Directions

Read this article. Then answer questions 1 through 7.

Excerpt from *Coral Reef: A City That Never Sleeps*

by Mary M. Cerullo

By late afternoon, the daytime fishes become less interested in feeding and start to move closer to their evening retreats. Perhaps they grow nervous as their day vision becomes less efficient at dusk. The smallest fishes start the rush hour to return to their shelters for the night. Soon others follow their example.

The bright colors of the diurnal[1] fishes fade fast in the twilight. Some fishes can actually adjust color cells in their skin to alter their flashy daytime look to dull, darker night shades. The gathering gloom just makes others appear darker. The best defense is to disappear entirely inside the coral reef, because now the fishes' dark outlines are silhouetted against the setting sun to predators below.

Parrotfishes leave their feeding grounds in single file to seek out their individual hiding places in the reef. Some parrotfishes secrete a sticky cocoon from beneath their scales to seal their scent from hungry moray eels. If any creature tries to penetrate the mucus bubble, the parrotfish wakes up and bolts from its "bedroom." Some species of wrasses[2] also make cocoons for the night. Others bury themselves in the sand.

Because fishes don't have eyelids to close, it's impossible to tell whether or not most fishes are really sleeping. Parrotfishes do seem to go into a trancelike state at night. If they are disturbed from their rest, they act dazed and confused, like humans wakened out of a sound sleep.

A triggerfish locks itself inside a coral cave with a tall spine on its back fin. One spine folds down over the first spine like a door latch to hold it in place. Only the triggerfish can release its trigger spine, so a moray eel can't pull it from its retreat.

---

[1]**diurnal:** active during the daytime

[2]**wrasses:** marine fish of tropical and temperate seas having thick lips, strong teeth, and usually a bright coloration; many are used as food

Shadow Patrols

Many carnivores, such as jacks, snappers, sharks, barracuda, and groupers, take advantage of the weariness and confusion of transition time on the reef. Their eyes, sensitive to dim light, are better equipped for this time of day than those of the diurnal fishes. Though twilight predators are not very good at distinguishing colors, they can detect shape, outlines, and movement well. The daytime fishes flowing back to the reef offer a constant stream of shape and movement.

Many predators that have been quietly waiting in the background all day become more active at dusk and dawn. The crepuscular[3] hunters have ingenious[4] ways of picking off their prey. A grouper leaves its den beneath a coral overhang to vacuum up prey with its cavernous mouth. By thrusting out its lower jaw, its mouth becomes big enough to swallow almost any prey. It has been rumored that giant groupers (which may weigh up to 1,000 pounds) have been known to swallow divers whole! Then, the stories go, they spit them out again because they don't like the taste of their wetsuits.

Streamlined jacks hunt in packs like jackals. They surround a school of fish, separate several from their companions, and bring them down after a high-speed chase. A lionfish may use its winglike side fins to sweep fish into a corner of the reef where they can't escape. Other times, it lies motionless and gulps fish that come too close.

Although sharks visit the coral reef at dawn and dusk, they have such an effective array of sensory devices that they can zero in on prey at any time. Their excellent sense of smell has earned sharks the nickname of "swimming noses." Sharks' lateral lines are especially sensitive to the low-frequency vibrations given off by struggling fishes. Their most impressive sense is located inside sensory pores on the snout. This sense detects the faint electric pulses generated by the beating hearts of their victims. Vision is probably their weakest sense, yet many sharks have catlike eyes with mirror cells to reflect and concentrate dim light. Some sharks' eyes are so sensitive that they can hunt by starlight on a moonless evening.

Dusk, that time between twilight and full darkness, is the spawning time for many diurnal fishes. As one scientist explains, "It gives their eggs and sperm a twelve-hour head start to escape the hungry mouths on the reef." Many daytime fishes move into deeper water, rise to the surface, or spawn during outgoing tides to let ocean currents carry their eggs and sperm to less populated areas far from the reef.

---

[3]**crepuscular:** active in the twilight
[4]**ingenious:** clever

Ghost Town

About ten minutes after sunset, an eerie quiet descends on the reef. Swaying sea fans provide the only visible movement, like tumbleweeds blowing through a ghost town in a Western movie. The coral passages are silent, deserted, and vaguely menacing. The daytime fishes have retreated to their shelters. Many large predators have headed off with the setting sun into the deeper waters beyond the reef. Others—some groupers, snappers, and reef sharks—remain hidden in the shadows where they can ambush any lone stragglers.

The quiet period lasts only about 15 to 20 minutes. Then, as abruptly as if a film director had shouted "Cut!" nocturnal creatures burst onto the set and the scene changes to night maneuvers.

1 According to the article, why do some parrotfishes make a cocoon?

A to attract other fishes to their hiding place

B to show other fishes they are asleep

C to create a safe place for their eggs

D to hide themselves from predators

2 Why are some diurnal fishes harder to see in the evening than in the daytime?

A The movement on the reef blurs their shapes.

B Their predators can only detect outlines.

C The light casts shadows that hide them.

D Their skin color changes to blend in.

3 What statement **best** summarizes the information in lines 1 through 9?

A Daytime fish who live in the coral reef generally stop feeding at dusk.

B Fish have the natural ability to become less visible at night in the coral reef.

C Predatory fish hide in the coral reef so they can feed on the diurnal fish.

D Fish in the coral reef have remarkably better vision during the day.

4 Which sentence from the article **best** explains why some fishes may be dangerous to humans?

A "Though twilight predators are not very good at distinguishing colors, they can detect shape, outlines, and movement well." (lines 25 and 26)

B "Many predators that have been quietly waiting in the background all day become more active at dusk and dawn." (lines 28 and 29)

C "The crepuscular hunters have ingenious ways of picking off their prey." (lines 29 and 30)

D "By thrusting out its lower jaw, its mouth becomes big enough to swallow almost any prey." (lines 31 and 32)

5 What does the phrase "zero in on" in line 40 mean?

A to locate

B to look

C to threaten

D to smell

6 The author develops a central idea about how fishes adapt to their environments by focusing **mostly** on the

A light in the water

B depth of the reef

C currents in the water

D shape of the reef

7 Which detail is **most** important to include in a summary of the article?

A "Because fishes don't have eyelids to close, it's impossible to tell whether or not most fishes are really sleeping." (lines 15 and 16)

B "Many predators that have been quietly waiting in the background all day become more active at dusk and dawn." (lines 28 and 29)

C "It has been rumored that giant groupers (which may weigh up to 1,000 pounds) have been known to swallow divers whole!" (lines 32 and 33)

D "Many daytime fishes move into deeper water, rise to the surface, or spawn during outgoing tides . . ." (lines 49 and 50)

Directions

Read this article. Then answer questions 8 through 14.

Birth of the Cool

by Katy Kelly

In the 1930s, nothing said sophistication like aspic.[1] Up-to-the-minute modern hostesses engaged in a frenzy of savory jelled-salad making, all thanks to the newly perfected electric refrigerator.

Such gracious living had been a long time coming. Until the mid-1800s, Americans kept food from spoiling by storing it in streams, cellars, snow, and ice. It was a system that worked better in the cool seasons. In the heat, bacteria bloomed so rapidly that killer food poisoning was referred to as "summer complaint."

The icebox extended shelf and human life. In common use by 1838, the wooden cabinet lined with zinc or tin and insulated with sawdust, cork, or seaweed held ice above or below the food. Water from the melting ice drained into a pan. It was an imperfect solution. Sometimes the water would overflow the damp box. A 1929 *Collier's* magazine article noted: "Slime accumulates [in the drainpipes] constantly and should be removed with a long-handled circular brush. If your overflow pipe connects with an outside drain, be sure there is a trap to prevent poisonous gases and odors from flowing up it and contaminating foods in the box." Plus, says Pearl Buchbinder, 95, the icebox "was a good hiding place for mice."

Cold comfort

To stock the box, city people bought ice, and country dwellers harvested it. In Robinhood, Maine, where Faith Reyher Jackson, 86, grew up, ice cutting was an all-town, all-day event, done at a neighbor's pond in the dead of winter. "They used saws and these big tongs to pull it out," she says. Then it was hauled from home to home on a horse-drawn cart, packed in sawdust, and put in the family's icehouse, where, she says, it lasted for months. City people depended on a delivery from the iceman. "Kids would chase him down the street, and he'd chip off a piece of ice and give it to them," says B. J. Smith, 84, who was reared in Lima, Ohio. Customers used a card in their window to place orders. The iceman, with a burlap or leather pad protecting his shoulder, would hoist a block weighing up to 100 pounds. When commercial icehouses opened in the early 1800s, they were considered a business with a future. But by the end of the century, pond ice was polluted. That, and unusually hot summers in 1889 and 1890, pushed ahead the advent of refrigerators.

[1] **aspic:** a jelly made of fish or meat stock that is used to make a mold

In 1911, General Electric presented a machine that compressed chemical gases to cool air. By 1920, there were some 200 different refrigerator models on the market. Even the *New Yorker* raved: "A little water is put in some mysterious place: A few minutes pass, a magic door opens, and a tray of small ice cubes appears before your startled eyes." But such marvels were not for everybody or, in fact, almost anybody. Most machines were powered by motors so large they were housed in separate rooms. That inconvenience was trumped by cost. One 1922 refrigerator ran $714 (the equivalent of $7,856 today). A competing invention, the Crosley Icyball, required putting part of the machine over a kerosene burner every 24 to 36 hours. But the industry's biggest problem was the coolants that, on occasion, leaked and killed people.

It wasn't until 1930, when Frigidaire began cooling with chlorofluorocarbons, that people began upgrading to refrigerators. Small, with big fans on top, the appliance changed the way America ate. Manufacturers provided books with menus for a lifestyle that included ice tongs, bridge parties, and recipes showing off all that a refrigerator could do for a single meal. (In 1929, Kelvinator suggested a raspberry cup, molded lamb, celery curls, and Kelvinator fruitcake with whipped cream.) Pre-fridge, "frozen desserts and frozen salads were nonexistent or just for wealthy people," says Sylvia Lovegren, author of *Fashionable Food: Seven Decades of Food Fads*. "All of a sudden, the middle class could have things that seemed high class a few years before." And what could be more high class than frozen cheese salad or an icy frappé[2] made of condensed tomato soup?

By 1937, more than 2 million Americans owned refrigerators. By the mid-'50s, over 80 percent of the country had made the switch. Today, while the mechanics have remained much the same, the refrigerator has gotten ever fancier. Freon, the chlorofluorocarbon that changed the future, has been replaced with coolants that don't eat through the ozone layer. Hydrators, automatic defrost systems, and icemakers have lured customers, but it is hard to imagine any upgrade that could dazzle as much as the early promise of no ice—and no mice.

---

[2]**frappé:** an iced or chilled drink

8 How does the author support the claim that "gracious living had been a long time coming" (line 4)?

A by describing the excitement caused by new improvements in refrigerators

B by describing the menus recommended by refrigerator manufacturers

C by tracing the development of various methods for keeping food cool

D by explaining the relationship between temperature and food safety

9 Read this sentence about pond ice from lines 20 through 22.

> **Then it was hauled from home to home on a horse-drawn cart, packed in sawdust, and put in the family's icehouse, where, she says, it lasted for months.**

Based on the information in lines 8 through 10, which was **most likely** the reason for packing pond ice in sawdust?

A to keep the ice from chipping

B to prevent the ice from melting

C to keep the ice from becoming slimy

D to prevent the ice from becoming polluted

10 What is the meaning of the word "hoist" in line 26?

A lift

B sell

C carve

D locate

GO ON

11 According to the article, what improvements were made to resolve a safety issue in the older refrigerators?

A lining the cabinets with zinc

B attaching an overflow pipe

C using sawdust as insulation

D changing the type of coolant

12 Which quotation from the article **best** supports the conclusion that advances in refrigeration improved life for the average person?

A "To stock the box, city people bought ice, and country dwellers harvested it." (line 17)

B "When commercial icehouses opened in the early 1800s, they were considered a business with a future." (lines 26 and 27)

C "All of a sudden, the middle class could have things that seemed high class a few years before." (lines 47 and 48)

D "Today, while the mechanics have remained much the same, the refrigerator has gotten ever fancier." (lines 51 and 52)

13 How do lines 50 through 53 develop a central idea of the article?

A by showing that some people considered refrigerators unnecessary

B by explaining that refrigerators have improved very little over the years

C by comparing refrigerators sold in the past with refrigerators sold today

D by showing that refrigerators gained widespread acceptance over time

14 Which detail would be **most** important to include in a summary of the article?

A Refrigeration was essential for making jelled salads.

B "Summer complaint" was another name for food poisoning.

C Modern refrigerators include icemakers and defrost systems.

D Refrigerators gained popularity after they became small and affordable.

Directions

Read this story. Then answer questions 29 through 35.

Excerpt From *The Great Whale of Kansas*

by Richard W. Jennings

Breaking Ground

My story begins where a sadder story might end—with the digging of a hole.

It was my eleventh birthday, and, as is the case with all my birthday celebrations, it was also Groundhog Day, an occasion that honors a creature with whom I have more than a holiday in common. The groundhog, or woodchuck, is a solitary animal who spends much of his time either digging a hole or basking in the sunshine by the hole he has dug.

That's me.

I believe there is nothing, absolutely nothing, half so much worth doing as simply digging a hole. A hole is an achievement. A great hole is a great achievement.

I was going to dig a great hole.

My parents had given me a pond-building kit for my birthday. They ordered it from a catalog filled with color photographs of water gardens on great European estates.

"It's a complete pond in a single, compact box," they explained, using the exact words printed in the catalog. "It has everything you need." And except for the tools, rocks, plants, fish, accessories, electrical power to the site, and the hole itself, it did. What I found in the box was a small underwater pump, a coil of plastic tubing, and a sheet of thick, black plastic as big as my patio. There was also an instructional videotape in two languages.

Never have I enjoyed a movie so much.

I watched that video over and over again, waiting for the weather to warm up enough to break ground. Every night before going to sleep, I'd put it on and listen to the soothing voice of the narrator describe the "calm, tranquillity, and serenity of a private water garden." In English, and again in French, he spoke of "dreaming dreams" and "soothing the soul." Step by fascinating step, he explained how to create "an escape, a hidden world all your own."

I couldn't wait to get started.

Hour after hour, I assembled and disassembled the pump. I spread the liner across the living room carpet and walked around the edges, imagining that the plastic was water. Using colored pencils and graph paper from school, I drew page after page of miniature ponds with microscopic waterfalls.

When winter at last retreated, I took spray paint to the brittle brown grass of my backyard, a flat, vacant half-acre that sweeps like a savanna to the scrublike grove of spiked, gnarled hedgeapple trees just this side of Brewster Higley Memorial Park. Like a vandal or graffiti artist, I drew overlapping kidney shapes and ovals in intense neon colors until I'd outlined my pond exactly the way I wanted it to be.

From a nearby construction site, I gathered stones for the pond's edge, scores of limestone blocks, their uniformity demonstrating the maximum weight an eager boy can carry.

Finally, one morning it was time to dig.

I approached the task like a starving man at a banquet. This was the day I had trained for! Armed with a brand-new forged-steel shovel—a birthday gift from my aunt Nan—I ripped into the earth with tireless fury, flinging dirt right and left.

As the sun rose in the sky, perspiration fell from my face. The hole grew like a living thing.

By noon, I had created a depression in the earth that looked like the point of impact of a meteorite. The bowl-shaped hole was roughly four feet in diameter, with gently sloping sides nearly two feet deep.

At this rate, I figured, I'll be basking in tranquillity in no time at all.

But don't count your water gardens until the hole is dug. Few things happen the way you think they will.

A sudden thunderstorm interrupted my work. Boiling across the flat Kansas prairie, it sneaked up on me, announcing its arrival with a deafening crash.

Kaboom!

I knew better than to stay outside with a metal object in my hand when there was lightning in the air. I quickly abandoned the job site.

From the safety of my house, I watched the darkened skies release their pent-up power directly over my backyard. My heart quickened as sheets of rain overflowed the hole, turning my modest work in progress into a scale model of what I hoped it would become—the loveliest body of water in all of Melville.

Melville, Kansas.

If America were a dart board and your dart landed on Melville, you'd be the winner, hands down. That's because Melville is smack dab in the middle of the United States, exactly halfway between the great Atlantic and Pacific Oceans, a place with no coastline, no beach, and no blue ocean views.

It wasn't always like this. In prehistoric times, the spot where Melville sits was submerged beneath a vast inland sea. But over the course of a couple of hundred million years or so, things have a way of changing. Today, luckless Melville is as dry as a bone—the most landlocked city in America.

Clearly, it's a place that could use a few improvements.

The largest body of water in modern Melville is a man-made pond in Higley Park, the state-owned recreation area that borders my backyard. Rectangular in shape, and held within its banks by enormous, quarried limestone rocks, Higley Pond was dug by bulldozers more than fifty years ago as part of a Kansas flood-control plan.

My pond, as I imagined it, although not as big as Higley Pond, would be far more attractive than that aging, government-designed lagoon.

The spring rains that had diverted me from my mission eventually ended, and the sun returned. With my nose pressed against the breakfast room windows, I found myself gazing not at the sparkling natural beauty of an elegant water garden, but at a waterlogged trap of sticky mud.

Reality.

I hate how it keeps getting in the way of my dreams.

29 Read these sentences from lines 13 and 14.

> **"It has everything you need." And except for the tools, rocks, plants, fish, accessories, electrical power to the site, and the hole itself, it did.**

Why does the author **most likely** include this description of the pond-building kit?

A to maintain a humorous tone

B to introduce the main conflict

C to express the narrator's disappointment

D to demonstrate the parents' support of their son

30 Read this sentence from line 38.

> **I approached the task like a starving man at a banquet.**

What is the **main** purpose of the comparison in this sentence?

A to describe the narrator's lack of attention to detail

B to emphasize the depth of the narrator's enthusiasm

C to show that the narrator feels weak from excitement

D to show that the narrator is overcome by the job at hand

31 Read line 46.

At this rate, I figured, I'll be basking in tranquillity in no time at all.

What meaning does the phrase "basking in tranquillity" convey to the reader?

A The narrator expects positive recognition around town for his efforts.

B The narrator believes the vision of peaceful relaxation shown in the video.

C The narrator is unaccustomed to such difficult work and will soon need a rest.

D The narrator is comparing himself to a groundhog that is sitting in the sunshine.

32 Which lines **best** reveal an overall theme of the story?

A lines 25 through 28

B lines 38 through 40

C lines 47 and 48

D lines 63 and 64

33 In lines 63 through 73, how does the narrator's description of the location and history of Melville, Kansas, contribute to the plot?

A It demonstrates that the new pond is better than other ponds.

B It reveals the foolishness of the narrator's attempt to create a new pond.

C It emphasizes the importance of the new pond to the narrator.

D It explains the town's need for a new pond.

34 Which lines from the story reveal a change in the narrator's point of view?

A lines 49 through 53

B lines 54 through 57

C lines 59 through 62

D lines 74 through 77

35 How does the narrator's reaction to his pond first filling with water differ from his outlook at the end of the story?

A He is excited at first but then becomes disappointed.

B He is worried at first but then feels satisfied.

C He is scared at first and later becomes angry.

D He is happy at first and later feels proud.

STOP

Directions

Read this article. Then answer questions 36 through 42.

Excerpt from *Fire: Friend or Foe*

by Dorothy Hinshaw Patent

Managers of some public lands now understand the importance of fire in the cycles of nature. When a lightning fire poses no danger to people or buildings, some public agencies now let it burn. Many forests that have not been allowed to burn for decades contain dangerous amounts of fuel. A lightning strike in such a forest could lead to a big, hot, dangerous fire. Suppressing fire in other environments, such as grasslands, has also led to undesirable changes. The best answer to these problems appears to be to fight fire with fire. Land managers use prescribed fire, carefully planned burns that bring about desirable changes.

Wildfires usually occur in the summer or early fall, when grasslands and forests are dry. But prescribed burning is more likely to be planned for less extreme conditions so the fires can be better controlled. For example, grassland burning at Aransas National Wildlife Refuge in Texas is done during the cool winter months. Prescribed burns in Montana forests are usually carried out during the spring.

The problems caused by fire suppression are huge. About 40 million acres of forests across the country are at risk for dangerous fires because natural fires have not been allowed to burn for so many years.

The goals of prescribed burning are clear. A prescribed fire should burn away heavy undergrowth of brush to remove potential fuel for wildfire. When a fire has plenty of fuel, it burns hotter and travels faster, covering more territory in less time and getting out of control more easily. With a moderate amount of fuel, a wildfire is less likely to burn hot enough to kill adult trees or to overrun an entire forest.

When the brush and deadwood on the forest floor burn, they release nutrients that can nourish the trees, grasses, and other forest plants. The less cluttered forest floor, with its fresh growth, provides fine habitat for wildlife such as elk and deer.

The increase in food for wildlife brought about by burning can also be dramatic. When shrubs are allowed to grow without fire, more and more energy goes into maintaining the old wood, and less goes into new growth. When the old wood burns, the shrub puts out many new, succulent shoots that provide food for deer and elk. In an acre of northern shrubland deprived of fire for twenty years, only thirty to forty-five pounds of food for wildlife is produced yearly. After a fire, that same acre will produce at least four hundred to six hundred pounds of food in a year.

How do land managers decide where to burn? Hundreds of thousands of acres of public lands are possible candidates. In recent years, more and more people have moved into the countryside, often right on the borders of National Forest lands. Such areas are at the top of the list for prescribed burns so that the fire hazard to people and homes is reduced.

In 1997, the U.S. Forest Service decided to burn more than 52,000 acres in its Northern Region (Montana and parts of Idaho, North Dakota, South Dakota, and Wyoming). Five million acres of northern forests evolved over the ages with fire and were burned by lightning fires about every twenty years. Such forests consisted mostly of ponderosa pines, with some larch and Douglas fir. The frequent, natural fires burned low to the ground, killing the underbrush and young firs, which produced an open forest.

More than eighty years of fire suppression has changed these forests dramatically. Now they are overcrowded with Douglas fir and prone to superhot fires that can kill older trees and sterilize the soil, making regrowth take years longer. Such hot, intense fires are also more dangerous to firefighters.

Unfortunately, many of the forests have gone so long without fire that even prescribed burning would be dangerous. Some logging or thinning of the trees would need to be done before they can be safely burned.

Native Americans once helped maintain healthy grasslands with their fires. Now managers of wildlands are doing the same thing in many parts of the country. An example is the Buenos Aires National Wildlife Refuge south of Tucson, Arizona. This refuge represents the last remnant of Sonoran savanna grasslands in the United States. Cattle once roamed across the refuge, feeding on the grasses and changing the ecosystem drastically.

Now, cattle have been barred, and the refuge is burned to get rid of weeds and shrubs like mesquite. The endangered masked bobwhite quail is being reintroduced, and habitat is being created for birds that stop there on their long migrations.

Not everyone is happy with prescribed burning. Cattle ranchers would like to return their herds to the Buenos Aires refuge, and many critics complain about the cost of reintroducing quail.

Prescribed fire in forests also has its opponents. Some believe logging can solve the problem of crowded forests, while others fear that fires will escape into populated areas. But the problem of lands damaged by leaving out fire, a major player in the natural system, will not go away. One way or another, fire will take part. A controlled burn costs money and can cause some air pollution. But fighting a wildfire is many more times as expensive and can bring long periods of smoky conditions. Controlled burns are good "preventative medicine" and can help fire return to its role of maintaining and renewing ecosystems.

36 Which words from lines 1 through 8 **best** help the reader understand the meaning of "suppressing" (line 5)?

A "now understand the importance of fire"

B "a lightning fire poses no danger"

C "have not been allowed to burn"

D "carefully planned burns"

37 Read this sentence from lines 6 and 7.

The best answer to these problems appears to be to fight fire with fire.

Which evidence from the article **best** supports this claim?

A "But prescribed burning is more likely to be planned for less extreme conditions so the fires can be better controlled." (lines 10 and 11)

B "A prescribed fire should burn away heavy undergrowth of brush to remove potential fuel for wildfire." (lines 17 and 18)

C "When the brush and deadwood on the forest floor burn, they release nutrients that can nourish the trees, grasses, and other forest plants." (lines 22 and 23)

D "In recent years, more and more people have moved into the countryside, often right on the borders of National Forest lands." (lines 33 and 34)

38 How do fires benefit wildlife?

A Fires help remove older trees that crowd forests.

B The possibility of fire limits where cattle are allowed to graze.

C The possibility of fire limits how close people can live to forests.

D Fires help create conditions that cause more food to become available.

39 What is the meaning of "prone" (line 44) as used in the article?

A likely

B useful

C starting

D existing

40 What have managers of public lands learned from Native Americans?

A how fire helps maintain grassland areas

B the importance of protecting natural habitats

C how planned fires can be used to prevent large fires

D the role of cattle management in protecting grassland areas

41 Which sentence **best** expresses the central idea of the article?

A "Managers of some public lands now understand the importance of fire in the cycles of nature." (lines 1 and 2)

B "How do land managers decide where to burn?" (line 32)

C "Unfortunately, many of the forests have gone so long without fire that even prescribed burning would be dangerous." (lines 47 and 48)

D "Not everyone is happy with prescribed burning." (line 59)

42 How do lines 59 through 69 contribute to the discussion of prescribed burns?

A by describing how attitudes have changed with time

B by showing that the benefits outweigh the costs

C by proving that conflicting opinions are wrong

D by exposing the self-interest of opponents

Directions

Read this article. Then answer questions 43 and 44.

Excerpt from *Weaving With Light*

by Emily Sohn

In the rugged Sierra Madre mountain range of west central Mexico, the native Huichol people live much the way their ancestors did—without electricity. That's because it's too expensive to string power lines to the remote mountain areas where they live. The lack of electricity has a direct effect on the Huichol economy.

To help support themselves, the Huichol create beautiful artwork, including paintings made from yarn and sculptures made from beads. They sell their art in cities hundreds of miles away from their villages. Often, they travel long distances by foot. And without electricity—at home or on the road, they can only work during daylight hours.

When it gets dark, they must stop whatever they're doing, explains Huichol community leader Miguel Carillo. The sales of their artwork are essential to this economy, where farming is difficult and crops often fail.

"We can only work during the day," Carillo tells a group of researchers as night approached. "Because now, as you see, we can't see anything, and it's still so early. Nobody can do anything. We just wait for the sun to come up again."

Now, a team of scientists, designers, and architects is using new technologies to provide the Huichol with light after the sun sets—no plugs necessary. The scientists' technique involves weaving tiny electronic crystals into fabrics that can be made into clothes, bags, or other items.

By collecting the sun's energy during the day, these lightweight textiles provide bright white light at night. Their inventors have named the textiles "Portable Lights."

Portable Lights have the potential to transform the lives of people without electricity around the world, says project leader Sheila Kennedy, head of Kennedy & Violich Architecture, Ltd., in Boston, Mass.

See the light

At the core of Portable Light technology are devices called high-brightness light-emitting diodes, or HB LEDs. These tiny lights appear in digital clocks, televisions, streetlights, and the blinking red lights on some sneakers.

LEDs are completely different from the light bulbs that you screw into lamps at home. Most of those glass bulbs belong to a type called incandescent lights. Inside, electricity heats a metal coil to about 4,000 degrees Fahrenheit, or 2,200 degrees Celsius. At that scorching temperature, bulbs give off light we can see.

Ninety percent of energy produced by incandescent lights, however, is heat—and invisible. With all that wasted energy, bulbs burn out quickly. They are also bulky, can get hot, and are easily broken.

LEDs, on the other hand, are like tiny pieces of rock made up of molecules that are arranged in a crystal structure. When an electric current passes through an LED, the crystal structure vibrates and produces light.

LEDs are tiny and extremely lightweight. There are no breakable glass parts. While the technology is still somewhat expensive, researchers are increasingly looking to LEDs for a wide variety of applications, including Portable Lights.

"A lot of people see LEDs as being the future of lighting," says Casey Smith, a technologist in Bozeman, Mont., and a member of the Portable Light team. He developed much of the technology that make Portable Lights work.

The spark

The Portable Light team found a way to weave two LEDs into a plastic-coated textile. When turned on, these LEDs can make the entire piece of fabric glow.

Their next challenge was to figure out how to power the LEDs without electricity. The researchers knew that they wanted to tap the sun's energy, but they couldn't use standard solar panels such as those found on rooftops. These bulky glass panels would be too big and heavy for the Huichol to carry as they traveled through the mountains.

Instead, the researchers used a new type of solar panel, which is flat and flexible, like a placemat. Just 10 inches long and 5 inches wide, these panels can be easily sewn onto a piece of fabric.

Circuits connect the solar panel to a lithium ion battery—the type of battery found in laptops and cellular phones. And the battery, in turn, is connected to the two LEDs in the fabric. A tough layer of plastic protects the circuitry.

With just 3 hours of exposure to sunlight, the battery accumulates enough charge to power a portable light for 10 hours, Kennedy says. A membrane switch, like the soft buttons on a microwave oven, allows a user to turn the lights on or off.

A Portable Light weighs less than a pound and can withstand abuse because textiles are strong for their weight. Kennedy has dropped Portable Light units from as high as 30 feet off the ground without damaging them.

"With no heavy parts to break, they just float down," she says.

43 How is the new type of solar panel described in the section titled "The spark" more useful for the Huichol people than previous versions of solar energy technology? Use **two** details from the article to support your response.

44 What is the author's central claim about LEDs? Use **two** details from the article to show how the author supports the claim.

Directions

Read this story. Then answer question 45.

Excerpt from *The Egypt Game*

by Zilpha Keatley Snyder

All through the month of August, Melanie and April were together almost every day. They played the paper-families game and other games both in the Rosses' apartment and in Caroline's. They took Marshall for walks and to the park while Mrs. Ross was gone to her class, and almost every day they went to the library. It was in the library in August that the seeds were planted that grew into the Egypt Game in September in the Professor's deserted yard.

It all started when April found a new book about Egypt, an especially interesting one about the life of a young pharaoh. She passed it on to Melanie, and with it a lot of her interest in all sorts of ancient stuff. Melanie was soon as fascinated by the valley of the Nile as April had been. Before long, with the help of a sympathetic librarian, they had found and read just about everything the library had to offer on Egypt—both fact and fiction.

They read about Egypt in the library during the day, and at home in the evening, and in bed late at night when they were supposed to be asleep. Then in the mornings while they helped each other with their chores they discussed the things they had found out. In a very short time they had accumulated all sorts of fascinating facts about tombs and temples, pharaohs and pyramids, mummies and monoliths, and dozens of other exotic topics. They decided that the Egyptians couldn't have been more interesting if they had done it on purpose. Everything, from their love of beauty and mystery, to their fascinating habit of getting married when they were only eleven years old, made good stuff to talk about. By the end of the month, April and Melanie were beginning to work on their own alphabet of hieroglyphic for writing secret messages, and at the library they were beginning to be called the Egypt Girls.

But in between all the good times, both April and Melanie were spending some bad moments worrying about the beginning of school. April was worried because she knew from experience—lots of it—that it isn't easy to face a new class in a new school. She didn't admit it, not even to Melanie, but she was having nightmares about the first day of school. There were classroom nightmares, and schoolyard nightmares and principal's office nightmares; but there was another kind, too, that had to do with an empty mailbox. In the whole month of August she had had only one very short postcard from Dorothea.

Melanie was worried, too, but in a different way. School had always been easy for Melanie; and even though she wasn't the kind who got elected class president, she'd always had plenty of friends. But now there was April to think about.

April was the most exciting friend that Melanie had ever had. No one else knew about so many fascinating things, or could think up such marvelous things to do. With April, a walk to the library could become an exploration of a forbidden land, or a shiny pebble on the sidewalk could be a magic token from an invisible power. When April got that imagining gleam in her eye there was no telling what was going to happen next. Just about any interesting subject you could mention, April was sure to know a lot of weird and wonderful facts about it. And if she didn't, you could always count on her to make up a few, just to keep things going.

There was only one thing that April didn't seem to know much about—that was getting along with people. Most people, anyhow. With Melanie, April was herself, new and different from anyone, wild and daring and terribly brave. But with other people she was often quite different. With other kids she usually put on her Hollywood act, terribly grown-up and bored with everything. And with most grown-ups April's eyes got narrow and you couldn't believe a word she said.

Melanie had gone to Wilson School all her life, and she knew what it was like. There were all different kinds of kids at Wilson; kids who looked and talked all sorts of ways. Wilson was used to that. But there were some things that Wilson kids just wouldn't stand for, and Melanie was afraid that April's Hollywood act was one of them.

And Melanie wasn't entirely just guessing about how her schoolmates would react to April. A couple of times when April and Melanie had been at the library or in the park they'd run into some of the Wilson kids that Melanie knew; and you could see right away that April wasn't making the right kind of impression. And it was going to be worse at school, where every kid would feel duty bound to do his part in trimming the new kid down to size. Melanie had a feeling that April wasn't going to trim easily.

45

The idea of understanding other people is important in "Excerpt from *The Egypt Game*." Why is understanding other people important to the story? How is this idea developed throughout the story? Use details from the story to support your response.

In your response, be sure to

- explain why understanding other people is important to the story
- explain how this idea is developed throughout the story
- use details from the story to support your response

Directions

Read this story. Then answer questions 46 and 47.

Excerpt from *How I Lost My Station in Life*

by E.L. Konigsburg

Although there were occasions, like music days, when I did not enjoy school, I always enjoyed—really, really enjoyed—being the baby of the family. There were only two of us. Although Harriett was smart and responsible, these things were expected of her, for she was the older sister. The baby of the family is never expected to do things as well as the older ones do and when you are the baby of the family, they are all the older ones. The baby of the family is always in training. She gets the kind of attention that is something between being a daughter and being a household pet. And she feels slightly adorable even when she isn't. There is an *unexpected* quality to everything you do when you are the baby of the family.

Phoenixville was a mill town. The mill was called Ajax. I don't know what was manufactured there, but I do know that when the mill closed down, people stopped buying dresses and dry goods. My parents had to close up shop, and we had to move from over the store.

I was in the middle of fifth grade. I was in the middle of learning about decimals in math and in the middle of learning about the middle of Europe in geography. Before we left, my school principal gave my mother two envelopes for my new school principal. One had my school records and the other had a "To Whom It May Concern" letter. My mother never let me see that letter because it contained my IQ and standard test scores, which were big secrets back then, especially to the person whom they most concerned—me. I had overheard my mother and father whispering about that letter, and I knew they were proud of whatever it said.

We packed up the family Plymouth four-door and went west, all across the width of Pennsylvania, and moved in with Aunt Rozella in Youngstown, Ohio.

Compared to Phoenixville, Youngstown was big. Last year's geography book printed **Youngstown** in boldface and gave it four lines of text. Phoenixville was not even mentioned.

Compared to our place over the store, Aunt Rozella's house was big. Aunt Rozella's husband was so successful that I was sure that if he ever appeared in a textbook, **Uncle Iz** would be printed in boldface and be given at least four lines.

Although this was to be only a temporary arrangement until we could find affordable housing, I think my mother did not like being beholden to her younger sister; and I think having a whole family move in must have felt like a minor invasion to Aunt Ro. She had a big house, yes, but she had her own uses for it. There was Aunt Ro herself, Uncle Iz, Dorothy, their live-in maid, and their adorable little boy, my cousin Morley. Morley was smart for his age—not smart enough to get A's in school, but only because he was too young to go.

Except for Morley, who paid attention to no one, and my father, who was on the road in the Plymouth four-door, none of us was very comfortable during the week in Aunt Ro's big house with the live-in maid.

Weekends were another matter. On weekends we went to Farrell, just over the state line in Pennsylvania, where my father would meet us. There we stayed with my father's sister. Aunt Wilma worked in a bakery, and she lived over the store, and her children—she had two—were older than I was, older than Harriett, and one of them was old enough to drive us from Youngstown to Farrell. At Aunt Wilma's we were much more crowded and much more comfortable.

But on Mondays it was back to Youngstown.

Right across the street from Aunt Rozella's house was Warren G. Harding Elementary School, and a few blocks farther on was Rayen High, the only public high school on the entire Northside. A lot of kids from lesser neighborhoods went there. Harriett registered at Rayen. Once enrolled, she could remain there even after we found affordable housing.

Warren G. Harding Elementary School, on the other hand, did not have kids from lesser neighborhoods; so when my mother marched across the street to register me for the fifth grade, she knew that I would not be there when we moved into our affordable housing in a lesser neighborhood. I would be there for a few weeks at most. It was the time of year between the end of Christmas break and the start of a new semester, and both Mom and Dad had promised that by the start of the new semester, we would leave Aunt Ro's. So even though my mother knew that going to Harding would be a temporary thing, she took that "To Whom It May Concern" letter over to the principal and enrolled me in their fifth grade.

By this time I had observed that my cousin Morley, who paid attention to no one, needed a lot of attention himself. Furthermore, whenever attention was to be paid, he always needed to be the center of it. I had also observed that as adorable as he was, when Morley didn't get his way, he was not. Furthermore, as the new family pet, he was treated as extremely adorable even when he wasn't even slightly.

As long as we lived at Aunt Ro's, I would be expected to do things as well as the older ones because I was one of them now. As long as we lived at Aunt Ro's, I would have to make do with only one of my two best things; and that was getting A's.

46 How does line 46 affect the reader's understanding of the story? Use **two** details from "How I Lost My Station in Life" to support your response.

47 Why is Morley important to the narrator's understanding of herself? Use **two** details from the story to support your response.

Directions

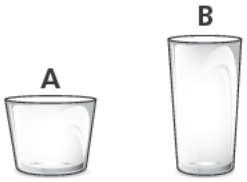
Read this article. Then answer questions 48 and 49.

Food Fakeout!

by Matthew Hutson

The craziest things can cause you to overeat or think your food is healthier than it is. Take this quiz to test your smarts.

1. Pick the glass that holds more soda.
   ❍ **A** ❍ **B** ❍ **SAME**



2. You're out to eat. When you order an entrée you receive a single serving.
   ❍ **TRUE** ❍ **FALSE**

3. Which has more sugar?
   ❍ **TWO CHOCOLATE CHIP COOKIES**
   ❍ **A PACKET OF WHOLE-GRAIN FRUIT GRANOLA BARS**

THE ANSWERS ARE
1. They hold the same amount.
2. False
3. The granola bars have more sugar.

So How'd You Do?

Don't worry if you didn't ace the quiz, because this story wouldn't exist if we expected you to get those questions right. They're tricky. And so are all the little things in your environment that are causing you to eat too much in one sitting or think unhealthy food is good for you. Let us explain.

Good nutrition is not only about choosing what to eat, but also about when to eat and how much to eat. So you're not just deciding between choco puffs and corn flakes. You also have to pick a bowl, decide when to stop pouring into it, and choose whether or not to add more sugar.

You make 200 of these food decisions a day, according to Brian Wansink, the head of Cornell University's Food and Brand Lab. You may be aware of only 25. The rest are unconscious. And almost all are influenced by sneaky factors, from the commercials you see on TV to the label on the package. Very few are influenced by actual hunger.

So how can you get the power back over these decisions, so that you're making the healthiest choices possible? Read on as we explain each quiz question. You'll learn a little something about picking foods that will truly fuel your body best—and how to serve yourself a portion that won't give you a stomachache afterward.

TRICKY TRUTH #1: PLATE SIZE MATTERS

What was so tricky about judging how much those glasses hold? Short, wide things can look smaller than tall, skinny things, even if they have more volume. That means you're more likely to serve too much into a wide glass or dish.

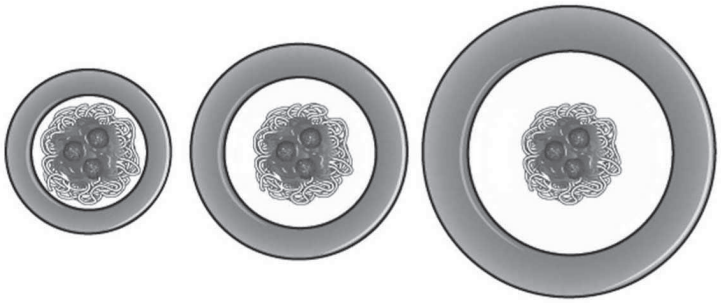


Plate size matters too. With a big plate or bowl, a normal-size portion looks smaller in comparison. (See for yourself in the images above.) That means you're going to serve yourself more food to fill it up. In one experiment, people scooped—and ate—a fifth more ice cream with a 24-ounce bowl than with a 16-ounce bowl.

BE FOOLPROOF: Pay attention to portion size, and don't just load your bowl, plate, or glass to capacity. Remember, you can always get seconds if one serving doesn't fill you up!

TRICKY TRUTH #2: TOO MANY SERVINGS

Now you know the truth. Your entrée can actually have up to 3.5 servings! That's because restaurants and food companies keep making their products larger without telling you that all that food is not meant to be eaten in one sitting. Don't believe it? The biggest soda on the McDonald's menu when the chain opened in 1940 was 7 ounces. Today the restaurant's small is 16 ounces!

Another sneaky way we end up eating too much: Research shows that when a lot of cookies or pretzels are pictured on a package, people eat more of them, because the image guides their sense of how many it's appropriate to devour at one time.

BE FOOLPROOF: "Always order the small when you're out. It's going to be big anyway," says nutritionist Lisa Young, author of *The Portion Teller*. And at home, check the serving size on the back of the bag or box, then put that much in a baggie or bowl.

TRICKY TRUTH #3: LABELS ARE TRICKY

Yes, in this comparison, the cookies actually have less sugar. But that doesn't mean you should eat more cookies. It just means you should be careful with products that claim to be healthy, or that you associate with "healthy" brands. They may not fuel you the way you think they will.

This is what's called the halo effect: When something has one good quality ("whole-grain") or a positive rep (granola), it shines like a halo—and we think everything else about it is grand.

Want another example? Say you're at a "healthy" smoothie shop and see a berry shake that's labeled "low-fat and all-natural." So you say, "Cool! I'll get the extra large!" And then you order your smoothie . . . a snack that has almost a day's worth of sugar and more calories than a fast-food meal.

BE FOOLPROOF: Don't make decisions on autopilot! Sometimes just stopping to think (for example: Could this "healthy" chain restaurant's Philly cheesesteak really be as good for me as its lean turkey sandwich?) will help. And when in doubt about those "all-natural" chips or "organic" frozen meals? Check the nutrition label. "If it's high in calories, then chances are it's going to be high in fat and sugar too," says Young.

MORE CRAZY THINGS THAT AFFECT HOW MUCH YOU EAT!

- **LIGHTING AND NOISE.** Bright lights and loud music make you eat faster. By the time the message that you're full gets from your stomach to your brain, you've already overdone it. Sit back, relax, and enjoy your meal.

- **TV AND FRIENDS.** If you're distracted, you'll eat more. This is partly because you won't remember how much you've already had. (Patients with amnesia can eat one dinner after another if told repeatedly that it's dinnertime.)

- **SCRAPS.** Research shows that if you eat things that leave evidence—say, chicken wings or individually wrapped candies—the remainders will remind you of how much you've had, and keep you from overindulging.

48 What is a central idea of "Food Fakeout!"? Use **two** details from the article to support your response.

49 How does the section "More Crazy Things that Affect How Much You Eat!" in "Food Fakeout!" add to the information in the article? Use **two** details from the article to support your response.

Directions

Read this article. Then answer questions 50 and 51.

Why Most Food Labels are Wrong About Calories

by Richard Wrangham and Rachel Carmody

Food labels seem to provide all the information a thoughtful consumer needs, so counting calories should be simple. But things get tricky because food labels tell only half the story.

A calorie is a measure of usable energy. Food labels say how many calories a food contains. But what they don't say is that how many calories you actually get out of your food depends on how highly processed it is.

Processed food makes you fatter

Food-processing includes cooking, blending and mashing, or using refined instead of unrefined flour. It can be done by the food industry before you buy, or in your home when you prepare a meal. Its effects can be big. If you eat your food raw, you will tend to lose weight. If you eat the same food cooked, you will tend to gain weight. Same calories, different outcome.

For our ancestors, it could have meant the difference between life and death. Hundreds of thousands of years ago, when early humans learned to cook they were able to access more energy in whatever they ate. The extra energy allowed them to develop big brains, have babies faster and travel more efficiently. Without cooking, we would not be human.

More processed foods are digested more completely

Animal experiments show that processing affects calorie gain whether the energy source is carbohydrate, protein or lipid (fats and oils). In every case, more processed foods give an eater more energy.

Take carbohydrates, which provide more than half of the world's calories. Their energy is often packaged in starch grains, dense packets of glucose that are digested mainly in your small intestine. If you eat a starchy food raw, up to half the starch grains pass through the small intestine entirely undigested. Your body gets two-thirds or less of the total calories available in the food. The rest might be used by bacteria in your colon, or might even be passed out whole.

Even among cooked foods, digestibility varies. Starch becomes more resistant to digestion when it is allowed to cool and sit after being cooked, because it crystallizes into structures that digestive enzymes cannot easily break down. So stale foods like day-old cooked spaghetti, or cold toast, will give you fewer calories than the same foods eaten piping hot, even though technically they contain the same amount of stored energy.

Softer foods are calorie-saving

Highly processed foods are not only more digestible; they tend to be softer, requiring the body to expend less energy during digestion. Researchers fed rats two kinds of laboratory chow. One kind was solid pellets, the type normally given to lab animals. The other differed only by containing more air: they were like puffed breakfast cereal. Rats eating the solid and puffed pellets ate the same weight of food and the same number of counted calories and they exercised the same amount as each other. But the rats eating the puffed pellets grew heavier and had 30% more body fat than their counterparts eating regular chow.

The reason why the puffed-pellet-eaters gained more energy is that their guts didn't have to work so hard: puffed pellets take less physical effort to break down. When rats eat, their body temperature rises due to the work of digestion. A meal of puffed pellets leads to less rise in body temperature than the same meal of solid pellets. Because the puffed pellets require less energy to digest, they lead to greater weight gain and more fat.

Our bodies work the same way. They do less work when eating foods that have been softened by cooking, mashed or aerated. Think about that when you sit down to a holiday meal or dine in a fine restaurant. Our favorite foods have been so lovingly prepared that they melt in the mouth and slide down our throats with barely any need for chewing. No wonder we adore them. Our preference is nature's way of keeping as much as possible of these precious calories.

Why food labels don't tell the full story

Unfortunately, of course, in today's overfed and underexercised populations nature's way is not the best way. If we want to lose weight we should challenge our instinctive desires. We should reject soft white bread in favor of rough whole wheat breads, processed cheese in favor of natural cheese, cooked vegetables in favor of raw vegetables. And to do so would be much easier if our food labels gave us some advice about how many calories we would save by eating less-processed food. So why are our nutritionist advisers mute on the topic?

For decades there have been calls by distinguished committees and institutions to reform our calorie-counting system. But the calls for change have failed. The problem is a shortage of information. Researchers find it hard to predict precisely how many extra calories will be gained when our food is more highly processed. By contrast, they find it easy to show that if a food is digested completely, it will yield a specific number of calories.

Our food labeling therefore faces a choice between two systems, neither of which is satisfactory. The first gives a precise number of calories but takes no account of the known effects of food-processing, and therefore mis-measures what our bodies are actually harvesting from the food. The second would take account of food-processing, but without any precise numbers.

Faced by this difficult choice, every country has opted to ignore the effect of processing and the result is that consumers are confused.

50 According to "Why Most Food Labels are Wrong About Calories," why is calorie counting not simple to do? Use **two** details from the article to support your response.

51

What are the authors' purposes for writing "Food Fakeout!" and "Why Most Food Labels are Wrong About Calories"? How are their purposes similar and/or different? Use details from **both** articles to support your response.

In your response, be sure to

- explain the author's purpose for writing "Food Fakeout!"
- explain the authors' purpose for writing "Why Most Food Labels are Wrong About Calories"
- explain how the purposes are similar and/or different
- use details from **both** articles to support your response