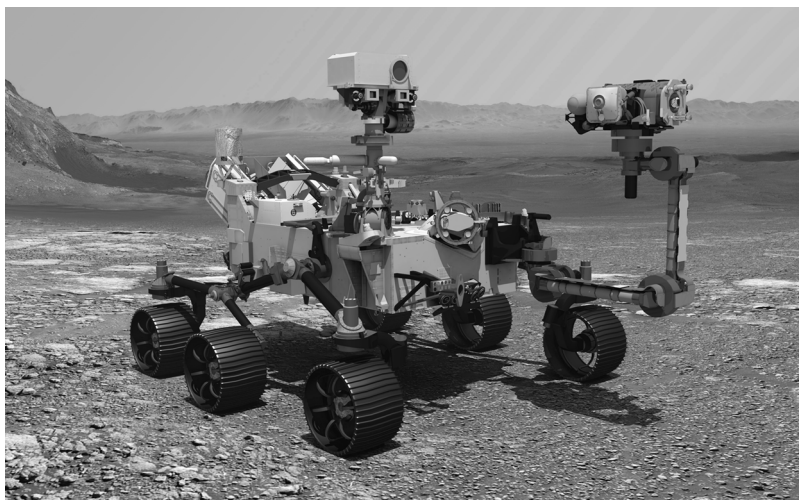


Exploring Mars



- 1 On February 18, 2021, NASA's rover named Perseverance landed on Mars. Its mission is to seek evidence of something that may have lived on the planet billions of years ago. An easy landing was not guaranteed. The rover's journey to Mars took nearly seven months. But its drop through the atmosphere of Mars took just seven minutes. The rover fell at 12,100 miles per hour, with air friction raising the temperature on its heat shield to 1,299°C. The friction also acted as a brake. Within minutes, the ship slowed down. The heat shield came off, a parachute opened, and Perseverance drifted to the ground.
- 2 For the next two years or so, Perseverance will explore Mars's Jezero Crater. The area is 28 miles wide. Some 3.5 billion years ago, it was a lake fed by water that flowed through channels in the crater's rim. The planet's atmosphere was thick, and it was warm, too. Those are conditions that can support life. Later, Mars lost most of its atmosphere and nearly all of its water, turning the planet into the ice-cold desert that it is today. But if there was ever any life on Mars, traces might remain. Fossils of it might be found in the dried-up lake. The rover's main job is to find those fossils.
- 3 The rover also carries a small helicopter called Ingenuity. Its job is to make test flights through the planet's thin air. In the future, bigger versions can be built. These could allow for exploration of hills and mountains during missions. This is a big moment in the history of flight: Ingenuity is the first aircraft to fly on a planet other than Earth. Perseverance is the ninth American spacecraft to set down on Mars. The only other nation to get there was the former Soviet Union. Will Perseverance discover signs or even proof of life on Mars? The possibility is thrilling to imagine.

- 4 NASA also added a secret message, which was hidden in the pattern on the rover's parachute. The pattern translates into binary code, the language of computers. Maxence Abela, a computer science student in France, and his dad, Jerome, cracked the code and posted the message on Twitter. It reads: "Dare mighty things", which is the motto of NASA's Jet Propulsion Laboratory, in California.

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- 1p 21 Op welk moment van de ruimtereis werd het hitteschild door weerstand van de dampkring zeer heet volgens alinea 1?
- A bij de lancering vanaf de aarde
 - B tussen de lancering en landing in
 - C in de laatste minuten voor de landing op Mars
- 1p 22 In alinea 2 worden een aantal eigenschappen genoemd die Mars vroeger had waardoor men denkt dat er leven geweest zou kunnen zijn. Eén daarvan is de aanwezigheid van water.
→ Noem een andere eigenschap.
Schrijf je antwoord in het Nederlands in de uitwerkbijlage.
- 1p 23 Wat maakt *Ingenuity* zo speciaal? (alinea 3)
- A De helikopter is met behulp van de voormalige Sovjet-Unie ontwikkeld.
 - B De helikopter kan enorm grote afstanden afleggen.
 - C De helikopter vliegt als eerste op een andere planeet dan de aarde.
- 1p 24 Wat wordt duidelijk in alinea 4 over een geheime boodschap?
- A De betekenis ervan was per ongeluk op Twitter gezet.
 - B Die was afgebeeld op de parachute van de rover.
 - C Die werd bedacht door Maxence Abela en zijn vader.