

Gravity and the Solar System

by Mary Draper

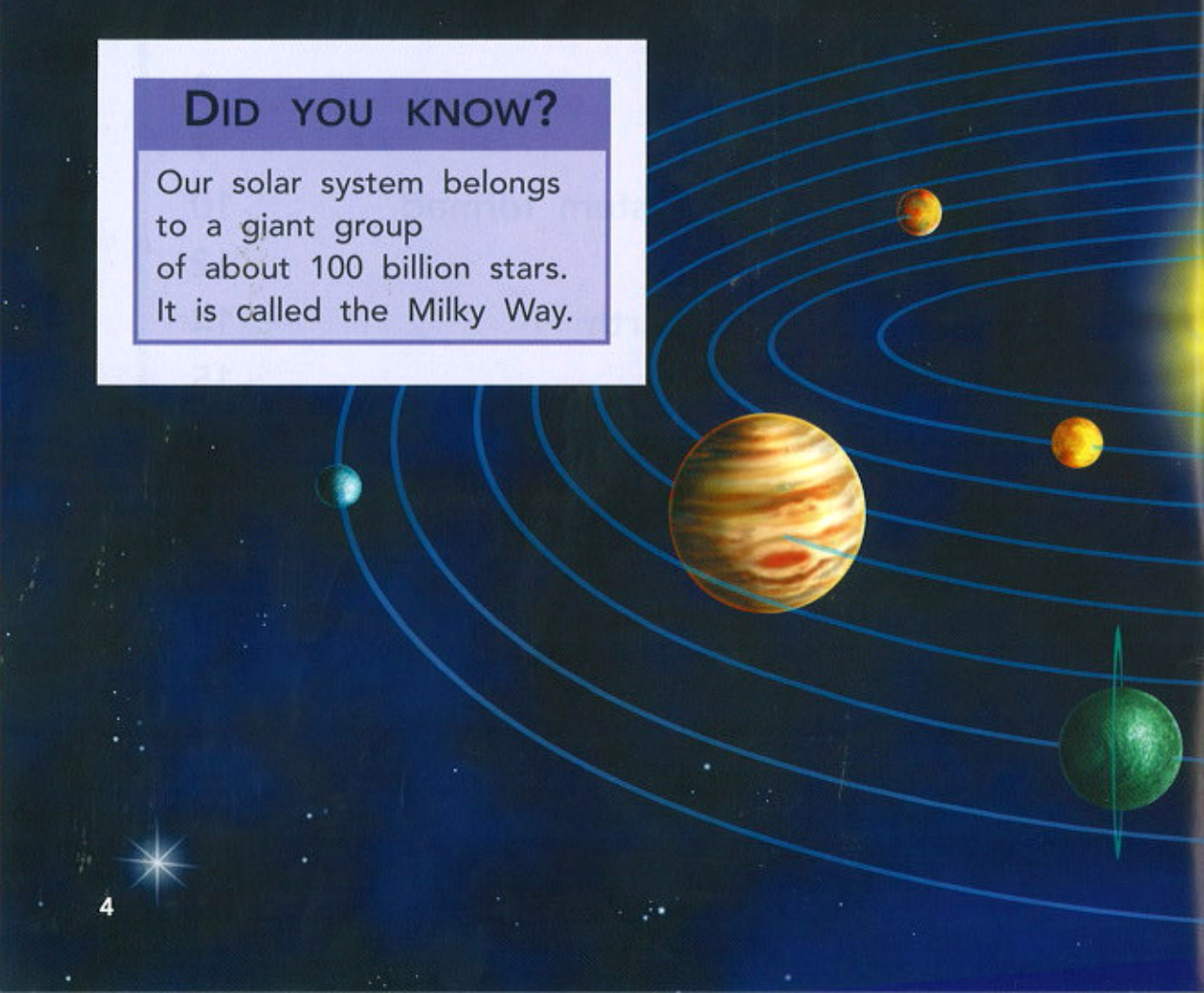
Introduction

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The force of gravity pulls things together, and holds them in place. We cannot see this force, but it is happening all around us. Everything has gravity, but some things have a greater force of gravity than others.

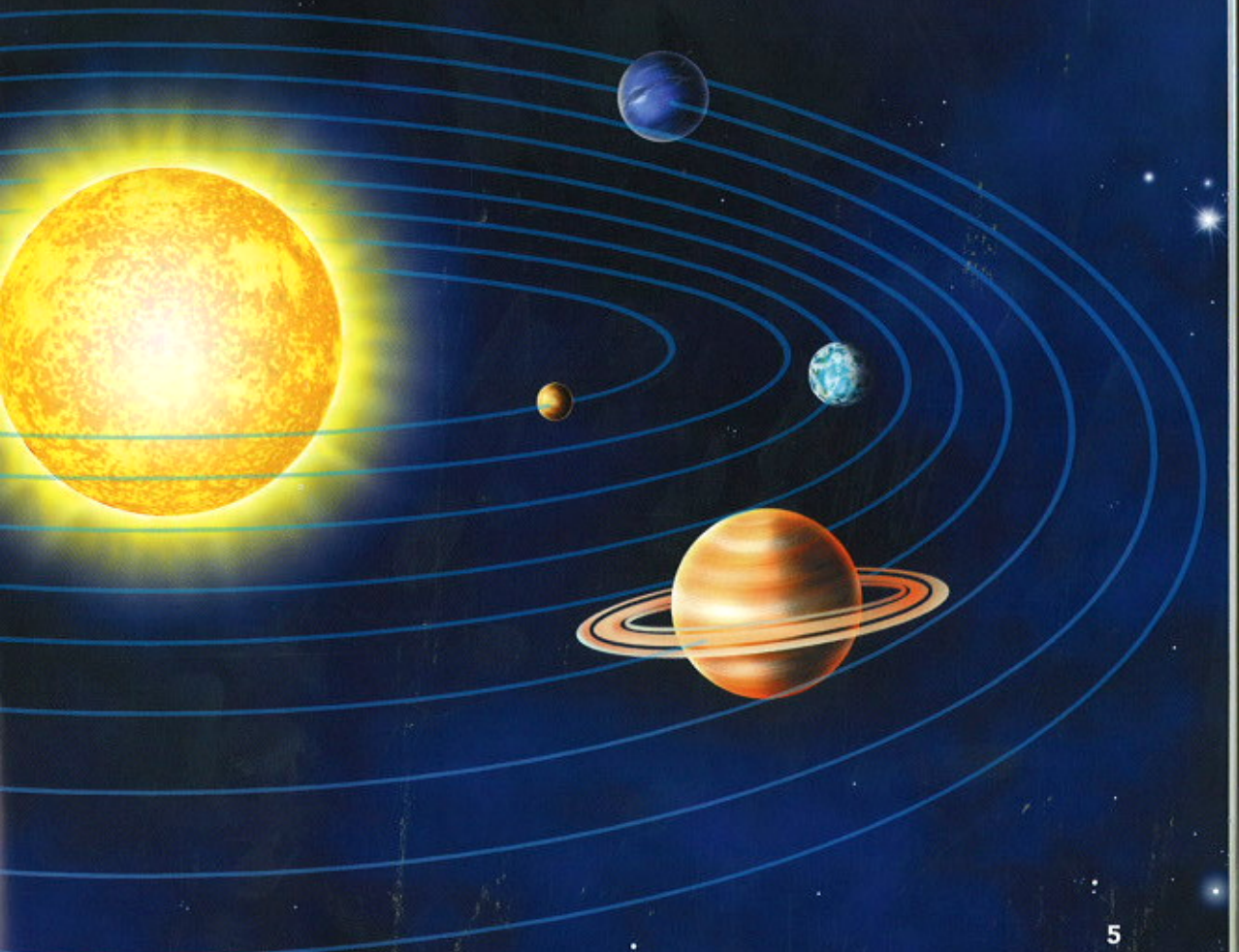
Did you know?

Our solar system belongs to a giant group of about 100 billion stars. It is called the Milky Way.



The pull of the Earth's force of gravity holds things onto the Earth's surface and gives them weight.

In space, the pull of the Sun's force of gravity attracts the planets, and holds our solar system together.



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Gravity

The pull of gravity between two objects depends on two things:

- mass
- distance.

Mass

All objects, on the Earth and in space, are made of matter. The amount of matter in an object is called its mass.

Objects with more mass have a greater force of gravity.



In space, the red object has more mass than the blue object, so its force of gravity is greater.

Key Mass Force of gravity

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What is mass?

We can learn about mass using a cricket ball and a tennis ball. They are about the same size.





But the cricket ball feels much heavier than the tennis ball because it has more mass. The tennis ball is hollow.

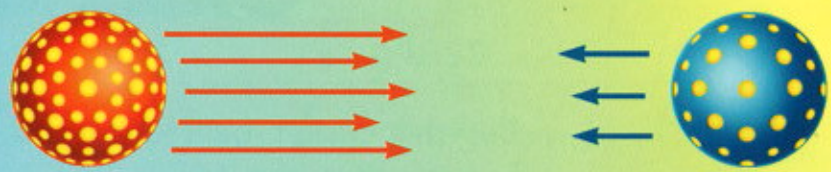


When we let go of the balls, they are not attracted to each other. They fall to the ground because the Earth has the greatest mass and the greatest force of gravity. The balls hit the ground at about the same time.

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Distance

The distance between two objects affects the force of gravity. When objects are further away from each other, the pull of gravity between them is weaker.



The two objects are now further apart.
The pull of gravity between them is weaker.

Key

Mass

Force of gravity



DID YOU KNOW?

Spacecraft need to travel very fast to get out into space.
Rocket engines are the only engines fast enough to blast through the force of gravity.