

For Teachers: Please have the students read the sentences one at a time and correct their pronunciation of each sentence then have them repeat after you. Wait until after they read the sentence (use the number in place of the missing word) to have the students choose the correct answer to fill in the blank. When the students finish the article, move on to the further questions.

3[A] – Lights Out



10.2(3A)A2E

1. When we hear the word “pollution,” we ^{公害（こうがい）} generally ^{一般的（いっぱんてき）に} think of the ^{被害（ひがい）} damage to the ^{環境（かんきょう）} environment ^{～が原因（げんいん）で} caused by ^{化学物質（かがくぶっしつ）} chemicals and other ^{物質（ぶっしつ）} substances.
2. Recently, however, another type of pollution has begun to attract ^{引（ひ）く} attention ^{注意（ちゅうい）} —light pollution. This ^{最近では} refers ^{だけれども} to any ^{公害（こうがい）} negative ^{引（ひ）く} effect ^{注意（ちゅうい）} of ^{汚染（おせん）} artificial ^{引（ひ）き合（あ）いに出（だ）す} light on the environment. ^{反対（はんたい）の} According to ^{効果（こうか）} experts ^{～によれば}, artificial light ^{専門家（せんもんか）} is doing damage both to (**26**) and to human beings.
3. *Choose the correct answer to fill in the blank from these choices.
4. **(26) 1** ^{自由時間（じゆうじかん）} leisure **2** ^{産業（さんぎょう）} industry **3** ^{自然（しぜん）} nature **4** ^{文化（ぶんか）・教養（きょうよう）} culture

Further Questions&A

*Ask student to answer the question on their own at first. If the student can't answer correctly, have him look at the last page and read the “example answer” for the question. Have the student try to memorize the answer, if it's too long or difficult, you should divide the sentence into 2 or 3 parts to make it easier to remember. Once they have memorized the answer, the teacher should ask the question one last time so that the student can practice answering. Also if you find any mistakes, please mark the page and let me know ASAP.

5. **1)-26** What is pollution? ^{おせん} 汚染とはなんですか。
6. *Pollution is something ^{～によって作（つく）られた} made by humans that does damage to the environment.*
7. **2)-26** What is light pollution? ^{こうがい} 光害とはなんですか。
8. *Any ^{マイナスの} negative ^{影響（えいきょう）} effect of artificial light on the environment.*
9. ^{最初（さいしよ）の人々（ひとびと）} The first people ^{～に気（き）づいて} to become ^{科学者（かがくしゃ）} aware of light pollution were scientists who study the stars.
10. They ^{～ということに気（き）づく} noticed that it was becoming more and more difficult to see stars at night because of all the light ^{放出（ほうしゅつ）された} given off ^{もっとも～であるが} by cities. Light pollution, though, does not only ^{～しにくい} make it harder for us to see the stars.
11. It also ^{害（がい）する} harms ^{～をさえぎること} our health by interrupting sleep and sometimes even ^{邪魔（じゃま）をすること} interfering ^{能力（のうりょく）} with the body's ^{作（つく）り出（だ）す} ability to produce the chemicals ^{必要（ひつよう）なもの} needed ^{健康（けんこう）でいるために} to stay healthy. It also ^{影響（えいきょう）をおよぼす} affects ^{野生生物（やせいせいぶつ）} wildlife, ^{～の原因（げんいん）となる} causing animals to become (**27**).
12. For example, ^{人工（じんこう）の} artificial lights can ^{むずかしくする} make it difficult for baby turtles to find the ^{結果（けっか）として} ocean after they are born, and ^{カメ} as a result, many of them die.
13. Choose the correct answer to fill in the blank from these choices.

14. (27) 1 confused 2 lonely 3 peaceful 4 independent

Further Questions&A



15. 3)-27 What did scientists who study the stars first notice about light pollution?
16. 星を研究している人たちが最初に気が付いた光害はなんでしたか。
17. They noticed that it was becoming more and more difficult to see stars at night (because of the light given off by cities).
18. 4)-27 How does light pollution harm our health? どのように光害は私たちの健康を害するのですか。
19. By interrupting sleep.
20. Sometimes even interfering with the body's ability to produce the chemicals needed to stay healthy.
21. In response to these problems, an international movement is now trying to (28) the effects of artificial light.
22. An organization called International Dark-Sky Association is leading the way by encouraging the protection of areas of the sky from light pollution.
23. The organization is also trying to persuade governments to use public lighting more efficiently.
24. *Choose the correct answer to fill in the blank from these choices.
25. (28) 1 exchange 2 reduce 3 ignore 4 preserve

Further Questions&A

26. 5)-28 Who is encouraging the protection of areas of the sky from light pollution?
27. 誰が光害から空の領域の保護をする事を奨励していますか。
28. An organization called International Dark-Sky Association.
29. 6)-28 How does International Dark-Sky try to protect areas of the sky?
30. International Dark-Sky はどのようにして空の領域を守ろうとしていますか。
31. By trying to persuade governments to use public lighting more efficiently.
32. At the present, much of the light we produce is not actually needed.
33. Creating less light would not only lead to less light pollution, but it would also help the environment in other ways.
34. In the United States, for example, it is estimated that 2 million barrels of oil are used every day for the production of (29) light.
35. Stopping this waste of fuel would both save money and

少(すく)なくする 量(りょう) 温室効果(おんしつこうか)ガス 放出(ほうしゅつ)させる
lessen the amount of greenhouse gases being released into the air.

36. *Choose the correct answer to fill in the blank from these choices.

37. (29) 1 unofficial 2 temporary 3 ordinary 4 unnecessary
非公式(ひこうしき)な 一時(いちじ)の 通常(つうじょう)の 不必要(ふひつよう)な

Further Questions&A



38. 7)-29 How would creating less light help ?
作(つく)り出(だ)すこと より少(すく)くない 援助(えんじょ)する

39. 光(ひかり)を少(すく)なくすることでどのような手助けになりますか。
て だす

40. We would create less light pollution.

41. Countries would save oil used for the production of light.
節約(せつやく)する 製品(せいひん)

42. 8)-29 What are some examples of unneeded light?
必要(ひつよう)でない

43. 例(れい)としてあげられる不必要(ふひつよう)な 光(ひかり)はなんですか。

44. Store signs that are on when the store isn't open.

45. Street lights on rarely used streets.
街灯(がいとう) まれに

46. Traffic lights late at night when there is little traffic .
交通信号灯(こうつうしんごうとう) 少(すく)くない 通行量(つうこうりょう)

47. Apartment or house entry lights that are on all night long.
玄関(げんかん)の灯(あかり)

Vocabularies: Try to memorize these words yourself without looking at the Japanese translations.

For Teachers: Have the student read the word in English, correct their pronunciation then say it together. Then have the student say it in Japanese before saying again in English. After you have done this for each line, go back to the first word and have the student translate it.

48. (26) 1 leisure 2 industry 3 nature 4 culture
49. (27) 1 confused 2 lonely 3 peaceful 4 independent
50. (28) 1 exchange 2 reduce 3 ignore 4 preserve
51. (29) 1 unofficial 2 temporary 3 ordinary 4 unnecessary

Example sentences: *It must take a long time but Try to use these vocabularies one by one in the sentences of your original one. Teacher must show them your for example sentence before ask.

52. (26) 1 Your dry cleaning is ready, so please drop by and pick it up at your leisure.
立(た)ちよって 暇(ひま)のあるときに

53. 2 The manufacturing industry is very important to the economy.
製造業(せいぞうぎょう)の 産業(さんぎょう) 経済(けいざい)

54. 3 We like to go camping every now and then to be surrounded by nature.
しばしば 取(と)り囲(かこ)まれている 自然(しぜん)に

55. 4 Calligraphy and tea ceremonies are part of traditional Japanese culture .
書道(しやうどう) 茶道(さどう) ~の一部(いちぶ) 伝統(でんとう)の 文化・教養(きやうよう)

56. (27) 1 I am confused by the new grammar .
混乱(こんらん)した 文法学(ぶんぼうがく)

57. 2 I often feel lonely when I am home alone .
ひとりぼっちで

58. 3 This neighborhood is not very exciting, but at least it is peaceful .
近隣地域(きんりんちいき) わくわくする 少(すく)なくとも 平和(へいわ)な

59. 4 She likes to walk to school by herself so she can feel more independent .
独立(どくりつ)の

60. (28) 1 I'll exchange my Charizard card for your Pikachu card.
交換(こうかん)する

61. 2 Let's work together to reduce the amount of trash we create .
減(へ)らす ~の量(りょう) ゴミ 作(つく)り出(だ)す

62. **3** Cats often **ignore** me when I try to **get their attention**.
無視(むし)する 注意(ちゅうい)を引(ひ)く
63. **4** People used to **pickle** vegetables to **preserve** them for a long time.
漬(つ)け汁(じゅう)に(し)るにつける 保存(ぼぞん)する
64. **(29)1** The **unofficial** reason the idol **retired** was to **get married**.
非公式(ひこうしき) 理由(りゆう) アイドル 引退(いんたい)した 結婚(けっこん)するため
65. **2** After the **representative** **retired**, a **temporary** replacement took his place until the next election.
代議士(だいぎし)・議員(ぎいん) 退職(たいしよく) 一時(いちじ)の 後継者(こうけいしゃ) 彼のかわりをした 選挙(せんきょ)
66. **3** I thought I saw a **rare** bird, but it turned out to be simply an **ordinary** crow.
めずらしい ～であるとわかる ただの 普通(ふつう)の カラス
67. **4** Restaurants often give me a knife, but I **rarely** need it. It is usually **unnecessary**.
滅多(めった)にない 不必要(ふひつよう)な

Answers for "Vocabularies".

- | | | | | | | | |
|------------------|-----------------------------|---|--------------------------|---|---------------------------|---|----------------------------------|
| 68. (26)1 | leisure | 2 | industry | 3 | nature | 4 | culture |
| | <small>自由時間(じゆうじかん)</small> | | <small>産業(さんぎょう)</small> | | <small>自然(しぜん)</small> | | <small>文化(ぶんか)・教養(きょうよう)</small> |
| 69. (27)1 | confused | 2 | lonely | 3 | peaceful | 4 | independent |
| | <small>混乱(こんらん)した</small> | | <small>孤独(こどく)な</small> | | <small>平和(へいわ)な</small> | | <small>独立(どくりつ)した</small> |
| 70. (28)1 | exchange | 2 | reduce | 3 | ignore | 4 | preserve |
| | <small>交換(こうかん)する</small> | | <small>減(へ)らす</small> | | <small>無視(むし)する</small> | | <small>維持(いじ)する</small> |
| 71. (29)1 | unofficial | 2 | temporary | 3 | ordinary | 4 | unnecessary |
| | <small>非公式(ひこうしき)な</small> | | <small>一時(いちじ)の</small> | | <small>通常(つうじょう)の</small> | | <small>不必要(ふひつよう)な</small> |

Review Questions



72. **1)-26** What is pollution?
73. *Pollution is something made by humans that does damage to the environment.*
74. **2)-26** What is light pollution?
75. *Any **negative** **effect** of artificial light on the environment.*
マイナスの 影響(えいきょう)
76. **3)-27** What did scientists who study the stars first notice about light pollution?
77. *They noticed that it was becoming more and more difficult to see stars at night (because of the **light** given off by cities).*
78. **4)-27** How does light pollution harm our health?
79. *By **interrupting** sleep.*
妨(さまた)げる
80. *Sometimes even **interfering** with the body's **ability** to **produce** the **chemicals** needed to stay healthy.*
～でさえ 邪魔(じゃま)をすること 能力(のうりょく) 作(つく)り出(だ)す 化学作用(かがくさよう)の 必要(ひつよう)なもの
81. **5)-28** Who is encouraging the protection of areas of the sky from light pollution?
82. *An organization called International Dark-Sky Association.*
83. **6)-28** How does International Dark-Sky try to protect areas of the sky?
84. *By trying to **persuade** governments to use public lighting more **efficiently**.*
説得(せっとく)する 効果的(こうかてき)に
85. **7)-29** How would creating less light help?
86. *We would create **less** light pollution.*
87. *Countries would **save** oil used for the **production** of light.*
節約(せつやく)する 製品(せいひん)
88. **8)-29** What are some examples of unneeded light?
89. *Store signs that are on when the store isn't open.*
90. *Street lights on rarely used streets.*
91. *Trafficlights late at night when there is **little** traffic.*
交通信号灯(こうつうしんごうとう) 少(すく)ない 通行量(つうこうりょう)

92. Apartment or house 玄関（げんかん）の灯（あか）り entry lights that are on all night long.

解答: (26) 3 (27) 1 (28) 2 (29) 4

e T O C 生徒様以外使用禁止

16	(形)効果的 こうかてき な	effective					イフェクティブ
17	(名)(店などの) 顧客 みせ こきやく 顧客	customer					カスタマー
18	(副)不運 ふうん にも、 残念 ざんねん ながら	unfortunately					アンフォーチュネトウリー
19	(動) (～を)検査 する、確かめる けんさ たし	check					チェック
20	(動)～を引きつ ける ひ	attract					アトラクト
21	(動)～に気づく き	realize					リアライズ
22	(名)有利、利点 ゆうり りてん	advantage					アドヴァンティージ
23	(動)～を防ぐ、 防止する ふせぐ ぼうし	prevent					プリヴェント
24	(名)政府 せいふ	government					ガヴァメント
25	(動)～を 受け取る、受ける うけとる	receive					リシーヴ
26	(副)そのうえ	moreover					モアオウヴァ
27	(動)～を支持す る(名)支援 しじ しえん	support					サポー
28	(形)普通の、 共通の ふつう きょうつう	common					コモン
29	(動)～を提 供 する(名)申し出 ていきょう もうしで	offer					オファー
30	(名)方法 ほうほう	method					メソッド