

# **Mexborough & Swinton Astronomical Society**

**Est. 1978**



## **Solar System Facts**

## **Solar Projection**

[www.msas.org.uk](http://www.msas.org.uk)

**THE SUN:** - is at the centre of our solar system. If the Sun didn't shine the Earth could not survive, which means that we, the humans, could not survive either.

Average Sun-Earth Distance	149,598,000km (93 million miles) or 1 Astronomical Unit (AU)
The Sun's Radius	696,000km
Surface temperature	5,800 Kelvin
Spectral type	G2

**Observing the Sun is very dangerous in deed and must only be done with the help of parents, teachers or expert astronomers.**

**NO ONE MUST EVER LOOK AT OR NEAR THE SUN WITH ANY OPTICAL AID SUCH AS BINOCULARS OR TELESCOPES**

**IF YOU DO YOU WILL BE INSTANTLY BLINDED**

However, it is perfectly acceptable to study the sun using the "projection method". This method is shown in the sketch below.

**ITEMS REQUIRED** – particularly if you are away from home – always take an adult with you

2 chairs – one for you to sit on.

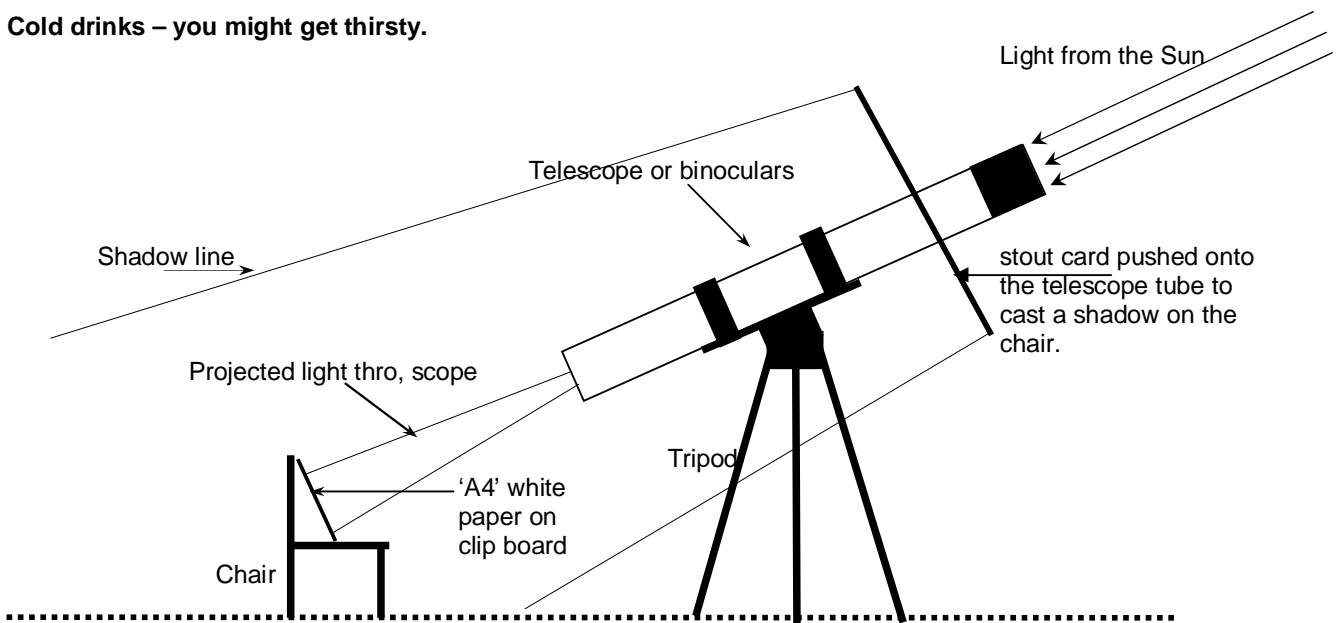
Clip board/s.

Some sheets of 'A4' paper with a 6" circle drawn on them.

Some sharpened pencils – you might break one.

Binoculars or telescope to do your projection through.

Cold drinks – you might get thirsty.



**DO NOT LOOK AT THE SUN WITH ANY OPTICAL AID**

**YOU WILL DAMAGE YOUR EYES**

## Solar System Facts

**MERCURY:** - is the nearest planet to the Sun and care must be taken when trying to observe it. It is a planet that any Earth bound people could not possibly visit it is far too hot and no human could withstand the pressure. The planet is less than half the size of Earth. This is not a planet that anyone from Earth will ever visit.

Average distance from the Sun	36 million miles
Revolution around the Sun	88 days
Axial rotation (spin)	58+ days
Satellites	None

**VENUS:** - is about the size of the Earth and is nearer to Earth than Mercury. It is a very hot and dangerous planet with its atmosphere consisting of methane, sulphuric and carbon monoxide gases which are very corrosive and deadly poisonous. The atmospheric pressure is 90 times that of Earth. If we were to drop through the atmosphere of Venus we would be poisoned corroded and flattened at the same time – not a place for us humans.

Average distance from the Sun	67 million miles
Revolution around the Sun	224+ days
Axial rotation (spin)	243 days
Satellites	None

**EARTH:** - is our home. It is the third planet from the Sun and is a wonderful place for humans to live. It is the only planet in the solar system that has water on its surface. It is also the only planet within the known solar system that has mostly educated beings. However, it does need to be taken very good care of. We, as educated people must be very careful when using our fuels. Using fuels such as electricity and petrol for instance pollutes the atmosphere, which in turn will kill our very precious home planet.

Average distance from the Sun	93 million miles
Revolution around the Sun	365+ days
Axial rotation (spin)	0.997 of a days
Satellites	One – called The Moon

**MARS:** - is the first of the “Superior Planets”. The reason for this is that Mars is the first of the rest of the planets that are outside the orbit of Earth. The other planets that have been mentioned earlier are called “Inferior Planets”. This is because the planets Mercury and Venus are inside the orbit of the Earth. Mars is a very interesting planet for scientists and astronomers on Earth as it is relatively near to us and did once have water on its surface. As you may have seen on TV in the past year a robot spacecraft has landed on Mars and has sent back some amazing data about the geology of the planet.

Average distance from the Sun	141 million miles
Revolution around the Sun	687 days
Axial rotation (spin)	1.026 days
Satellites	Two – Phobos and Deimos

**JUPITER:** - is the first of the two “Gas Giants” in the solar system. It has been studied by space for many years and is proving to be a very interesting [place for the scientists. This planet was very much in the news over the past year or so because a comet was attracted by this large planet and caused it to break into about 21 smaller pieces.

The name given to it was Comet Shoemaker Levi which impacted into the upper cloud layer of Jupiter and made a fantastic observing time for all scientists and astronomers alike. Jupiter can be seen with the naked eye and looks like a bright star in the sky. By using a pair of 10 x 50 binoculars the planet

and its four Gallilion Moons” can be quite easily, the moons looking like small stars around the disc of the planet.

Average distance from the Sun	483+ million miles
Revolution around the Sun	11.86 years
Axial rotation (spin)	0.410 days (a day is only about 10 hours)
Satellites	About 22
This planet also has a ring system – of sorts	

**SATURN:** - is the second of the large “Gas Giants”. This must be the most photographed planet in the whole of the solar system. There is little wonder at this as the planet has a wonderful ring system. The planet will be better placed for observing the rings in and after 1999 for a few years. A great number of spacecraft have encountered this planet on a “fly-by” when visiting the other planets.

Average distance from the Sun	886+ million miles
Revolution around the Sun	29+ years
Axial rotation (spin)	0.427 days
Satellites	About 27
This planet was thought by many to be the only one with a ring system	

**URANUS:** - is the sixth planet from the Sun and is not an easy planet to observe with society telescopes. It has been encountered by spacecraft on a “fly-by” and good pictures were taken. However, it shows little of interest to the lay man, not a lot more to amateur astronomers.

Average distance from the Sun	1,782+ million miles
Revolution around the Sun	84 years
Axial rotation (spin)	0.45 of a day
Satellites	Five
This planet also has a ring system – of sorts	

**NEPTUNE:** - is the next to the last planet in the solar system – sometimes! This is not a good planet to observe with amateur telescopes but has been encountered by spacecraft on a “fly-by” and pictures have been taken.

Average distance from the Sun	2,794 million miles
Revolution around the Sun	164+ years
Axial rotation (spin)	0.67 of a day
Satellites	Two – called Triton & Neried

**PLUTO:** - is the last planet in the solar system – sometimes! About the only two things of interest in its favour is, firstly, its orbit comes inside that of Neptune during its journey round the Sun. Secondly, its position in space was first plotted by mathematics.

Average distance from the Sun	3,666 million miles
Revolution around the Sun	247+ years
Axial rotation (spin)	6.387 days
Satellites	One – called Charon

*Officially Pluto is not included as a solar system planet – it’s now registered as a planetoid.*

## **USING A SCALE THAT WE CAN RECOGNISE FOR THE SOLAR SYSTEM**

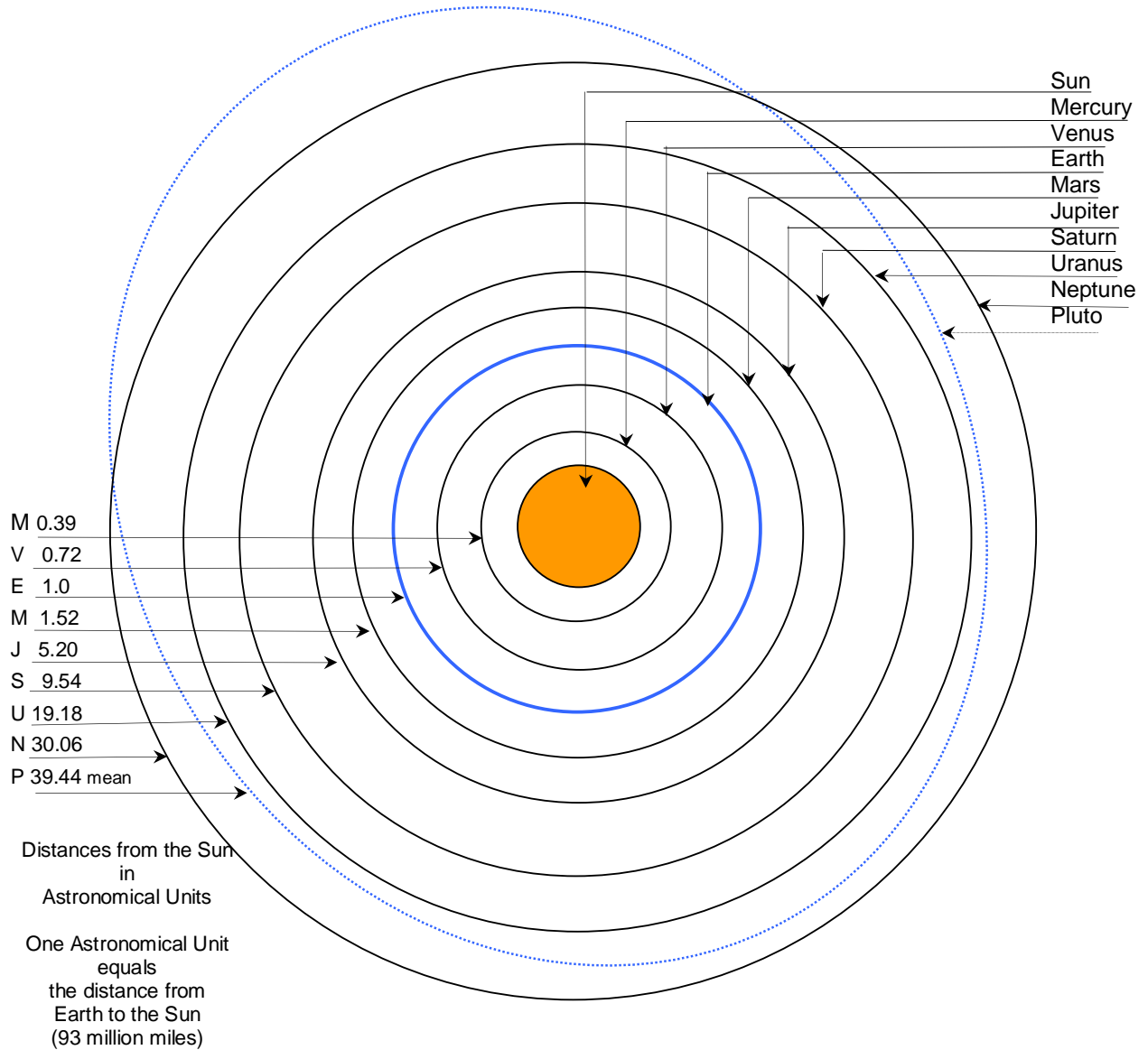
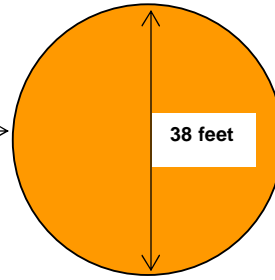
The planetoid Pluto and the Sun are used in this representation.

Using a 1p coin for Pluto, the Sun would have to be 38 feet wide and placed about 30 miles away

1 pence coin



30 miles



## **THE ORBITS AND DISTANCES OF THE PLANETS IN THE SOLAR SYSTEM**

# MEXBOROUGH & SWINTON ASTRONOMICAL SOCIETY

Est., 1978

**ARE YOU INTERESTED IN ASTRONOMY?**

**DO YOU WANT TO KNOW MORE?**

**THE SOCIETY IS TAKING NEW MEMBERS**

Our Observatory is very well equipped and has a

**TOA 103 Takahashi Wide Field Telescope**

on a

Paramount ME Mount

Members are able to explore the skies as much as they wish

**VISIT US ON**  
**[www.msas.org.uk](http://www.msas.org.uk)**

**OR**

**RING**

**01709 – 579529** answer phone

**01709 – 584217** direct

**OR**

**WRITE TO**

The Secretary

Mexborough & Swinton Astronomical Society  
147 Queen Street, Swinton, Mexborough. S64 8NG

