

Reading Explorer 5 Unit 8 Lesson B

DIRECTIONS: Choose the best answer for each question.

Of Ants and Humans

E. O. Wilson, one of the world's foremost authorities on biodiversity, discusses his life-long love of the natural world, including its smallest members.

[A] **National Geographic:** How did you develop a passion for nature?

Edward O. Wilson: When I was nine years old and living in Washington, D.C., I somehow got excited about the idea of expeditions to far-off jungles to collect the sorts of things you saw in *National Geographic*. So I decided I would do some expeditions to Rock Creek Park,¹ and I got bottles and everything, and I started collecting there. I would go on my own and wander for hours. Then I went to the National Zoo, which was paradise on Earth for me. How could you avoid becoming a naturalist in that kind of environment?

[B] **NG:** Is that kind of exploration a rarer experience for kids today?

Wilson: I worry about that. I have no data, but it appears to me that many of our young people are staying at home or being influenced by an increasingly stimulating "artifactual" world. Fake nature, sci-fi movies, videos, being drawn into lives that are pursued in front of a computer. That's a trend that would take young people away from a naturalist's experience. But there are counter-influences. More people go to zoos in the U.S. than attend professional sports; did you know that? There's a strong pull remaining that I think is primal.

[C] **NG:** Darwin loved beetles. What was it about ants for you?

Wilson: Originally I was going to work on flies, because I felt that was a wide-open area to do exploration, but I couldn't get the special insect pins to collect them. It was 1946, just after the Second World War, and those pins were not available. So I turned to ants, because I could collect them in bottles of alcohol.

[D] **NG:** Do some say that this isn't serious science, it's just collecting?

Wilson: Well, when people say that sort of thing, you can respond quickly that you're not going to get anywhere until you do this science, and furthermore, you're going to make all sorts of new discoveries while you're doing it. You never know when someone is going to be looking for some kind of lead in this growing body of information from mapping life on Earth. For instance, someone might say, "What I need for my work is an ant that hunts underwater and walks around submarine fashion and then comes out and goes back to a dry nest. Does any such thing exist?" It turns out, yes!

[E] **NG:** A submarine ant?

Wilson: Yes, in Malaysia, on the pitcher plant *Nepenthes*. This plant collects water in which insects fall and drown, and there are substances in the water that help digest the insects. *Nepenthes* gets organic material from the insects it captures. There is this ant that lives on *Nepenthes*, and the workers walk in, right down into the mouth of hell. They just walk right in submarine-like and pick up insects that have fallen to the bottom.

[F] **NG:** Are you doing any field trips these days?

Wilson: I get together with younger ant specialists - they all seem younger to me, these days - and we go into the field. On a recent trip to the Dominican Republic, we went up to 2.4 kilometers above sea level. Most people don't know the Dominican Republic has mountains. We were all the way up in cold pine forests, discovering new species at every mountain site.

[G] **NG:** There's no feeling that the world has been conquered now?

Wilson: Oh, no. That's the point - we're just beginning exploration. For animals, we probably know as few as 10 percent of the species. Even in a fairly familiar group like ants, we're discovering them right and left. I estimate that maybe half the ants in the world remain undiscovered.

[H] **NG:** How well did Darwin know his ants?

Wilson: Darwin knew his ants very well. He spent a lot of time watching ants. And part of the reason was that ants exemplified a peculiarity that he said might have proved fatal to his theory of evolution. And that potential flaw was that worker ants are so completely different from queen ants, yet they are sterile. So how would you explain that by natural selection? If worker ants couldn't have offspring, how are their traits developed and passed on?

[I] **NG:** The problem was how this kind of self-sacrifice - tending the queen while giving up reproduction - evolved?

Wilson: Yes, and Darwin solved the problem: What counts is the group, and that worker ants are just part of the colony, just an extension of the queen. Her heredity is what matters. If she is producing separate organisms that serve her purpose, then all together, these colonies can prevail over solitary individuals. That was the solution, and actually, that isn't too far from the way we see it today. The most recent theories [are] spelled out in a book that Bert Holldobler and I wrote called *The Superorganism*.

[J] **NG:** Why that title?

Wilson: The colony is the next level of biological organization. The colony, by group selection, has developed traits that could not be possible otherwise - communication, the "caste" system,² cooperative behavior. It's a unit of activity and of evolution. One colony against another is what's being selected. This happens to be close to Darwin's idea but in modern genetic terms.

[K] **NG:** How does this kind of social behavior get started?

Wilson: It has to do with defense against enemies. Naturalists have discovered more and more groups that have altruistic workers and soldiers - ants, termites, certain beetles, shrimp, and even a mammal, the naked mole rat. What's consistently the case is that these animals have a resource, usually a place to live with food, that's very valuable. If you're a solitary individual and you build a chamber like that, somebody could chuck you out.³ The idea is that these lines are going to find it advantageous to develop sterile castes for maintaining and protecting the colony.

[L] **NG:** So this is a story about community and home.

Wilson: I've learned my lesson about jumping from ants or sponges to humans! But it does, in my opinion, call for another look at human origins. Anthropologists now pretty much agree that a major factor in human origins was having a habitation, a campsite, which allowed for certain specialization, where some stayed and looked after the site and the young and so on, while others ventured out to bring food back. And the pressures from predators must have been pretty intense.

[M] **NG:** But we don't have sterile castes.

Wilson: No, we have a division of labor. That is very true. And that's a fundamental difference between us and insects and these other creatures, and that's why we have to be very careful about drawing analogies. Because human beings are so flexible and intelligent, we can divide labor without physical castes.

[N] **NG:** That system has worked pretty well for ants.

Wilson: They dominate ecosystems. In tropical forests, from one study, ants alone make up four times the weight of all the land vertebrates put together - amphibians, reptiles, birds, mammals. The weight of all the ants in the world is roughly the weight of all the humans ... They are the principal predators of small animals, the principal scavengers in much of the world, and the principal turners of the soil.

[O] **NG:** It's interesting that ants and humans are both social and that both dominate their environment.

Wilson: Sure enough, we're the one highly social vertebrate with altruism and high levels of division of labor, though not sterility. We're the one species that has reached this level, and we dominate.

[P] **NG:** We also have a tremendous effect on other species.

Wilson: More than any kind of ant. But I'm always at risk of having it said, "That nut⁴ wants to compare ants and humans." Well, obviously not. Beyond the fact that we both reached high levels of social behavior based on altruism and division of labor, the resemblance between humans and ants pretty much comes to an end. For example, they communicate almost entirely by taste and smell. They live in a sensory world that's totally different from humans. It's like ants are from another planet. And ants are constantly at war. Well, so are we! But they are the most warlike of animals.

[Q] **NG:** It makes you wonder whether war and complex societies go together.

Wilson: It may turn out that highly evolved societies with this level of altruism tend strongly to divide into groups that then fight against each other. We humans are constantly at war and have been since prehistory. I know a lot of people would like to believe that this is just a nasty habit we developed, just a cultural anomaly, and all we have to do is get enlightened⁵ and drop it. I hope that's true.

[R] **NG:** Do the ants offer any lessons?

Wilson: At least not any we would care to put in practice. Ant colonies are all female; males are tolerated only part of the year. Slavery and cannibalism⁶ are commonplace. There is one lesson we have already learned, however: Ants keep themselves fanatically clean, so epidemics⁷ are rare.

[S] **NG:** But now ants and many other creatures are threatened with extinction. Are you hopeful that we can save enough in time?

Wilson: Actually, I am. The best funded global conservation organizations are now scoring successes in persuading developing countries to set up sustainable reserves - sustainable meaning they provide an actual increase in the quality of life for people living in and around them. That doesn't take as much money as some have thought. It can be achieved in many of these countries where the greatest destruction is occurring because incomes may be just a few hundred dollars a year. There are reasons to believe that where most of the biodiversity occurs - the tropical forest, grasslands, and shallow marine areas - a lot can be saved.

¹ **Rock Creek Park** is an urban park in Washington, D.C.

² A **caste system** is a rigid hereditary system of social ranking.

³ When you **chuck** something **out**, you throw it out.

⁴ The term **nut** is sometimes used to describe someone who is eccentric.

⁵ An **enlightened** person is someone who has great understanding and is therefore tolerant and unprejudiced.

⁶ **Cannibalism** is the eating of an animal by an animal of its own kind.

⁷ **Epidemics** are widespread occurrences of a disease.

- _____ 1. In paragraph B, what does Wilson mean when he uses the term *artifactual* to describe the world young people live in today?
- a. They are experiencing the world through man-made things.
 - b. They learn about nature on the computer.
 - c. They attend professional sports.
 - d. There is a trend toward being a naturalist.
- _____ 2. What is the last step in the *Nepenthes* plant's food cycle?
- a. The plant collects water from rainfall.
 - b. Insects drown in the water.
 - c. The plant gets organic material from the insects.
 - d. Chemicals in the water dissolve the bugs.
- _____ 3. In paragraph H, what does *peculiarity* mean?
- a. a scientific theory
 - b. a particular habit
 - c. something expected
 - d. something odd or strange
- _____ 4. What is the main idea of paragraphs I and J?
- a. Without the effort of the worker ants, nothing would ever get done.
 - b. The queen ant is a good example of a superorganism.
 - c. Ants' communication demonstrates cooperative behavior.
 - d. Groups or colonies are more important than individuals in evolution.
- _____ 5. Which group is NOT mentioned as having altruistic or unselfish behavior?
- a. termites
 - b. hedgehogs
 - c. shrimp
 - d. naked mole rats
- _____ 6. In paragraph L, what change in attitude does Wilson refer to?
- a. He's not as eager to make analogies between ants and humans as he once was.
 - b. He now believes that some early humans gathered food instead of hunted.
 - c. Until now, he has underestimated the importance of predators to early humans.
 - d. He has learned that early human habitations were more substantial than he once thought.
- _____ 7. In paragraph P, which of the following is NOT mentioned as a trait that ants and humans share?
- a. altruistic behavior for the good of the group
 - b. division of labor so individuals do different tasks
 - c. the ongoing practice of slavery and cannibalism
 - d. constant conflict with other groups
- _____ 8. Which statement is a paraphrase of Wilson's opinion in paragraph Q?
- a. He believes that all animal species must have conflict.
 - b. Since humans have always waged war, it must be in our genes.
 - c. We must encourage people to form colonies instead of fighting each other.
 - d. He is hopeful that warfare is a cultural condition that humans can stop.

- _____ 9. Which TWO senses does Wilson say ants mainly use to communicate?
- a. sight
 - b. touch
 - c. smell
 - d. taste
- _____ 10. Which THREE places does Wilson say most of the Earth's biodiversity occurs?
- a. tropical forests
 - b. grasslands
 - c. deserts
 - d. shallow marine areas

DIRECTIONS: Choose the best answer for each question.

Why Do We See So Many Things as "Us vs. Them"?

[A] It is a common misfortune around the world: People get along well enough for decades, even centuries, across lines of race or religion or culture. Then, suddenly, the neighbors aren't people you respect, invite to dinner, trade favors with, or marry. Those once familiar faces are now *Them, the Enemy, the Other*. And in that clash of groups, individuality vanishes and empathy dries up, as does trust. It can happen between herders and farmers in Nigeria or between native-born people and immigrants in France or the United States. The situations are very different, and the differences are important. But so is the shared root of their problems: People everywhere are "identity crazed," as the evolutionary psychologist John Tooby has put it. We can't help it: We're wired from birth to tell *Us* from *Them*. And we inevitably (and sometimes unconsciously) favor *Us* - especially when we feel threatened.

[B] Of course, humans share that trait with many other creatures, from ants to salmon to macaques. What other creatures almost never do, though, is change their group perceptions and actions. The birds and bees kept to their tribes when Yugoslavs turned into warring Croats, Serbs, and Bosnians. Only humans - Hutu and Tutsi - could decide they are no longer countrymen, after peacefully sharing a homeland for centuries. Only humans can switch from feeling united as one American nation to feeling divided between conservative red states and liberal blue ones.

[C] Our capacity to change our perceptions also offers some hope, because it permits people to shift in the direction of more inclusion, more justice, more peace. In Nigeria and other places around the world, communities torn apart by group conflict are putting themselves back together with help from a surprising source: scientists who study the mind. Their methods are also helping to improve community relations with police in Toledo, Indianapolis, and other U.S. cities.

[D] I am a leopard. Jay Van Bavel, a neuroscientist at New York University who studies group identity, gave me that label last summer when I was lying in an fMRI scanner near his office. While in the machine I was shown photos of faces - 12 young white men and 12 young black men. The scanner tracked my brain's activity as I connected these individuals to group identities. Having been raised in the United States, I have lived with my country's racial categories all my life, and it wasn't difficult to do one of my experimental tasks: classify each face according to its skin color as either black or white. However, I also had to work with another set of categories. The men in the photos were on one of two teams, I was told: Tigers or Leopards. The screen told me who was on which team and drilled me on the details until I had it down. But I wasn't a neutral observer: I'd been told that I was a Leopard.

[E] My scanner tasks allowed Van Bavel to compare my brain's activity as it worked, first with a familiar and consequential group identity (race in America) and then with a group identity that was effectively meaningless.

[F] My brain lit up differently depending on whether I perceived an in-group face (for me, a Leopards team member) or an out-group (Tiger) face. For example, my orbitofrontal cortex, a brain region associated with liking, sparked up more when I saw a face from my in-group. So did the fusiform gyrus, a region tied to processing the identity of faces.

[G] The experiment - and dozens of others like it during the past 20 years - confirmed several important facts about exactly how the human brain is "identity crazed." The scans show, for one, that a lot of our perceptions and emotions about groups happen outside our awareness or control. I have no conscious preference for white people over black people. On the contrary, like most Americans, I abhor racism. Yet, had I not been told I was a Leopard, I almost certainly would have shown an unconscious preference for white faces over black ones. That I did not illustrates a different important finding in Van Bavel's research: New team identities can easily supplant old ones in our minds. All Van Bavel had to do was tell me about two teams and inform me that I was on one. That was enough for my brain to prefer Leopards over Tigers as quickly and strongly as it normally distinguishes blacks and whites.

[H] The scans reflected a key fact about human groupishness: We have keen mental radar that seeks to learn what groups matter around us and which ones we are members of. And this radar is always on. Even as we sit comfortably in our racial, religious, national, and other identities, our minds are alert to the possibility of new coalitions.

[I] It's not hard to see why humans should have evolved to care about their teams and their place on those teams. Relying on each other is a sound survival strategy for a frail, noisy creature without a lot of built-in weapons. Living in groups is a ticket to survival, which is why most primates live in them.

[J] "This is how person perception generally works," Van Bavel told me. "In the first split second, we judge people on the basis of their group memberships." Caring about your group memberships isn't something you have to learn, like reading or driving. It's something you do automatically, like breathing.

[K] In fact, much of our sensitivity to groups begins long before we can speak. Very young babies prefer adults who look like their caretakers over adults who look different; some evidence shows they also prefer the foods their mothers ate while pregnant or breastfeeding over novel ones, and they like the sound of the language they heard in the womb and early in life much better than an alien tongue. These preferences continue. In adulthood most of us are better at recognizing the faces and reading the emotions of people who look and act like us.

- _____ 11. What does *It* refer to in the first sentence of paragraph A?
- a. that lack of empathy
 - b. the feeling of being threatened
 - c. the fact that we favor *Us*
 - d. people who have become our enemies
- _____ 12. In paragraph A, what is the meaning of *identity crazed*?
- a. to be insane when it comes to their own identity
 - b. to be obsessed with being a member of a group
 - c. to favor *Us*
 - d. to be enthusiastic about using trendy fashions to express individuality

- ____ 13. What is the main idea of paragraph B?
- a. We inevitably favor *Us* - especially when we feel threatened.
 - b. People share the trait of wanting to belong to a group with other animals.
 - c. People can change their feelings about group membership.
 - d. Only people go to war.
- ____ 14. According to the information in paragraph B, we can reasonably infer that Hutu and Tutsi are ____.
- a. two different nations
 - b. two different tribes in different nations
 - c. tribes of people in the country which used to be called Yugoslavia
 - d. two different tribes in the same nation

- ____ 15. The following sentence would be best placed at the end of which paragraph?

In fact, there is no human society without clear lines that distinguish various groups.

- a. Paragraph A
 - b. Paragraph B
 - c. Paragraph I
 - d. Paragraph J
- ____ 16. What did the author have to categorize in the experiment?
- a. photos of men according to race
 - b. photos of men according to team
 - c. photos of men according to race and team
 - d. photos of men according to preference
- ____ 17. According to the information in paragraph G, we can reasonably infer that ____.
- a. The author is white.
 - b. The author does not like black people.
 - c. The author still views himself as a Leopard now.
 - d. We cannot change how we feel about people in other groups.
- ____ 18. What TWO examples are given of people who are making strides towards improving relations with others because of scientific research?
- a. native-born people and immigrants in France
 - b. communities in Nigeria
 - c. native-born people and immigrants in the United States
 - d. police in the United States
- ____ 19. What were the TWO effectively meaningless group identities mentioned in the article?
- a. Leopards
 - b. Tigers
 - c. Hutu
 - d. Tutsi
- ____ 20. What are THREE examples in the article of preferences people sometimes gain before they are born?
- a. a preference for specific types of novels
 - b. a preference for people who look familiar
 - c. a preference for specific foods
 - d. a preference for a specific language

DIRECTIONS: Complete the sentences with the correct forms of the words in the box.

altruistic	anomaly	consistently	exemplify	fake
fanatically	fatal	organic	solitary	sterile

21. She was upset when she found out that the "genuine" designer handbag she bought online was actually a _____.
22. The archeologists initially thought that the materials were stone, but later they realized they were fossilized _____ matter from plants and animals.
23. Built in the 1920s, the building's architecture _____ the minimalist style of the period.
24. A racecar driver has to be completely focused at all time. Any error in judgment could be a _____ mistake.
25. Worker ants are _____ and cannot reproduce.
26. He enjoys going on long _____ walks in the woods where he can be alone with his thoughts.
27. The star basketball player _____ got the ball in the basket during free shots.
28. Those toads are a(n) _____ because the young are born alive instead of hatching from eggs.
29. She followed her favorite rock star _____, even when his performances were awful.
30. Every year, he makes an anonymous donation to the charity. He doesn't want any credit or publicity; his intentions are purely _____.

Reading Explorer 5 Unit 8 Lesson B

Answer Section

1. ANS: A PTS: 1 REF: Pages 170-172
OBJ: Figurative Language TOP: Social Behavior
2. ANS: C PTS: 1 REF: Pages 170-172
OBJ: Sequence TOP: Social Behavior
3. ANS: D PTS: 1 REF: Pages 170-172
OBJ: Unfamiliar Vocabulary TOP: Social Behavior
4. ANS: D PTS: 1 REF: Pages 170-172
OBJ: Main Idea TOP: Social Behavior
5. ANS: B PTS: 1 REF: Pages 170-172
OBJ: Negative Detail TOP: Social Behavior
6. ANS: A PTS: 1 REF: Pages 170-172
OBJ: Inference TOP: Social Behavior
7. ANS: C PTS: 1 REF: Pages 170-172
OBJ: Compare and Contrast TOP: Social Behavior
8. ANS: D PTS: 1 REF: Pages 170-172
OBJ: Paraphrase TOP: Social Behavior
9. ANS: C, D PTS: 1 REF: Page 175
OBJ: Identifying Multiple Answers to Questions TOP: Social Behavior
10. ANS: A, B, D PTS: 1 REF: Page 175
OBJ: Identifying Multiple Answers to Questions TOP: Social Behavior
11. ANS: C PTS: 1 REF: Unit 8 OBJ: Reference
TOP: Social Behavior
12. ANS: B PTS: 1 REF: Unit 8 OBJ: Unfamiliar Vocabulary
TOP: Social Behavior
13. ANS: C PTS: 1 REF: Unit 8 OBJ: Main Idea
TOP: Social Behavior
14. ANS: D PTS: 1 REF: Page 167 OBJ: Making Inferences
TOP: Social Behavior
15. ANS: B PTS: 1 REF: Unit 8 OBJ: Cohesion
TOP: Social Behavior
16. ANS: C PTS: 1 REF: Unit 8 OBJ: Supporting Detail
TOP: Social Behavior
17. ANS: A PTS: 1 REF: Page 167 OBJ: Making Inferences
TOP: Social Behavior
18. ANS: B, D PTS: 1 REF: Page 175
OBJ: Identifying Multiple Answers to Questions TOP: Social Behavior
19. ANS: A, B PTS: 1 REF: Page 175
OBJ: Identifying Multiple Answers to Questions TOP: Social Behavior
20. ANS: B, C, D PTS: 1 REF: Page 175
OBJ: Identifying Multiple Answers to Questions TOP: Social Behavior
21. ANS: fake

PTS: 1 REF: Page 176 OBJ: Vocabulary TOP: Social Behavior

22. ANS: organic

PTS: 1

REF: Page 176

OBJ: Vocabulary

TOP: Social Behavior

23. ANS: exemplifies

PTS: 1

REF: Page 176

OBJ: Vocabulary

TOP: Social Behavior

24. ANS: fatal

PTS: 1

REF: Page 176

OBJ: Vocabulary

TOP: Social Behavior

25. ANS: sterile

PTS: 1

REF: Page 176

OBJ: Vocabulary

TOP: Social Behavior

26. ANS: solitary

PTS: 1

REF: Page 176

OBJ: Vocabulary

TOP: Social Behavior

27. ANS: consistently

PTS: 1

REF: Page 176

OBJ: Vocabulary

TOP: Social Behavior

28. ANS: anomaly

PTS: 1

REF: Page 176

OBJ: Vocabulary

TOP: Social Behavior

29. ANS: fanatically

PTS: 1

REF: Page 176

OBJ: Vocabulary

TOP: Social Behavior

30. ANS: altruistic

PTS: 1

REF: Page 176

OBJ: Vocabulary

TOP: Social Behavior