

## Reading 3

### Skills:

- Details
- Vocabulary in context
- Understand referents
- Understand negative facts

**Getting started:** Could the use of helicopters as air taxis be a solution to the tough traffic in big cities?

### VOLOCOPTER



If you've ever been stuck in heavy traffic and dreamed of flying over the top of it all, your wish may be about to come true. The Volocopter is a small German aircraft produced by Volocopter GmbH of Bruchsal and designed to be easy to fly. The aircraft was created to comply with the European Class 6 microlight helicopter rules and be employed in air taxi service in urban areas. It **features** 18 fixed-pitch propellers, each powered by **its** own electric motor.

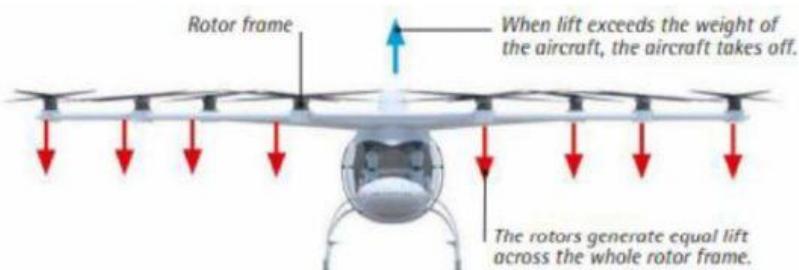
It has seating for the pilot and one passenger. Inspired by the first toy drones that appeared in 2010, a prototype Volocopter made its first flight the following year. The company received investments of €25M in 2017 to bring the design to production, and the aircraft entered serial production in April 2018, being built under contract by German manufacturer DG Flugzeugbau. Unmanned and also larger

passenger-carrying models are on the drawing board, meaning this solution to busy traffic may not be so far away.

The aircraft is made from carbon fiber composites. The controls include a primary flight control unit, plus a dissimilar backup flight control unit and a joystick control. The stabilization system employs gyroscopes, acceleration sensors, magnetic field measurement sensors and manometers. Chip-maker Intel is involved in the integration of drone technology into the design, and they are said to be part of the incorporation of autonomous and remotely piloted control systems.

Volocopters could have many uses besides helping people avoid traffic. With a top speed of 60 mph (100 km/h) and an altitude of up to 6,500 ft (2,000 m), they could be used for search and rescue, crop spraying, sports broadcasts, and as an instrument platform for scientists, surveyors, and filmmakers. The Volocopter VC200 is lifted into the air by 18 electric rotors fixed to a lightweight carbon frame. More than 100 microprocessors monitor the aircraft and automatically adjust for turbulence. If the pilot lets go of the controls, the craft stays where it is.

#### How it works



For takeoff, all of the Volocopter's rotors spin at the same speed, blowing air straight downward. The downward force of the rotor blades creates a reaction force according to Newton's Third Law of Motion. The reaction force is lift. This lift raises the craft up. To fly forward, the rotors at the back spin faster than those at the front, which generates more lift at the back. The aircraft tilts forward, directing some of the downdraft from the rotors backward, which propels the aircraft forward. When turning to one side, the rotors on the side opposite to the turn spin faster than the rotors on the turning side, tilting the aircraft so that it is propelled sideways.

\*Adapted from *How Super Cool Tech Works*. DK Publishing.

**Answer the following questions:**

1. What is stated about the Volocopter in paragraph 1?
  - a. It has one electric engine.
  - b. Its original design is made of six propellers.
  - c. It's been designed to fly in the countryside.
  - d. It could complement the public transport system of a city.
2. The word **features** in paragraph 1 is closest in meaning to
  - a. faces
  - b. includes
  - c. develops
  - d. participates
3. The word **its** in paragraph 1 refers to
  - a. rules
  - b. motor
  - c. service
  - d. propellers
4. When did mass production of the Volocopter start?
  - a. 2010
  - b. 2011
  - c. 2017
  - d. 2018
5. What is stated about self-driven Volocopters in paragraph 2?
  - a. They are part of the plans for future designs.
  - b. They will never be produced.
  - c. They are already flying in Germany.
  - d. They can be produced but only as prototypes.
6. What is stated about Intel in paragraph 3?
  - a. Intel is the supplier of the sensors and manometers the aircraft needs.
  - b. Intel includes drones the Volocopter can release if necessary.
  - c. Intel is believed to be creating self-driven features for the aircraft.
  - d. Intel can create inexpensive technology for the Volocopter.
7. What is NOT mentioned as a use people can give to the Volocopter?
  - a. It can be used to transmit a sports event.
  - b. It can be used to shoot a movie.
  - c. It can be used to help farmers.
  - d. It can be used to compete in races.

8. What is NOT part of the process for the Volocopter to take off?

- a. The rotor blades create a reaction force.
- b. The air expelled by the rotors go upwards.
- c. When moving forward, the rear rotors turn faster than the ones at the front.
- d. If the aircraft moves to the right, the left rotors spin faster than the right ones.

**What do you think?**

Which are some futuristic types of vehicles you think humans could be using in the following decades?