

AT HOME ON MARS



track 2-03

A **WILL HUMANS** someday live and work on Mars? Many scientists think so. In fact, they are already working on plans to turn Mars into a new Earth.

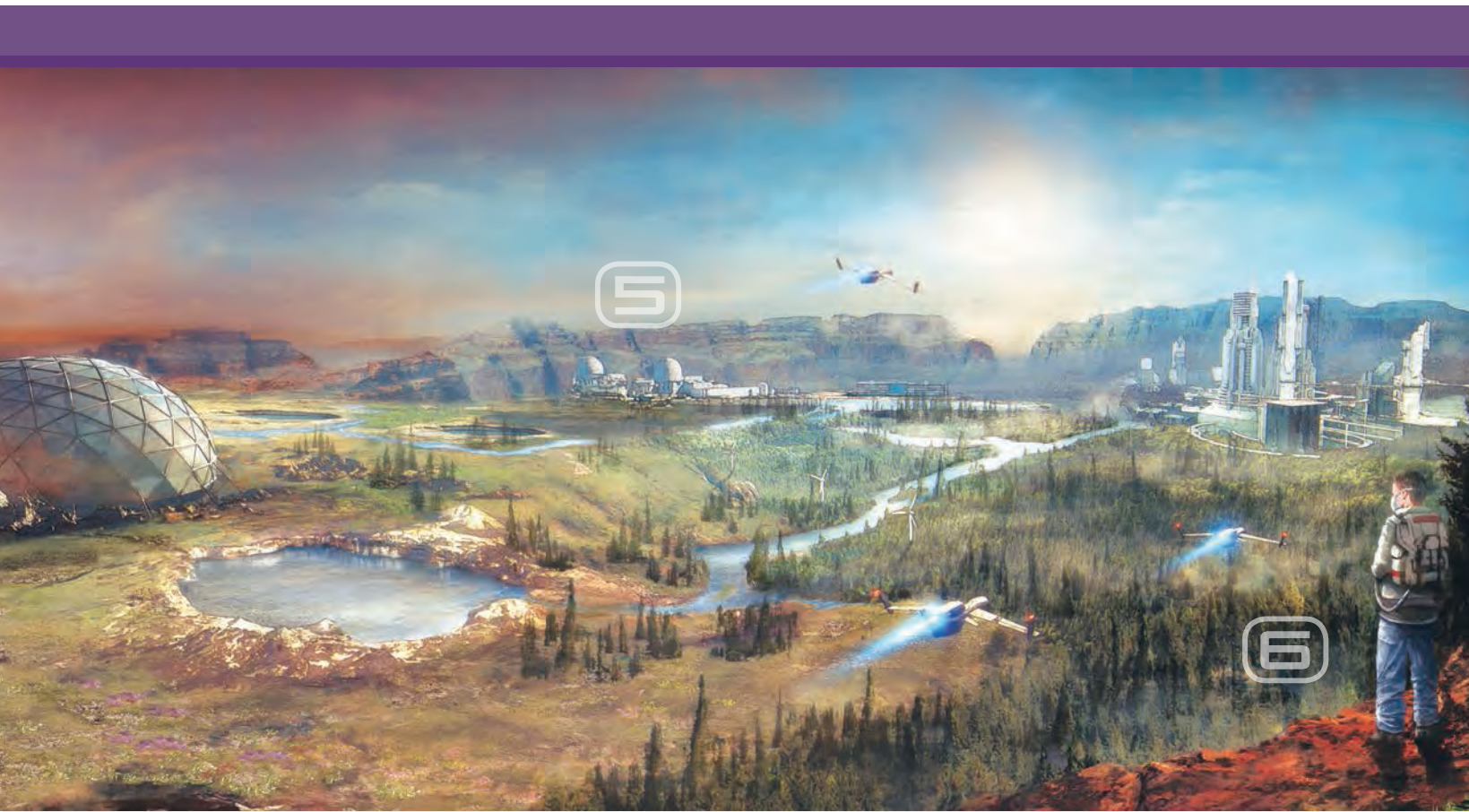
B Humans need three basic things to live: water to drink, air to **breathe**, and food to eat. Because of the lack of these necessities, it isn't possible to live on Mars right now. For one thing, there is not enough oxygen. There is also no **liquid** water—just some ice. So how can we make Mars habitable?¹ The answer, say scientists, is a process called *terraforming*.

Terraforming means changing the environment of a planet so that it is similar to Earth's. On Mars, the **average** temperature is about minus 60 degrees Celsius. So one of the main **goals** of terraforming Mars is to warm it up. One idea for warming Mars comes from a problem here on Earth—climate change.

C Most scientists agree that Earth is becoming warmer due to increased **levels** of greenhouse gases in our atmosphere. We might create similar conditions on Mars by building **factories** that **release** greenhouse gases. The gases will change the atmosphere on Mars. Rain will fall, and it may be possible to grow **plants** for food. The plants will add more oxygen to the air.

D There will be many difficulties in terraforming Mars. The project could take many centuries, and the cost will be high. We have some of the technology, such as the ability to create greenhouse gases, but not the money. However, life on Mars is a real possibility for future generations.

¹ If a place is **habitable**, you can live there.



TURNING THE RED PLANET GREEN

1 FIRST VISITS

E Terraforming Mars will probably be a thousand-year project, starting with several **survey** missions. The flight to Mars will take six months, and each mission might last 18 months.

2 HOMES ON MARS

F Each new mission will build more habitation modules—places to live. These will allow future visitors to spend more time on Mars and learn more about living on the planet.

3 GLOBAL WARMING

G To warm up the planet and to make water flow and create an atmosphere, we will need to increase the carbon dioxide level on Mars. Greenhouse gases will melt the ice in Mars's polar regions. When the ice becomes water, the water will release the carbon dioxide that was **trapped** inside the ice.

4 LIFE UNDER DOMES

H Enormous domes will provide climate-controlled living spaces, first for plants and later for humans. It will take centuries to improve the rocky surface so that people can grow plants.

5 POWERING THE PLANET

I Nuclear power² and wind turbines³ are two current technologies that we might be able to use on Mars for power.

6 DON'T FORGET YOUR MASK

J Even 1,000 years from now, there may still not be enough oxygen for humans to breathe. People on Mars may still need to use equipment similar to scuba gear.⁴

² **Nuclear power** comes from the energy that is released when the central parts of atoms are split or combined.

³ **Wind turbines** are engines with blades. They produce power when wind spins the blades.

⁴ **Scuba gear** is equipment that helps people breathe underwater.