Alligator blood and antibiotics

Read the title and the article quickly. Do not worry about the missing sentences (1–5).

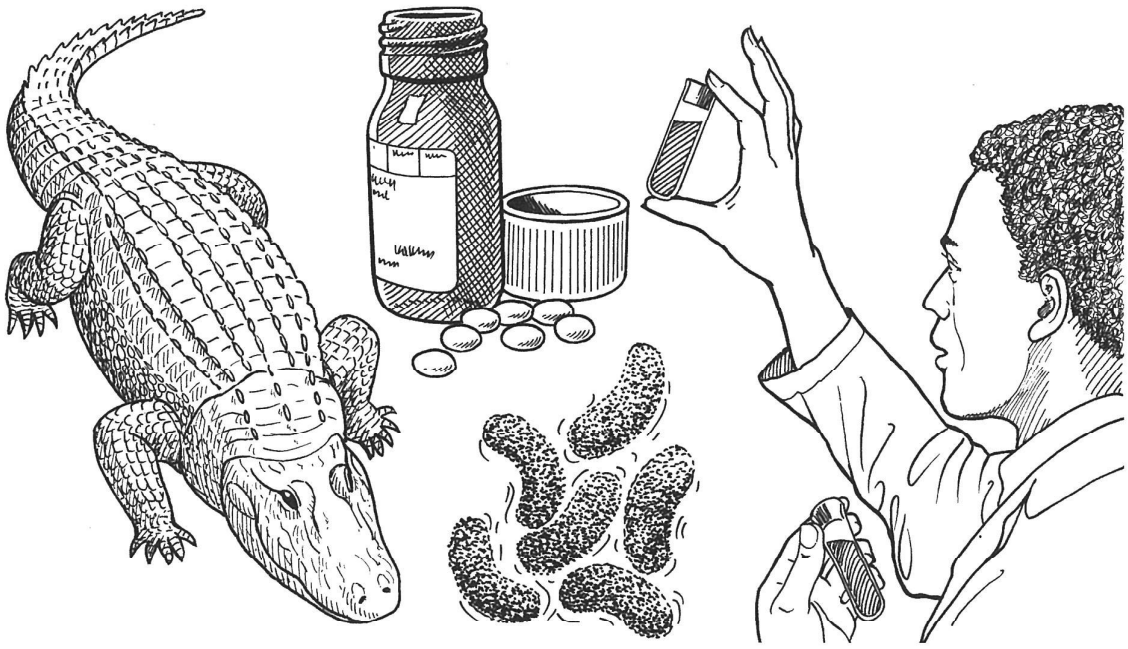
Alligator blood may lead to powerful new antibiotics

Alligators often engage in violent fights over territories and mates, and scientists have puzzled over why their wounds rarely get infected. Now researchers think the secret lies in the reptiles' blood. Chemists in Louisiana found that blood from the American alligator can successfully destroy 23 strains of bacteria, including strains known to be resistant to antibiotics. (1) .....

Study co-author Lancia Darville at Louisiana State University in Baton Rouge believes that peptides – fragments of proteins – within alligator blood help the animals stave off fatal infections. (2) ..... The scientists think that these peptides could one day lead to medicines that would provide humans with the same antibiotic protection. 'We are in the process of separating and identifying the specific peptides in alligator blood,' said Darville. 'Once we sequence these peptides, we can obtain their chemical structure to potentially create new drugs.'

Study co-author Mark Merchant, a biochemist at McNeese State University in Lake Charles, Louisiana, was among the first to notice alligators' unusual resistance. (3) ..... Merchant therefore created human and alligator serum – protein-rich blood plasma that has had clotting agents removed – and exposed each of them to 23 strains of bacteria. Human serum destroyed only eight of the bacterial strains. (4) .....When the alligator serum was exposed to HIV the researchers found that a good amount of the virus was destroyed.

The study team thinks that pills and creams containing alligator peptides could be available at local pharmacies within seven to ten years. Such products would be a boon to patients that need extra help preventing infections, such as diabetes patients with foot ulcers, burn victims, and people suffering from auto-immune diseases. However, there may be potential hurdles before alligator-based medicines can reach drugstore shelves. (5) .....



(American English)

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A Answer these questions without looking at the text.

1 How is alligator blood connected to new antibiotics?

2 How many strains of bacteria can alligator blood destroy?

3 What kind of patients could benefit from this research?

B Work with your partner to put these sentences in the correct place in the article. (There is one sentence that you do not need.)

a However, the alligator serum killed all 23, including drug-resistant bacteria such as MRSA (methicillin-resistant *Staphylococcus aureus*).

b Such peptides are also found in the skin of frogs and toads, as well as in Komodo dragons and crocodiles.

c For example, Darville noted, initial tests have revealed that higher concentrations of the alligator serum tend to be toxic to human cells.

d By contrast, human immunities are adaptive – people develop resistance to many diseases after exposure, such as the low doses given in vaccines.

e In addition, the blood was able to deplete and destroy a significant amount of HIV, the virus that causes AIDS.

f He was intrigued that, despite living in swampy environments where bacteria thrive, alligators that suffered frequent scratches and bruises rarely developed fatal infections.

C Match the words to the definitions. The words are all in the text, so use the context clues to help you.

1 antibiotics	**a** chemical compounds, e.g. protein in the blood
2 strains	**b** the watery and colourless part of the blood
3 peptides	**c** not destroyed by antibiotics
4 drug-resistant	**d** causing death
5 fatal	**e** medicine that can destroy harmful bacteria
6 infection	**f** poisonous
7 serum	**g** types
8 toxic	**h** a disease in a part of your body caused by bacteria or a virus

D Answer these questions.

1 What has puzzled scientists?

.....

2 What can alligator blood do? How do scientists think this happens?

.....

3 What can researchers do once they understand the process? When may this happen?

.....

4 How were the human and alligator serums created by Merchant different?

.....

5 Who would benefit from products using alligator peptides?

.....

6 What is one potential problem with such products?

.....

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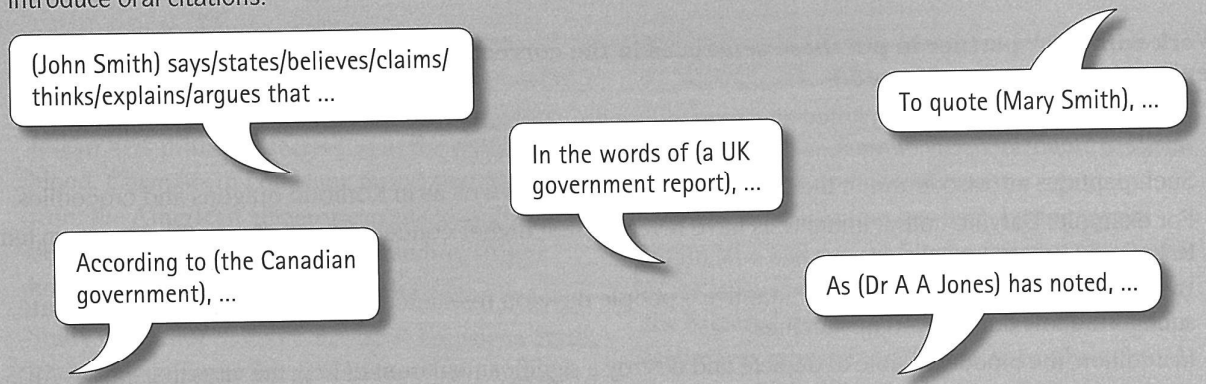
Strategies

When you give a formal speech or presentation, you will need to quote other people or sources – you have to tell your audience where your quotation comes from. This is called an *oral citation*. Here are some ways to introduce oral citations:



E Look at these sentences from the text where the writer has reported what other people have said. Work with your partner to change these sentences into oral citations, using the Strategies box to help you. The first one has been done as an example.

1 Now researchers think the secret lies in the reptiles' blood.

According to researchers, the secret lies in the reptiles' blood.

2 Study co-author Lancia Darville at Louisiana State University in Baton Rouge believes that peptides – fragments of proteins – within alligator blood help the animals stave off fatal infections.

3 The scientists think that these peptides could one day lead to medicines that would provide humans with the same antibiotic protection.

4 'We are in the process of separating and identifying the specific peptides in alligator blood,' said Darville. 'Once we sequence these peptides, we can obtain their chemical structure to potentially create new drugs.'

5 The study team thinks that pills and creams containing alligator peptides could be available at local pharmacies within seven to ten years.

6 For example, Darville noted, initial tests have revealed that higher concentrations of the alligator serum tend to be toxic to human cells.

F Ask your partner these questions and make a note of their answers.

1 Are traditional remedies popular in your country?
2 Can you tell me about one traditional remedy from your country?
3 Do you like to use traditional remedies? Why (not)?

Now tell the class what your partner said, using oral citations.