

Part III Questions 13-20

- You are going to read an article about vertical farming.
- Read the article and complete the sentences with a maximum of **SIX** words.
- There is an example at the beginning (0).

Verticle Farming

Agriculture is on the up and up. Major changes are on the way and farming is moving indoors and upwards. This innovation is known as vertical farming. It is the process by which certain plants and crops are grown indoors on vertically arranged mobile structures, where all environmental factors can be controlled. The new "farm" could be on top of a skyscraper, in a windowless basement or an old warehouse or inside a specially built agricultural facility.

The world's population is expected to rise to 10 billion by 2050 and climate change is exerting pressure on the planet's usable farmland, so, in the future, using large areas of land to grow food will not be an option. Other problems related to current farming methods, which make the situation worse, include increasing water scarcity, the use of chemicals and the resulting pollution. So it's no surprise that we need an alternative strategy and that 21st century technology is coming up with solutions.

The vertical farming movement has been advocated by Dr Dickson Despommier, a former professor at Columbia University in the US, who is widely regarded as the founding father of the movement. He envisages creating urban farms developing growing space in high-rise buildings and exploiting the space-saving benefits of farming vertically. In fact, it is hardly a revolutionary idea as the idea originates from the age-old terracing method used on very steep hillsides all over the world since time immemorial, not to mention the hanging gardens of Babylon.

The system involves using hydroponic and aeroponic systems rather than soil, and deploys cutting-edge technology to monitor and regulate all aspects of the farming process. Technology is used to control the light, humidity, air quality, temperature, irrigation and fertilization. There are several advantages to this system; the main one being that it can free up space for other food crops. More points in favour are that the crops can be grown all year round therefore guaranteeing supply. They may also be grown closer to outlets, which reduces the carbon footprint too. Furthermore, plants can be protected from pests and poor weather conditions, all the water used can be recycled, and agricultural pollution, which is one of the most environmentally damaging forms of pollution, can be greatly reduced.

However, not all is quite as idyllic as it may seem and this new farming method does have its detractors. It does not provide an answer to all our farming problems as not all food crops can be grown using this system. There seem to be various obstacles facing this high-rise farming. Firstly, opponents claim that this system is wasteful of energy. The temperature, light and humidity needed for this system must be controlled very precisely and this would be at a high energy cost.

So time will tell whether vertical farming will take off. As is often the case where new technology is involved, a battle seems to be raging between the two sides. However, for the time being, it seems that vertical planting is literally on the rise, as there are a myriad of examples where this type of planting has been used to green our cities.

(0) Farming is changing and ***moving indoors and upwards.***

13) One problem which will reduce the amount of land available is

14) Despommier imagines using skyscrapers for

15) The idea of vertical farming comes from

16) Taking up less land is

17) One benefit to the environment by farming vertically is that

18) The amount of electricity needed in vertical farming

19) Today you can find various examples of vertical planting
