INSTRUCTIONS & TIPS

BEFORE YOU BEGIN ANY OF YOUR EXPERIMENTS...

- Make sure to read all the instructions carefully.
- Adult supervision is recommended for this activity.
- Keep small children away from the chemicals used in this activity.

STEP 1: BUILDING & PAINTING YOUR SOLAR SYSTEM

- Put the two halves of the Sun (**A**), Jupiter (**F**) and Saturn (**G**) together by finding the matching half and twisting them together until they are secure.

FUN FACT Jupiter is the largest planet in our solar system. Since it is so large, it is a great comet catcher and catches any passing asteroid or comet that passes.

- Take the metal eye hooks (**K**) and twist on in to the top of each model so they are secure. This will help you to hold your planet as you paint.
- Set the planets and Sun in front of you and make sure you have a cup of water nearby to rinse the brush when finished.
- Dip the tip of your paintbrush (**M**) into the Glow-in-the-Dark paint (**L**), then cover as much of the surface as you would like with the paint brush in a back and forth motion.
- Be sure to close the cap of the paint when you are done.

STEP 2: HANGING YOUR MODEL

- Unravel your elastic cord and cut it out (**J**) into ten 12in. sections.
- Tie one end of each cord to the metal hook (**K**) you screwed in to the top of each model.
- Have an adult help you to take the other end of the cord and hang it on your ceiling with tape so it is secure.

TIP The planets in order from closest from farthest to the sun outward are: **Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus and Neptune**

TIP Recharge the glow from your painted planets by exposing them to 30 minutes of light.

FUN FACT Mercury is the closest planet to the sun, but it still has ice on its surface! This is because there are permanently shadowed craters that never receive any sunlight.

- At night you can enjoy the glow from your planets!

FUN FACT Venus is the brightest planet in our solar system, and can sometimes be seen with the naked eye. Yellow clouds of sulfuric acid reflect the Sun's light.

To complete your solar system, use the double sided adhesive dots/squares to secure the Glow in the Dark Stars and Moon (N) to your ceiling/wall.

WARNING! Not suitable for children under 3 years due to the presence of small parts which may present a choking hazard, functional sharp components and length of cord which may present a Strangulation Hazard. Take appropriate precautions, as staining may occur to some materials/surfaces. Colours & contents may vary. Please retain this information for future reference.

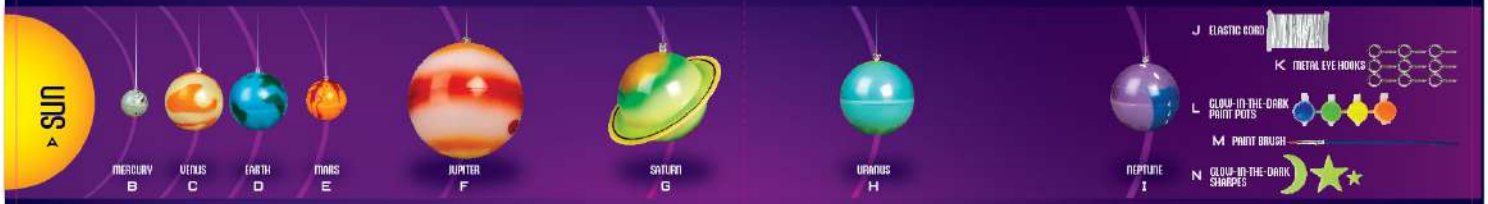
GLOW IN THE DARK SOLAR SYSTEM

PLANETARY GUIDE

Functional Sharp Components.

DISTANCE OF THE PLANETS FROM THE SUN

A planet's orbit isn't perfectly circular, it travels around the sun in an elliptical pattern (sort of egg shaped) so the distance from the sun is always changing. The distances given below are the average distances from the sun for each planet.



MERCURY

Size (radius): 2,440 km
Planet Type: Terrestrial
Year Length: 88 Earth Days
Day Length: 58 Days
Moons: 0

Mercury is the smallest planet in our solar system. It's just a little bigger than Earth's moon. Also like our moon, Mercury's surface is solid and is covered in craters.

Because Mercury has a slow spin and short year a day on Mercury is not like a day here on Earth. For us, the sun rises and sets every day but on Mercury it takes a long time for the sun to rise and set there. Mercury only has one sunrise every 180 Earth days!

VENUS

Size (radius): 6,052 km
Planet Type: Terrestrial
Year Length: 225 Earth Days
Day Length: 243 Days
Moons: 0

Venus is the hottest planet in our solar system. Its atmosphere is thick and full of greenhouse gasses that trap the heat and keeps the planet toasty warm. So warm in fact that it is hot enough to melt some metals such as lead.

Venus is slow! In fact it rotates so slowly and is so close to the sun that a day on the planet is longer than a year! How weird is that? Its rotation is odd for another reason too. It spins in the opposite direction to Earth.

EARTH

Size (radius): 6,371 km
Planet Type: Terrestrial
Year Length: 365 Earth Days
Day Length: 24 Hours
Moons: 1

Home! Whilst Earth isn't the largest or smallest, hottest or coldest planet in our solar system it is special as it is the only planet in our solar system with liquid water on the surface. Water covers 70% of Earth's surface.

Our atmosphere is made mostly of nitrogen and has plenty of oxygen for us to breathe. The atmosphere also protects us from incoming meteoroids, most of which break up in our atmosphere before they can strike the surface as meteorites. All of this and more means life can thrive on our planet unlike any other!

MARS

Size (radius): 3,390km
Planet Type: Terrestrial
Year Length: 687 Earth Days
Day Length: 24.6 Hours
Moons: 2

Mars, the red planet, is a cold desert world. It appears red because of rusty iron in the ground that gets kicked up into the atmosphere of the planet.

Mars is very similar to Earth in that it has seasons, polar ice caps, volcanoes, canyons, and weather. It has a very thin atmosphere made of carbon dioxide, nitrogen, and argon.

Scientists have found evidence that Mars once had water on its surface, but now water mostly exists in icy dirt and thin clouds. We are trying to discover if Mars may have had living things in the past and if Mars could support life now or in the future. Maybe one day you could go on holiday to Mars.

JUPITER

Size (radius): 69,911 km
Planet Type: Gas Giant
Year Length: 4,333 Earth Days
Day Length: 9.9 Hours
Moons: 53 confirmed | 26 provisional

Jupiter is, by far, the largest planet in our solar system. It is a gas giant and doesn't have a solid surface but it may have a solid inner core about the size of Earth. What looks like the surface is actually swirling cloud stripes. Jupiter also has rings, but they're too faint to see very well.

Whilst Jupiter itself is probably far too extreme to support life, its moons are a different story. Europa is one of the likeliest places to find life elsewhere in our solar system. There is evidence of a vast ocean just beneath its icy crust, where life could possibly be supported.

SATURN

Size (radius): 58,232 km
Planet Type: Gas Giant
Year Length: 29 Earth Years
Day Length: 10.7 Hours
Moons: 53 confirmed | 9 provisional

Saturn, the second largest planet in our solar system is most famous for its rings. It isn't the only planet to have rings, but it definitely has the most awe inspiring ones. The rings we see are dazzling groups of tiny icy ringlets that surround Saturn. They're made of chunks of ice and rock.

Saturn is home to a vast array of intriguing and unique moons. The jets of water that spray from Enceladus to the craters on Phoebe, the Saturn system is a rich source of scientific discovery and still holds many secrets for us to uncover.

URANUS

Size (radius): 25,362 km
Planet Type: Ice Giant
Year Length: 84 Earth Years
Day Length: 17 hours 14 mins
Moons: 27

Unlike any other planet Uranus rotates on an almost 90 degree angle so appears to orbit the Sun like a rolling ball. Similarly to Venus, Uranus rotates in the opposite direction as most other planets. Also, like Saturn, it is surrounded by rings but they are much fainter than Saturn's famous rings.

The atmosphere of Uranus is made of hydrogen and helium like Jupiter and Saturn, but it also has methane and it is this methane that makes Uranus appear blue.

NEPTUNE

Size (radius): 24,622 km
Planet Type: Ice Giant
Year Length: 165 Earth Years
Day Length: 16 Hours
Moons: 13 confirmed | 1 provisional

Neptune is dark, cold, and incredibly windy! It is the furthest planet from the sun in our solar system. It is the only planet in our solar system not visible to the naked eye.

Neptune is very similar to Uranus. It's made of a thick soup of water, ammonia, and methane. Its atmosphere is made of hydrogen, helium, and methane. The methane gives Neptune the same blue colour as Uranus. Also like Uranus, Neptune has rings but they are even trickier to see!

OTHER PLACES OF INTEREST IN OUR SOLAR SYSTEM

THE SUN The Sun, at the heart of our solar system, is a yellow dwarf star, a hot ball of glowing gases. Its gravity holds the solar system together, keeping everything from the biggest planets to the smallest particles of debris in its orbit.

OTHER DWARF PLANETS Makemake, Haumea, Eris, Ceres make up the remainder of the dwarf planets as well as Pluto. But we may discover many more once we travel further from our Sun into deeper space.

KUIPER BELT A disc-shaped region beyond Neptune of bits of rock and ice, comets, and dwarf planets. This is where Pluto and some other dwarf planets are! The Kuiper Belt is still a very mysterious place, and we have a lot to learn about it.

PLANET X A theoretical planet way beyond Neptune. Based on mathematical evidence the existence of this planet has never been confirmed.

DID YOU KNOW?

- Uranus' axis is at a 97 degree angle, which means it is lying on its side as it orbits the sun.
- Neptune is so far away from the sun that it takes 165 Earth years to orbit the sun.
- Saturn may be the second largest planet, but it is also the lightest. If there was a pool big enough to hold Saturn, it would float!