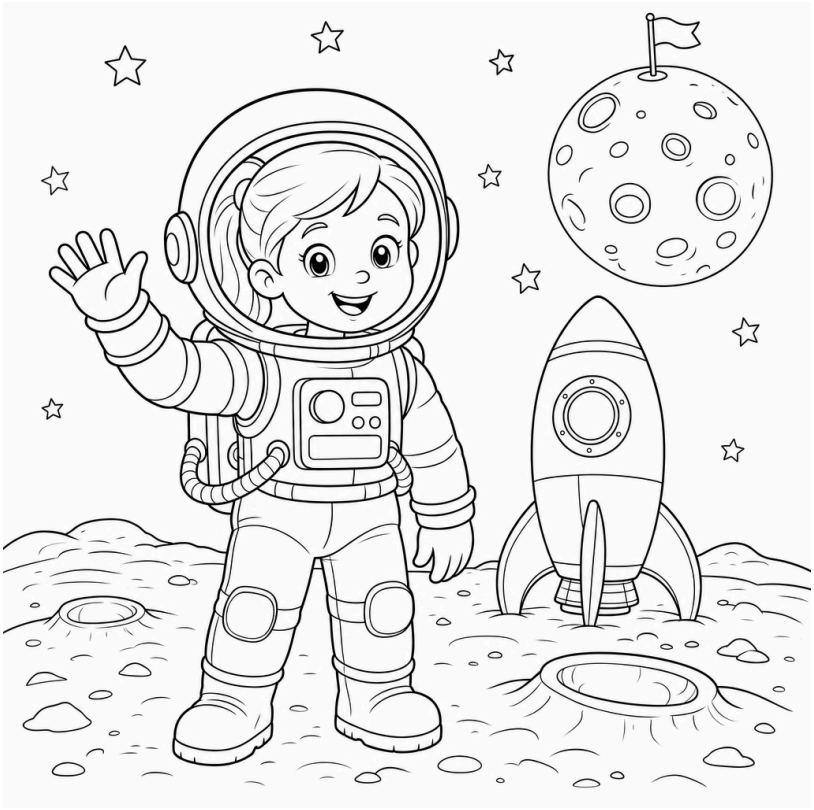
TIME BUREAU PRESS · FIELD MANUAL No. 5

MISSION TO MARS

The Martians Visited Us in the Old Stories. Time to Return the Visit.



Mission Specialist: Penelope

Your mission: know the solar system, study the red planet, and file a full report.

PART 1

The Solar System

Eight worlds circling one star.

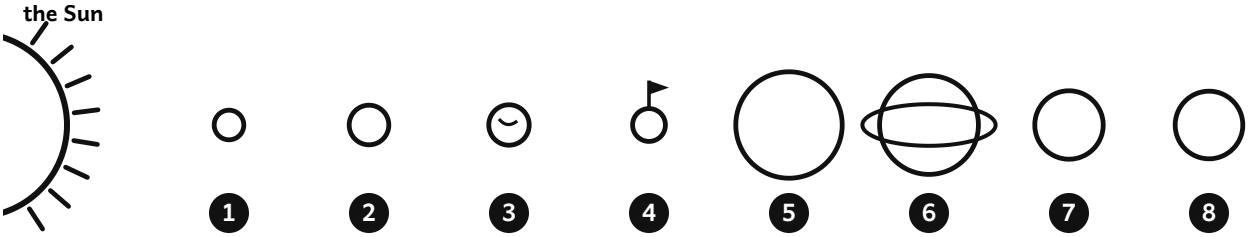
READ

Our home, Earth, is one of **eight planets** that **orbit** the Sun — each one traveling its own great circle around and around. The Sun is not a planet at all — it is a **star**, a giant ball of glowing-hot gas, so big that a million Earths could fit inside it.

The four planets closest to the Sun — Mercury, Venus, Earth, and Mars — are small, rocky worlds. The four farther out are giants: Jupiter and Saturn made mostly of gas, Uranus and Neptune of ice and slush. Jupiter is the biggest of all — squash every other planet together into one ball, and it would still fit inside! Saturn wears rings of ice and rock. And in the fourth spot from the Sun sits a small, rust-red world... our destination: **Mars**.

Astronauts remember the order with a silly sentence: **M**y **V**ery **E**xcellent **M**other **J**ust **S**erved **U**s **N**oodles.

1 Label the planets! Use the silly sentence to help — write each numbered planet's name below.



1. _____ **2.** _____ **3.** _____ **4.** _____

5. _____ **6.** _____ **7.** _____ **8.** _____

2 Which planet is our destination, and what number is it from the Sun?

_____

3 The Sun is not a planet. What is it? _____

4 Detective reading: which planet is biggest? **Underline the sentence** in the story that proves it, then write the name: _____

finished? color the star! ☆

PART 2

Meet Mars

The red planet, up close.

READ

Why is Mars red? The answer is hiding in your bicycle! The soil of Mars is full of **iron**, and over billions of years that iron has **rusted** — just like a bike left out in the rain. The whole planet is covered in rusty red dust.

Mars is a small world, about **half as wide as Earth**, and it is fiercely cold: the average temperature is about **63 degrees below zero Celsius** — far colder than the inside of your freezer. Its **atmosphere** — the blanket of air around a planet — is far too thin to breathe, and it's the wrong kind of air anyway: mostly carbon dioxide, not the oxygen we need. The ground is dented with **craters** from space rocks that crashed down long ago.

The weather is wild, too: sometimes a dust storm grows until it swallows the WHOLE planet — and at sunset, the sky above the red dust glows… **blue**. Two tiny, lumpy moons named **Phobos** and **Deimos** race overhead. Are they captured asteroids, or leftover pieces of a giant crash? Scientists aren't sure — a spacecraft is on its way right now to find out!

Mars also holds a record: the tallest volcano anywhere in the solar system. **Olympus Mons** stands about **two and a half times as tall as Mount Everest**, the highest mountain on Earth.

1 Why does Mars look red? **Underline the sentence** that tells you, then answer:

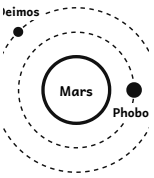
_____

2 How many moons does Mars have, and what are their names?

_____

3 What is the tallest volcano in the solar system, and how does it compare to Mount Everest?

_____



4 Think like a scientist: could you walk around on Mars in a t-shirt? YES / NO (circle one) Use TWO clues from the story to explain.

_____

_____

finished? color the star! ☆

PART 3

A Day on Mars

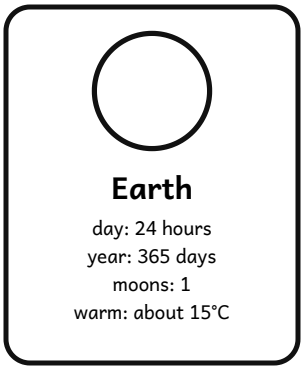
Set your watch — it almost works there.

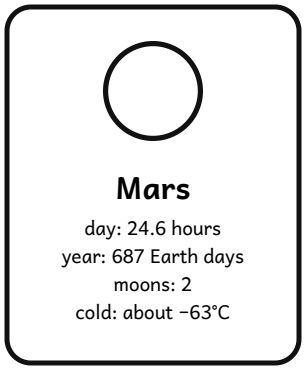
READ

Here is a surprise: a **day** on Mars is almost the same as ours! Earth spins around once every 24 hours. Mars takes about **24 hours and 37 minutes** — so a Mars day is only a little more than half an hour longer than an Earth day. Your bedtime would barely change!

But a **year** is a different story. A year is one full **orbit** — a complete trip around the Sun — and Mars travels a much bigger circle than Earth does. Earth's trip takes **365 days**. Mars needs **687 Earth days** — almost **two** of our years!

1 Fill in the mission comparison table. The story and the cards have every answer you need.





	Earth	Mars
how long is a day?		
how long is a year?		
how many moons?		
warm or cold?		

2 A friend says: "Move to Mars — you'll get MORE birthdays!" Is she right? Prove it with a number from the story.

_____

_____

finished? color the star! ☆

3 Which is more alike on Earth and Mars — the day or the year? _____

PART 4

The Robot Explorers

The first Mars explorers don't need lunch.

READ

No person has ever stood on Mars — yet. The trip takes many months and Mars is dangerous, so we sent **robots** first, to scout ahead.

Rovers like **Curiosity** and **Perseverance** are car-sized robot scientists. They roll slowly across the red dust, drilling rocks and taking pictures. Perseverance hunts for clues that Mars once had **rivers and lakes** — and maybe, long ago, tiny living things. It even brought a friend: a little helicopter named **Ingenuity**, the **first aircraft ever to fly on another planet**.

Funny how stories turn around: in the old tale, Earth's tiniest living things defeated the invading Martians. Now our own robot is on Mars… hunting for Mars's tiny living things.

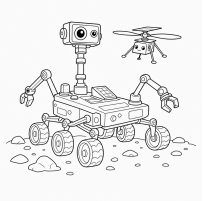
Every discovery is radioed home across millions of miles — so that one day, when people finally go, we'll know the way.

1 Why did we send robots to Mars before people? _____

2 What is Ingenuity, and what record does it hold?

_____

_____



3 What is Perseverance hunting for? **Underline the sentence** that says so, then write it in your own words.

_____

_____

4 Put the mission in order — write 1, 2, 3, or 4 on the little line **next to** each step:

____ the rover lands on Mars

____ findings are radioed home

____ a rocket launches from Earth

____ the rover explores and drills rocks

5 Predict: what will the first astronauts need to bring? Use one story clue!

_____

finished? color the star! ☆

PART 5

Mission Words & Fact File

Talk like mission control.

1 Match each mission word to its meaning — draw a line dot to dot. (Every word appeared in a story — check back if you're stuck!)

orbit	the layer of air around a planet
rover	the path a planet or moon travels around another object
atmosphere	a person who travels to space
crater	a robot car that explores another world
astronaut	a bowl-shaped hole made by a space rock crashing down

2 Fill in your official fact file from everything you've learned. (Peek back at the stories if you need to — real scientists check their notes!)

MARS — MISSION FACT FILE

Planet number _____ from the Sun · about _____ as wide as Earth

Number of moons: _____ named _____ and _____

A day lasts about _____ hours · a year lasts _____ Earth days

Mars is red because _____

finished? color the star! ☆

PART 6

Your Mission Report

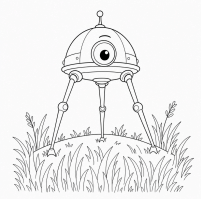
Mission control needs YOUR words now.

1 Why should the Time Bureau send YOU to Mars? Write 2–3 sentences. Use at least one real Mars fact — your Fact File on page 6 is full of them!

The Time Bureau should send me because...

2 Design your Mars base! Draw it below — remember the wild cold and the thin air. Label at least one part.

3 In the old story, the Martians came to visit us. Write a one-line friendly message to leave for any Martians you meet:



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