

The Sun and other stars are powered by nuclear fusion reactions, in which two atoms collide to form a single heavier atom, releasing energy. Scientists have long believed that fusion has the potential to meet humanity's clean energy needs. \_\_\_\_\_ prior to December 2022, no fusion reaction in a laboratory setting had ever generated a net energy gain.

Which choice completes the text with the most logical transition?

- A. For this reason,
- B. Moreover,
- C. Specifically,
- D. That said,

In response to adverse environmental conditions, many plants produce abscisic acid (ABA), a stress hormone. ABA triggers a slowdown in the biological processes of most plants. \_\_\_\_\_ when the mustard plant *Schrenkiella parvula* produces ABA in response to an environmental stressor, the hormone triggers accelerated growth.

Which choice completes the text with the most logical transition?

- A. Moreover,
- B. In contrast,
- C. For example,
- D. Thus,

With its clichéd imagery of suburban lawns and power lines, John Ashbery’s 2004 poem “Ignorance of the Law Is No Excuse” may seem barren terrain for critical analysis. \_\_\_\_\_ cultural critic Lauren Berlant finds fertile ground in just its first two stanzas, devoting most of a book chapter to deciphering the “weight of the default space” Ashbery creates in this poem.

Which choice completes the text with the most logical transition?

- A. Likewise,
- B. Nonetheless,
- C. In turn,
- D. That is,

Seismologists Kaiqing Yuan and Barbara Romanowicz have proposed that the magma fueling Iceland’s more than 30 active volcano systems emerges from deep within Earth. The great depths involved—nearly 3,000 km—mark Iceland’s volcanoes as extreme outliers; \_\_\_\_\_ many of Earth’s volcanoes are fed by shallow pockets of magma found less than 15 km below the surface.

Which choice completes the text with the most logical transition?

- A. indeed,
- B. nevertheless,
- C. in addition,
- D. consequently,

“Tulip mania”—the rapid rise and sudden fall of the price of tulip bulbs in seventeenth-century Amsterdam—is often cited as an example of the perils of rampant market speculation. However, recent research has demonstrated that the episode was neither as frenzied nor as disastrous as has been thought. The popular myth surrounding it, \_\_\_\_\_ should be regarded with some skepticism.

Which choice completes the text with the most logical transition?

- A. for example,
- B. by contrast,
- C. nevertheless,
- D. therefore,

Historically, most conductors of major orchestras and opera companies have been European men, but a new, more diverse generation of artists is stepping up to the podium. Mexico's Alondra de la Parra took over as conductor for the Queensland Symphony Orchestra in 2017, \_\_\_\_\_ and Colombia's Lina Gonzalez-Granados did the same for the Los Angeles Opera in 2022.

Which choice completes the text with the most logical transition?

- A. in addition,
- B. lastly,
- C. granted,
- D. for instance,

A 2017 study of sign language learners tested the role of iconicity—the similarity of a sign to the thing it represents—in language acquisition. The study found that the greater the iconicity of a sign, the more likely it was to have been learned. \_\_\_\_\_ the correlation between acquisition and iconicity was lower than that between acquisition and another factor studied: sign frequency.

Which choice completes the text with the most logical transition?

- A. In fact,
- B. In other words,
- C. Granted,
- D. As a result,

Iraqi artist Nazik Al-Malaika, celebrated as the first Arabic poet to write in free verse, didn't reject traditional forms entirely; her poem "Elegy for a Woman of No Importance" consists of two ten-line stanzas and a standard number of syllables. Even in this superficially traditional work, \_\_\_\_\_ Al-Malaika was breaking new ground by memorializing an anonymous woman rather than a famous man.

Which choice completes the text with the most logical transition?

- A. therefore,
- B. in fact,
- C. moreover,
- D. though,



Magnetic levitation (maglev) trains are suspended above a track by powerful electromagnets, reducing friction and thus allowing for much faster speeds. Though maglev advocates in the US have long imagined these trains crisscrossing the country, their dream remains unrealized. \_\_\_\_\_ of the handful of maglev trains currently in operation, all are in Asia.

Which choice completes the text with the most logical transition?

- A. In fact,
- B. To that end,
- C. Nevertheless,
- D. That said,

Plato believed material objects to be crude representations of unseen ideal forms. In his view, such abstract, nonmaterial forms are the ultimate source of knowledge. Aristotle disagreed, positing that knowledge is best obtained through direct engagement with the material world; \_\_\_\_\_ sensory experience of the material is the ultimate source of knowledge.

Which choice completes the text with the most logical transition?

- A. regardless,
- B. admittedly,
- C. in other words,
- D. meanwhile,

When one looks at the dark craggy vistas in Hitoshi Fugo's evocative photo series, one's mind might wander off to the cratered surfaces of faraway planets. \_\_\_\_\_ it's the series' title, *Flying Frying Pan*, that brings one back to Earth, reminding the viewer that each photo is actually a close-up view of a familiar household object: a frying pan.

Which choice completes the text with the most logical transition?

- A. Consequently,
- B. Alternatively,
- C. Ultimately,
- D. Additionally,

In 2009, the Craft and Folk Art Museum in Los Angeles hosted a special exhibition, *Sueños/Yume*, showcasing the works of local sculptor Dora de Larios. As suggested by the show's title (*sueños* and *yume* mean "dreams" in Spanish and Japanese, respectively), de Larios's art reflects a mix of cultural influences. \_\_\_\_\_ her work is grounded in the artistic traditions of both Mexico and Japan.

Which choice completes the text with the most logical transition?

- A. In addition,
- B. In contrast,
- C. Specifically,
- D. Therefore,

In 1815, while in exile in Jamaica, Venezuelan revolutionary Simón Bolívar penned a letter praising England's republican government and expressing hope that Latin American nations seeking independence from Spain might achieve something similar. The letter was addressed to a local merchant, Henry Cullen; \_\_\_\_\_ though, Bolívar's goal was to persuade political leaders from England and Europe to support his cause.

Which choice completes the text with the most logical transition?

- A. additionally,
- B. ultimately,
- C. accordingly,
- D. consequently,

In a heated debate in biogeography, the field is divided between dispersalists and vicariancists. \_\_\_\_\_ there are those who argue that dispersal is the most crucial determining factor in a species' distribution, and those who insist that vicariance (separation due to geographic barriers) is. Biogeographer Isabel Sanmartín counts herself among neither.

Which choice completes the text with the most logical transition?

- A. Furthermore,
- B. By contrast,
- C. Similarly,
- D. That is,

While researching a topic, a student has taken the following notes:

- African American women played prominent roles in the Civil Rights Movement, including at the famous 1963 March on Washington.
- Civil rights activist Anna Hedgeman, one of the march's organizers, was a political adviser who had worked for President Truman.
- Civil rights activist Daisy Bates was a well-known journalist and advocate for school desegregation.
- Hedgeman worked behind the scenes to make sure a woman was included in the lineup of speakers at the march.
- Bates was the sole woman to speak, delivering a brief but memorable address to the cheering crowd.

The student wants to compare the two women's contributions to the March on Washington. Which choice most effectively uses relevant information from the notes to accomplish this goal?

- A. Hedgeman and Bates contributed to the march in different ways; Bates, for example, delivered a brief but memorable address.
- B. Hedgeman worked in politics and helped organize the march, while Bates was a journalist and school desegregation advocate.
- C. Although Hedgeman worked behind the scenes to make sure a woman speaker was included, Bates was the sole woman to speak at the march.
- D. Many African American women, including Bates and Hedgeman, fought for civil rights, but only one spoke at the march.

While researching a topic, a student has taken the following notes:

- Stars form in a galaxy when gravity causes a massive cloud of dust and gas to collapse.
- A galaxy in a phase of rapid star formation is called a starburst galaxy.
- Quenching is a process in which a galaxy loses star-forming gas.
- A galaxy that no longer forms stars is called a quenched galaxy.
- A quenched galaxy has entered the poststarburst phase.

The student wants to explain what a quenched galaxy is. Which choice most effectively uses relevant information from the notes to accomplish this goal?

- A. Before quenching, a starburst galaxy will form stars at a rapid rate.
- B. When it becomes quenched, a starburst galaxy enters the poststarburst phase.
- C. Having entered the poststarburst phase, a quenched galaxy is one that no longer forms stars.
- D. A starburst galaxy will lose star-forming gas and eventually become quenched.



While researching a topic, a student has taken the following notes:

- In North America, woodlands have expanded into areas that were once grasslands.
- Thomas Rogers and F. Leland Russell of Wichita State University investigated whether woodland expansion is related to changes in climate.
- Rogers and Russell analyzed core samples from oak trees on a site that was not wooded in the past and indexed the age of the trees with historical climate data to see if tree populations and climate were correlated.
- Tree population growth was associated with dry intervals.
- Droughts may have played a role in woodland expansion.

The student wants to emphasize the aim of the research study. Which choice most effectively uses relevant information from the notes to accomplish this goal?

- A. Thomas Rogers and F. Leland Russell, researchers at Wichita State University, wanted to know if woodland expansion is related to changes in climate.
- B. Thanks to the work done by Thomas Rogers and F. Leland Russell, we now know that droughts may have played a role in woodland expansion.
- C. Wichita State University researchers have determined that tree population growth was associated with dry intervals.
- D. Thomas Rogers and F. Leland Russell analyzed core samples from oak trees on a site that was not wooded in the past, indexing the age of the trees with historical climate data.

While researching a topic, a student has taken the following notes:

- As engineered structures, many bird nests are uniquely flexible yet cohesive.
- A research team led by Yashraj Bhosale wanted to better understand the mechanics behind these structural properties.
- Bhosale's team used laboratory models that simulated the arrangement of flexible sticks into nest-like structures.
- The researchers analyzed the points where sticks touched one another.
- When pressure was applied to the model nests, the number of contact points between the sticks increased, making the structures stiffer.

The student wants to present the primary aim of the research study. Which choice most effectively uses relevant information from the notes to accomplish this goal?

- A. Bhosale's team wanted to better understand the mechanics behind bird nests' uniquely flexible yet cohesive structural properties.
- B. The researchers used laboratory models that simulated the arrangement of flexible sticks and analyzed the points where sticks touched one another.
- C. After analyzing the points where sticks touched, the researchers found that the structures became stiffer when pressure was applied.
- D. As analyzed by Bhosale's team, bird nests are uniquely flexible yet cohesive engineered structures.

While researching a topic, a student has taken the following notes:

- The Million Song Dataset (MSD) includes main audio features and descriptive tags for popular songs.
- Audio features include acoustic traits such as loudness and pitch intervals.
- Many algorithms use these audio features to predict a new song's popularity.
- These algorithms may fail to accurately identify main audio features of a song with varying acoustic traits.
- Algorithms based on descriptive tags that describe fixed traits such as genre are more reliable predictors of song popularity.

The student wants to explain a disadvantage of relying on audio features to predict a song's popularity. Which choice most effectively uses relevant information from the notes to accomplish this goal?

- A. Many popularity-predicting algorithms are based on a song's audio features, such as loudness and pitch intervals.
- B. Algorithms based on audio features may misidentify the main features of a song with varying acoustic traits, making such algorithms less reliable predictors of popularity than those based on fixed traits.
- C. Audio features describe acoustic traits such as pitch intervals, which may vary within a song, whereas descriptive tags describe fixed traits such as genre, which are reliable predictors of popularity.
- D. The MSD's descriptive tags are reliable predictors of a song's popularity, as the traits they describe are fixed.

While researching a topic, a student has taken the following notes:

- Some powerful works of literature have so influenced readers that new legislation has been passed as a result.
- *The Interesting Narrative of the Life of Olaudah Equiano* (1789) is the autobiography of a man who endured slavery on both sides of the Atlantic.
- Equiano's book contributed to the passage of the Slave Trade Act of 1807.
- *The Jungle* (1906) is a fictional work by Upton Sinclair that describes unsanitary conditions in US meatpacking plants.
- Sinclair's book contributed to the passage of the Pure Food and Drug Act in 1906.

The student wants to emphasize a difference between the two books. Which choice most effectively uses relevant information from the notes to accomplish this goal?

- A. Although both are powerful works of literature that contributed to new legislation, Equiano's book is an autobiography, while Sinclair's is fictional.
- B. They may have written about different topics, but Equiano and Sinclair both influenced readers.
- C. The 1807 Slave Trade Act resulted in part from a book by Equiano, while the 1906 Pure Food and Drug Act resulted in part from a book by Sinclair.
- D. *The Interesting Narrative of the Life of Olaudah Equiano* and *The Jungle* are two works of literature that contributed to new legislation (concerning the slave trade and food safety, respectively).

While researching a topic, a student has taken the following notes:

- In 1971, experimental musician Pauline Oliveros created *Sonic Meditations*.
- *Sonic Meditations* is not music but rather a series of sound-based exercises called meditations.
- Each meditation consists of instructions for participants to make, imagine, listen to, or remember sounds.
- The instructions for Meditation V state, “walk so silently that the bottoms of your feet become ears.”
- Those for Meditation XVIII state, “listen to a sound until you no longer recognize it.”

The student wants to provide an explanation and an example of Oliveros’s *Sonic Meditations*. Which choice most effectively uses relevant information from the notes to accomplish this goal?

- A. *Sonic Meditations* is not music but rather a series of sound-based meditations that consist of instructions; Meditation XVIII, for instance, instructs participants to “listen to a sound until you no longer recognize it.”
- B. In 1971, Oliveros created *Sonic Meditations*, a series of meditations that consist of instructions for participants to make, imagine, listen to, or remember sounds.
- C. “Walk so silently that the bottoms of your feet become ears” is one example of the instructions found in Oliveros’s *Sonic Meditations*.
- D. While both meditations consist of instructions, Meditation XVIII instructs participants to “listen,” whereas Meditation V instructs participants to “walk.”

While researching a topic, a student has taken the following notes:

- Freddie Wong (born 1985) is a director and special effects artist from the United States.
- He is best known for the action-comedy web series *Video Game High School* (VGHS).
- VGHS premiered in 2012 on RocketJump, a YouTube channel that Wong cocreated.
- The series was celebrated for its inventive video game–centric world and high-quality special effects.
- VGHS was nominated for a Producers Guild Award for Outstanding Digital Series.

The student wants to begin a narrative about Wong’s award-nominated web series. Which choice most effectively uses relevant information from the notes to accomplish this goal?

- A. In 2012, director and visual effects artist Freddie Wong launched a new action-comedy web series: *Video Game High School*.
- B. *Video Game High School* was celebrated for its inventive video game–centric world and high-quality special effects, and it was nominated for a Producer’s Guild Award for Outstanding Digital Series.
- C. Wong, cocreator of the YouTube channel RocketJump, would go on to see his web series be nominated for a Producers Guild Award.
- D. In 2012, *Video Game High School* premiered on RocketJump; it would later be nominated for an award.

While researching a topic, a student has taken the following notes:

- Ulaanbaatar is the capital of Mongolia.
- The city's population is 907,802.
- Ulaanbaatar contains 31.98 percent of Mongolia's population.
- Hanoi is the capital of Vietnam.
- The city's population is 7,781,631.
- Hanoi contains 8.14 percent of Vietnam's population.

The student wants to emphasize the relative sizes of the two capitals' populations. Which choice most effectively uses information from the given sentences to emphasize the relative sizes of the two capitals' populations?

- A. Mongolia's capital is Ulaanbaatar, which has 907,802 people, and Vietnam's capital is Hanoi, which has 7,781,631 people.
- B. Comparing Vietnam and Mongolia, 7,781,631 is 8.14 percent of Vietnam's population, and 907,802 is 31.98 percent of Mongolia's.
- C. Even though Hanoi (population 7,781,631) is larger than Ulaanbaatar (population 907,802), Ulaanbaatar accounts for more of its country's population.
- D. The populations of the capitals of Mongolia and Vietnam are 907,802 (Ulaanbaatar) and 7,781,631 (Hanoi), respectively.

While researching a topic, a student has taken the following notes:

- The popular wood-wide web theory posits that trees can communicate and exchange resources with one another via common mycorrhizal networks (CMNs) of fungi.
- Ecologist Dr. Suzanne Simard first suggested this theory in 1997.
- She described trees as “super-cooperators.”
- In the 2022 study “The Decay of the Wood-Wide Web?,” mycologist Dr. Justine Karst and colleagues evaluated dozens of CMN studies.
- They write that CMNs “have captured the interest of broad audiences. We are concerned, however, that recent claims about CMNs in forests are disconnected from evidence.”

The student wants to use a quotation to emphasize a potential problem with the wood-wide web theory. Which choice most effectively uses relevant information from the notes to accomplish this goal?

- A. Describing trees as “super-cooperators,” Simard first suggested that trees can exchange resources with one another in 1997.
- B. In “The Decay of the Wood-Wide Web?,” Karst and colleagues note that common mycorrhizal networks “have captured the interest of broad audiences.”
- C. After evaluating dozens of CMN studies, Karst and colleagues expressed concern that recent claims about common mycorrhizal networks are “disconnected from evidence.”
- D. Despite the concerns expressed in the 2022 study “The Decay of the Wood-Wide Web?,” the wood-wide web theory remains popular.



While researching a topic, a student has taken the following notes:

- A thermal inversion is a phenomenon where a layer of atmosphere is warmer than the layer beneath it.
- In 2022, a team of researchers studied the presence of thermal inversions in twenty-five gas giants.
- Gas giants are planets largely composed of helium and hydrogen.
- The team found that gas giants featuring a thermal inversion were also likely to contain heat-absorbing metals.
- One explanation for this relationship is that these metals may reside in a planet's upper atmosphere, where their absorbed heat causes an increase in temperature.

The student wants to present the study's findings to an audience already familiar with thermal inversions. Which choice most effectively uses relevant information from the notes to accomplish this goal?

- A. Heat-absorbing metals may reside in a planet's upper atmosphere.
- B. The team studied thermal inversions in twenty-five gas giants, which are largely composed of helium and hydrogen.
- C. Researchers found that gas giants featuring a thermal inversion were likely to contain heat-absorbing metals, which may reside in the planets' upper atmospheres.
- D. Gas giants were likely to contain heat-absorbing metals when they featured a layer of atmosphere warmer than the layer beneath it, researchers found; this phenomenon is known as a thermal inversion.

While researching a topic, a student has taken the following notes:

- A commodity chain is the series of links connecting the production and purchase of a commodity on the world market.
- Chinese American anthropologist Anna Tsing studies the contemporary commodity chain of matsutake mushrooms.
- At one end of the matsutake chain are mushroom pickers in Oregon.
- At the other end are wealthy consumers who buy the costly matsutake in Japan.
- According to Tsing, “Japanese traders began importing matsutake in the 1980s, when the scarcity of matsutake in Japan first became clear.”

The student wants to provide an overview of the matsutake commodity chain. Which choice most effectively uses relevant information from the notes to accomplish this goal?

- A. The contemporary matsutake commodity chain has its origins in the 1980s when, according to Tsing, “the scarcity of matsutake in Japan first became clear.”
- B. Commodity chains include the linked production and purchase of commodities, such as the matsutake mushroom, on the world market.
- C. Decades after the Japanese import of matsutake began, a commodity chain now links matsutake pickers in Oregon with wealthy consumers of the costly mushrooms in Japan.
- D. Wealthy consumers who buy the costly mushrooms in Japan are at one end of the matsutake commodity chain.

While researching a topic, a student has taken the following notes:

- Archaeologist Jon Erlandson and colleagues argue that humans first arrived in the Americas by sea.
- They propose that humans traveled between Pacific Ocean islands and coastlines from northeast Asia to the Americas.
- Many of these islands and coastal zones were later submerged as glaciers melted and sea levels rose.
- The researchers think that “a coastal route, including kelp forests and estuaries, would have provided a rich mix of marine, estuarine, riverine, and terrestrial resources” such as seaweeds, fish, and birds.
- This proposed scenario is known as the kelp highway hypothesis.

The student wants to summarize the kelp highway hypothesis. Which choice most effectively uses relevant information from the notes to accomplish this goal?

- A. Pacific Ocean islands and coastlines likely contained “a rich mix of marine, estuarine, riverine, and terrestrial resources” such as seaweeds, fish, and birds, according to researchers.
- B. One argument about how humans first arrived in the Americas is the kelp highway hypothesis proposed by Jon Erlandson and colleagues.
- C. Humans may have first arrived in the Americas by sea, traveling between Pacific Ocean islands and coastlines and subsisting on a variety of resources.
- D. As glaciers melted and sea levels rose, many Pacific Ocean islands and coastal zones were submerged.

While researching a topic, a student has taken the following notes:

- Neuroscientists Krishnan Padmanabhan and Zhen Chen sought to better understand the workings of the brain's olfactory system.
- They devised a study using mathematical models.
- They found that certain fibers allow the brain to toggle from one method of processing smells to another.
- In one method, cells in the piriform cortex (where the perception of odor forms) capture olfactory information at a given moment.
- In the other, the cells track changes in olfactory information over time.

The student wants to summarize the study's findings. Which choice most effectively uses relevant information from the notes to accomplish this goal?

- A. To arrive at these findings, which describe dual methods of processing smells in the piriform cortex, Padmanabhan and Chen devised a study using mathematical models.
- B. Padmanabhan and Chen showed that olfactory information is captured by cells in the piriform cortex, where the perception of odor forms.
- C. Using mathematical models, Padmanabhan and Chen devised a study to better understand the workings of the brain's olfactory system.
- D. According to Padmanabhan and Chen, the brain can toggle between capturing olfactory information at a given moment and tracking changes in that information over time.

While researching a topic, a student has taken the following notes:

- Nissologists are scientists who study islands.
- Some nissologists define an island as any piece of land surrounded by water.
- Using that definition, they determined that Sweden has 221,000 islands.
- Other nissologists define an island as being 1 kilometer square, a certain distance from the mainland, and having at least 50 permanent residents.
- Using that definition, they determined that Sweden has 24 islands.

The student wants to make and support a generalization about nissologists' definition of an island. Which choice most effectively uses relevant information from the notes to accomplish these goals?

- A. The definition of an island as any piece of land surrounded by water is supported by some nissologists, scientists who study islands.
- B. Multiple counts of Sweden's islands have been based on different definitions of an island.
- C. Based on a recent count, Sweden has a relatively small number of islands with at least 50 permanent residents.
- D. Nissologists' different definitions can result in huge disparities in counts of islands, as the example of Sweden shows.

While researching a topic, a student has taken the following notes:

- In 1978, Sámi activists staged protests to block the construction of a dam on the Alta River in Norway.
- The dam would disrupt Sámi fishing and reindeer herding.
- The dam was ultimately built, but the Alta conflict had a lasting impact.
- It brought international attention to the issue of Sámi rights.
- It led to a set of 2005 legal protections establishing Sámi rights to lands, waters, and resources.

The student wants to make and support a generalization about the Alta conflict. Which choice most effectively uses relevant information from the notes to accomplish this goal?

- A. During the Alta conflict, Sámi activists staged protests to block the construction of a dam on the Alta River in Norway that would disrupt local fishing and reindeer herding.
- B. Although the dam that the Sámi activists had protested was ultimately built, the Alta conflict had a lasting impact.
- C. Sámi rights to lands, waters, and resources received international attention and legal protections as a result of the Alta conflict.
- D. The Alta conflict had a lasting impact, resulting in international attention and legal protections for Sámi rights to lands, waters, and resources.

While researching a topic, a student has taken the following notes:

- Cambodia's Angkor Wat was built in the 1100s to honor the Hindu god Vishnu.
- It has been a Buddhist temple since the sixteenth century.
- Decorrelation stretch analysis is a novel digital imaging technique that enhances the contrast between colors in a photograph.
- Archaeologist Noel Hidalgo Tan applied decorrelation stretch analysis to photographs he had taken of Angkor Wat's plaster walls.
- Tan's analysis revealed hundreds of images unknown to researchers.

The student wants to present Tan's research to an audience unfamiliar with Angkor Wat. Which choice most effectively uses relevant information from the notes to accomplish this goal?

- A. Tan photographed Angkor Wat's plaster walls and then applied decorrelation stretch analysis to the photographs.
- B. Decorrelation stretch analysis is a novel digital imaging technique that Tan used to enhance the contrast between colors in a photograph.
- C. Using a novel digital imaging technique, Tan revealed hundreds of images hidden on the walls of Angkor Wat, a Cambodian temple.
- D. Built to honor a Hindu god before becoming a Buddhist temple, Cambodia's Angkor Wat concealed hundreds of images on its plaster walls.