this cat threatened with extinction are the "clouded" and "snow" species of this cat.

ANSWER: **Leopard** (Accept **Clouded Leopard**, accept **Snow Leopard**)

(Tossup 10) **The nephew of this leader is now protected under the former Cheollima Civil Defense, serving as its figurehead. The older brother of this leader was effectively deposed as the heir of his nation after he failed to enter (*) Japan** in an attempt to visit Disneyland. This leader allegedly ordered the 2017 assassination of the same brother in Kuala Lumpur. Jong Nam was deposed by, for ten points, what leader, who succeeded his father Jong Il to head North Korea?

ANSWER: **Kim Jong-un**

(Bonus 10) Thamsanqa Jantjie, a fake sign language interpreter, was hired for a funeral in this country. For ten points each,

[Part A] Name this country whose former leader Nelson Mandela died in 2013.

ANSWER: **South Africa**

[Part B] This former president of South Africa was booed at Nelson Mandela's funeral. After his resignation in 2018, he was succeeded by Cyril Ramaphosa.

ANSWER: Jacob **Zuma**

[Part C] South Africa's largest city is this metropolis located in Gauteng province.

ANSWER: **Johannesburg**

(Tossup 11) **One song often sung during this holiday is "Sivivon Sov Sov Sov." The Maccabean revolt against Antiochus IV is commemorated by this holiday, which takes place on the (*) twenty-fifth day of Kislev.** During the celebration of this holiday, observers eat latkes and spin dreidels. A candelabrum known as Menorah is lit during this holiday. For ten points, name this Jewish winter holiday, also known as the Festival of Lights.

ANSWER: **Hanukkah** (or **Chanukkah** accept **Festival of Lights** before mention)

(Bonus 11) This work may have been written by John of Patmos. For ten points each, [Part A] Name this final book of the New Testament.

ANSWER: Book of **Revelation** (do not accept "Revelations")

[Part B] The Book of Revelations describes these individuals, often thought to symbolize Conquest, War, Famine, and Death.

ANSWER: **Four Horsemen of the Apocalypse** (Prompt on partial answers)

[Part C] The Horsemen of the Apocalypse are released after the Lamb of God opens the first four of these things. There are seven of these items in total.

ANSWER: The Seven **Seals**

(Tossup 12) **This President ordered Operation Odyssey Dawn to help depose a North African leader. This President worked with Harry Reid to pass an extensive overhaul of the (*) healthcare system. This President defeated Hillary Clinton in the primaries and later defeated Republican John McCain in the 2008 presidential election. For ten points, name this 44th President and first African-American President of the United States.**

ANSWER: Barack **Obama**

(Bonus 12) This man worked as a bus driver before being elected to the National Assembly. For ten points each,

[Part A] Name this current leader of Venezuela who is supported by countries such as Russia and China.

ANSWER: Nicolas **Maduro**

[Part B] Nicolas Maduro took power after the death of this former president of Venezuela in 2013.

ANSWER: Hugo **Chavez**

[Part C] Maduro's presidency is disputed by this politician, the President of the National Assembly who is recognized as acting President of Venezuela by the United States and numerous Western countries.

ANSWER: Juan **Guaido**

(Tossup 13) **These events can produce diluvium deposits. Incredibly large examples of these events include those named for Bonneville and Missoula, which both occurred around 14,000 years ago. A burst (*) levee can cause damaging examples of these events, which can be described as "flash" if caused by a lot of rain in a short period of time. For ten points, name these events that occur due to an excess of flowing water over usually dry land.**

ANSWER: **floods**

(Bonus 13) This system is named after an American seismologist. For ten points each,

[Part A] Name this magnitude scale commonly used to measure earthquakes. The largest earthquake in history, the Great Chilean Earthquake, measured 9.5 on this scale

ANSWER: **Richter** Scale

[Part B] This other seismic intensity scale is named after an Italian scientist and often abbreviated "MM".

ANSWER: Modified **Mercalli** intensity scale

[Part C] This East Asian country utilizes the JMA Seismic Intensity Scale. This earthquake-prone country was the site of the Great Kanto Earthquake.

ANSWER: **Japan**

(Tossup 14) **In a letter to King Frederick II of Prussia, this man referred to the Prophet Muhammad as "a camel-merchant." A novel by this author declares that (*) "we must cultivate our garden." That work by this author features a young man who is mentored by Dr. Pangloss and satirizes Leibnizian Optimism. For ten points, name this French philosopher famous for his stinging criticisms of the Catholic Church and for authoring Candide.**

ANSWER: **Voltaire** (accept Francois-Marie **Arouet**)

(Bonus 14) The epic poem *In Parenthesis* is set during this war. For ten points each,

[Part A] Name this conflict which is the subject of many poems by writers such as Siegfried Sassoon and Isaac Rosenberg who wrote about its trench warfare.

ANSWER: **World War I**

[Part B] This Erich Maria Remarque novel set during World War I tells the story of soldiers such as Paul Baumer and Albert Kropp.

ANSWER: **All Quiet on the Western Front**

[Part C] This poem by John McCrae resulted in the widespread popularity of remembrance poppies. This poem declares that “the poppies blow / Between the crosses, row on row” at the title location.

ANSWER: **In Flanders Fields**

Tiebreakers

(Tossup 15) **One player of this instrument popularized the Billy Strayhorn song “Take the A Train.” Another player of this instrument recorded the song “Take Five” for the album *Time Out*; those players of this instrument are Duke (*) Ellington and Dave Brubeck. This instrument forms the jazz rhythm section with the drums, bass, and guitar. For ten points, name this keyboard instrument, which has 36 black and 52 white keys.**

ANSWER: **piano**

(Bonus 15) In this poem, the title group must travel “Half a league, half a league /Half a league onward /All in the valley of Death.” For ten points each,

[Part A] Name this poem about the title group of six hundred British soldiers who rode straight into death during the Crimean War.

ANSWER: The **Charge of the Light Brigade**

[Part B] *The Charge of the Light Brigade* was written by this English poet.

ANSWER: Alfred, Lord **Tennyson**

[Part C] Lord Tennyson also wrote a poem about this king, who claims, “Come, my friends, ‘tis not too late to seek a newer world,” and is determined “To strive, to seek, to find, and not to yield.”

ANSWER: **Ulysses** (accept **Odysseus**)