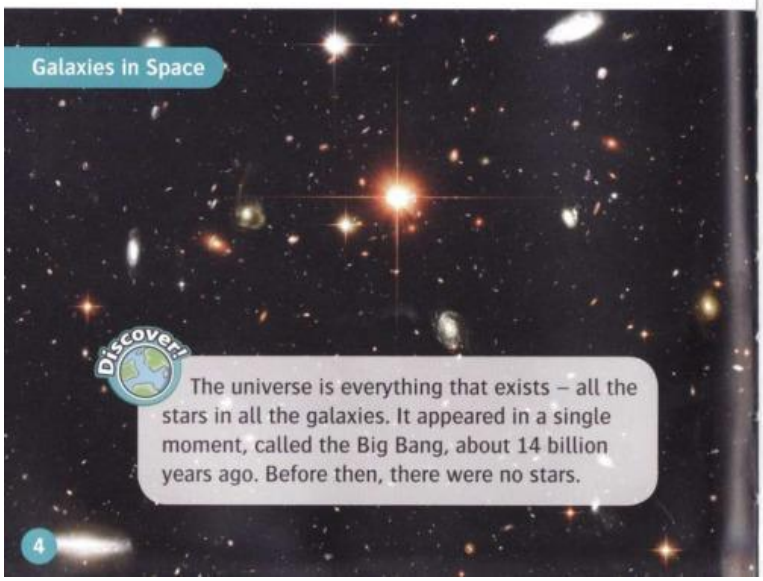
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1 Our Solar System

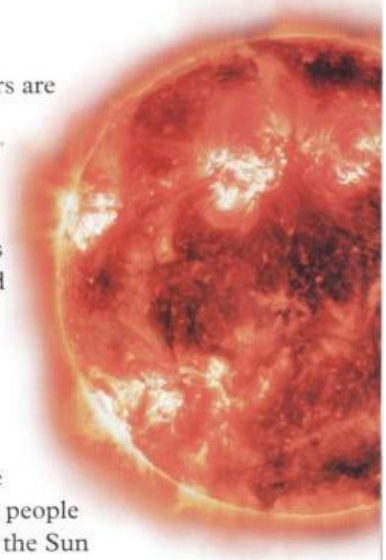
Stars are huge balls of hot gas. A star with planets around it is called a solar system. Our Sun has eight planets – this is our solar system.

Our Galaxy

Groups of stars are called galaxies. Each galaxy has billions of stars. Our solar system is in a galaxy called the Milky Way that has 200 billion stars. There are billions of other galaxies in the universe.



Our Amazing Sun



The Sun and all other stars are made of two gases called hydrogen and helium. The hydrogen changes into helium in a process called nuclear fusion. This process produces heat and light. Our Sun is about 150 million kilometers away from Earth, but it's hot enough to burn you at the beach! Plants on Earth use energy from the Sun to grow. Animals and people also get their energy from the Sun because they eat plants.

Earth and the Sun

A planet goes around, or orbits, a star. It takes our planet Earth one year to orbit the Sun. A planet also turns on its axis. It takes Earth 24 hours to do a complete turn on its axis. When a place on Earth is opposite the Sun, it's daytime in that place.



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The Planets in Our Solar System



All the planets in our solar system orbit the Sun. A year is the time that it takes a planet to orbit the Sun – it's 365 days for Earth. Mercury and Venus are near the Sun, so they have shorter years because they travel a shorter distance around the Sun. A year on Mercury is the same as 88 days on Earth. Planets that are further from the Sun have longer orbits. A year on Neptune is the same as 165 years on Earth.



Rocks and Soil on Mars

Each planet in our solar system is different, but Mercury, Venus, and Mars are rocky planets like Earth. If you landed on these planets, you would find rocks, and you could walk around on them.

Jupiter, Saturn, Uranus, and Neptune are called gas giants. They are much bigger than the rocky planets, and they are made mostly of gas.

Dwarf Planets

Astronomers have discovered five dwarf planets in our solar system. Dwarf planets are like very small planets and they orbit the Sun. The biggest dwarf planet is called Eris, and it's 2,500 kilometers across.

Discover!

The most famous dwarf planet is Pluto. It was discovered in 1930, and for more than 70 years, it was called the ninth planet in the solar system. Now it's called a dwarf planet.

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1 Our Solar System

Read pages 4–7.

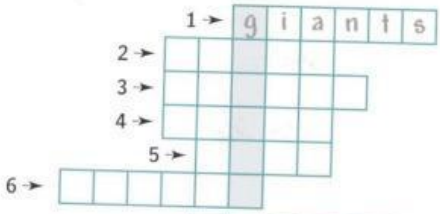
1 Complete the sentences.

axis solar orbit galaxy

1 Our solar system is in a galaxy called the Milky Way.
2 Stars with planets around them are called _____ systems.
3 All the planets in our solar system _____ the Sun.
4 A planet turns on its _____.

2 Complete the puzzle. Write the secret word.

1 Planets, like Jupiter and Neptune, are called gas __.
2 __ are huge balls of hot gas.
3 The Sun is made of hydrogen and __.
4 __ planets are like very small planets.
5 It takes Earth 24 hours to do a complete turn on its __.
6 All plants on Earth get their __ from the Sun.



The secret word is: _____

3 Write the words in order, from smallest to biggest.

galaxy ~~dwarf planet~~ solar system planet universe star

1 dwarf planet 3 _____ 5 _____
2 _____ 4 _____ 6 _____

4 Circle the correct words.

1 The Big Bang was about 14 million / billion years ago.
2 Dwarf planets orbit the Sun / other planets.
3 Mercury and Mars are made of gas / rocks.
4 Our galaxy has 200 billion / million stars.
5 Nuclear fusion produces light and gas / heat.

5 Answer the questions.

1 When is it daytime on Earth?
When a place on Earth is opposite the Sun.
2 What produces the heat on the Sun?
_____
3 Why is the Sun important for plants?
_____
4 Why do the planets that are nearer the Sun have shorter years?
_____
5 What is the biggest dwarf planet, and how big is it?
_____

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2 The Inner Planets

The inner planets in our solar system are Mercury, Venus, Earth, and Mars. They are the nearest planets to the Sun and they are made of rocks and soil. Venus, Earth, and Mars have gas around them, called atmosphere.



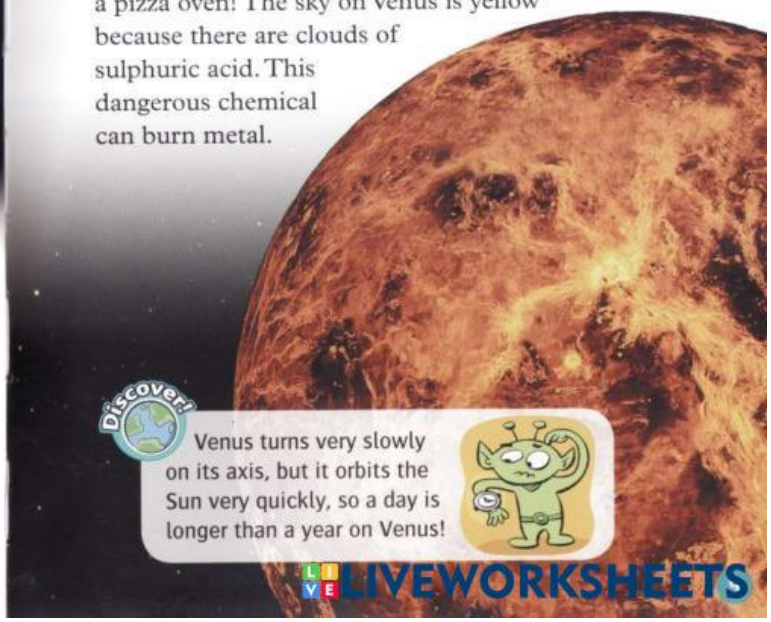
Mercury

Mercury is the smallest planet in the solar system and it doesn't have an atmosphere. A planet's atmosphere traps the Sun's heat, and keeps the temperature warm at night. Mercury is very hot in the daytime because it's the nearest planet to the Sun, but it's very cold at night. When the temperature on one half of Mercury is 427 degrees centigrade, the other half is minus 173 degrees!

Venus

Venus is the second planet from the Sun, and the nearest planet to Earth, but it would not be a nice place to visit! Pressure is the force or weight of something on your body. Venus has more gas in its atmosphere than Earth, and all that gas creates pressure. If astronauts visited Venus, the pressure would kill them.

In the atmosphere around Venus, a gas called carbon dioxide traps heat from the Sun. The temperature on Venus is 462 degrees centigrade – that's hotter than a pizza oven! The sky on Venus is yellow because there are clouds of sulphuric acid. This dangerous chemical can burn metal.



Discover!

Venus turns very slowly on its axis, but it orbits the Sun very quickly, so a day is longer than a year on Venus!

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Earth

Earth is our home, and it's the third planet from the Sun. Billions of years ago, Earth was very hot. Later, the planet became cooler and oceans of water formed. Life began in these oceans about 3.5 billion years ago.

Earth is a great place for life because it isn't too hot or too cold for liquid water. Plants, animals, and people need liquid water to live, and they also need oxygen. Most of the gas in Earth's atmosphere is nitrogen, but 20.7% is oxygen.

A moon orbits a planet, and often looks like a small planet. Earth has one moon, but some planets have a lot. Our Moon takes 27 days to orbit Earth. Mars, Jupiter, Saturn, and Neptune all have moons, too.



Earth and Its Moon

Mars

Mars is the fourth planet from the Sun and it has two small moons. Mars is smaller than Earth and it's called the red planet because chemicals make the soil red.

Mars has some amazing places. Mons Olympus is a volcano, and it's 25 kilometers high! That's three times higher than Mount Everest, the highest mountain on Earth. The Valles Marineris is a huge canyon. It's ten times longer and three times deeper than the Grand Canyon, the biggest canyon on Earth!

The Valles Marineris Canyon, Mars



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2 The Inner Planets

Read pages 8–11.

1 Write the numbers. Then write the words.

Mars Venus Mercury Earth



Mercury [1] Mars [ ] Earth [ ] Venus [ ]

1 This planet is red. Mars
2 This planet has a yellow sky. _____
3 This planet doesn't have an atmosphere. _____
4 This planet has oceans. _____
5 This planet has short years and long days. _____
6 This planet has some amazing places. _____

2 Write *true* or *false*.

1 Some planets have an atmosphere. true
2 Mercury is very hot at night. _____
3 The pressure on Venus is higher than on Earth. _____
4 Earth is the nearest planet to the Sun. _____
5 Plants and animals need liquid water. _____
6 There is liquid water on Mars today. _____

3 Write the words.

carbon dioxide temperature atmosphere
pressure canyon sulphuric acid

1 how hot something is _____
2 the gas around a planet _____
3 it's very deep _____
4 a gas that traps heat from the Sun _____
5 the force or weight of something on your body _____
6 a dangerous chemical that can burn metal _____

4 Answer the questions.

1 What are the inner planets made of?
_____
2 What are the clouds made of on Venus?
_____
3 Why is Earth a great place for life?
_____
4 How long does it take our Moon to orbit Earth?
_____
5 Why is the soil red on Mars?
_____
6 What do scientists think there was on Mars in the past?
_____

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