Robert L. Merritt

8th Grade ELA Package

Week of June 8-12, 2020

For Questions 15 - 17:

from **"Gentle Heat Prevents Overcooking"**
by the Editors at America's Test Kitchen and Guy Crosby

1. The discovery of fire—and, as a result, the invention of cooking—was a key step in human evolution. Heat kills germs that, if consumed, could cause illness. It makes food easier to chew and thus more palatable. It even changes some nutritional profiles, allowing our bodies to more readily absorb key vitamins and nutrients. But it's not all good. Too much heat can rob food of moisture, leaving it leathery, rubbery, and dry—especially large cuts of meat (such as prime rib, turkey, or ham) or delicate foods (like eggs or shrimp). Why? Let's start by understanding how heat works.

How the Science Works

2. Heat is a form of energy. The term is used to describe the speed of molecules in a substance such as air or water. The higher the temperature, the faster the molecules are moving and the more energy, or heat, the molecules contain. In order for this heat to be transferred from one item to another, fast-moving molecules bump in to slower-moving ones, which then pick up speed. Therefore, heat always flows from a hot item—or region within a food—to a cold one.

3. There are several types of heating that occur in cooking. Conduction is the transfer of heat from a hotter to a colder region within a food —in effect, the movement of molecules inside a single substance. For example, the cold center of a roast beef becomes warmer as molecules in its exterior sections begin to pick up speed. Since water molecules are much smaller than fat or protein molecules, they are capable of moving quite fast and conduct much of the heat.

4. Convection is the transfer of heat from a hot liquid (like boiling water or frying oil), or a hot gas (like air in an oven), to a food. In each case, heat is generated by an external source, such as a stovetop burner or the heating element in an oven. In most cooking applications, both conduction and convection are at work. There is one more important type of heating, however. Radiant heating is the transfer of heat by high-energy waves emitted from a remote object. One of the best examples is the sun on the surface of the earth. In cooking, radiant heating takes place most commonly in grilling, broiling, and even microwaving. Here, the waves of energy interact directly with molecules in food, causing them to accelerate in speed and, therefore, become hotter.

5. Whether cooked by conduction, convection, or radiant heat, the outside of food always cooks faster than the inside. And if the temperature is too high, the outer layers may become overcooked by the time conduction moves the heat toward the center of the food. That's because the external moisture will evaporate (remember: heat puts small water molecules into motion), leaving the surface area vulnerable to becoming very dry. A greater difference in temperature between the food's edge and its center means that this will happen faster. Conversely, a smaller temperature difference within the food will help the exterior retain more moisture and produce more uniform cooking.

Test Kitchen Experiment

6. To demonstrate the effects of convection and conduction, we roasted two three-rib standing beef rib roasts. One was placed in a 450-degree oven, the other in a 250-degree oven. Prior to roasting, we trimmed the majority of visible fat from both roasts and weighed them. We set up probes to record temperature within the meat at three places—the center, ¼ inch below the surface, and midway between these points. Both roasts were cooked until the center

probe registered 125 degrees for medium rare (this took just over two hours in the 450-degree oven and about three hours in the 250-degree oven). Both roasts were allowed to rest for 45 minutes, reweighed, sliced, and then sampled by tasters. We repeated the experiment two more times and the results below are the averages of the three tests.

The Results

7. Let's start with the taste-test results. The roast cooked in the 250-degree oven was noticeably juicer than the roast cooked in the 450-degree oven. Yes, the crust on the roast cooked in the hot oven was browner and crisper, but the majority of the meat was very dry and chalky—only the dead center of this roast boasted the tender, juicy texture we wanted. The exterior of the roast cooked at 250 degrees lacked a substantial crust, but the meat was moist and tender from the center all the way to the edge.

8. Weighing each roast before and after confirmed our tasters' impressions. The roast in the 250-degree oven lost 9.4 percent of its original weight. The roast cooked at 450 degrees shed 24.2 percent of its original weight, almost three times more than the slow-roasted beef. Put another way: The slow-roasted beef lost only 9 ounces of moisture during the roasting process while the high-temperature roasted beef lost 25 ounces. Since we had trimmed both roasts of exterior fat, these numbers represented moisture lost from the meat itself—no wonder the slow-roasted beef tasted so much juicier.

9. So if both roasts were cooked to the same internal temperature, why was the high-temperature roasted prime rib so much drier? The answer lies in the relationship between convection and conduction, and their effect on moisture. In both ovens, hot air conveyed energy to the surface of the roasts, at which point the energy was absorbed and transferred, through conduction, to the center. In the 450-

degree oven, the outer portions of the roast absorbed far more energy than did the outer layers of meat roasted in the cooler oven. More energy meant faster-moving water molecules and a greater amount of evaporation.

10. Moisture lost is proportional to meat temperature. The temperature probe inserted ¼ inch below the surface in the high-temperature roasted beef registered 189 degrees, indicating that almost all of the moisture had evaporated out of this part of the roast. The midpoint between the exterior and center of the roast registered 160 degrees —still seriously well-done, dry meat. In contrast, the temperature probes inserted in the same places in the roast cooked in the 250-degree oven never climbed above 146 degrees—indicating that the outer layers of this sample were losing much less moisture.

Excerpt from "Gentle Heat Prevents Overcooking" from *Cook's Illustrated: The Science of Good Cooking* by the Editors at America's Test Kitchen and Guy Crosby. Copyright 2012 by the Editors at America's Test Kitchen.

15. **Part A**

What is a central idea of the passage?

A Roasting meat at a high temperature for a short period of time will prevent overcooking.

B While a roast is being cooked, the temperature should be fairly consistent throughout the meat.

C After cooking meat, use temperature probes to determine that the meat is safe to eat.

D Overcooking a roast at a high temperature will eliminate much of the flavor from most of the meat.

Part B

Which quotation *best* supports the answer in Part A?

A "Conversely, a smaller temperature difference within the food will help the exterior retain more moisture and produce more uniform cooking." (paragraph 5)

B "Both roasts were cooked until the center probe registered 125 degrees for medium rare (this took just over two hours in the 450-degree oven and about three hours in the 250-degree oven)." (paragraph 6)

C "Yes, the crust on the roast cooked in the hot oven was browner and crisper, but the majority of the meat was very dry and chalky—only the dead center of this roast boasted the tender, juicy texture we wanted." (paragraph 7)

D "The roast cooked at 450 degrees shed 24.2 percent of its original weight, almost three times more than the slow-roasted beef." (paragraph 8)

16. **Part A**

What is the authors' purpose in providing an explanation of conduction, convection, and radiant heating?

A to bring attention to the challenges associated with the different types of heating

B to clarify from where heat is conveyed in each heating type

C to describe the biological transformation of food imposed by each heating type

D to illustrate the effectiveness of the different types of heating

Part B

Which quotation supports the claim in Part A?

A "There are several types of heating that occur in cooking." (paragraph 3)

B "In each case, heat is generated by an external source, such as a stovetop burner or the heating element in an oven." (paragraph 4)

C "In most cooking applications, both conduction and convection are at work." (paragraph 4)

D "Whether cooked by conduction, convection, or radiant heat, the outside of food always cooks faster than the inside." (paragraph 5)

17. **Part A**

What does *emitted* mean in paragraph 4?

A contained; absorbed

B illuminated; reflected

C managed; controlled

D released; supplied

Part B

What phrase from the passage helps the reader to determine the meaning of *emitted* ?

A "...transferred from one item to another..." (paragraph 2)

B "One of the best examples is the sun..." (paragraph 4)

C "...waves of energy interact directly with molecules in food..." (paragraph 4)

D "...moves the heat toward the center of the food." (paragraph 5)

For Questions 18 - 20:

Cheetahs

1. Cheetahs are the fastest land animal in the world and are a marvel of evolution. Over short distances, they can sprint up to 70 miles per hour. They have the ability to accelerate from 0 to 65 mph in three seconds, faster than most cars. Cheetahs are built more like greyhound dogs than typical cats. They have long, slim, muscular legs; a small, rounded head set on a long neck; a flexible spine; a deep chest; special pads on their feet for traction; and a long tail for balance which all allow the cheetah to run at fast speeds. They are also the only cat that cannot retract their own claws, an adaptation to help maintain traction like a football player's cleats. Distinctive black "tear tracks" running from the inside corner of each eye to the mouth may serve as an antiglare mechanism for daytime hunting.

2. Cheetahs live in small, isolated populations mostly in sub-Saharan Africa and are found in open and partially open savannas. In 1900, there were over 100,000 cheetahs across this historic range. Today, an estimated 9,000 to 12,000 cheetahs remain in the wild in Africa. In Iran, there are around 200 cheetahs living in small isolated populations, where conservationists are taking steps to protect them. Cheetahs live up to eight to ten years in the wild.

3. Cheetahs are basically solitary animals. At times, a male will accompany a female for a short while after mating, but most often the female is alone or with her cubs. Cheetah mothers spend a long time teaching their young how to hunt. Small live antelopes are brought back to the cubs so they can learn to chase and catch them. Cheetahs do not roar like lions, but they purr, hiss, whine, and

growl. They also make a variety of contact calls, and the most common is a birdlike chirping sound.

4. Cheetahs hunt by sight rather than by scent. They usually prey on small antelopes such as gazelles and impalas but also hunt small mammals and birds. Cheetahs get as close to the prey as possible, then in a burst of speed, they try to outrun their quarry. Once cheetahs close in, they knock the prey to the ground with their paws and suffocate the animals with a bite to the neck. Once they have made a kill, they eat it quickly and keep an eye out for scavengers like lions, leopards, hyenas, vultures and jackals who will steal from these timid predators. Unlike most other cats, cheetahs usually hunt during daylight, preferring early morning or early evening.

5. Shy creatures that roam widely, cheetahs are not seen as easily as some other cats. Never numerous, cheetahs have become extinct in many areas, primarily due to shrinking habitat. They are also in decline because of loss of species to prey upon, disease, and a high rate of cub mortality. In some areas, 50 to 75% of cheetah cubs die before 3 months of age, as they are highly susceptible to disease and to predation by other carnivores. Cheetahs are listed as vulnerable on the World Conservation Union's Red List of Threatened Animals. Of all the big cats, they are the least able to adapt to new environments. They have always proven difficult to breed in captivity, although recently a few zoos have managed to succeed at this.

6. The future of the cheetahs may look dim, but conservationists have been working to lessen the decline in some areas. They have begun educating livestock farmers in South Africa and Namibia about reducing cheetah/livestock interactions and using guard dogs to protect livestock as alternatives to resorting to the rifle. These

efforts, along with stronger enforcement of endangered species and anti-poaching laws and habitat restoration for cheetahs, have resulted in stabilized populations in the southwest region of Africa.

18. Which sentence in the selection is an example of a simile?

A They are also the only cat that cannot retract their own claws, an adaptation to help maintain traction like a football player's cleats.

B Cheetahs usually prey on small antelopes such as gazelles and impalas but also hunt small mammals and birds.

C Conservationists have begun educating livestock farmers in South Africa and Namibia about reducing cheetah/livestock interactions and using guard dogs to protect livestock as alternatives to resorting to the rifle.

D They are designed for speed and have long, slim, muscular legs; a small, rounded head set on a long neck; a flexible spine; a deep chest; special pads on their feet for traction; and a long tail for balance.

19. What is another word found in the selection that means *"prey"* or *"one who is sought or pursued for food"?*

A poachers

B predator

C quarry

D scavenger

20. What technique does the author use to make this selection colorful?

A dialect

B figurative language

C precise details

D short sentences.

For Question 21:

from "The Open Boat"
by Stephen Crane

"The Open Boat" is a survival story about four men who escaped from a sinking ship into a small, open boat.

1. None of them knew the color of the sky. Their eyes glanced level, and were fastened upon the waves that swept toward them. These waves were of the hue of slate, save for the tops, which were of foaming white, and all of the men knew the colors of the sea. The horizon narrowed and widened, and dipped and rose, and at all times its edge was jagged with waves that seemed thrust up in points like rocks. Many a man ought to have a bath-tub larger than the boat which here rode upon the sea. These waves were most wrongfully and barbarously abrupt and tall, and each froth-top was a problem in small-boat navigation.

2. The cook squatted in the bottom and looked with both eyes at the six inches of gunwale which separated him from the ocean. His sleeves were rolled over his fat forearms, and the two flaps of his unbuttoned vest dangled as he bent to bail out the boat. Often he said: "Gawd! That was a narrow clip." As he remarked it he invariably gazed eastward over the broken sea.

3. The oiler, steering with one of the two oars in the boat, sometimes raised himself suddenly to keep clear of water that swirled in over the stern. It was a thin little oar and it seemed often ready to snap.

4. The correspondent, pulling at the other oar, watched the waves and wondered why he was there.

5. The injured captain, lying in the bow, was at this time buried in that profound dejection and indifference which comes, temporarily at least, to even the bravest and most enduring when, willy nilly, the firm fails, the army loses, the ship goes down. The mind of the master of a vessel is rooted deep in the timbers of her, though he commanded for a day or a decade, and this captain had on him the stern impression of a scene in the greys of dawn of seven turned faces, and later a stump of a top-mast with a white ball on it that slashed to and fro at the waves, went low and lower, and down. Thereafter there was something strange in his voice. Although steady, it was deep with mourning, and of a quality beyond oration or tears.

6. "Keep 'er a little more south, Billie," said he.

7. "A little more south, sir," said the oiler in the stern.

8. A seat in this boat was not unlike a seat upon a bucking broncho, and by the same token, a broncho is not much smaller. The craft pranced and reared, and plunged like an animal. As each wave came, and she rose for it, she seemed like a horse making at a fence outrageously high. The manner of her scramble over these walls of water is a mystic thing, and, moreover, at the top of them were ordinarily these problems in white water, the foam racing down from the summit of each wave, requiring a new leap, and a leap from the air. Then, after scornfully bumping a crest, she would slide, and race, and splash down a long incline, and arrive bobbing and nodding in front of the next menace.

9. A singular disadvantage of the sea lies in the fact that after successfully surmounting one wave you discover that there is another behind it just as important and just as nervously anxious to

do something effective in the way of swamping boats. In a ten-foot dingey one can get an idea of the resources of the sea in the line of waves that is not probable to the average experience which is never at sea in a dingey. As each slatey wall of water approached, it shut all else from the view of the men in the boat, and it was not difficult to imagine that this particular wave was the final outburst of the ocean, the last effort of the grim water. There was a terrible grace in the move of the waves, and they came in silence, save for the snarling of the crests.

10. In the wan light, the faces of the men must have been grey. Their eyes must have glinted in strange ways as they gazed steadily astern. Viewed from a balcony, the whole thing would doubtless have been weirdly picturesque. But the men in the boat had no time to see it, and if they had had leisure there were other things to occupy their minds. The sun swung steadily up the sky, and they knew it was broad day because the color of the sea changed from slate to emerald-green, streaked with amber lights, and the foam was like tumbling snow. The process of the breaking day was unknown to them. They were aware only of this effect upon the color of the waves that rolled toward them.

11. In disjointed sentences the cook and the correspondent argued as to the difference between a life-saving station and a house of refuge. The cook had said: "There's a house of refuge just north of the Mosquito Inlet Light, and as soon as they see us, they'll come off in their boat and pick us up."

12. "As soon as who see us?" said the correspondent.

13. "The crew," said the cook.

14. "Houses of refuge don't have crews," said the correspondent. "As I understand them, they are only places where clothes and grub are stored for the benefit of shipwrecked people. They don't carry crews."

15. "Oh, yes, they do," said the cook.

16. "No, they don't," said the correspondent.

17. "Well, we're not there yet, anyhow," said the oiler, in the stern.

18. "Well," said the cook, "perhaps it's not a house of refuge that I'm thinking of as being near Mosquito Inlet Light. Perhaps it's a life-saving station."

19. "We're not there yet," said the oiler, in the stern.

Excerpt from *The Open Boat* by Stephen Crane. Charlottesville, Va.: University of Virginia Library, 1995.

21. Part A

Which statement is a *correct* evaluation of the language device used by the author in paragraph 1?

A The author uses hyperbole to show the irony of veteran sailors being afraid of the ocean.

B The author uses personification to illustrate the conflict between nature and the characters.

C The author uses metaphor to convey the restricted confines of the boat wherein the plot unfolds.

D The author uses imagery to establish the acute threat of the setting to the men inside the boat.

Part B

Which ***two*** quotations use the same language device used in Part A?

A "His sleeves were rolled over his fat forearms, and the two flaps of his unbuttoned vest dangled as he bent to bail out the boat." (paragraph 2

B "The injured captain, lying in the bow, was at this time buried in that profound dejection and indifference which comes, temporarily at least, to even the bravest and most enduring

when, willy nilly, the firm fails, the army loses, the ship goes down." (paragraph 5)

C "A seat in this boat was not unlike a seat upon a bucking broncho, and by the same token, a broncho is not much smaller." (paragraph 8)

D "The craft pranced and reared, and plunged like an animal. As each wave came, and she rose for it, she seemed like a horse making at a fence outrageously high." (paragraph 8)

E "The sun swung steadily up the sky, and they knew it was broad day because the color of the sea changed from slate to emerald-green, streaked with amber lights, and the foam was like tumbling snow." (paragraph 10)

F "In disjointed sentences the cook and the correspondent argued as to the difference between a life-saving station and a house of refuge." (paragraph 11)