Threads & Themes Grade 8, Unit 3, Investigation 2 Summative Assessment

Name: _____ **Date:** _____ **Class:** _____

PASSAGE 1

Fighting Fire with Fire: The Return of Prescribed Burns

A CENTURY OF SUPPRESSION

(1) For more than a hundred years, the United States fought wildfires with a single strategy: put them out. Federal agencies adopted a policy of total fire suppression in the early 1900s. Every wildfire was treated as a threat to be removed as quickly as possible. Firefighters built roads into remote forests, developed aerial tankers, and staffed lookout towers across the western mountains. The goal was zero fires—complete control over a force that had shaped North American ecosystems for thousands of years.

(2) The consequences of that policy are visible across the American West. Without regular low-intensity fires to clear underbrush, forests have grown dangerously dense. Ponderosa pine forests that once held fewer than a hundred trees per acre now hold several hundred. Dead wood, dried leaves, and thick undergrowth have piled up into what fire scientists call “fuel loads.” When fire reaches these overloaded forests, the results are severe. Crown fires leap between treetops, sterilize the soil, preventing future growth, and leave landscapes unable to recover for decades. These are not the low, creeping burns that once moved across forest floors. They are catastrophic.

WHAT THE LAND REMEMBERS

(3) Long before suppression became policy, fire served as a tool. Indigenous communities across California practiced deliberate, seasonal burning for thousands of years. These burns were timed to meet specific goals. They cleared underbrush and encouraged the growth of food plants like acorns and camas. They improved habitat for deer and elk and maintained open travel corridors. In Australia, Aboriginal peoples developed parallel traditions. They used low-intensity fires to manage grasslands in a practice they describe as “caring for country.” Though separated by an ocean, both traditions reflect the same understanding. Fire, when applied with knowledge and care, is not a destructive force. It is a restorative one.

(4) Modern fire science has confirmed what these traditions have long shown. Research by the U.S. Forest Service has found that prescribed burns make later fires significantly less severe. Prescribed burns are planned, low-intensity fires set by trained crews under carefully managed conditions. Their benefits extend well beyond wildfire prevention. They return nutrients from dead plants to the soil and help the seeds of fire-adapted species like giant sequoia start to grow. They also reduce competition for water and sunlight among surviving trees. In fire-dependent ecosystems, the absence of fire is not neutral. It is a form of disruption.

SMOKE AND SKEPTICISM

(5) Despite this evidence, prescribed burning faces strong opposition. Air quality regulators in several western states have restricted the times when burning is allowed because of concerns about smoke near populated areas. Critics also point to times when prescribed burns have escaped their planned boundaries. The 2022 Hermits Peak fire in New Mexico burned over 340,000 acres after a Forest Service prescribed burn spread beyond control. Critics frequently cite this case as proof of unacceptable risk. Some fire professionals argue that better aircraft, computer tools that predict fire behavior, and satellites that detect fires from space have made widespread prescribed burning unnecessary.

(6) Advocates for prescribed fire respond to these objections directly. Regarding air quality, researchers at Stanford University have found that smoke from prescribed burns produces far less pollution per acre than smoke from unplanned wildfires. With escaped burns, supporters point to the details of the Hermits Peak case. That fire resulted from specific failures—starting fires during conditions that were too dry and windy—not from a basic problem with prescribed fire itself. And while suppression technology has improved, the record tells a different story. The ten most destructive fire seasons in California history have all occurred since 2000. Prescribed burning has also drawn support for its economic appeal. Communities near regularly burned forests have reported increased tourism revenue.

BURNING FORWARD

(7) The scientific evidence, the cultural record, and the worsening severity of fire seasons all point toward the same conclusion. If western states were to continue relying mainly on suppression, fuel loads would keep building. The fires that eventually ignite would only grow more severe. Prescribed burning represents a shift from reaction to reciprocity—working with fire instead of only reacting to it. The goal is not to eliminate fire, but to safely return it to the landscapes that evolved to depend on it. Making that shift would require training more burn crews and revising air quality rules. It would also mean building partnerships with Indigenous fire practitioners whose knowledge has developed over thousands of years, long before modern forestry.

(8) Fire will return to these landscapes regardless of policy decisions. The only question is whether it arrives planned and purposeful, informed by both science and tradition, or whether it arrives on its own terms.

ITEMS — PASSAGE 1

Item 1

How do paragraphs 1 and 2 of "Fighting Fire with Fire" work together to develop the author's argument?

A) Paragraph 1 explains the goal of stopping all fires, and paragraph 2 shows how forests became more dense as a result.

B) Paragraph 1 presents the fire suppression policy and its goals, and paragraph 2 describes the long-term impact of that policy.

C) Paragraph 1 describes the methods used to control wildfires, and paragraph 2 explains how those methods changed the way fires behave.

D) Paragraph 1 explains why federal agencies supported fire suppression, and paragraph 2 argues that a different approach would have been better.

Item 2

Which details support the author's claim about what happened as a result of the United States' fire suppression policy?

Sort each detail into the correct category.

Category 1: Directly supports the claim
Category 2: Does not directly support the claim

A) Every wildfire was treated as a threat to be removed as quickly as possible.

B) Without regular low-intensity fires to clear underbrush, forests have grown dangerously dense.

C) Dead wood, dried leaves, and thick undergrowth have piled up into what fire scientists call "fuel loads."

D) [C]omplete control over a force that had shaped North American ecosystems for thousands of years.

Item 3

Read these sentences from "Fighting Fire with Fire."

> These are not the low, creeping burns that once moved across forest floors. They are catastrophic.

How does the author's use of the word catastrophic in this sentence impact the tone?

A) It creates a critical tone by showing that the fires are a natural part of the environment.

B) It creates a concerned tone by emphasizing how destructive the fires are.

C) It creates a hopeful tone by suggesting fires can still be controlled.

D) It creates a neutral tone by simply describing how fires behave.

Item 4

Why does the author include information about Indigenous fire practices in paragraph 3 of "Fighting Fire with Fire"?

A) to show that prescribed burning has been used for thousands of years throughout the world to manage ecosystems

B) to explain why early federal fire policies ignored Indigenous knowledge about fire management

C) to describe how fire prevention is handled differently in regions outside the United States

D) to argue that the U.S. Forest Service should start using prescribed burning instead of using modern techniques

Item 5

Read these sentences from paragraph 4 of "Fighting Fire with Fire."

> In fire-dependent ecosystems, the absence of fire is not neutral. It is a form of disruption.

How do these sentences refine the key concept developed in paragraph 4?

A) They suggest that prescribed burns are risky because fire can disrupt ecosystems.

B) They explain how fire affects ecosystems by listing examples of its effects on plants and soil.

C) They restate the benefits of prescribed burns by summarizing the ways that fire supports forest health.

D) They refine the idea that prescribed burns are important by stating that ecosystems are harmed without regular fire.

Item 6

Read this sentence from paragraph 5 of "Fighting Fire with Fire."

> Some fire professionals argue that better aircraft, computer tools that predict fire behavior, and satellites that detect fires from space have made widespread prescribed burning unnecessary.

How does the author respond to this viewpoint in paragraph 6? Select TWO answers.

A) The author explains how new technology helps firefighters detect and respond to fires more quickly.

B) The author claims that the newer technology is too expensive to replace prescribed burning.

C) The author presents evidence that fires have worsened despite improvements in technology.

D) The author describes how prescribed burns are planned and carried out under controlled conditions.

E) The author describes research showing that smoke from prescribed burns is less harmful than smoke from wildfires.

Item 7

Read this sentence from paragraph 7 of "Fighting Fire with Fire".

> Prescribed burning represents a shift from reaction to reciprocity—working with fire instead of only reacting to it.

How does this sentence develop a key concept in paragraph 7?

A) It explains the factors and conditions that led to the problem described earlier in the paragraph.

B) It highlights a more effective solution to the problem described earlier in the paragraph.

C) It summarizes the problem and possible solutions that were described earlier in the paragraph.

D) It introduces a new concern related to the problem described earlier in the paragraph.

Item 8

Which statement BEST summarizes "Fighting Fire with Fire"?

A) Although prescribed burning can reduce wildfire severity, concerns about safety and risks continue to limit how widely it is used today.

B) Total fire suppression policies were used by federal agencies for many years, but they eventually made forests more vulnerable to severe wildfires.

C) After years of fire suppression increased the severity of wildfires, science now supports the Indigenous practice of prescribed burning, despite challenges.

D) While Indigenous communities have long used prescribed burning to prevent wildfires, modern science is only beginning to recognize the value of these practices.

Item 9

Read this sentence from paragraph 1 of "Fighting Fire with Fire."

> Firefighters built roads into remote forests, developed aerial tankers, and staffed lookout towers across the western mountains.

Which revision uses passive voice?

A) Across the western mountains, firefighters built roads, developed aerial tankers, and staffed lookout towers.

B) Firefighters were building roads, developing aerial tankers, and staffing lookout towers across the western mountains.

C) Firefighters built roads and developed aerial tankers while staffing lookout towers across the western mountains.

D) Roads into remote forests were built, aerial tankers were developed, and lookout towers were staffed by firefighters across the western mountains.

Item 10

Which sentence from "Fighting Fire with Fire" uses the conditional mood?

A) The goal is not to eliminate fire, but to safely return it to the landscapes that evolved to depend on it.

B) If western states were to continue relying mainly on suppression, fuel loads would keep building.

C) Federal agencies adopted a policy of total fire suppression in the early 1900s.

D) Fire will return to these landscapes regardless of policy decisions.

PASSAGE 2

The Underground Economy: How Forests Share

(1) In the summer of 1997, ecologist Suzanne Simard set out to test a question no one had answered: Could trees share nutrients with each other? Working in a forest in British Columbia, she injected a special form of carbon into a paper birch tree, a type of carbon that could be tracked with a handheld detector. Weeks later, she walked through the forest with that detector, and its signal grew stronger as she approached a Douglas fir twenty meters away. The carbon had traveled underground, from one tree species to another, through a pathway no one had mapped. That finding launched decades of research that would reshape how scientists understand forests.

(2) For most of the twentieth century, most scientists described forests using one main idea: competition. Every tree was assumed to be locked in a slow contest for sunlight, water, and soil nutrients. The tallest trees won access to light, while shorter trees were left in the shade below, struggling to survive on whatever the larger trees did not take. This framework shaped forest management for generations. Foresters routinely thinned what they considered weaker trees to give larger ones more room. They treated a forest like a production floor in a factory where efficiency meant eliminating the underperformers. Success was measured by the growth of individual trees, not by the health of the forest as a whole.

(3) Simard's research revealed a different reality. Beneath the forest floor, the roots of most trees are wrapped in a dense mesh of fungal threads called mycorrhizae. These fungi form physical connections between neighboring root systems—sometimes linking trees of different species—and create an underground network. Resources flow through these connections, and the fungi do more than simply connect trees. They move carbon from trees that have plenty of sunlight to trees struggling in the shade. In return, the fungi receive sugars they cannot make on their own. No single organism controls this exchange. Resources simply flow toward the parts of the forest that need them most, and the fungi benefit from keeping the whole system healthy.

(4) The scale of this sharing surprised even Simard. In one experiment, she found that a single large Douglas fir—what she called a "mother tree"—was connected to hundreds of other trees through mycorrhizal links. It was sending carbon to seedlings growing in its own shadow. When researchers dug trenches around individual trees to cut the underground connections, the isolated trees grew more slowly and died at higher rates than their connected neighbors. The network was not an extra feature of the forest. It was its foundation.

(5) Scientists studying these fungal networks in other parts of the world have found strikingly similar patterns. In tropical rainforests, cold northern forests, and hardwood forests in milder climates, the healthiest forests are those where resources move most freely. Old-growth forests, which have had centuries to develop dense fungal connections, show the most extensive sharing networks. Young plantation forests, planted in uniform rows with little variety among species, show the weakest. These plantations lack the web of connections that builds up over time in a natural forest. This contrast has practical consequences. Forests managed to keep these connections intact recover more quickly from drought, disease, and storm damage than forests managed only to grow the largest possible trees.

(6) This research has prompted some scientists to reconsider the language the field has long relied on. Describing trees as "competing" for resources, these researchers argue, says more

about human culture than about forests. The word suggests that every organism is out for itself, but it does not match what the data actually show. Trees in a connected forest are not hoarding resources. They are circulating them. Whether this pattern is best called “cooperation,” “mutualism,” or something human language does not easily describe remains debated. But the old vocabulary of winners and losers increasingly fails to capture what is happening underground.

(7) Simard has spent decades pushing for management practices that protect these networks. Clearcutting, she argues, does not merely remove trees; it can sever the fungal connections that remaining trees depend on. Instead, she recommends cutting only some trees while leaving the largest and oldest ones standing. This approach keeps the network intact and gives forests a better chance of recovery. The principle is not new. Indigenous forestry traditions in the Pacific Northwest have long emphasized leaving large trees in place and maintaining diverse, mixed stands. Through the lens of this research, those traditions look different than they once did. They were protecting exactly the networks that modern science has only recently learned to see.

ITEMS — PASSAGE 2

Item 11

Read this sentence from “The Underground Economy.”

> They treated a forest like a production floor in a factory where efficiency meant eliminating the underperformers.

What does the author suggest by using the word underperformers to describe smaller trees?

A) Smaller trees take too many resources from larger trees.

B) Scientists now agree that smaller trees serve no important role in forests.

C) Foresters viewed forests as economic systems rather than ecological ones.

D) The traditional approach to management focused on removing dying trees.

Item 12

How does the information in paragraph 3 of “The Underground Economy” relate to the information in paragraph 2?

A) Paragraph 3 presents research findings that challenge the competition-based view of forests described in paragraph 2.

B) Paragraph 3 provides additional examples of the competition between trees described in paragraph 2.

C) Paragraph 3 shifts the focus from how humans manage forests in paragraph 2 to how trees interact underground.

D) Paragraph 3 explains how fungi help trees survive within the competitive system described in paragraph 2.

Item 13

Read this sentence from paragraph 3 of “The Underground Economy.”

> No single organism controls this exchange.

What role does this sentence play in the development of paragraph 3?

A) It summarizes the research methods Simard used in her experiment.

B) It introduces the concept of mycorrhizal networks for the first time in the passage.

C) It clarifies that the resource-sharing process operates without a central tree directing it.

D) It transitions the paragraph from discussing fungi to discussing the needs of individual trees.

Item 14

How does paragraph 4 of "The Underground Economy" build on the ideas presented in paragraph 3?

A) It shifts from describing the fungal network to explaining how scientists first discovered it.

B) It introduces the idea of "mother trees" as the main way scientists classify different types of trees in a forest.

C) It provides specific evidence of the network's scale and shows what happens when the connections are broken.

D) It focuses on how fungi receive sugars from trees in exchange for helping them, expanding on the exchange described in paragraph 3.

Item 15

Which piece of evidence from "The Underground Economy" most strongly supports the claim that underground networks are essential to forest health?

A) Researchers found that trees connected through underground networks were linked to many other trees, including seedlings growing nearby.

B) When scientists cut underground connections by digging trenches, the isolated trees grew more slowly and were more likely to die.

C) Forests in different regions, including tropical and northern forests, show similar patterns of underground connections.

D) The author explains that scientists once believed trees mainly competed for resources like sunlight and water.

Item 16

What central idea does "The Underground Economy" develop over the course of the passage?

A) Old-growth forests are healthier than plantation forests because they have had more time to develop strong underground connections and more diverse ecosystems.

B) Trees share resources through underground fungal networks, challenging the long-held assumption that forests are driven by competition among individuals.

C) Forest scientists have changed how they study and manage forests as new research reveals how trees are connected underground.

D) Forest management practices should focus on preserving underground fungal networks by leaving large, connected trees in place.

Item 17

Read this sentence from paragraph 7 of "The Underground Economy."

Indigenous forestry traditions in the Pacific Northwest have long emphasized leaving large trees in place.

Which sentence correctly rewrites this idea in the passive voice?

A) Leaving large trees in place has long been emphasized by Indigenous forestry traditions in the Pacific Northwest.

B) Large trees have been leaving in place for a long time by Indigenous forestry traditions in the Pacific Northwest.

C) In the Pacific Northwest, it was the leaving of large trees in place that Indigenous forestry traditions had long emphasized.

D) Indigenous forestry traditions in the Pacific Northwest have long been emphasizing that large trees should be left in place.

Item 18

Read the sentence from paragraph 1 of "The Underground Economy."

In the summer of 1997, ecologist Suzanne Simard set out to test a question no one had answered.

Which revision of the sentence correctly uses an appositive to provide information about Suzanne Simard?

A) In the summer of 1997, Suzanne Simard, an ecologist, set out to test a question no one had answered.

B) In the summer of 1997, Suzanne Simard set out to test a question no other ecologist had answered.

C) In the summer of 1997, Suzanne Simard was an ecologist who set out to test a question no one had answered.

D) In the summer of 1997, an ecologist named Suzanne Simard, set out to test a question no one had answered.

Item 19

A student wrote this sentence about "The Underground Economy."

Simard's research revealed a different reality, and the fungal networks she studied are now described in detail by scientists around the world.

Which revision corrects the inappropriate shift in verb voice?

A) A different reality was revealed by Simard's research, and the fungal networks she studied are now described in detail by scientists around the world.

B) Simard's research revealed a different reality, and the fungal networks she studied were now described in detail by scientists around the world.

C) Simard's research was revealing a different reality, and the fungal networks she studied are now described in detail by scientists around the world.

D) Simard's research revealed a different reality, and scientists around the world now describe the fungal networks she studied in detail.

ITEMS — CROSS-TEXT

Item 20

Which statement describes a key difference in how "Fighting Fire with Fire" and "The Underground Economy" explain the role of human activity in forests?

A) "Fighting Fire with Fire" explains how human actions can harm forests, while "The Underground Economy" explains how human actions can help forests.

B) "Fighting Fire with Fire" explains how humans can help forests recover after fires, while "The Underground Economy" explains how humans can help trees share resources underground.

C) "Fighting Fire with Fire" claims that forests should be left completely untouched by humans, while "The Underground Economy" argues that forests require constant human intervention to survive.

D) "Fighting Fire with Fire" argues that forests function best with human-managed burning, while "The Underground Economy" suggests forests rely on underground networks that can be damaged by certain human actions.

SPELLING

Item 21

_____

Item 22

_____

Item 23

_____

Item 24

_____

Item 25

_____