Starburst

Solar System

Tick the correct answer.

1. Which is the hottest planet in our Solar System?

☐ Venus ☐ Mercury ☐ Jupiter

2. The fourth planet from the Sun is Earth. True or false?

☐ True ☐ False

3. The Sun is the star at the centre of our Solar System, True or false?

☐ True ☐ False

4. Which is the coldest planet in our Solar System?

☐ Mars ☐ Saturn ☐ Neptune

5. How many known moons does Jupiter have?

☐ 56 ☐ 79 ☐ 61

6. Saturn is made up of gases which are lighter than water. True or false?

☐ True ☐ False

7. How many years does it take Uranus to orbit the Sun?

☐ 84 ☐ 82 ☐ 86

8. Which gas makes up most of the atmosphere on Mars?

☐ nitrogen ☐ carbon dioxide ☐ oxygen

Solar System **Answers**

1. Which is the hottest planet in our Solar System?

☑ **Venus** ☐ Mercury ☐ Jupiter

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2. The fourth planet from the Sun is Earth. True or false?

☐ True ☑ **False**

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3. The Sun is the star at the centre of our Solar System, True or false?

☑ **True** ☐ False

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4. Which is the coldest planet in our Solar System?

☐ Mars ☐ Saturn ☑ **Neptune**

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8. Which gas makes up most of the atmosphere on Mars?

☐ nitrogen ☑ **carbon dioxide** ☐ oxygen

mars

The Solar System Vocabulary

Mercury	Mars	Uranus	Planet
Venus	Earth	Jupiter	Neptune
Sun	Saturn	Kuiper belt	Star

Use the words above to complete the sentences.

_____ is red and is the fourth planet from the Sun.

_____ is blue and is the eighth planet from the Sun.

The _____ is a ring-shaped disc made up of asteroids and dwarf planets.

_____ is the largest planet in the Solar System.

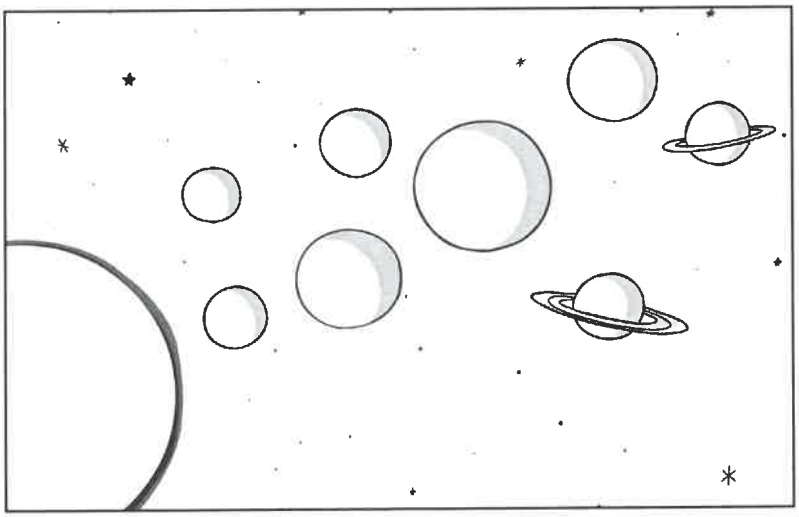
_____ is the second planet from the Sun.

_____ has 27 moons and is the seventh planet from the Sun.

_____ has many rings and is the sixth planet from the Sun.

_____ is covered by land and water. It is our home planet.

_____ is very hot and is the planet that is closest to the Sun.



The Solar System Vocabulary **Answers**

Mercury	Mars	Uranus	Planet
Venus	Earth	Jupiter	Neptune
Sun	Saturn	Kuiper belt	Star

Use the words above to complete the sentences.

Mars is red and is the fourth planet from the Sun.

Neptune is blue and is the eighth planet from the Sun.

The **Kuiper belt** is a ring-shaped disc made up of asteroids and dwarf planets.

Jupiter is the largest planet in the Solar System.

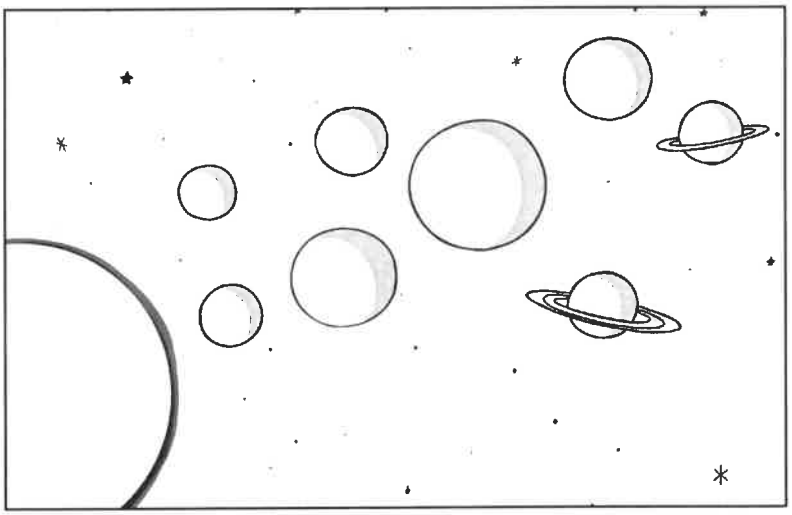
Venus is the second planet from the Sun.

Uranus has 27 moons and is the seventh planet from the Sun.

Saturn has many rings and is the sixth planet from the Sun.

Earth is covered by land and water. It is our home planet.

Mercury is very hot and is the planet that is closest to the Sun.



Starmix

Mars: The Red Planet

Mars is the fourth planet from the Sun and is the second smallest planet in our solar system. Mars is sometimes called 'the Red Planet' because of its colour. The atmosphere on Mars does not have enough oxygen for us to breathe.

A "true colour" photograph of Mars taken by the OSIRIS instrument on the European Space Agency (ESA) Rosetta spacecraft in February 2007.

Did You Know...?

- Mars was named after the Roman god of war. The month of March is also named after him.
- A Mars day is called a 'sol'.

Missions to Mars

It is important to launch a mission to Mars at the right time because Earth and Mars are always moving. Sometimes, Mars is closer to Earth than at other times. Choosing the shortest distance is a good idea because the journey will need less fuel.

Why Mars?

Mars is the safest planet to travel to because:

- its soil contains a little water;
- it gets enough sunlight to use solar power;
- there is some gravity to help us to walk;
- a day on Mars is almost the same length as on Earth.

Mars Quick Facts	
Size:	6779km
Moons:	2
Length of year:	687 days
Length of day:	24 hours 37 minutes
Temperature:	between -153°C and 20°C
Atmosphere:	95% carbon dioxide

Humans want to find out if there might be life on other planets and scientists believe that Mars is the best planet for life, apart from Earth.

Rovers on Mars

The Curiosity rover and the Perseverance rover are robotic cars that are exploring the surface of Mars right now. Curiosity was launched on 26th November 2011 and landed on 6th August 2012. Perseverance set off from Earth on 30th July 2020, arriving on 18th February 2021. The main goals of the rovers are to:

- study the climate of Mars and what the planet is made of;
- search for water;
- find out whether or not Mars could have ever supported life.

A self-portrait taken by NASA's Curiosity rover.

Read the KS2 Twinkl Originals story '**Jazz Harper: Space Explorer**' to learn all about life on Mars!

Mars: The Red Planet **Questions**

1. Tick the correct response.
   We cannot breathe on Mars because the atmosphere does not have enough:

   - ☐ air
   - ☐ carbon dioxide
   - ☐ atmosphere
   - ☐ oxygen

2. Find and copy the correct word to complete the sentence.
   Mars is named after the Roman god of ☐.

3. Which of these are reasons why Mars is a good place to explore? Tick **two**.

   - ☐ Mars gets enough sunlight to use solar power.
   - ☐ A day on Mars is very short.
   - ☐ There is no gravity on Mars.
   - ☐ There is a little water in the soil on Mars.

4. Tick the correct response.
   The Curiosity rover was launched on:

   - ☐ 26th November 2011
   - ☐ 30th July 2020
   - ☐ 18th February 2021
   - ☐ 16th August 2012

5. How many moons does Mars have?

6. What is a day called on Mars and how long is it?

7. What are the Curiosity and Perseverance rovers trying to find out?

Milky Way

Mars: The Red Planet

Mars is the fourth farthest planet from the Sun and the second smallest planet in our solar system. Named after the Roman god of war, Mars is often described as 'the Red Planet' because of its red appearance. The atmosphere on Mars is made up of mainly **carbon dioxide**, meaning that it is not breathable.

A "true colour" photograph of Mars taken by the OSIRIS instrument on the European Space Agency (ESA) Rosetta spacecraft in February 2007.

Missions to Mars

It is important to launch a mission to Mars at the right time because Earth and Mars are always moving. Scientists have to calculate the distance between the two planets at any one time and to prepare resources for that distance of travel.

Why Mars?

Mars is not the closest planet to Earth – Venus is. The closest possible distance between Earth and Venus is approximately 38 million kilometres, while the closest distance between Earth and Mars is around 55 million kilometres. Why, then, are most of Earth's exploration efforts directed at the Red Planet?

Venus, Earth's smaller sister, is blisteringly hot and has a thick atmosphere, which could melt a block of lead as easily as an ice cream on Earth. Mars, on the other hand, is smaller and much colder. It is the most **habitable** planet next to Earth because:

- its soil contains traces of water;
- it gets enough sunlight to use solar power;

Mars Quick Facts	
Size:	6779km
Moons:	2 (Phobos and Deimos)
Length of year:	687 days (1.9 Earth years)
Length of day:	24 hours 37 minutes
Temperature:	between -153°C and 20°C
Atmosphere:	• 95.32% carbon dioxide • 0.13% oxygen • 4.55% other (carbon monoxide, nitrogen, argon, water vapour)

- gravity is 38% as strong as on Earth, which, it is believed, humans could adapt to;
- the atmosphere somewhat protects from the Sun's **radiation**;
- a Mars day, called a 'sol', is only a little longer than Earth's.

Rovers on Mars

There are currently two rovers (Curiosity and Perseverance) on Mars. A rover is a robotic car that is designed to explore the surface of a planet. Both Curiosity and Perseverance are nuclear-powered vehicles with advanced scientific equipment on board. Curiosity landed on Mars in 2012 and Perseverance in 2021.

The main goals of the rovers' missions, which form part of NASA's Mars Exploration Program, are to:

- study Martian climate and **geology**;
- search for water;
- find out whether or not Mars could have ever supported life.

Glossary

geology – The science which deals with the physical structure and substance of a planet.

radiation – Energy emitted by the Sun, some of which is dangerous to humans when not absorbed by the atmosphere of a planet.

A self-portrait taken by NASA's Curiosity rover.

Read the KS2 Twinkl Originals story '**Jazz Harper: Space Explorer**' to learn all about life on Mars!

Mars: The Red Planet **Questions**

1. Tick the correct response.
   We cannot breathe on Mars because the atmosphere does not have enough:

   - ☐ air
   - ☐ carbon dioxide
   - ☐ atmosphere
   - ☐ oxygen

2. Find and copy the correct word to complete the sentence.
   Mars is named after the _____ god of _____.

3. Which of these are reasons why Mars is a good place to explore? Tick **two**.

   - ☐ Mars gets enough sunlight to use solar power.
   - ☐ A day on Mars is very short.
   - ☐ There is no gravity on Mars.
   - ☐ There is a little water in the soil on Mars.

4. How many moons does Mars have and what are their names?

5. What is a day called on Mars and how long is it?

6. Find and copy one **caption** from the text.

7. Why does it seem odd at first that NASA has chosen to explore Mars and not Venus?

8. Why do you think the author has put the facts about Mars's size and atmosphere into a 'quick facts' box?

Galaxy

Mars: The Red Planet

Mars is the fourth farthest planet from the Sun, located between Earth and Jupiter, and is the second smallest planet in our solar system after Mercury. Named after the Roman god of war, Mars is often described as 'the Red Planet' because of its reddish hue. The atmosphere on Mars is made up of mainly carbon dioxide, meaning that the planet does not yet support life.

A "true colour" photograph of Mars taken by the OSIRIS instrument on the European Space Agency (ESA) Rosetta spacecraft in February 2007.

Missions to Mars

It is crucial to launch a mission to Mars at the right time because Earth and Mars are always moving. It is necessary to calculate the distance between the two planets at any one time and to prepare accordingly.

There have been around 50 missions to Mars, of which only about half have been successful. This shows just how difficult reaching the Red Planet can be. None of these missions have been staffed by humans but there are currently two Mars rovers operational. There are also six active satellites orbiting Mars, providing us with plenty of data about the planet.

Why Mars?

Earth sits between Venus and Mars. Both planets are sometimes visible to the naked eye from Earth! The distance between them varies throughout their orbits of the Sun, but Mars is not the closest planet to Earth – Venus is. The closest possible distance between Earth and Venus is approximately 38 million kilometres, while the closest distance between Earth and Mars is around 55 million kilometres. Why, then, are most of Earth's exploration efforts directed at the Red Planet? The answer lies in the environments of Mars and Venus.

Venus, Earth's smaller sister, is blisteringly hot and has a thick atmosphere, which could melt a block of lead as easily as an ice cream on Earth. Mars, on the other hand, is smaller and much colder. It is the most habitable planet next to Earth because:

- its soil contains traces of water to extract;
- it gets enough sunlight to use solar power;
- gravity is 38% as strong as on Earth, which, it is believed, humans could adapt to;
- the atmosphere somewhat protects from the Sun's **radiation**;
- a Mars day, called a 'sol', is only a little longer than Earth's.

The human race is very keen to prove that there is a possibility for life on other planets, and Mars is thought to be the most likely place to find that proof.

Rovers on Mars

There are currently two rovers (Curiosity and Perseverance) on Mars. A rover is a robotic car that is designed to explore the surface of a planet. Both Curiosity and Perseverance are nuclear-powered vehicles with advanced scientific equipment on board. Curiosity landed on Mars in 2012 and Perseverance in 2021.

The main goals of the rovers' missions, which form part of NASA's Mars Exploration Program, are to:

- study Martian climate and **geology**;
- search for water;
- find out whether or not Mars could have ever supported life.

Glossary

geology – The science which deals with the physical structure and substance of a planet.

radiation – Energy emitted by the Sun, some of which is dangerous to humans when not absorbed by the atmosphere of a planet.

A self-portrait taken by NASA's Curiosity rover.

Quick Facts

Earth		Mars	
Diameter:	12,742km	**Diameter:**	6779km
Moons:	1	**Moons:**	2 (Phobos and Deimos)
Rotation period:	24 hours	**Rotation period:**	24 hours 37 minutes
Orbit (revolution) period:	365 days	**Orbit (revolution) period:**	687 days (1.9 Earth years)
Surface temperature:	between -88°C and 58°C	**Surface temperature:**	between -153°C and 20°C
Atmosphere:	Nitrogen 78.08% Oxygen 20.95% Argon 0.93% Carbon Dioxide 0.04%	**Atmosphere:**	Oxygen 0.13% Carbon Dioxide 95.32% Carbon monoxide 0.07% Nitrogen 2.7% Argon 1.6%

Read the KS2 Twinkl Originals story '**Jazz Harper: Space Explorer**' to learn all about life on Mars!

Mars: The Red Planet **Questions**

1. Find and copy the correct word to complete the sentence.
   Mars is named after the [ ] god of [ ] .

2. Which of these are reasons why Mars is a good place to explore?

   - ☐ Mars gets enough sunlight to use solar power.
   - ☐ A day on Mars is very short.
   - ☐ There is no gravity on Mars.
   - ☐ There is a little water in the soil on Mars.

3. How many moons does Mars have and what are their names?

4. What is a day called on Mars and how long is it?

5. Find and copy a word from the text that means 'working'.

6. a) Tick the correct box for each statement to say whether it is true or false.

	True	False
Venus is so hot that lead would melt on its surface.	☐	☐
Mars has a diameter of 6793km..	☐	☐
A day on Mars is slightly shorter than a day on Earth.	☐	☐

b) Correct any false statements here:

7. a) Which planet has the highest possible temperature: Earth or Mars?

b) Which has the lowest possible temperature?

8. Why does it seem odd at first that NASA has chosen to explore Mars and not Venus?

9. Look at the section titled 'Rovers on Mars'. What other subtitle could you use for this section? Explain why you have chosen it.

10. Look at the section titled 'Why Mars?'. Why do you think the author has put the facts about Mars into bullet points?