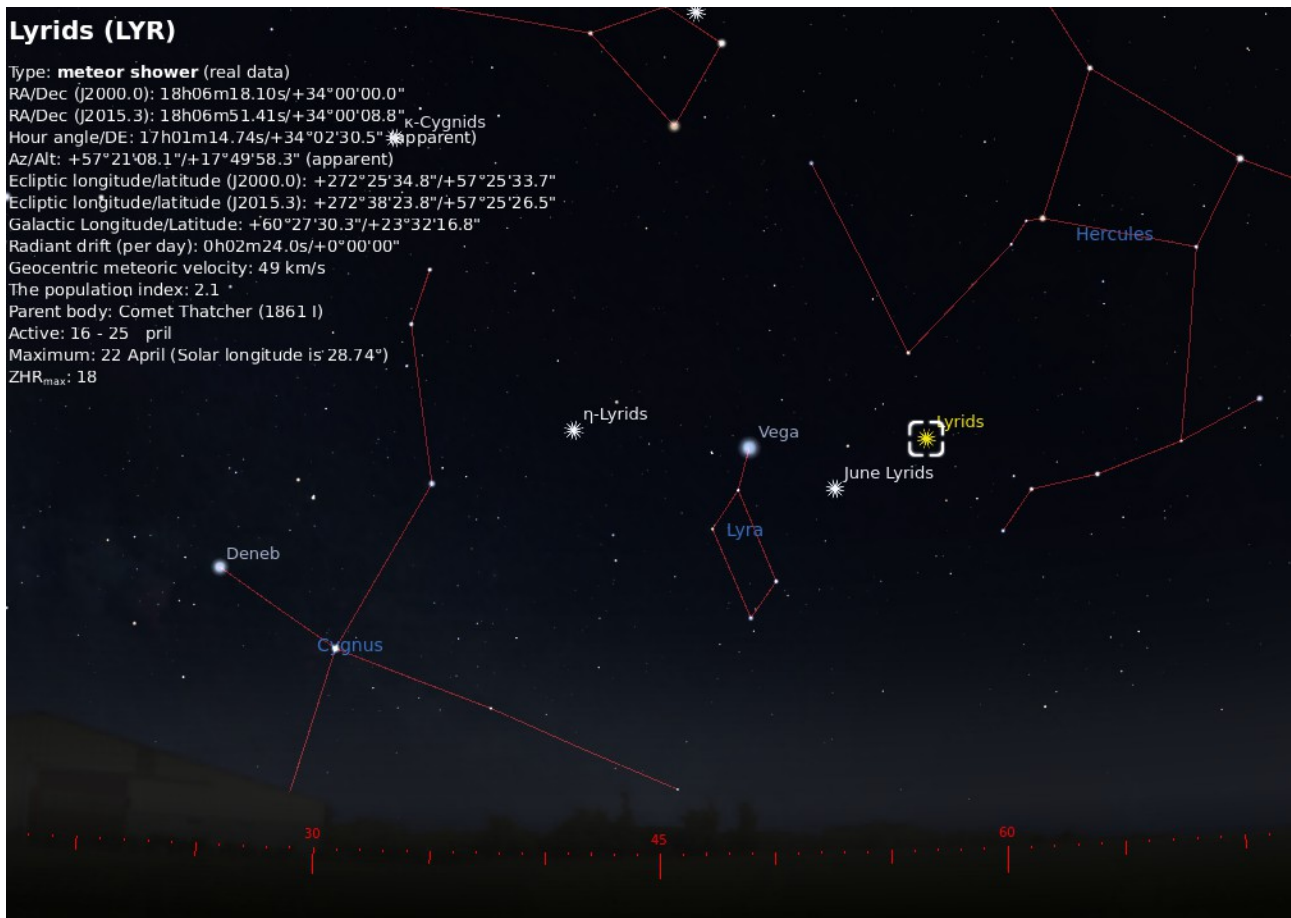


Thanet Astronomy Group

Astronomy for Everyone in Plain English

NEWSLETTER

April 2015



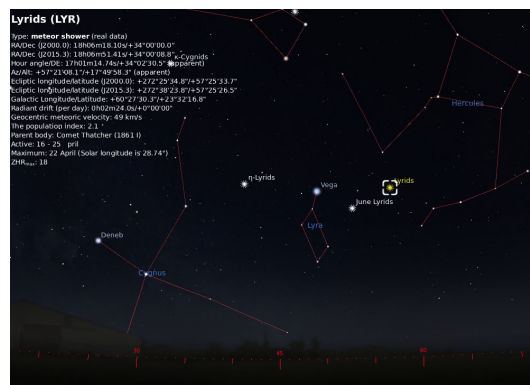
The Lyrids Meteor Shower 22 April 2015

This space is reserved for promoting member's businesses.
You can place an advert here for a donation to the group.

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About the Cover Picture



The Lyrids Meteor Shower 22 April 2015

If you are lucky enough to have (**Version 0.13.02 of Stellarium**) or a later version, it will have Meteor showers built in. If you have an older version of Stellarium the cover picture will show you what you need to know.

The radiant point is in the constellation of Lyra just a few degrees North of this constellation's brightest star Vega.

The Lyrid Meteor Shower will be on the 22nd April with its radiant point in the North East and the 1st Quarter Moon in the West, which will be setting below the horizon by 12:15. So there will be a dark sky.

The Lyrid Meteor Shower usually produces 25+ meteor's per hour so its not one of the most prolific showers but it is known to produce some impressive fireballs occasionally and has produced over 100 meteors per hour in the past.

You can start looking for shooting stars as early as the 16th April and as late as the 26th April but as the time moves closer to the peak on the night of the 22nd the rates will increase and after the peak they will reduce again until the 26th.

The source of this meteor shower is the comet **C/1861 G1 Thatcher**, this is a long period comet.

Short period comets come from the Kuiper Belt and therefore have a solar orbit period of under 200 years. Long period comets come from the very much more distant Oort Cloud and therefore have a solar orbit period of over 200 years.

Comet C/1861 G1 Thatcher is one of the shorter Long Period comets with a solar orbit of about 415 years. This makes it one of the strongest long period comet meteor showers.

Please come and talk to me if you would like to discuss this in more detail.

Danny Day.

Thanet Astronomy Group Contact Details

Executive Committee

Chairman	Daniel Day	01843 228 904
Treasurer	George Ward	01843 292 640
Secretary	Gill Palmer	07543 942 245

Committee

Volunteers	George Cozens	07970 181 395
Members	Sheila Bull	07791 892 057
Newsletter	Janet McBride	01227 364 092
Library	Janet McBride	01227 364 092
Web Site	Danny Day	01843 228 904
JAC & Gill	Gill Palmer	01843 848 064

Member's Meeting Dates and Times

Thanet Astronomy Group Member's Meetings Dates and Times

1st April 2015 at 7.30pm
6th May 2015 at 7.30pm
3rd June 2015 at 8pm
1st July 2015 at 8pm
5th August 2015 at 8pm
2nd September 2015 at 8pm
7th October 2015 at 7.30pm
4th November 2015 at 7.30pm
2nd December 2015 at 7:30pm
6th January 2016 at 7:30pm
3rd February 2016 at 7:30pm
2nd March 2016 at 7:30pm

All Member's meetings will be held at the :-

West Bay Cafe,
Sea Road,
Westgate-on-Sea,
Kent.
CT8 8QZ

What we did last month

March 2015

Tuesday 3rd School today still working our way through part 3 of the Stargazing Course including Safe Solar Observation. We brought along the telescope with a solar filter to look at the Sun but there were no sun spots for the children to see. However we did get a really good look at the Moon at the end of the session.

Wednesday 4th This was the most important meeting of the year. The AGM, for those that missed it, the agenda is as usual on the diary page of the web site. We started with the usual notices, then we moved on to the business of the AGM including Annual Reports from the Chairman, Treasurer and Secretary. The election of Committee and Executive Committee. Then Determination of the Annual Membership Fee, and amendments to the constitution.

Saturday the 7th Public Outreach Meeting. Today was very busy, loads of members turned up to help with the queries from the general public.

Tuesday 10th Back to school With Danny ill, George C. & Gill went to Laleham. The children looked at the Sun through George's telescope fitted with a solar filter while Gill showed the children how to make a pinhole projector. Then we all used Stellarium to watch the forthcoming Solar Eclipse.

Tuesday 10th Evening Christ Church Wives Talk. George W. & Gill used Stellarium to do some Stargazing in comfort! Gill showed the group & talked to them about Planets while George W. showed them Stars, Constellations and Nebulae.

Saturday 14th Public Outreach Meeting. We were busy today with both children and adults. The JAC & Gill children made Pinhole boxes ready for the eclipse on the 20th and waited for gaps in the cloud to try them out.

Tuesday 17th School today – Part 3 Coordinate Systems - started today with many more questions from the children.

Friday 20th Solar Eclipse day at Dumpton Gap. We gathered to see the Partial Solar Eclipse but there were too many clouds. We decided that we would observe the Eclipse through the clouds by taking light meter readings. This worked very well and the results will be published on the web site as soon as possible. Some people even brought loads of Chocolate Biscuits and Flasks of Coffee. NICE :-)



Saturday 21th Public Outreach Meeting. We were inside the cafe today as it was very cold outside. The Children watched Stargazing Live on the laptops with their Mums, while the other adults enjoyed Tea Coffee and snacks while enthusiastically discussing Astronomy.

Tuesday 24th School Part 3 measuring systems today, and the children's brilliant questions and observations are still showing their total involvement and commitment to what they are learning.

Saturday 28th Public Outreach Meeting. Today was not a bad day weather wise, although it was a little windy. We spent half the time outside using the telescopes then we all moved into the cafe at about 3pm to warm up with Tea and Coffee and continue our discussions.

With only 11 meetings this was a very quiet month at Thanet Astronomy Group.

Our thanks go out to all that helped to make all this possible !

Danny Day.

Junior Members Page

Saturday 21st March 2015
Reported by Mustafa Azam

We are very honoured to have with us today Miss Peacock who is our Junior Solar Eclipse expert from Thanet.

Q. How old are you?

A. I'm 5

Q. Which class are you in?

A. Reception class... it's called Capricorn

Q. Why is it called Capricorn?

A. Because all the classes are all named after things in Space

Q. How many children did you give your talk to?

A. 23 children in my class

Q. What did you talk about?

A. All about the eclipse when the Moon moves between the Earth and the Sun



Thank you Miss Peacock for taking the time to talk to us!

We are also lucky enough to have our JAC & Gill Chairman, Mr. Harvey, who gave a presentation at his school yesterday.

Q. How old are you?

A. I'm 10

Q. How many pupils did you give your presentation to?

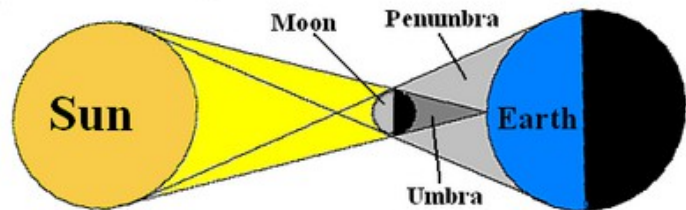
A. There are 32 in my class Y5B

Q. What was your presentation about?

A. I showed them a video of what the Solar Eclipse would look like and diagrams of how it happens. Then I told them some eclipse facts like there might be a power shortage on the day and there is going to be a Lunar Eclipse in 2 weeks but it won't be visible from the UK.

Q. Did they ask any questions?

A. Yes, somebody wanted to know if it would get dark but, unfortunately, it was too cloudy to notice when we went out to look!



Thank you Mr. Harvey for your interesting interview!

For those of us who were unable to see the actual Solar Eclipse as it happened, you can watch the whole thing safely online on the Stargazing Live website like we did...



Gill P.

Radio Astronomy Special.



Hubble Space Telescope



30m Telescope Mauna Kea

I have recently been trying to find out about Amateur radio and this has led me to ask and try and find out what 'radio astronomy' is. We are used to the stunning visual images taken by telescopes like the **Hubble** or the great telescopes in Hawaii or Chile, but you may have only heard of radio astronomy through movies like "**Contact**".



Karl Jansky Astronomer 1905 – 1950

Since the 1930s, when the first radio signals from space were detected by **Karl Jansky**, astronomers have used radio telescopes to explore the Universe by detecting radio waves emitted by a wide range of objects. Our Sun, the nearest star to Earth is a powerful radio emission source. This is mainly due to its proximity to our planet, but some radio sources, which are millions of even billions of light years away, are truly colossal in terms of their radio output.

Wow – did you know that??? Because I didn't until I started looking at this. Radio telescopes provide alternative views to optical telescopes, they can detect invisible gas, and can reveal areas of space that may be obscured by cosmic dust.

So here is some 'techie' talk which I hope makes sense and I thank the website <https://www.skatelescope.org/radio-astronomy/> for the information.

Radio telescopes, working with signals at a longer wavelengths than light, can be used even in cloudy skies. The longer wavelength of radio emissions means that the radio telescopes used to detect them do not have to be as perfectly shaped as their optical counterparts.

They still need to be accurate to around 1 mm in terms of accuracy of the dish shape to obtain the same level of detail and resolution as their optical cousins.

Radio telescopes have to be much larger or have a much larger collecting area, as light is a much shorter wavelength.

The largest radio telescope in the world as a single dish, is the [Arecibo telescope](#), which featured in the movie "**Contact**", and is located in a natural hollow in Puerto Rico, South America.

Radio Astronomy Special



The Arecibo Observatory Radio Telescope Puerto Rico

I am sure you have heard of Jodrell Bank in the UK, which is the HQ of the SKA (Square Kilometer Array) and is steeped in history. Home to one of the largest fully steerable radio telescopes in existence, the **76m Lovell telescope**, one which not only worked on detection radio emissions from deep space, but that also played a pivotal role in the great space race of the 1960s between Russia and the United States.



The 76m Lovell Telescope, Jodrell Bank UK

Radio Astronomy Special



The telescope at Jodrell Bank, named after **Sir Bernard Lovell**, a pioneer in radio astronomy and the founding father of the Jodrell bank site, tracked both the first spacecraft “Sputnik” and also many of the U.S and Soviet era spacecraft on their travels from the Earth to the Moon and beyond.

However, this does not mean that we, as amateurs can’t participate in space per se because did you know - it is possible to talk to the ISS?

The following information, kindly supplied by Len, explains what amateur radio is and how it can be used.

Sir Bernard Lovell 1913 – 2012

Some people think that amateur radio is the same as CB radio – HOW WRONG CAN THEY BE ??

For a start, amateurs have to take lessons and learn about the insides of radio transmitters, how they work and how they are constructed.

Then there are exams to be taken before they can operate a radio of their own (I am going to do this shortly).

CB radios only use a tiny part of the frequency spectrum on FM (frequency modulation) whereas amateurs have a large slice of the frequency spectrum ranging from 136Khz up to 76Ghz with many frequencies in between (I don’t understand it much either but am hoping to once I start studying for the exam).

There are also different modes of transmission; of instance: AM (amplitude modulation); FM (frequency modulation); SSB (single side band) where telephone; morse code, slow scan TV; radio teletype and digital for computers can be used and new on the scene is D-STAR which is a new type of digital transmission.

Len said: ‘People have asked how far I can get on my radio. The answers is ANYWHERE. I can talk to people all around the world. **I can even talk to astronauts in space**’. So on the whole the world is a small place as far as amateurs are concerned. A communication to Australia, for example, takes less than one second because radio waves travel at the same speed as light, which can travel round the earth 7.5 times in a second!

Summing up amateur radio, then is for the young, old and those in-between. Anyone can use amateur radio. So this reference to talking to astronauts made me immediately want to find out about it and so I did some internet research and lo and behold you can:

This is what the ISS website says:

‘Some ISS crew members make random, unscheduled, amateur radio voice contacts with earth-bound radio amateurs, often called "hams". They can make radio contacts during their breaks, pre-sleep time and before and after mealtime. Astronauts have contacted thousands of hams around the world. The work schedules of the ISS crew dictate when they are able to operate the radios. The crew's usual waking period is 0730 - 1930 UTC. The most common times to find a crew member making casual periods are about one hour after waking and before sleeping, when they have personal time. They're usually free most of the weekend, as well. (The [current crew work schedule](http://www.ariss.org/contact-the-iss.html) is published on the NASA website.)’ <http://www.ariss.org/contact-the-iss.html>

For more information speak to our own experts Len and Danny.

[*All the frequencies to talk to the ISS are in Stellarium. It will even show you the Doppler Shift due to the huge speed the ISS is travelling. This huge speed makes it necessary to change frequency several times and the ISS approaches and then moves away from you while it is orbiting the Earth*] Danny

Sheila Bull & Len West

Book review

The Wonders of the Solar System **by Prof Brian Cox, OBE & Andrew Cohen**

The Wonders of the Solar System, by Prof Brian Cox, OBE & Andrew Cohen.

The cover price is £20 but it can be bought for less if you shop around.

This book was published by Harper Collins ISBN 978 0 00 738690 1 following the success of the BBC series of the same name.

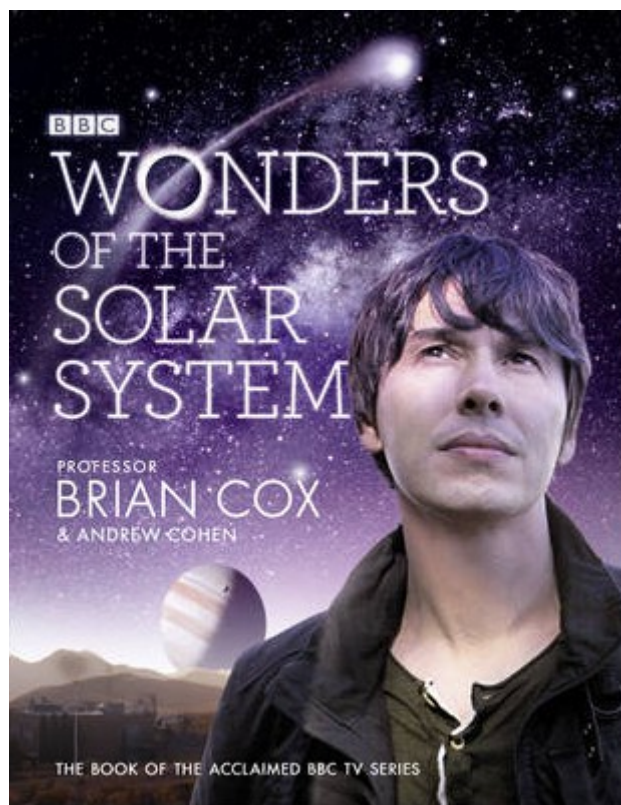
It contains 255 pages of text, pictures and easy to follow diagrams. If, like me, you followed the TV series you will almost hear Brian Cox's voice as you read the book.

He explains in his easy to understand manner some of the physics involved.

After the introduction, chapter 2 covers the Empire of the Sun, chapter 3 Order out of Chaos, chapter 4 The Thin Blue Line (Earth), chapter 5 Dead or Alive, and chapter 6 Aliens.

All in all a thoroughly enjoyable read and a wonderful addition to your library.

George Ward.



What's in the sky this month

What to see Saturday 4th April at 9pm

Asterism (The Plough)

Constellations (Ursa Major, Bootes, Ursa Minor)

Stars (Alkaid, Arcturus, Mizar, Alioth, Megrez, Phad, Polaris, Merak, Dubhe)

This month rather than bombarding you with yet more Solar Eclipse, I would like to do some star hopping, that means finding a recognisable pattern of stars and using it as a signpost in order to find other stars and constellations.

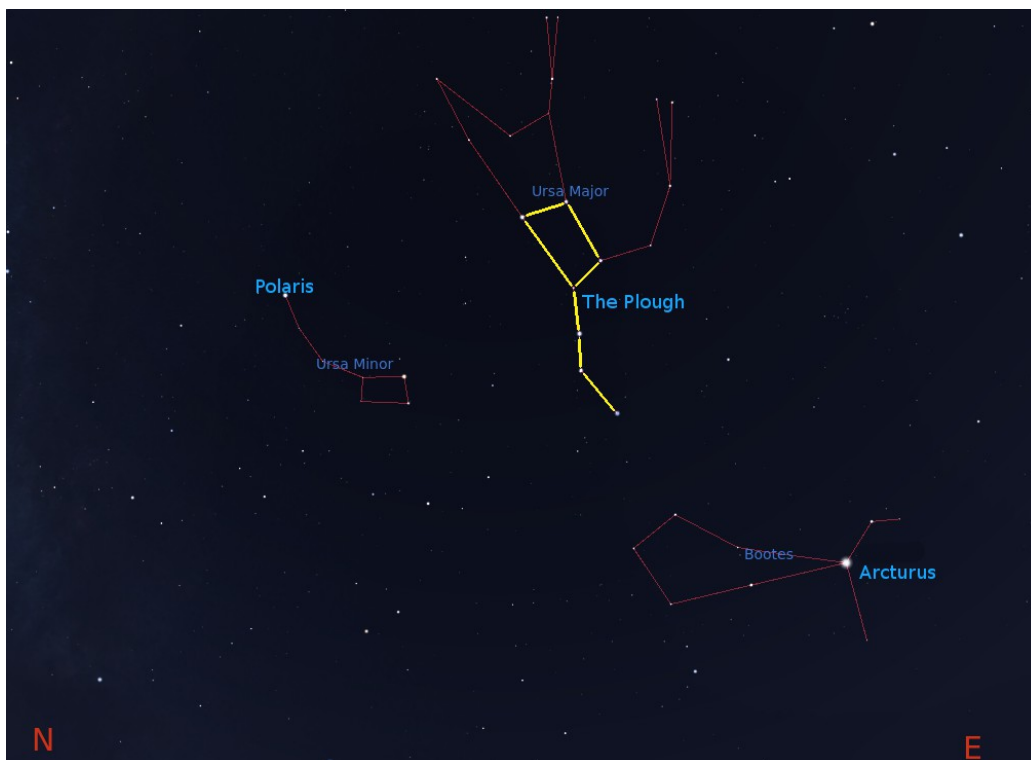
I'll start with **The Plough**, (*shown below in Yellow*) it is part of the constellation “**Ursa Major**”, also known as “The Great Bear”.

The plough is made up of the seven brightest stars of the constellation Ursa Major. The Plough is an **Asterism** (*a recognisable group of stars that is less than a constellation*). The plough looks a bit like a saucepan or frying pan.

The Plough will appear in the sky at any angle depending on the time you are looking at it, but at 9pm on Saturday 4th April it will be as shown in the picture below.

So at about 9pm on the 4th April

Look North East about 62° on your compass and and up at an angle of about 45° above the horizon, you should see the star **Alkaid** at the end of the handle of the Saucepan and above it the rest of The Plough (*shown in Yellow*). If you look really carefully you may be able to pick out some of the other stars that make up the rest of the constellation Ursa Major (*shown in Red*).



The constellations shown in red and the Asterism The Plough shown in yellow

If you now follow the curve of the handle away from the pan for about twice the handle's length, you will arrive at a bright orange star, its name is **Arcturus**. You should now be looking due East at 85° on your compass and up at about 21° above the horizon. The star Arcturus is about 36 light years away from the Earth and is the “Alpha” or main star of the constellation of **Bootes**, The Herdsman (*shown in red*).

Now return to The Plough and work your way from the end of the handle, star 1 of 7 “Alkaid” along the handle past star 2 of 7 “Mizar” then star 3 of 7 “Alioth”. Now to the point where the handle joins the pan, star 4 of 7 “Megrez”, then to the bottom of the pan below the handle star 5 of 7 “Phad”.

What's in the sky this month

Now comes the important bit the next two stars form the pointer we will use to locate **Polaris** some times called the North Star or Pole Star. Look at the next star 6 of 7 at the front bottom edge of the pan “Merak” and lastly star 7 of 7 “Dubhe” the star at the top front of the pan.

Draw a line from star 6 Merak through star 7 Dubhe and extend that line another 4 times its length, you will see a bright star near the end of the line. You have arrived at Polaris, and you should be looking at 358° on your compass and up at 51° above the horizon. The star Polaris marks the end of the tail of the constellation Ursa Minor.

This constellation looks just like a small version of the Plough with the end of the tail being the end of the pan handle.



The Constellations with their classical Art work

You have now identified one Asterism, nine Stars, and three Constellations all from just one set of 7 bright stars. There are many more stars, constellations and other objects that can be easily found using this star hopping method.



The stars of the Plough - (1)Alkaid, (2)Mizar, (3) Alioth, (4) Megrez, (5) Phad, (6)Merak, (7)Dubhe.

George Ward.

Member's Page

Astro Photography

First attempts at attaching a Camera to a Telescope

After talking to Steve and George Ward with kind words of encouragement I looked on the web and found sites demonstrating ways of connecting my camera to a telescope.

I also wanted to upgrade my eyepiece to improve viewing.

After George demonstrated his Hyperion Click stop zoom eyepiece I purchased one along with an m43/T-2 adaptor ring.

A T-ring screws on to the adaptor ring to lock on to my Nikon DSLR camera.

Now I was ready to try it all out.?



M43/T2 Adapter Ring

With George's permission the eyepiece was slotted in to his telescope on one Saturday afternoon at the West Bay Cafe, and with a bit of adjustment of the camera we produced these images.



With Just the Camera



First attempt with the Telescope



With a little more focus, very pleased. A good investment, can't wait for clear sky at night ?
Andy Fearn.

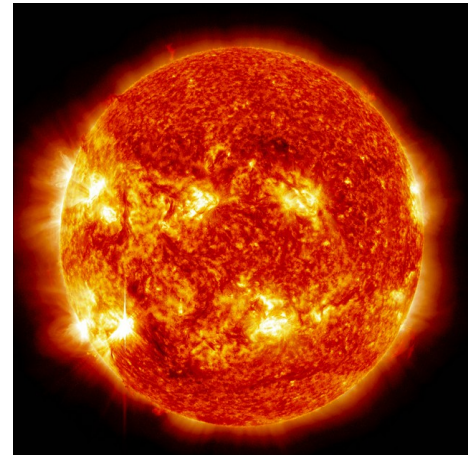
Did You Know ?

The SUN is Disappearing at 4 Million Tons a Second

The Sun (our nearest star) converts 600 million tons of Hydrogen into 596 million tons of Helium every second !

This means it loses 4 million tons of matter every second this mass is converted into energy in the form of heat and light. Some diet!

This process is called Nuclear Fusion. The Sun has been doing this for millions of years and will continue for many millions more.



The Sun by mass accounts for 99.80% of our entire solar system. Excluding the Sun, everything else in the Solar System has a total mass of 0.20% !!!!

Aristarchus



Aristarchus (c.310 BC – c.230 BC) was born on the Greek island of Samos. He was a mathematician and astronomer.

He was thought to be the first to suggest that the Sun was at the centre of what we now know as the Solar System, (the heliocentric system).

He also placed the planets (known at the time), in their correct order and distance from the Sun. He suggested his theory 1700 years before Nicolaus Copernicus.

He also attempted to measure the distance of both Sun and Moon from Earth, but with little success.

George Ward.

Junior Astronomers Club (JAC & Gill)

Our Junior Members were very excited last month about the Partial Solar Eclipse on the morning of Friday 20th March. Although most of them were due to be at school at the precise time the peak of the eclipse was happening, it didn't stop them preparing for the possibility of a safe glimpse of such a rare event!

At the Saturday afternoon JAC and Gill meetings, we have been experimenting with making pin hole viewers out of a variety of boxes of different shapes and sizes. All of their attempts worked in theory but needed to be tested out in practise...which is where the problems started!



Every time the sun appeared from behind the clouds, the children would shout "Grab the boxes!!!" ...but by the time one child had found the sun's reflection on the inside of their box, the sun had disappeared back behind the clouds and they were too late to share it with a friend!!!



However, with the wonders of technology, we were able to pretend to be Dr. Who in his Tardis to go forwards and backwards in time! Not only did we see the main event a week before it was due using Stellarium but we were able to watch it again on the Stargazing Live website the day after the actual event!



Although it was not as spectacular as watching the Partial Solar Eclipse with our own eyes, at least the Health and Safety aspect was not such an issue... until the next one in Britain in 2021... unless you are lucky enough to be able to travel to Southern Africa, the South Indian Ocean or Eastern Antarctica this year on the 13th September 2015!

"Reach for the Stars" Junior Astronomers!!!

Gill Palmer.

Executive Committee Messages

Your Newsletter

Let us know if you like these pages, and any suggestions for new pages you would like to see added, or any pages you would like us to remove.

Spreading the word about our group

If you know anyone that is interested in astronomy please let them know about our group.

The Beginners Guide to Stargazing

Would all those that would like to book the Stargazing course let us know ASAP before we open places to the public.

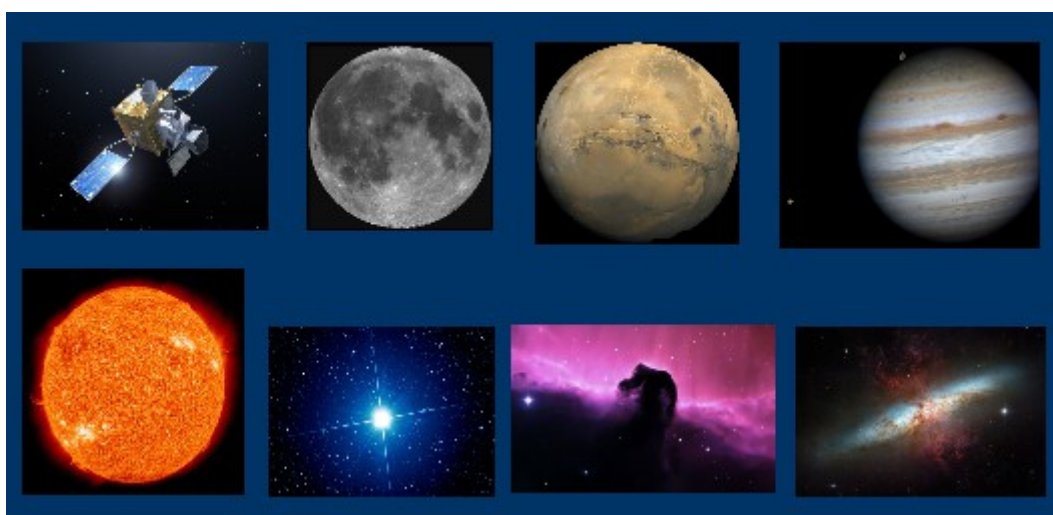
We are planning to start this year's Beginners Guide To Stargazing Course in April, the dates are below :-

Part 1 Basic Stargazing : Wednesday 22nd April 2015 : 8pm : At The West Bay Cafe.

Part 2 Intermediate Stargazing : Wednesday 29nd April 2015 : 8pm : At The West Bay Cafe.

Part 3 Advanced Stargazing : Wednesday 13th May 2015 : 8pm : At The West Bay Cafe.

Part 4 Practical Stargazing : Wednesday 22nd April 2015 : 8pm : At The West Bay Cafe.
(Note : Part 4 will require access to a PC, Laptop, Tablet or Smart Phone.)



(-: Wishing you all Clear Skies :-)

Danny, George, Gill.

Adult Word Search

ANTIMATTER	ASTERISM	ATMOSPHERE
CEPHEID	COMA	COMET
DECLINATION	ECLIPSE	FUSION
GALAXY	GRAVITY	HELIUM
LUNAR	MAGNITUDE	METEOR
NEBULA	NOVA	OBSERVATORY
ORBIT	PARSEC	PHOTON
PROTOSTAR	RADIANT	WIMP

J U U Q F H N P W B B C Z R V U X D E J
 T K K O Y L J G Q V J S P A U X N R D Y
 E W C R B X P O K Y O R W W E M E F T M
 V N S B Y H G O R M M U I L E H Q I E G
 L Z R U N G R A T S O T O R P P V V F D
 B D O I B N Z V K Y C I N S U A V I I N
 P I E G I Q O R B I T R O B R Q R Q A S
 W D T J X S B I A X N M A G N I T U D E
 K B E W L O S R T S T D Y F U S I O N Q
 A Q M S I R E T S A N T I M A T T E R C
 T N A I D A R A V O N E B U L A A C O F
 B H W U N Z V K F P W I M P K M L X V X
 Y K Y B R G A M R A N U L C O A T I K R
 L Y W L P E T I M T E M O C E P H E I D
 D H B Z K K O R E S P I L C E D Z J A Y
 E P N O F L R R S A E H C R R D Q J C X
 Q E O H R R Y V R R X Z O H X K M A Q A
 L Y Y C E D Q S G P G K F T K T B E I L
 R P E T M D E Z S R D N V S O X W K E A
 J T A S O C N L K K A C G V Q N I F R G

Junior Word Search

ATOM
CRATER
ORBIT
SOLAR

BIGBANG
MARE
QUASAR
STAR

COMET
MOON
SATELLITE
ZODIAC

N Q P G S C O L E
S R U X R I R T Y
Z G N A B G I B M
F R T S S L G Z O
Y E T O L A G O O
R A L E T M R D N
R A T O A B D I U
R A M R I S O A E
S H E T E M O C O

We hope that you find the Adult and Junior word searches interesting and that they inspire you to look up any of the words you don't know *Absolutely Everything About* :-)

If you like these please let us know and we will continue to produce them.

We are thinking of adding a crossword as well in future newsletters. If you like this idea please let us know.

Comments Please : you all know the email address !

Member's For Sale and Wanted

This page is for members to place items for Sale and Wanted adverts.

Please let us know if you have anything you would like on this page.

Email us at : - thanetastronomygroup@gmail.com

Or call Danny 01843 228904 or George 01843 292640