

4[B] – **Lessons from the Ozone Hole**  Lesson19 G2 Chobun TypeB 11.2(4B) A2E

1. In May 1985, scientists from the British Antarctic Survey shocked the world by
2. announcing the discovery of a huge hole in the ozone layer above the Antarctic.
3. Ozone is a gas usually formed from oxygen that is high in the earth's atmosphere.
4. The ozone layer is essential to life on our planet because it protects us from
5. harmful ultraviolet rays produced by the sun. Without the ozone layer, these rays
6. would cause cancer and other disease in both human beings and animals.

7. ☆ 多 Memorization **Further Questions&Sample Answers**

8. 1) What did the British Antarctic Survey discover?
9. *They discovered a huge hole in the ozone layer.*
10. 2) Why is the ozone layer essential to life?
11. *Because it protects us from harmful ultraviolet rays produced by the sun.*

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25. 3) What was the hole in the ozone layer caused by?

26. *It was created by gasses called CFCs.*

27. 4) What was so amazing about the Montreal Protocol?

28. *It was signed by every member country of the United Nations.*

29. According to scientists, there were two reasons why people responded so quickly
30. to the danger.

31. The first was that it was easy to understand.

32. If the hole kept growing, it would threaten life everywhere.

33. The second reason was that it was easy to replace the CFCs with\*hydro

34. chlorofluorocarbons (HCFCs), gases that do much less damage to the ozone layer.

35. Unfortunately, though, HCFCs have their own problems.

36. Not only do they contribute to global warming, but they may also be a major

37. factor in the development of acid rain.



\*HCFCs= hydrochlorofluorocarbons =ヒドロクロロフルオロカーボン

温暖化現象の原因となりうるフロンガスの代わりとして、半導体の製造過程や冷蔵庫などに利用されている物質。ハイドロフルオロカーボンやパーフルオロカーボン、六フッ化硫黄などがある。

### 38. ☆ 多 Memorization **Further Questions&Sample Answers**

39. 5) What was one reason people responded so quickly to the danger?

40. ① *If the hole kept growing it would threaten life everywhere.*

41. ② *It was easy to replace the CFCs with HCFCs which do much less damage.*

42. 6) What are problems with HCFCs?

43. *They contribute to global warming and they may be a major factor in the development of acid rain.*

44. Does this mean that the ban on CFCs was a bad idea?

45. The ozone hole was a real danger and, without the ban, it would have quickly grown to cover the whole planet.

47. Stopping its growth was a major victory. Nevertheless, the difficulties caused by HCFCs have been a significant environmental problem.

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39. 1 helps preserve the only gas necessary for life.

61. 2 protects us from rays that can cause serious diseases.

62. 3 allows us to calculate the amount of pollution in the air.

63. 4 stops the earth's atmosphere from being damaged by the sun.

64. (38) Why was the Montreal Protocol seen as a great success for the environmental movement?

66. 1 It forced governments to do more research on the ozone layer.

67. 2 It provided data showing that CFCs created the ozone hole.

68. 3 It attracted attention to the damage being done to nature.

69. 4 It was agreed to be more countries than any other treaty.

70. (39) What was one reason CFCs could be banned so quickly?

71. 1 Scientists were becoming concerned about acid rain.

72. 2 People recognized that global warming was a real problem.

73. 3 A gas that was not as harmful to the ozone layer was available.

74. 4 They were being produced in only a few places around the world.

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75. (40) **The ban on CFCs was a good idea because**

76. 1 it led to a reduction in global warming.  
 77. 2 it saved the planet from a serious threat.  
 78. 3 it reduced the amount of HCFCs in the air.  
 79. 4 it showed how complicated nature is.

### Review Questions

80. 1) **What did the British Antarctic Survey discover?**

81. *They discovered a huge hole in the ozone layer.*

82. 2) **Why is the ozone layer essential to life?**

83. *Because it protects us from harmful ultraviolet rays produced by the sun.*

84. 3) **What was the hole in the ozone layer caused by?**

85. *It was created by gasses called CFCs.*

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93. 7) **What would have happened had the ban not happened?**

94. *It would have quickly grown to cover the whole planet.*

95. 8) **What did the HCFCs demonstrate?**

96. *They demonstrated it is important for us to find a way to control harmful gases we put into the atmosphere.*



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解答: (37) 2 (38) 4 (39) 3 (40) 2



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日本語訳付

4[B] – Lessons from the Ozone Hole  Lesson 19 G2 Chobun dokkai 11.2(4B) A2E

97. In May 1985, scientists from the British Antarctic Survey  
科学者 (かがくしゃ) たち イギリスの 南極 (なんきょく) 調査 (ちようさ)
98. shocked the world by announcing the discovery of a huge hole in  
衝撃 (しょうげき) をあたえた 発表 (はっぴよう) により 発見 (はっけん) 巨大 (きょだい) な
99. the ozone layer above the Antarctic. Ozone is a gas usually formed  
オゾン層 (そう) ~の上 (うえ) 南極 (なんきょく) ガス 形成 (けいせい) された
100. from oxygen that is high in the earth's atmosphere. The ozone layer is  
酸素 (さんそ) 大気 (たいき)
101. essential to life on our planet because it protects us from harmful  
なくてはならない 生命 (せいめい) 惑星 (わくせい) 守 (まも) る 有害 (ゆうがい) な
102. ultraviolet rays produced by the sun. Without the ozone layer, these rays  
紫外線 (しがいせん) もたらされる 光線 (こうせん)
103. would cause cancer and other disease in both human beings and  
~の原因 (げんいん) となる がん 病気 (びょうき) 人間 (にんげん)
104. animals.

☆ 多 Memorization Further Questions & Sample Answers

105. 1) What did the British Antarctic Survey discover ?  
~を発見 (はっけん) する



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115. signed the Montreal Protocol, a treaty that banned the  
使用 (しよう) 結局 (けっきょく) 取 (と) り扱 (あつか) い方法 (ほうほう)
116. use of these gases. Eventually, this treat way  
~によって署名 (しよめい) された すべての加盟国 (かめいこく) 国際連合 (こくさいれんごう)
117. signed by every member country of the United Nations—the only  
条約 (じょうやく) これまでに 国 (くに)
118. treaty ever to be signed by so many nations.
119. It will be a long time before the ozone hole disappears completely, but it soon  
増大 (ぞうだい) する 説得 (せつとく) する 消 (き) え失 (う) せる 完全 (かんぜん) に 共同体 (きょうどうたい)
120. stopped growing. Persuading the international community to  
取 (と) り入 (い) れる モントリオール 議定書 (ぎていしょ) 熟考 (じゅっこう) された
121. adopt the Montreal Protocol was considered to be a great  
偉業 (いぎよう) 環境 (かんきよう) の 運動 (うんどう)
122. achievement for the environmental movement.

122. ☆ 多 Memorization Further Questions & Sample Answers

123. 3) What was the hole in the ozone layer caused by?  
オゾン層 (そう) の穴 (あな) の原因 (げんいん) はなんですか。
124. It was created by gasses called CFCs.  
~と呼 (よ) ばれた フロンガス



125. **4)** What was so <sup>驚 (おどろ) くべき</sup> amazing about the Montreal Protocol?
126. Montreal Protocol の <sup>おどろ</sup> 驚くべきことはなんですか。  
~によってサインされた
127. *It was signed by every member country of the United Nations.*
- 
128. According to scientists, there were two reasons why people responded so <sup>理由 (りゆう)</sup> quickly to the <sup>答 (こた) えた</sup> danger <sup>危険 (きけん) なもの</sup>.
129. The first was that it was easy to <sup>理解 (りかい) する</sup> understand.
130. If the hole <sup>~し続 (つづ) けた</sup> kept <sup>増大 (ぞうだい) する</sup> growing, it would <sup>~に驚異 (きょうい) をあたえる</sup> threaten <sup>あらゆる場所 (ばしょ)</sup> life everywhere.
131. The second reason was that it was easy to <sup>取 (と) り替 (か) える</sup> replace the CFCs with <sup>少ない 損害 (そんがい)</sup> hydrochlorofluorocarbons (HCFCs), gases that do much less damage to the ozone layer.
132. <sup>不幸 (ふこう) にも</sup> Unfortunately, <sup>しかし</sup> though, HCFCs have their own problems.
133. <sup>~だけでなく</sup> Not only do they <sup>助長 (じょちょう) する</sup> contribute to <sup>地球温暖化 (ちきゅうおんだんか)</sup> global warming but they may also be a

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144. **6)** What are problems with HCFCs? HCFCs の <sup>もんだい</sup> 問題はなんですか。
145. *They contribute to global warming and they may be a major <sup>要因 (よういん)</sup> factor in the*
146. *development of acid rain.*
- 
147. Does this mean that the <sup>これは~の意味 (いみ) ですか</sup> ban <sup>禁止 (きんし)</sup> on CFCs was a bad idea?
148. The ozone hole was a real danger and, <sup>禁止事項 (きんしじこう) がなければ</sup> without the ban, it would have quickly
149. grown to <sup>覆 (おお) う</sup> cover the <sup>全体 (ぜんたい)</sup> whole <sup>惑星 (わくせい)</sup> planet.
150. Stopping its <sup>増大 (ぞうだい)</sup> growth was a <sup>重要 (じゅうよう) な</sup> major <sup>勝利 (しょうり)</sup> victory.
151. Nevertheless, the <sup>それにもかかわらず</sup> difficulties <sup>困難 (こんなん)</sup> caused by HCFCs show <sup>どれほど</sup> how <sup>複雑 (ふくざつ) な</sup> complicated
152. environmental problems <sup>環境 (かんきょう) の</sup> can be. <sup>なりえる</sup> Above all, they <sup>とりわけ</sup> demonstrate <sup>実証 (じっしょう) する</sup> how important
153. it is for us to find a way to <sup>制御 (せいぎよ) する</sup> control the <sup>主な</sup> main <sup>原因 (げんいん)</sup> cause of global
154. warming—the <sup>有害 (ゆうがい) な</sup> harmful <sup>加 (くわ) えること</sup> gases that we keep <sup>大気 (たいき)</sup> putting into the atmosphere.

155. ☆多 Memorization **Further Questions&Sample Answers**

156. 7) What would have happened had the ban not happened?  
起 (おこ) った

157. もしこの禁止令きんしれいがなかったらどのようなことおが起こったでしょうか。

158. *It would have quickly grown to cover the whole planet.*  
覆 (おお) う 全惑星 (ぜんわくせい)

159. 8) What did the HCFCs demonstrate? HCFCsが証明しょうめいしていることはなんですか。  
証明 (しょうめい) する

160. *They demonstrated it is important for us to find a way to control harmful gases*

161. *we put into the atmosphere.*

162. (37) The ozone layer is important because it オゾン層そう じゅうようは重要じゅうようである。なぜならそれは…

163. 1 helps preserve the oxygen necessary for life.  
保護 (ほご) する 酸素 (さんそ) 必要 (ひつよう) な

164. 2 protects us from rays that can cause serious diseases.  
重大 (じゅうだい) な 病気 (びょうき)

165. 3 allows us to calculate the amount of pollution in the air.  
私達 (わたしたち) に~させる 計算 (けいさん) する 総計 (そうけい) 汚染 (おせん) 空气中 (くうきちゅう) の

166. 4 stops the earth's atmosphere from being damaged by the sun.

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176. 1 Scientists were becoming concerned about acid rain.  
心配 (しんぱい) した 酸性雨 (さんせいう)

177. 2 People recognized that global warming was a real problem.  
~を認 (みと) めた 現実 (げんじつ) の

178. 3 A gas that was not as harmful to the ozone layer was available.  
有害 (ゆうがい) なほどではない 利用可能 (りようかのう) な

179. 4 They were being produced in only a few places around the world.  
生産 (せいさん) されていた 世界中 (せかいじゅう) で

180. (40) The ban on CFCs was a good idea because フロンの禁止きんしが良よい案あんだったのは…  
フロンの禁止 (きんし) ~~導 (みちび) いた 削減 (さくげん)

181. 1 it led to a reduction in global warming.  
救 (すく) った 惑星 (わくせい) 脅威 (きょうい) となるもの

182. 2 it saved the planet from a serious threat.  
代替 (だいたい) フロン

183. 3 it reduced the amount of HCFCs in the air.  
示 (しめ) した どれほど 複雑 (ふくざつ) な

184. 4 it showed how complicated nature is.



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## Review Questions

185. <sup>イギリスの</sup> **1)** What did the British Antarctic Survey <sup>~を発見 (はっけん) する</sup> discover ?

186. *They discovered a huge hole in the ozone layer.*

187. **2)** Why is the ozone layer <sup>なくてはならない</sup> essential to life?

188. *Because it protects us from harmful ultraviolet rays produced by the sun.*

189. **3)** What was the hole in the ozone layer caused by?

191. *It was created by gasses <sup>~と呼 (よ) ばれた フロンガス</sup> called CFCs.*

192. **4)** What was so amazing about the Montreal Protocol?

193. *It was signed by every member country of the United Nations.*

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202. **8)** What did the HCFCs demonstrate?

203. *They demonstrated it is important for us to find a way to control harmful gases*

204. *we put into the atmosphere*

解答: (37) 2 (38) 4 (39) 3 (40) 2



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