

Reading Explorer 5 Unit 4 Lesson B

DIRECTIONS: Choose the best answer for each question.

Rising Seas

As the planet warms, the sea rises, and coastlines flood, how will we face the danger of rising seas?

Storm of the Century

[A] By the time Hurricane Sandy veered toward the northeast coast of the United States on October 29, 2012, it had mauled¹ several countries in the Caribbean and left dozens dead. Faced with the largest storm the Atlantic had ever produced, New York and other cities ordered mandatory evacuations of low-lying areas, but not everyone complied. Those who chose to ride out Sandy got a preview of the future, in which a warmer world will lead to rising seas.

[B] Brandon d'Leo, a sculptor and surfer, rented a second-floor apartment across the street from the beach on New York City's Rockaway Peninsula. At about 3:30 in the afternoon, he went outside. Waves were crashing against the nine-kilometer-long boardwalk. A short time later, d'Leo and a neighbor were watching the sea through the glass door of his living room when his neighbor saw something alarming. "I think the boardwalk just moved," she said. Within minutes, another surge of water lifted the boardwalk again, and it began to break apart.

[C] Three large sections of the boardwalk smashed against two pine trees in front of d'Leo's apartment. The street had become a river 1.2 meters deep; cars began to float. After the storm, d'Leo said, "I have six surfboards in my apartment, and I was thinking, if anything comes through that wall, I'll try to get everyone on those boards and try to get up the block."

[D] After a difficult night's sleep, d'Leo went outside and saw that the water had retreated, thigh-deep pools still filled parts of some streets. "Everything was covered with sand," he said. "It looked like another planet."

Coastlines at Risk

[E] By the end of the century, a hundred-year storm surge like Sandy's might occur every decade, with coastal cities like New York now face a double threat: rising oceans and more severe storm surges. By 2070, experts estimate, 150 million people in the world's large port cities will be at risk from coastal flooding. How will the cities cope?

[F] Malcolm Bowman, a researcher at the State University of New York, believes that storm-surge barriers must be built across New York City's harbor. Compared with some other leading ports, New York is essentially defenseless in the face of hurricanes and floods. London, Rotterdam, St. Petersburg, New Orleans, and Shanghai have all built levees² and storm barriers in the past few decades. When Hurricane Sandy struck, New York paid a high price for not having such protection. The storm left 43 dead and cost the city about \$19 billion, and according to Bowman, storm-surge barriers could have prevented it. He says, "It might take five years of study and another ten years to get the political will to do it. By then, there might have been another disaster. We need to start planning immediately."

[G] Mayor Michael Bloomberg outlined a \$19.5 billion plan to defend New York City against rising seas. His proposal called for the construction of levees, local storm-surge barriers, sand dunes, and more than two hundred other measures. It went far beyond anything planned by any other U.S. city, but the mayor dismissed the idea of a harbor barrier. "A giant barrier across our harbor is neither practical nor affordable," Bloomberg said.

Retreat from the Coast

[H] With the threat of sea-level rise everywhere, cities around the world have turned to the Netherlands for guidance - a country that has faced and overcome the problem of rising seas. One Dutch firm, Arcadis, has prepared a design for a storm-surge barrier to protect New York City. The same company helped design a barrier 3.2 kilometers long that protected New Orleans from Hurricane Isaac's four-meter storm surge in 2012. "Isaac was a tremendous victory for New Orleans," said Piet Dircke, an Arcadis executive. "All the barriers were closed; all the levees held; all the pumps worked. You didn't hear about it because nothing happened."

[I] New Orleans may be safe for a few decades, but the long-term prospects for it and other low-lying cities look dire. Even if we begin reducing our emissions of heat-trapping gases tomorrow, oceans will likely rise as Earth slowly adjusts to the amount already in the atmosphere. Among the most vulnerable cities is Miami. "I cannot envision southeastern Florida having many people at the end of this century," says Hal Wanless, chair of the University of Miami's Department of Geological Science. "We think Miami has always been here and will always be here. How do you get people to realize that Miami - or London - will not always be there?"

[J] Unless we change course dramatically, our carbon emissions will drastically change the geography of many shorelines by the next century, if not sooner, and large numbers of people will have to abandon coastal areas in Florida and other parts of the world. "From the Bahamas to Bangladesh and a major amount of Florida, we'll have to move, and we may have to move at the same time," says Wanless. Columbia University geophysicist Klaus Jacob sees most of Manhattan's population fleeing to higher ground and the island becoming a kind of Venice, subject to periodic flooding, perhaps with canals and yellow water cabs. At different times in different countries, engineering solutions will no longer be enough. Then the retreat from the coast will begin.

Dutch Lessons

[K] Can a single storm change not just a city's but a nation's policy? It has happened before. The Netherlands experienced its own coastal catastrophe nearly 70 years ago, and it transformed the country.

[L] The storm roared in from the North Sea on the night of January 31, 1953. Ria Geluk was six years old at the time and living on an island in the Dutch province of Zeeland. She remembers a neighbor knocking on her family's door in the middle of the night to tell them that the dike³ had failed. Later that day, the whole family climbed to the roof. Geluk's grandparents lived just across the road, but water poured into the village with such force that they were trapped in their home, and they died when it collapsed. The disaster killed 1,836 in all, including a baby born on the night of the storm.

[M] Afterwards the Dutch began an ambitious program of dike and barrier construction called the Delta Works, which lasted more than four decades and cost more than \$6 billion. One crucial project was the eight-kilometer barrier built to defend Zeeland from the sea. The final component of the Delta Works - a movable barrier protecting Rotterdam Harbor and some 1.5 million people - was finished in 1997. Like other sea barriers in the Netherlands, it's built to withstand a 1-in-10,000-year storm - the strictest standard in the world.

[N] The transparent domes of Rotterdam's Floating Pavilion represent an even more innovative approach to taming⁴ the sea. The three domes - each about three stories tall - are made of a plastic that is a hundred times as light as glass. Though the domes are used for meetings and exhibitions, their main purpose is to demonstrate the potential of floating urban architecture. The city anticipates that as many as 1,200 homes will float in the harbor by 2040. "We think these structures will be important not just for Rotterdam but for many cities around the world," says Bart Roeffen, the architect who designed the pavilion.

[O] An inscription⁵ on the side of a storm-surge barrier in Zeeland says "*Hier gaan over het tij, de maan, de wind, en wij*" - Here the tide is ruled by the moon, the wind, and us. It reflects the confidence of a generation that took for granted - as we no longer can - a reasonably stable world. "We have to understand that we are not ruling the world," says Jan Mulder of Deltares, a Dutch coastal management firm. "We need to adapt."

¹ If someone is **mauled** (e.g., by a wild animal), they are attacked fiercely and aggressively.

² A **levee** is a raised structure of earth or other material built to hold back water.

² A **dike** is a long wall that prevents water from flooding a place.

⁴ If you **tame** something dangerous, you bring it under control.

⁵ An **inscription** is writing carved into something made of stone or metal.

- _____ 1. What would be the best way to describe a *storm surge*?
 - a. a very high tide that occurs during certain days of the month
 - b. high water trapped in city harbors after a storm
 - c. an unusual extreme rise in the sea level during a storm
 - d. the strong wind associated with ocean storms
- _____ 2. What is the purpose of paragraphs B through D?
 - a. to explain why it's dangerous to live so close to the sea
 - b. to describe one man's experience of a flood
 - c. to argue for sturdier and more secure boardwalks near beaches
 - d. to explain how to use surfboards to save people during a flood
- _____ 3. Which feature is NOT mentioned as being part of Mayor Bloomberg's plan?
 - a. a barrier across New York harbor
 - b. construction of high levees
 - c. building up of sand dunes along the coast
 - d. local storm-surge barriers
- _____ 4. What does *it* refer to in the last sentence of paragraph H?
 - a. the sea-level rise
 - b. the Dutch company Arcadis
 - c. the 3.2-kilometer barrier outside New Orleans
 - d. the response to Hurricane Isaac
- _____ 5. What does the author think is the cause of rising sea levels in paragraphs I and J?
 - a. carbon emissions
 - b. excessive building on coastlines
 - c. sinking cities
 - d. the increase in pollution

_____ 6. The following sentence would be best placed at the end of which paragraph?

At some point, residents will realize that Miami is no longer a habitable place and move away.

- a. Paragraph E
- b. Paragraph F
- c. Paragraph I
- d. Paragraph J

_____ 7. Which of the following sentences from paragraph I gives the author's main argument?

- a. New Orleans may be safe for a few decades, but the long-term prospects for it and other low-lying cities look dire.
- b. Even if we begin reducing our emissions of heat-trapping gases tomorrow, oceans will likely rise as Earth slowly adjusts to the amount already in the atmosphere.
- c. Miami is among the most vulnerable cities.
- d. We think Miami has always been here and will always be here.

_____ 8. Which of the following sentences from paragraph J gives the author's main argument?

- a. Unless we change course dramatically, our carbon emissions will drastically change the geography of many shorelines by the next century, if not sooner, and large numbers of people will have to abandon many coastal areas of the world.
- b. From the Bahamas to Bangladesh and a major amount of Florida, we'll have to move, and we may have to move at the same time.
- c. Columbia University geophysicist Klaus Jacob sees most of Manhattan's population fleeing to higher ground and the island becoming a kind of Venice, subject to periodic flooding, perhaps with canals and yellow water cabs.
- d. At different times in different countries, engineering solutions will no longer be enough.

_____ 9. In paragraph L, which of the following events happened first?

- a. Ria Geluk's neighbor knocked on her family's door.
- b. Ria Geluk's whole family climbed to the roof.
- c. The dike on the island Ria Geluk was living on failed.
- d. Ria Geluk's grandparents were trapped in their home.

_____ 10. In paragraph O, what does *It* refer to?

- a. the tide
- b. the moon
- c. the wind
- d. the inscription

DIRECTIONS: Choose the best answer for each question.

Relocate or Elevate

[A] The navigational prowess of Marshall Islanders is legendary. For thousands of years, Marshallese have embraced their watery environment, building a culture on more than 1,200 islands scattered across 750,000 square miles of ocean. But powerful tropical cyclones, damaged reefs and fisheries, worsening droughts, and sea-level rise threaten the coral reef atolls of this large ocean state, forcing the Marshallese to navigate a new reality. In a moment of reckoning, Marshall Islanders face a dire choice: relocate or elevate. One idea being considered is the construction of a new island or raising an existing one. With 600 billion tons of melting ice flowing into oceans that are absorbing heat twice as fast as 18 years ago, the Marshallese will need to move fast.

[B] A report published by the Intergovernmental Panel on Climate Change (IPCC) in October highlighted different projected outcomes from a temperature rise of 1.5 degrees C versus 2 degrees C. In the report, small-island developing states are identified as being disproportionately vulnerable to adverse consequences of global warming. Among them, four atoll nations: Kiribati, Tuvalu, the Maldives, and the Marshall Islands, are at greatest risk. According to IPCC statistics, global temperatures could exceed a 3 degrees C increase by 2100 with global-mean sea level rise projected between one and four feet or higher. Absent extraordinary measures, climate change could render the Marshall Islands uninhabitable.

[C] In July, speaking at a climate change conference on Majuro, capital of the Marshall Islands, University of Hawaii climate scientist Chip Fletcher discussed possible adaptation measures. When Fletcher presented a map depicting Majuro flooded under three feet of water, there was an audible gasp in the room. For climate activists in the Pacific, "1.5 to stay alive," has been the mantra of survival. "We're going to miss 1.5 degrees C," Fletcher told his audience, but added, "there's something we can do about it." Citing examples of land reclamation in the Maldives, the United Arab Emirates, and elsewhere, Fletcher says dredging a shallow area of Majuro lagoon may be one option for building an island high enough to be secure.

The Urgency Has Always Been There

[D] Mark Stege, a climate consultant and Maloelap atoll councilman who has been working on climate adaptation projects since 2010, notes people have been engineering the Marshall Islands for decades, going back to dredging by the U.S. military to fill in the *mejje*, or reef flats between islands. He stresses the importance of community-based resource management and environmental monitoring.

[E] "I firmly believe that island building is going to have to happen," Stege says. Before that can happen, he says extensive survey work must be conducted to determine suitable sites for possible elevation work. No matter what is decided, Stege argues it's imperative for Marshallese to be at the center of the work - not on the sidelines of a foreign-led effort.

[F] The sense of urgency is nothing new. "I think that the urgency has always been there with other important issues - health issues related to the nuclear weapons testing legacy, building educational capacity, unemployment, and climate change ... If we're going to raise islands, we should also raise the wellbeing of the people living on those islands."

Mitigation and Adaptation

[G] Marshall Islands President Hilda Heine told *National Geographic* that her country's focus has been on climate change mitigation but says there is a need for a greater emphasis on adaptation, including the consideration of building higher ground. First, public consultation must take place. Local governments, *iroij* or chiefs, clan heads, and other traditional leaders all need to be part of the conversation, she says.

[H] "For considerations, people would need to think whether we should just let our islands go and everybody move out or having a certain place designated and built upon," Heine says.

[I] Currently Heine's administration is conducting preliminary discussions and preparing to formulate a National Adaptation Plan. Building an island high enough to provide safe refuge would be very expensive, and the president says working with partner nations like the U.S., Taiwan, and Japan will be critical. But she adds, "Only if the Marshallese people are completely on board with such an idea, then we can ... seek assistance from outside."

[J] "I think it's very clear that if you're a Marshallese, you would want to make sure that the culture and the place and the identity doesn't disappear," Heine says. Complete outbound migration and the abandonment of the islands, she says, would have profoundly detrimental impacts on the preservation of Marshallese culture and territorial and political sovereignty.

[K] For centuries, Marshall Islanders have been tied to their ancestral lands through families and clans. Forced relocation from one island to another resulting from nuclear testing led to urbanization and a disruption of the traditional land tenure system. If climate change demands the Marshallese elevate land and consolidate the resident population of 55,000 people, ancestral land ties will be further disrupted.

[L] "We don't just select to live on certain islands," Heine says. "Everybody lives in their island because that's where they belong to. Moving from one island to another is not a straight move. It's not just so simple."

[M] Ben Graham, chief secretary and advisor to the president, notes that in a country where the government owns less than one percent of the land, people's identities are tied to specific land parcels.

A Ticking Clock

[N] Graham points to adaptation efforts already underway - strengthening water and food security, climate-proofing infrastructure, fortifying shorelines, and other coastal protections. He calls building a new island the "ultimate last defense." Any resources that would be diverted to build an island, Graham says, will be done "to keep our heads above water."

[O] Coastal flooding has increased in the Marshall Islands and is expected to worsen. With limited time, consultations, studies, and adaptation measures need to accelerate before occasional nuisance flooding becomes disruptive to island life. In the basketball-loving Marshall Islands, Graham uses an apt analogy: "It sort of puts a shot clock on our existence," he says. "It's not a 30-second shot clock, but a 30-year shot clock."

- _____ 11. What is the author's tone in this article?
- happy and light-hearted
 - afraid and overly emotional
 - urgent and serious
 - factual and objective
- _____ 12. In paragraph A, what does the word *embrace* mean?
- to hold on to
 - to include
 - to accept
 - to support
- _____ 13. In paragraph A, what does the phrase *forcing the Marshallese to navigate a new reality* mean?
- The Marshallese must sail to another place.
 - The Marshallese have to find their way in a new and difficult circumstance.
 - The Marshallese need to give directions to others on how to get to new places.
 - The Marshallese must find new techniques for guiding their boats across the waters.

- _____ 14. In paragraph C, what is the meaning of the word *mantra*?
- a. a goal that is set regularly
 - b. a statement or a principle that people repeat
 - c. a word or saying repeated in prayer
 - d. meaningless words repeated over and over again
- _____ 15. When Fletcher says, *We're going to miss 1.5 degrees C* what is he implying?
- a. Temperatures are going to rise to more than 1.5 degrees C in the future.
 - b. Temperatures will not rise more than 1.5 degrees C in the future.
 - c. Temperatures will rise by exactly 1.5 degrees C in the future.
 - d. Temperatures will go down by 1.5 degrees C in the future.
- _____ 16. Where can the following sentence be best placed?

This sense of responsibility led to the establishment of the Marshall Islands Conservation Society in 2004.

- a. before the first sentence of paragraph D
 - b. before the last sentence of paragraph D
 - c. before the first sentence of paragraph E
 - d. after the last sentence of paragraph E
- _____ 17. In paragraph I, what does *on board* mean?
- a. to be a passenger on a ship, boat, or airplane
 - b. to be a part of a team
 - c. to be available
 - d. to be in agreement with
- _____ 18. What can we infer is Heine's attitude toward the idea of abandoning the islands?
- a. She thinks it is neither good nor bad.
 - b. She welcomes the idea.
 - c. She was not previously aware of the idea.
 - d. She dislikes the idea.
- _____ 19. In paragraph N, which of the following is NOT mentioned as an adaptation effort?
- a. strengthening water and food security
 - b. making the infrastructure more resilient to climate change
 - c. building up shorelines
 - d. having people move to another island
- _____ 20. What does the phrase *a 30-year shot clock* mean?
- a. They have had thirty years to deal with global warming and rising sea water.
 - b. They must do something within the next thirty years to continue to exist.
 - c. No matter what they do, within thirty years they will no longer exist.
 - d. They must move within the next thirty years, because there is no way to save the islands.

DIRECTIONS: Complete the sentences. Choose the correct word.

- a. comply
- b. dire
- c. envision
- d. evacuation
- e. retreat
- f. surged
- g. taken for granted
- h. vulnerable
- i. will
- j. withstand

- ____ 21. The online company decided to ____ with the government's new ruling on data protection.
- ____ 22. The situation at the airport was wild - the crowd ____ forward each time an announcement was made.
- ____ 23. Under heavy fire from enemy forces, the soldiers were forced to ____.
- ____ 24. Environmentalists warn that chopping down the rainforest will have ____ consequences for the local wildlife and people.
- ____ 25. In advance of the Category 5 typhoon, the mayor ordered an emergency ____ of the city.
- ____ 26. Can you ____ a future roadway full of cars that drive themselves?
- ____ 27. It was obvious from the election results that this was the ____ of the people.
- ____ 28. Very young children have weak immune systems and thus are more ____ to disease.
- ____ 29. The new steel piers are able to ____ the strongest waves and remain undamaged.
- ____ 30. The government had ____ the stability of the country's economy, and were unprepared for the financial crisis.

Reading Explorer 5 Unit 4 Lesson B

Answer Section

1. ANS: C PTS: 1 REF: Pages 85-88 OBJ: Unfamiliar Vocabulary
TOP: Saving Cities
2. ANS: B PTS: 1 REF: Pages 85-88 OBJ: Purpose
TOP: Saving Cities
3. ANS: A PTS: 1 REF: Pages 85-88 OBJ: Negative Detail
TOP: Saving Cities
4. ANS: D PTS: 1 REF: Pages 85-88 OBJ: Anaphoric Reference
TOP: Saving Cities
5. ANS: A PTS: 1 REF: Pages 85-88 OBJ: Inference
TOP: Saving Cities
6. ANS: C PTS: 1 REF: Pages 85-88 OBJ: Cohesion
TOP: Saving Cities
7. ANS: B PTS: 1 REF: Page 91 OBJ: Evaluating Arguments
TOP: Saving Cities
8. ANS: A PTS: 1 REF: Page 91 OBJ: Evaluating Arguments
TOP: Saving Cities
9. ANS: C PTS: 1 REF: Pages 85-88 OBJ: Sequence
TOP: Saving Cities
10. ANS: D PTS: 1 REF: Pages 85-88 OBJ: Anaphoric Reference
TOP: Saving Cities
11. ANS: C PTS: 1 REF: Unit 4 OBJ: Author's Tone
TOP: Saving Cities
12. ANS: C PTS: 1 REF: Page 82
OBJ: Recognizing Literal versus Figurative Language TOP: Saving Cities
13. ANS: B PTS: 1 REF: Page 82
OBJ: Recognizing Literal versus Figurative Language TOP: Saving Cities
14. ANS: B PTS: 1 REF: Unit 4 OBJ: Unfamiliar Vocabulary
TOP: Saving Cities
15. ANS: A PTS: 1 REF: Unit 4 OBJ: Inference
TOP: Saving Cities
16. ANS: D PTS: 1 REF: Unit 4 OBJ: Cohesion
TOP: Saving Cities
17. ANS: D PTS: 1 REF: Page 82
OBJ: Recognizing Literal versus Figurative Language TOP: Saving Cities
18. ANS: D PTS: 1 REF: Unit 4 OBJ: Inference
TOP: Saving Cities
19. ANS: D PTS: 1 REF: Page 82
OBJ: Recognizing Literal versus Figurative Language TOP: Saving Cities
20. ANS: B PTS: 1 REF: Page 82
OBJ: Recognizing Literal versus Figurative Language TOP: Saving Cities
21. ANS: A PTS: 1 REF: Page 92 OBJ: Vocabulary
TOP: Saving Cities
22. ANS: F PTS: 1 REF: Page 92 OBJ: Vocabulary
TOP: Saving Cities

23.	ANS: E	PTS: 1	REF: Page 92	OBJ: Vocabulary
	TOP: Saving Cities			
24.	ANS: B	PTS: 1	REF: Page 92	OBJ: Vocabulary
	TOP: Saving Cities			
25.	ANS: D	PTS: 1	REF: Page 92	OBJ: Vocabulary
	TOP: Saving Cities			
26.	ANS: C	PTS: 1	REF: Page 92	OBJ: Vocabulary
	TOP: Saving Cities			
27.	ANS: I	PTS: 1	REF: Page 92	OBJ: Vocabulary
	TOP: Saving Cities			
28.	ANS: H	PTS: 1	REF: Page 92	OBJ: Vocabulary
	TOP: Saving Cities			
29.	ANS: J	PTS: 1	REF: Page 92	OBJ: Vocabulary
	TOP: Saving Cities			
30.	ANS: G	PTS: 1	REF: Page 92	OBJ: Vocabulary
	TOP: Saving Cities			