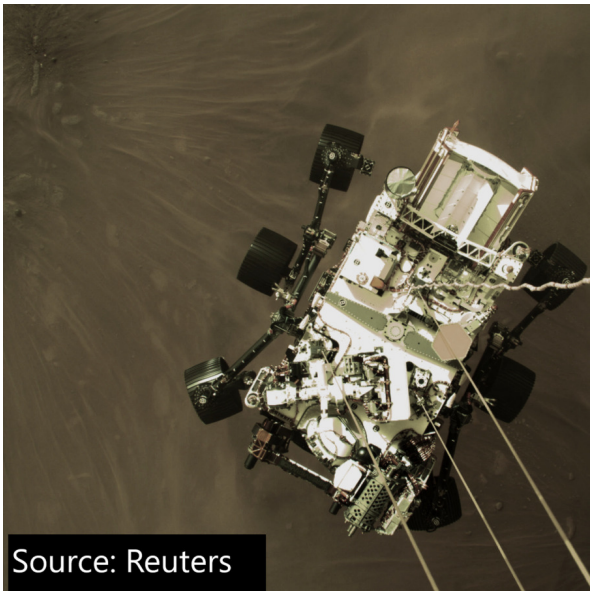
MARS LANDING


Source: Reuters

Scan to review worksheet

Expemo code:
143K-R6A8-PR89

1 Warm up

Work in pairs and try to guess the answers about Mars. You can use the Internet or ask your teacher to confirm your choices. Is there anything shocking?

1. How long is a Martian year?
   a. 687 days
   b. 400 days
   c. 365 days
2. How tall is the highest mountain on Mars?
   a. 5 kilometres
   b. 15 kilometres
   c. 24 kilometres
3. How much higher can you jump on Mars than on Earth?
   a. 2 times higher
   b. 3 times higher
   c. 4 times higher
4. How far is Mars from the Sun?
   a. 127,000,050 kilometres
   b. 227,940,000 kilometres
   c. 258,890,000 kilometres
5. How low can the temperature get on Mars?
   a. -140°C
   b. -230°C
   c. -240°C

2 Vocabulary in context

Look at the words in bold in the following sentences from the video and choose the correct meaning (a-h).

1. NASA Engineers in California celebrate today as their **rover** - named Perseverance- successfully landed on the surface of Mars.
2. Shortly after the landing, the first two photographs arrived, clearly showing the **surface** of the planet.
3. At this stage the photos are in black and white as **low-resolution** engineering cameras were used.
4. Perseverance landed near the equator of Mars in a deep **crater** named Jezero.
5. Over the next two years, the rover will **analyse** the rocks, searching for evidence of life forms from the past.
6. The work will include taking samples of rocks and **storing** them.
7. These **samples** will then be collected during a future mission to Mars and then transported by a satellite back to Earth.
8. Thousands of people involved in Mars projects over many **decades** got an important step closer to answering the question.

a. a large hole in the ground
b. a period of ten years
c. a small vehicle designed to explore
d. parts of something larger
e. the outside or the top of something
f. to keep something so you can use it later
g. to look at something very carefully
h. with less detail (e.g. a picture)

3 Prediction

Look at these numbers that are mentioned in the video you will watch. What do you predict they will be about?

1. billions of years
2. thousands of people
3. two years

Now watch the video and check your answers.

4 Understanding the main points

Watch the video and choose the correct answer to the questions.

1. The first pictures that came back were in **black and white/colour/high-resolution**.
2. Perseverance landed **near/in/close to** a crater called Jezero.
3. Jezero was where a large **ocean/river/lake** used to be.
4. The expedition hopes to find proof that there **was life/were animals/were people** on Mars a long time ago.
5. Samples of rocks will start the journey back to Earth about the end of **this year/next year/this decade**.

5 Focus on vocabulary

Part A: Look at the following definitions and choose the correct noun (a-c) that it describes.

1. an object which protects the person or item using it from harm or damage

   a. sensor b. parachute c. shield

2. an object which prevents people or items from falling to the ground too quickly

   a. parachute b. sensor c. satellite

3. an object or action which gives you a small amount of information to help you understand something

   a. sensor b. clue c. radar

4. a machine which reacts to heat, pressure, or light, to do something or collect information

   a. radar b. satellite c. sensor

5. a machine which uses radio waves to find the position of something

   a. sensor b. radar c. satellite

6. a gas which is needed for plants, animals and humans to breathe and live

   a. water b. oxygen c. dust

7. a path followed by one object around another object

   a. satellite b. radar c. orbit

8. an object which moves around another, usually larger, object

   a. satellite b. orbit c. oxygen

Part B: Now put the answers from Part A into the sentences below.

1. I don't know where Ahmed is, but his car is still warm so that's a _____ . He can't be far away.
2. We see an eclipse when the moon reaches a point in its _____ when it's exactly between the sun and our eyes.
3. The diver had problems when she started to run out of _____ while she was still deep underwater.
4. Someone tried to break into our house last night! Fortunately, they walked past the hidden _____ and set off the alarm.
5. I got caught in the storm yesterday. I tried to use my umbrella as a _____ against the rain, but it was useless. I got soaked!
6. The airport had to cancel flights due to a problem with the _____ in the air traffic control tower.
7. Base-jumping, where you jump off a mountain, or even a tall building, and use a _____ to land safely, has become a lot more popular over the last twenty years.
8. "Space junk" is the name given to around 3000 dead _____ which are in Earth's orbit.

Now in pairs, answer the following questions.

1. Have you ever used a **parachute**? If not, would you? Why/Why not?
2. What objects have you used as a **shield** in the past? Why?
3. How many things that you own have a **sensor**? What are they used for?

6 Reading for main ideas

Quickly read through the text on the next page and match the following titles to sections A - D.

1. What will happen in the future?
2. How did Perseverance get to Mars?
3. What will Perseverance do on Mars?
4. Why is Perseverance going to Mars?

A

On Thursday, 30th July 2020, *Perseverance* blasted off from Cape Canaveral in Florida on a 470-million-kilometre trip to Mars. The rover measures 2.2 metres high, 2.7 metres wide, and 3 metres long. It was protected on its journey from temperatures of up to 2,100 degrees C by a specially-made heat **shield**. When it was 11 kilometres above Mars, Perseverance used a **parachute**, eight rockets and three nylon ropes to lower to the ground.

B

While on Mars, *Perseverance* will be exploring Jezero, a 49 kilometre-wide crater a little north of Mars' equator. In 2018, scientists discovered signs that water used to exist on the planet. Before that, they thought that it had always been dry and desert-like. Jezero shows strong signs of past water activity which could give **clues** as to whether or not life existed on the red planet.

C

Helping *Perseverance* will be *Ingenuity*, a 1.8 kilogramme helicopter which will be able to take photographs using the same kind of camera found in most smart phones. *Ingenuity* will be able to fly to areas that *Perseverance* won't be able to access on its wheels. In addition, *Perseverance* will also be using a large range of scientific tools and methods for gathering information about its new home. These include: a **sensor** built in Spain to measure temperature, wind speed and dust; a **radar** built in Norway that will map the surface; and an experiment to see if it is possible to produce **oxygen** for astronauts in the future.

D

Perseverance will spend one Martian year, which is about two Earth years, exploring and collecting samples. It will store these in special metal containers. These containers will be left for a second rover, which will be built by the *European Space Agency*, to collect. This will happen in a mission planned to take place in 2026. The samples will be put into a rocket which will take off from the surface and enter into Mars' **orbit**. From here, it will connect with a **satellite** which will then bring the samples back to Earth. They are expected to arrive around 2031. At this point, after all the long years of hard work by thousands of people involved in the process, scientists could be studying the evidence that may finally answer the question: is there life outside of Earth?

Sources: BBC News, NASA

7 Skimming for details

What do these numbers stand for in the texts?

1. 470 million kilometres
2. 2.7 metres
3. 2,100°C
4. 49 kilometres
5. 1.8 kilogrammes
6. 2031

8 Talking point

Discuss with your partner:

1. What is your opinion on missions to Mars? Are they important? Or do we have more important things to worry about here on Earth that money should be spent on? Explain your point of view.
2. Imagine you are going on a mission to Mars to be one of the first people on the planet. What 5 personal items would you take with you for memories of home?

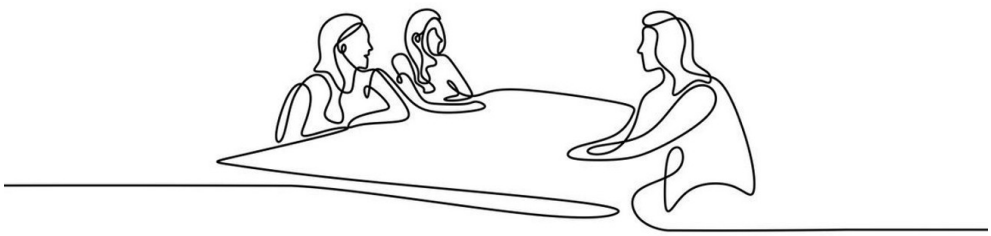
1 _____

2 _____

3 _____

4 _____

5 _____



9 Extension activity/homework

Complete the following sentences with no more than three words from the text.

1. To descend to the surface of Mars, Perseverance used eight rockets, _____ and a parachute.
2. Jezero crater is located _____ the equator on Mars.
3. Until evidence of past water activity was discovered in 2018, scientists had thought Mars was _____ .
4. _____ use the same type of camera used by Ingenuity.
5. Perseverance's radar was built in _____ .
6. The European Space Agency will build _____ to collect the samples left by Perseverance.
7. A _____ will transport the samples from the surface to Mars' orbit.
8. Perseverance is the result of _____ by many people over many years.