Unit 5

Flying High

1 Read the clues. Unscramble the words. Then decode the sentence and decide if it's true or false.

1. ighwet	___ ___ ___(1) ___ ___ ___	Measured in pounds or kilos
2. degli	___ ___(8) ___ ___ ___	Float in the air
3. sapwnnig	___ ___ ___(7) ___ ___ ___ ___ ___	Distance between wing tips
4. tghifl	___(12) ___ ___ ___ ___ ___	The action of flying
5. wololh	___(4) ___ ___ ___ ___ ___	Empty
6. leray	___ ___ ___ ___ ___(9)	Not late
7. oras	___(3) ___ ___ ___	Fly upward
8. tfuresea	___ ___(5) ___ ___ ___ ___ ___ ___	Characteristics
9. falp	___ ___ ___(11) ___	The movement of wings up and down
10. itmiled	___ ___ ___(10) ___ ___ ___ ___	Not great or high in size or number
11. tatpadanio	___ ___ ___ ___ ___(2) ___ ___ ___ ___ ___	A change to improve life in an environment
12. ytilibapac	___ ___ ___ ___ ___(13) ___ ___ ___ ___ ___	The ability to do something
13. vevole	___ ___ ___(6) ___ ___ ___	Develop and improve over time

Write the letters according to the numbers to answer this question: *What is the only mammal to fly?*

11   13 11 2   1 3   2 4 5   6 7 8 9   10 11 10 10 11 8

2 6   12 8 9 .

Is this statement *true* or *false*? ____________________

2 **Complete the sentences with words from the box.** Then decide if the sentences are true or false based on the information on page 79 of your book.

adaptation	capability	evolved	features	hollow	limited	soar	weight	wingspan

	T	F
1. Animals haven't always had the _____ to fly.	☐	☐
2. Wings probably _____ from body features of insects' aquatic ancestors.	☐	☐
3. Mammals had an earlier _____ to flight than reptiles.	☐	☐
4. Bats developed _____ to help them fly.	☐	☐
5. Mammals learnt to fly because of their light, _____ wings.	☐	☐
6. The _____ of the first reptiles was over 10 metres (32 feet).	☐	☐
7. The wind helped reptiles _____ and stay up in the air.	☐	☐
8. Adaptations over millions of years meant that mammals became lighter in _____ .	☐	☐

3 **Listen.** Write the animal group and name of the animal being described. Complete the information. 021

1. **Animal group:** insect **Name:** _____

   a. It can _____ 150 times per second.

   b. The _____ of its flight mechanism are among the most complex in the world.

   c. It is _____ at controlling its flight.

2. **Animal group:** _____ **Name:** _____

   a. It has the _____ of flying across half a football field.

   b. Its flight isn't _____ by flapping wings but by skin on its side.

   c. The loose skin forms a cape and _____ a safe landing.

3. **Animal group:** _____ **Name:** _____

   a. It's a myth that chickens aren't capable of _____ .

   b. They can fly for a _____ distance to escape predators.

   c. Farmers fatten up this bird. Its wings can't support its body _____ .

GRAMMAR

Past perfect: Distinguishing the first of two actions in the past

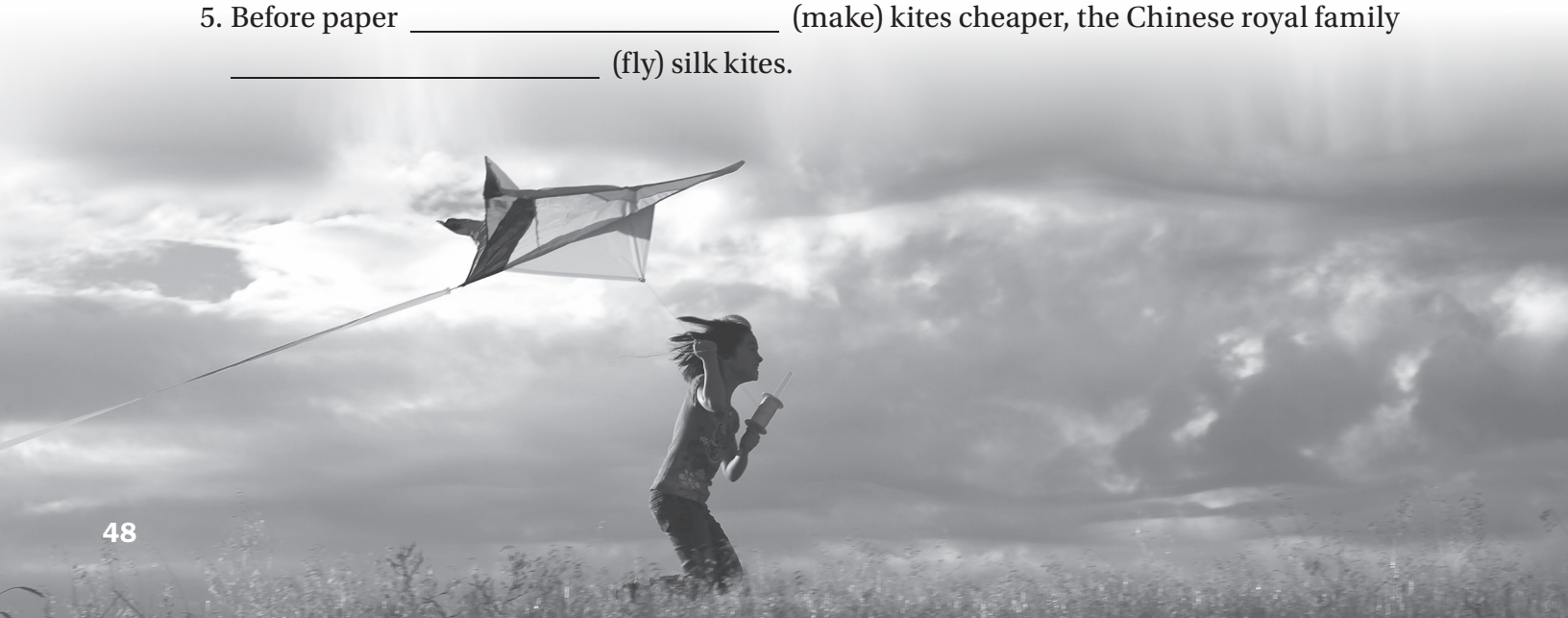
Marco Polo described man-carrying kites.	Marco Polo **had already described** man-carrying kites by the time Fausto Veranizio designed a parachute.
Fausto Veranizio designed a parachute in 1595. Da Vinci drew a sketch of a parachute in 1485.	Long before Veranizio designed his parachute in 1595, Da Vinci **had drawn** a sketch of one.

We use the past perfect tense (***had*/*hadn't*** + past participle) to talk about a completed action that happened before another action in the past.

We can use certain time expressions with the past perfect, such as *long before*, *before*, *by the time* and *until that time*.

1 **Complete the sentences.** Pay attention to which activity happened first.

1. By the time the Chinese _____ (experiment) with kites 2,500 years ago, animal flight _____ (exist) for millions of years.
2. Long before the Chinese _____ (start) flying kites, early humans _____ (try) to imitate birds.
3. The Chinese _____ (use) kites for measuring and signalling before people _____ (try) to use them for transportation.
4. Although originally the Chinese _____ (design) kites for military uses, they later _____ (use) them for fun and entertainment.
5. Before paper _____ (make) kites cheaper, the Chinese royal family _____ (fly) silk kites.



2 Listen to the ancient Greek myth. Number the events in order. 022

____ a. He and his son were imprisoned in a tower.
____ b. His son flew too close to the sun.
____ c. Daedalus was exiled to Crete.
____ d. He had a son and named him Icarus.
1 e. Daedalus committed a crime.
____ f. The sea is named after Daedalus's son.
____ g. Daedalus designed wings.
____ h. Daedalus designed a labyrinth.
____ i. Icarus fell into the sea.
____ j. They escaped.

3 Listen again. Complete the sentences. Use the past perfect forms of the verbs from the box. 023

allow	ascend	commit	design	forget	jump	observe

1. Daedalus was exiled to Crete because he _____ a crime.
2. He _____ a labyrinth so King Minos could imprison the Minotaur.
3. Although Daedalus and his son had been imprisoned in a tower, wings _____ them to escape.
4. Before they took flight, they _____ out of the tower.
5. Icarus fell into the sea because he _____ his father's words and he _____ too close to the sun.

4 Complete the story. Circle the correct word and write the verbs in the past perfect tense.

Daedalus was a (1) **skilled** / **stable** architect who (2) _____ (design) many great works. He was imprisoned with his son in a tower for showing his (3) **drawings** / **weight** and (4) **forces** / **features** of a labyrinth. From the tower, Daedalus observed how birds were adapted to (5) **weight** / **flight** with the help of wings. Daedalus and his son (6) _____ (fly) like birds and escaped. Daedalus warned his son not to (7) **descend** / **ascend** too close to the sea or to (8) **ascend** / **descend** too close to the sun. However, Icarus powered himself towards the sun by (9) **supporting** / **flapping** his wings. The wings weren't (10) **stable** / **skilled** because the wax melted and the (11) **force** / **weight** of gravity gradually pulled him down. Poor Icarus! Things might have been different if his father (12) _____ (design) a (13) **wingspan** / **parachute** instead!

1 **Listen and read.** As you read, notice how aerial vehicles have evolved. 024

Reach *for the* Remote Control

Even before 1903, when the Wright Brothers' dream of human flight had finally come true, remotely controlled aircraft were being tested mainly by the military. For example, during the American Civil War (1861–1865), the military used unmanned (no pilot) hot-air balloons to carry bombs. This wasn't successful partly because of weather conditions. Later, in 1883, the first photo from the air was taken using a kite, a camera and a very long piece of string.

People have been piloting planes for over 100 years, so it makes sense that flight is now evolving into machines that don't need pilots, such as Unmanned Aerial Vehicles (UAVs), or drones. These machines with no pilots are becoming more and more popular.

UAVs mainly come in three sizes. There are large vehicles that might one day carry passengers without pilots and medium-sized ones that are very similar to those used by the military. Then there are much smaller ones, such as quadcopters, that can fit in the palm of your hand.

Many people are nervous about the idea of a plane without a human. But there are already driverless trains between airport terminals and robo-trains in the subways of many cities. We're slowly adapting to automation.

Medium-sized UAVs, or drones, are very useful. They act like cameras in the sky. They're used for observing wildlife, monitoring protected areas and mapping ecosystems and farmland.

Advances in technology mean that smaller drones have greater capabilities. Quadcopters have four rotors that allow them to ascend, descend and do many different movements. People are only now beginning to realise their full potential. They can be sent into disaster areas or damaged buildings to look for people who are injured or trapped. They can search for chemical leaks, or check pollution levels and they can also be used in new construction.

UAVs have been described as flying smartphones. Maybe one day we'll see them everywhere, like pigeons in a city!

2 **Write.** Answer the questions.

1. How is this article different from the article on page 89 of your book?

2. What is a remotely controlled aircraft?

3. What was the first remotely controlled aircraft used for?

4. Are UAVs now used more in the military or in everyday life?

5. Why are some people nervous about the future of airlines?

6. How can UAVs help the environment?

7. How do you think a quadcopter might be useful in a damaged building?

3 **On the timeline, show the evolution of the UAV before and after the Wright Brothers' first flight.**

4 **Write.** Imagine that you had your own drone. How would you use it?

GRAMMAR

Past perfect continuous: Describing the first of two actions in the past

Animals **had been gliding** long before they learnt to fly.
Before they designed a powered plane, the Wright Brothers **had been designing** gliders.
He **had been controlling** the plane with a remote control before it crashed.

We use the past perfect continuous (***had/hadn't*** + ***been*** + past participle) to describe a continuous action (something that had been happening), before another action in the past.

1 Listen. Complete the sentences using the past perfect continuous. 025

1. Before Ryan was seven, he _____ pictures of how birds fly.
2. Before modern-day flight existed, Leonardo da Vinci _____ on the same topic.
3. Before Ryan became inspired by the capabilities of new technologies, he _____ how dinosaurs may have moved.
4. Eight years before his research into the colour of the *Archaeopteryx* feather, Ryan _____ in a band called Icarus.
5. While Ryan _____ a tattoo, the tattoo artist identified the *Archaeopteryx* feather.

2 Answer the questions about yourself. Use the past perfect continuous.

1. Before this school year, how long had you been going to your school?

   _____

2. Before you started this year, how many years had you been studying English?

   _____

3. Before you started this activity, how long had you been sitting at your desk?

   _____

4. Before you started this activity, what had you been doing?

   _____

3 **Read the letter of complaint.** Underline words connected to flight. Then answer the questions.

Is my neighbour allowed to fly his UAV over my garden?

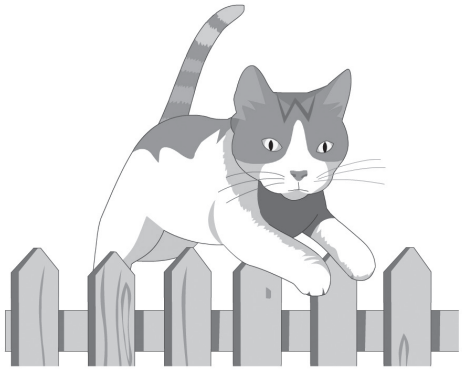
Yesterday, I was watching a documentary for a school assignment when I noticed something flying by the window. I thought it was my neighbour's football.

And then, when I went to the kitchen to get some water, I heard an engine and saw something soaring over the fence. It was a remote-controlled quadcopter! It descended quickly and I saw the 'pilot' as it landed in my neighbour's garden. I went out and he explained that he is allergic to cats and, for months, had been trying to scare a cat away. He'd tried putting hot pepper on the grass and plastic forks in the flowerbeds, but nothing worked!

The day before, he'd been using the quadcopter at work to take aerial photos of traffic. That's when he got the idea of using it to scare the cat away.

As I returned to my assignment, I heard the quadcopter take off again. I saw the cat come out of a flowerbed and jump over the fence into my garden. The UAV followed from above. Can my neighbour keep doing this?

Jonas



1. What had Jonas been doing when he saw something outside the window?

_____

_____

2. What had he been doing when he heard the sound of an engine?

_____

_____

3. What had his neighbour been doing for months?

_____

_____

4. How had his neighbour been using the quadcopter before flying it above Jonas's garden?

_____

_____

WRITING

When we write a classification essay, we first introduce the topic (e.g., restaurant) in an introductory paragraph. Then, we divide the topic into categories (fast-food, vegetarian, seafood and so on). Each category gets its own paragraph. In each paragraph, we describe the shared characteristics that make up the category. Finally, we include a conclusion in which we bring the categories back together again to talk about the main topic.

1 Organise.

1. Your task is to describe two types of animal flight. Look back at the descriptions of flight in different animals in Unit 5 of your book. If you prefer, do some research on the Internet to find other examples. Choose two animals and make notes about their flight characteristics in the table.

Animal 1	Animal 2

2. Plan your writing. You'll need an introductory paragraph. Here you will state which two animals you are going to describe. Include your topic sentence in the introductory paragraph. Write your topic sentence here:

   _____

   You'll need one body paragraph describing the flight of one animal and a second body paragraph describing the flight of the second animal. Support your description with facts.

   Finally, you'll need a concluding paragraph. You'll need to make a statement about the two animals you've chosen and about the topic in general.

2 Write.

1. Go to page 89 in your book. Re-read the model.
2. Write your first draft. Check for organisation, content, punctuation, capitalisation and spelling.
3. Check your final draft. Share it with your teacher and classmates.

Now I can ...

· talk about the evolution of flying animals and machines.

☐ Yes, I can!
☐ I think I can.
☐ I need more practice.

How did flight evolve in animals?

How did flying machines evolve?

· use the past perfect to distinguish the first of two actions in the past.

☐ Yes, I can!
☐ I think I can.
☐ I need more practice.

Rewrite the sentences to show which action came first.

Dinosaurs became extinct. Birds became skilled fliers.

Fausto Veranizio designed a man-carrying parachute in 1595. George Cayley designed the first stable glider to carry a human.

· use the past perfect continuous to describe the first of two actions in the past.

☐ Yes, I can!
☐ I think I can.
☐ I need more practice.

Write two sentences using the past perfect continuous. Use the words in the box.

drive	drone	rain	slippery

· write a classification essay to describe two types of animal flight.

☐ Yes, I can!
☐ I think I can.
☐ I need more practice.

How is flight in bats different from flight in birds?

YOU DECIDE **Choose an activity.** Go to page 94.