

9 UNIT

Getting Around



WARM-UP

Do you like hot air balloons? Would you like to fly in one? Why or why not?



READING

A. Skim-read the text. Then write DV (Leonardo Da Vinci) or JC (Nicolas-Joseph Cugnot) to answer the questions below.

Who...

1. built machinery for the army?
2. was inspired by nature?
3. was punished for an accident?
4. was an artist as well as an inventor?
5. lived in France?

The Forgotten History of Planes and Automobiles

Before inventing any means of transport, humans used to travel on foot. Later they learnt how to use horses, donkeys and camels. However, everything changed when the first wooden wheel was invented in Iraq. People needed to travel longer distances more efficiently and decrease the time spent on the journey. The history of transport includes many successful innovations, as well as experiments that failed.

Da Vinci's Ornithopter

Leonardo Da Vinci (1452-1519) was not only a great artist, but also a very innovative mechanical engineer and scientist. Although he had no formal academic training, he is widely considered to be one of the great inventors of all time. **1.** His flying machine, known as an ornithopter, was designed to mimic the flying motion of a bird's wings.



The word *ornithopter* derives from two ancient Greek words, which mean *bird* and *wing*. It was in 1485 when Leonardo Da Vinci started studying the way birds fly. **2.**

Da Vinci was not the first person to think of this form of flight. His design, though, differs from earlier models that consisted solely of a pair of wings attached to human arms. He understood that humans were too heavy and weak to fly using just wings attached to their arms. In his ornithopter, the pilot would have to lie face down on a wooden plank so that huge wings could be attached to it.

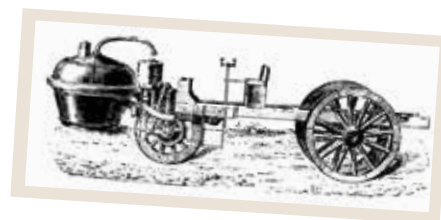
3. The aviator would be able to flap them up and down using hand levers, foot pedals and a system of pulleys.

Unfortunately, Da Vinci's ornithopter never got off the ground. The first ornithopters to fly successfully were created in the mid-19th century in France and were powered by fossil fuels.

Steam Dray

The Steam Dray was the first full-sized and working automobile. It was built by the French inventor Nicolas-Joseph Cugnot in the 18th century.

Cugnot was a military engineer. 4. So, in 1770 he constructed a full-size version of the Steam Dray, which was able to carry four tonnes and travel at 7.8 kilometres per hour. However, it could not navigate across rough terrain or steep hills; thus it needed to be modified to meet the army's needs. But none of the trials performed in the next few years were successful. In fact, it is said that the first automobile accident in history took place in 1771, when the second version of Cugnot's vehicle knocked down a part of the Paris Garden walls. 5. After a few more unsuccessful attempts, the French Army's first experiment with mechanical vehicles was abandoned entirely.



Still, in 1772 King Louis XV decided to grant Cugnot a pension of 600 livres a year for his innovative work. Furthermore, the experiment was judged interesting enough for his vehicle to be kept at the arsenal. In 2010 a copy of the Steam Dray was built by students at the Institute of Science and Technology. Their model worked perfectly, proving that Cugnot's automobile was able to function successfully in 1769.

B. Read the text. Five sentences have been removed from it. For each gap (1-5) choose one sentence from the ones listed below (A-G). There are two extra sentences you do not need to use.

- A. According to reports, Cugnot was arrested and convicted of dangerous driving.
- B. As a result, he used to draw inspiration from nature for his creations.
- C. Da Vinci spent a lot of time in the countryside.
- D. Cugnot was exiled in Brussels, where he lived in poverty.
- E. Some of the most significant machines he invented were the submarine and the rapid-fire crossbow.
- F. In 1765 he began working on models of steam-powered vehicles for the army.
- G. These wings were designed to be pointed, like those of a bat.