

SUN FACTS

The Sun is... **HUGE!**

You could fit more than a million Earths in the Sun

The sun is really **FAR AWAY!**

It is about 93,000,000 miles from Earth – in a car, on a motorway with no traffic, it would take about 150 years to get there.

The sun is roughly the centre of our Solar system - all eight planets that make up our solar system – Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus and Neptune – travel round the Sun.

The sun gives us our heat and light. Without it – almost all life on Earth couldn't survive.

The stars you see at night are pretty much like the Sun, only much, much further away. In fact, the next closest star is about 25 trillion miles away. A trillion is 1,000,000,000,000. It would take more than 40,000,000 years to reach it in a car... You would have to make a lot of stops to go to the loo.

Our Sun is one of a few hundred billion stars that make up our Galaxy, the Milky Way. On a clear, dark night you can sometimes see the rest of the Milky Way as a light, milky smear across the dark sky – it looks a bit like a silvery-white river running right over your head. The Milky Way is just one of more than 100 billion galaxies that make up the universe.

"It suddenly struck me that that tiny pea, pretty and blue, was earth. I put my thumb up and shut one eye and my thumb blotted out the planet earth. I didn't feel like a giant. I felt very, very small..."
Neil Armstrong, the first human to walk on the moon, on seeing the earth from the moon.

LINKS

NASA Kids: <http://www.nasa.gov>

The Royal Society: <http://royalsociety.org>

European Space Agency: <http://www.esa.int/esakIDSen>

Tall Stories Theatre Company: <http://www.tallstories.org.uk>

With special thanks to Deirdre Black, Royal Society Dorothy Hodgkin Fellow



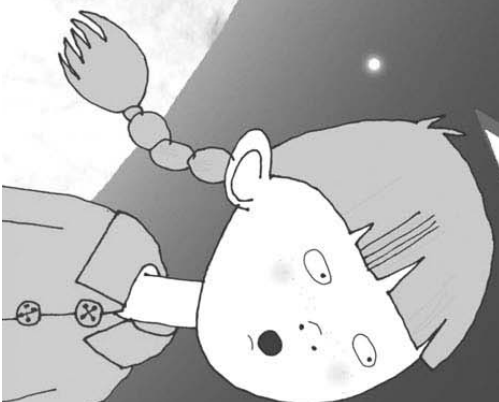
THE ROYAL SOCIETY

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fall stories

Twinkle Twinkle

How I wonder what you are...



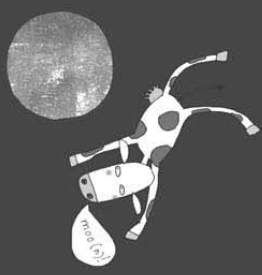
AN INTRODUCTION TO
THE SOLAR SYSTEM,
STARS AND STUFF...



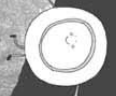
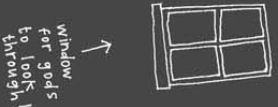
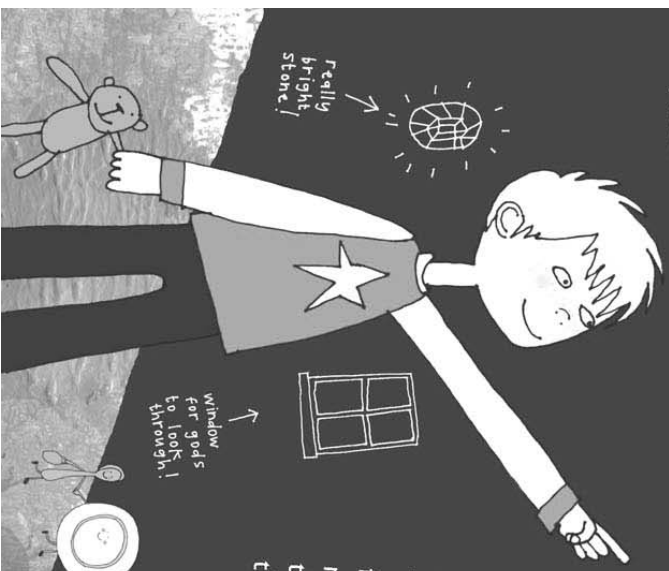
TWINKLE TWINKLE LITTLE STAR, HOW I WONDER WHAT YOU ARE

Have you ever looked up at the sky at night and wondered what all the little dots of light are? Have you ever seen a shooting star and wondered what it is made of? Have you ever seen a cow really jump over the moon?

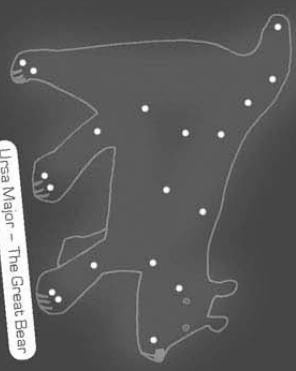
People have always looked at the stars and moon and wondered what they are. Some native Americans believed that the stars were made by



a coyote sprinkling the sky with bright stones. To a Siberian tribe, the stars are windows that allow their gods to look down on us. The tent-dwelling people from Central Asia think the night sky is a huge tent over the earth and the stars are tiny holes in the canvas.



The ancient Greeks named collections of stars after gods, heroes and monsters from their great stories. We still know these collections of stars, or constellations, by the names the Greeks gave them. Here are a few of them...



Ursa Major - The Great Bear



Pegasus - The Winged Horse



Cassiopeia - A Greek Queen

Ancient people have used the stars as clocks, as calendars and as compasses to help guide their ships home for centuries. They even thought they could tell the future from gazing at the night sky.

But what are stars really? Stars are huge hot balls of glowing gas - so big and bright we can see them from trillions of miles away.

There is one star that is closer to earth and so seems much brighter. It is so bright that it lights up the whole sky and gives us our daylight... the sun. See the back page for almighty sun facts!

DON'T FORGET TO LOOK OUT FOR YOUR FIRST STAR TONIGHT & MAKE A WISH!



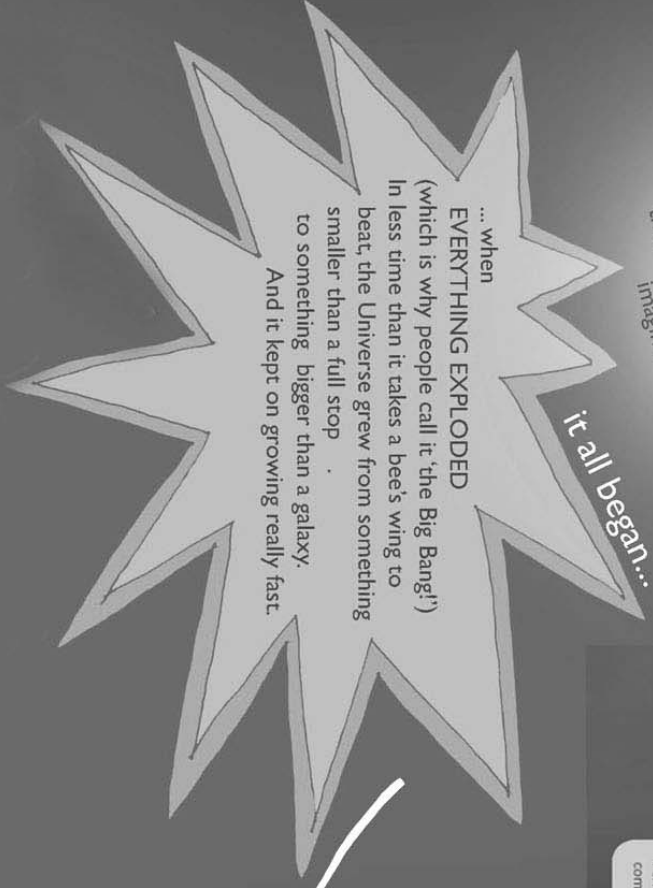
CAN YOU JOIN THE STARS TO MAKE CONSTELLATIONS? (like dot to dot!)



BUT HOW DID IT ALL BEGIN?
Well, most scientists believe it started with a...



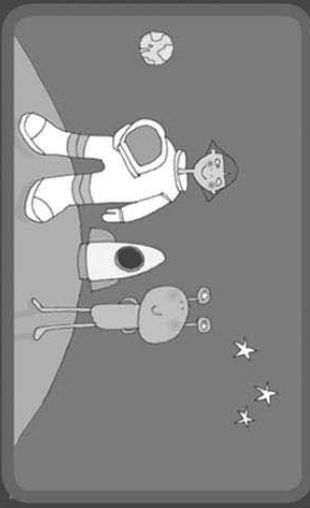
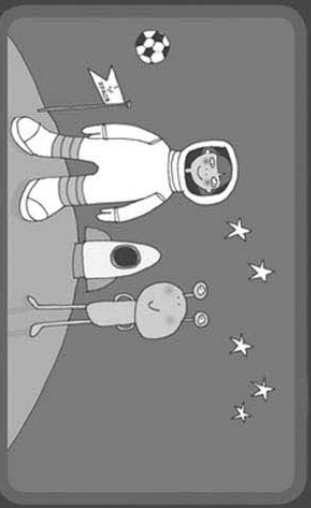
The BIG BANG and our expanding universe
About 14 billion years ago EVERYTHING, the entire Universe, was millions of times smaller than a pinhead, hotter and denser than anything we can imagine.



... when **EVERYTHING EXPLODED** (which is why people call it 'the Big Bang!') In less time than it takes a bee's wing to beat, the Universe grew from something smaller than a full stop to something bigger than a galaxy. And it kept on growing really fast.

it all began...

SPOT THE DIFFERENCE
Can see you spot 6 differences?



COMETS
Comets are giant dirty snowballs with a long tail of melting ice and dust, flying through space. They can take thousands of years to make their lonely way on a huge circuit, or ORBIT, round the solar system. The most famous is Halley's Comet, which takes about 76 years to finish it's orbit... You might see it in 2061...

ALENS
The Universe is SO big that it is possible that somewhere there is another planet that has life on it. Perhaps they'd look like us... or completely different!

As the brand new Universe got bigger and bigger it began to cool down, and after a few minutes some of the exploded bits and bobs (tiny stuff, not the bits and bobs that you keep in your kitchen drawer...) started to stick together. By the time the Universe was about a billion years old whole clouds of stuff had started to be drawn together in clumps to make galaxies. In the universe today there are trillions of them. And since they were born, the galaxies have been moving apart, so our universe is getting bigger and bigger...
Inside the galaxies, stars were, and are still, being born - some of them with planets. Inside our galaxy, the Milky Way, the Sun was born, along with its planets, one of which you are standing on right now - Earth.

SPACE DOG!
Laika, the scruffy dog from Moscow, was given proper astronaut training, a space suit and her own rocket. On November 3, 1957 Laika became the first dog in space!



SPACE FLIGHT
Getting into space is VERY VERY hard. You need a rocket, a space suit, air to breathe and a way to get home again! In 1961 the Russian cosmonaut, Yuri Gagarin, climbed into a rocket and went into space. Since then we have sent around 500 men and women into space. The National Aeronautics and Space Administration (or NASA) want to send someone to Mars.



MERCURY
Mercury is named after the Roman messenger of the Gods and is really just a metal ball of iron - a bit like a huge ball bearing.

VENUS
Venus is named after the Roman goddess of love. But it is not a lovely place... The surface of Venus is hotter than an oven, covered with volcanoes and pools of molten rock.

MARS
Mars is named after the Roman god of War - and is sometimes called the Red Planet. Scientists believe Mars once had rivers and oceans of water. This means there might be living things on Mars...

SATURN
Saturn is named after the Roman god of Farming. This beautiful planet has some fantastic rings of dust and rock CRIBBITING around it. Like Jupiter, Saturn is a gas giant with no solid ground. We could never live here because there is no oxygen, in fact we would be poisoned by the gases.

URANUS
Uranus is named after the Lord of the Skies. Scientists think that beneath the layer of clouds covering its surface is a huge ocean. Beneath the ocean is a rocky core which is being squashed by all the water. This rocky core might be filled with GIANT DIAMONDS... or'key.

NEPTUNE
Neptune is named after the Roman god of the oceans. We don't know much about this planet as it is really far away. We do know that it has rings of rock and dust - a bit like Saturn's but not as clean.

What about Pluto?
Until 2006 Pluto was thought to be a planet - but now we call it a dwarf planet, because it is so small! There are well over 40 of these dwarf planets in the Solar System. It is SO far away we know very little about it...

EARTH
Earth is a very special place. It has water, it's not too hot, not too cold. It is just right. In fact some scientists say that Earth is in "The Goldilocks Zone" where everything is just right - like Little Bear's porridge. We don't yet know of any other planets that have all the ingredients to make life... none are "Just Right".

JUPITER
Jupiter is named after the King of the Roman gods. It is a gas giant - that means that it doesn't have any solid ground - just gas and liquid. The big red blob on the surface of Jupiter is a huge storm that has been raging for more than 3000 years. This storm is so big you could fit the Earth inside it... Jupiter is REALLY big.

LIVING IN SPACE?
Floating above the Earth is the International Space Station, a space laboratory where astronauts from all corners of the world live and work together to find out more about space, the universe and everything in it.

