No.9

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.

4[B] – Genetic Clues

10.3(4B)A2E

1. In recent years, it has become common for police to use DNA analysis to solve crimes .
2. This usually involves a technique known as “genetic fingerprinting”.
3. Most of the genetic information in DNA is the same for everyone, but a small percentage is unique to each individual.
4. By comparing someone’s DNA to that found at the scene of the crime, it is possible to prove that he or she was there.
5. Now, though, the police have begun expanding this DNA analysis to cats.

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.

6. 1) What technique has become for police to use to solve crimes ?
7. 犯罪を解決するために使う警察官の技術は何ですか。
8. *They use genetic fingerprinting.*
9. 2) Is most DNA in people different? ほとんどの DNA は異なりますか。
10. *No. Only a small amount of the DNA is different from person to person.*

11. The usefulness of this was first shown in Canada.
12. The police there suspected a man of carrying out a murder , but they had no evidence that he was present at the crime.
13. They did, however, find a jacket nearby on which there were some white hairs.
14. One of the policemen remembered that the parents of the man had a white cat. They asked scientists to compare DNA from both the cat and the white hairs. They also took DNA samples from other cats in the neighborhood.
15. The DNA from the hairs and the parent’s cat turned out to be the same, and different from that of the other cats.
16. This showed that the jacket belonged to the man and he was sent to prison for the crime .

Further Questions&A

3) Where was genetic fingerprinting for cats first used?

初めて猫の遺伝子鑑定をしたところはどこですか。

It was first used on a murder case in Canada.

4) Why did the police take DNA samples from other cats in the neighborhood?

警察が近所の他の猫から DNA 標本を取ったのはなぜですか。

They took DNA from other cats to find out how different they were from the white hairs.

The biggest difficulty with genetic fingerprinting is making sure which part of the DNA is unique .

For this reason, it is important to have some examples of DNA of genetically related animals to identify which genes are shared and which are not.

With this in mind, the United States Federal Bureau of Investigation (FBI) requested scientists to establish databases of animal DNA.

In response, a team led by Robert Grahn, a scientist at the University of California at Davis, began to collect DNA from cats around the world.

The team's database now has DNA from 1,394 different cats.

Further Questions&A

5) What has the FBI requested scientists to establish ?

FBI が科学者達に要請して設立したものは何ですか。

The FBI asked scientists to establish a database of animal DNA.

6) How many different cats does the database now have the profiles of?

このデータベースには今何種類の猫のプロフィールがありますか。

It contains the DNA profiles of 1,394 different cats.

Although the scientists plan to include the DNA of dogs and other animals, they believe that cat DNA will be especially useful .

This is because cats leave fur behind wherever they go. This makes it almost impossible for people nearby to avoid getting fur on their clothes.

For this reason , police confidently expect the DNA of cats to play a part in many future crime investigations.

*DNA = deoxyribonucleic acid = 生化学

Further Questions&A

7) Why do scientists believe that cat DNA will be more useful than other animals?

なぜ科学者たちは猫の DNA は他の動物より役に立つと信じているのですか。

Cats leave fur behind more than other common pets.

8) How helpful do you think that this database will be in solving future crimes?

このデータベースは将来の犯罪にどのくらい役立つと思いますか。

It is unlikely criminals will come in contact with the cats in the database, so it is more useful for studying the genome than solving crime.

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*Choose the correct answer from these choices.

(37) The technique of "genetic fingerprinting" 遺伝子鑑定の技術は…

1 was first tested on cats but is now also being used for human beings.

2 relies on the fact that the DNA of each individual is slightly different.

3 can be used to determine the types of people likely to commit crimes .

4 is a way of discovering similarities between two separate crime scenes .

(38) What did genetic fingerprinting show the police in Canada?

遺伝子鑑定によってカナダの警察は何がわかりましたか。

1 That the white hairs found on the jacket belonged to the victim of a murder .

2 That the jacket found at the crime scene belonged to the murderer's father.

3 That a man they suspected of murder had been at the scene of the crime.

4 That a man had been wrongly sent to prison for murdering someone.

(39) What is one thing that the new database will do?

新しいデータベースがすることの一つは何ですか。

1 Show which genes are shared by genetically related animals.

2 Provide a list of cats that have been at crime scenes around the world.

3 Store information about experts on genetic fingerprinting.

4 Identify which types of DNA are unique to humans.

(40) Why do the police think cat DNA will be more useful to them than DNA from other animals? なぜ警察は猫の DNA が他の動物からの DNA よりも、彼らにとって有用だと考えていますか。

1 Cats are less likely to be noticed at a crime scene.

2 Cats have a wider variety of DNA than other animals.

3 Cat fur tends to remain at a crime scene for a longer time.

4 Cat fur is more likely to be found on criminals' clothes.

Review Questions

1) What technique (技術（ぎじゅつ）) has become for police to use to solve (解決（かいけつ）する) crimes (犯罪（はんざい）)?

They use genetic fingerprinting.

2) Is most DNA in people different?

No. Only a small amount (量（りょう）) of the DNA is different from person to person.

3) Where was genetic fingerprinting for cats first used?

It was first used on a murder (殺人（さつじん）) case (事件（じけん）) in Canada.

4) Why did the police take DNA samples (標本（ひょうほん）) from other cats in the neighborhood?

They took DNA from other cats to find out how different they were from the white hairs.

5) What has the FBI requested (要請（ようせい）した) scientists to establish (設立（せつりつ）する)?

The FBI asked scientists to establish a database of animal DNA.

6) How many different cats does the database now have the profiles (プロフィール) of?

It contains (含（ふく）む) the DNA profiles of 1,394 different cats.

7) Why do scientists believe that cat DNA will be more useful than other animals?

Cats leave fur behind more than other common (ありふれた) pets.

8) How helpful (役立つ) do you think that this database will be in solving (解決（かいけつ）する) future crimes?

It is unlikely (ありそうもない) criminals (犯罪（はんざい）の) will come in contact (接触（せっしょく）において) with the cats in the database, so it is more useful for studying the genome (ゲノム) than solving crime.

*genome = 生物(せいぶつ)が機能的(きのうてき)に完全(かんぜん)な生活(せいかつ)をするために必要(ひつよう)な遺伝子群(いでんしぐん)を含(ふく)む染色体(せんしょくたい)の一組(ひとくみ)

解答: (37) 2 (38) 3 (39) 1 (40) 4

256	危険(きけん)	danger					デインジャー
257	普通(ふつう)の	ordinary					オ-ディナリー
258	～を深(ふか)める	deepen					ディ-ペン
259	活動(かつどう)	activity					アクティビティ
260	～を楽(たの)しませる	entertain					エンターテイン
261	装置(そうち)	device					ディバイス
262	～をつなぐ、接続(せつぞく)する	connect					コネクト
263	～を逆転(ぎゃくてん)させる	reverse					リバース
264	地図帳(ちずちょう)	atlas					アトラス
265	規則的(きそく)に、定期的(ていきてき)に	regularly					レギュラリー
266	それに応(おう)じて	accordingly					アコーディングリー
267	交通(こうつう)、交通量(こうつうりょう)	traffic					トラフィック
268	～に火(ひ)をつける	light					ライト
269	中身(なかみ)	content					コンテント
270	宿題(しゅくだい)	assignment					アサインメント