

This guide has been put together through our own experiences in the hobby plus frequently asked questions from the FB group, hope it helps.

What do I need to start Astronomy?

To get involved in astronomy you do not need to spend a lot of money, in fact using just your eyes unaided there's a whole host of night time objects in the sky you can enjoy. Our ancestors did this for thousands of years, mapping things like the changing phases of the Moon and the many stars in the sky that make up the constellations. Most people don't realise you can however also see Planets, star clusters, nebulae like Orion's, Comets, Shooting stars and even Galaxies like Andromeda! Dark skies help.

We recommend using apps to help you get started with learning the night sky, a favourite amongst amateur astronomers is one called Stellarium. By learning Constellations and asterisms they can help you as sign posts to find other objects in the sky, especially within a catalogue of brighter objects known as the Messier catalogue.

What's next? BINOCULARS

They are a great tool and often under valued for stargazing, using 10x50s are recommended. They are lightweight and the relatively low power magnification meaning you can use them without a tripod. Although we recommend one you can lean against a wall, lay on the ground or a recliner style chair will help keep it steady. More powerful binoculars like the celestron 20x80 skywatchers would need a tripod but give amazing views of the stars, even our 10x50 optricons allow you to see Jupiter's moons and Saturn's rings so if you have any pair go out and try them,

The minefield that is Telescopes

One of the most common questions asked in the FB group is, which telescope should I buy?

Whilst knowing your budget is important for us to be able to specifically recommend a particular scope, we always say 'The best telescope is the one that you will use'.

There are so many choices out there, and we will explore some of the most common types of telescopes available.

We would like to highlight three main types of telescope, they are a lens based (refractor), a mirror telescope (Reflector) and a hybrid – both Mirror and Lenses (Catadioptric)

Reflectors are generally cheaper, have bigger apertures so allow more light in for your money. These types of scope are good for deep space objects like galaxies and nebulae.

Refractors have lenses so give clearer images but cost a bit more and have smaller apertures so let less light in.

These types of scope are great for seeing planets and great for astrophotography.

Dobsonian mounted telescopes are what we here at UK Astronomy recommend, they are generally cheaper with a wooden base, easy to set up and you get slightly more bang for your buck.

They are kinda the all-rounder scopes, you can take pics using your phone and with a T-adapter can fit a DSLR camera onto it but ideally you'd want a tracking scope later on for this. The mirrors may need adjusting occasionally but it's easy to do using a collimator.

There is a huge range of Dobsonian reflectors ranging from ones that you can pop on a bench or car bonnet and enjoy the skies from £50, up to £500 for a 6" to 10" aperture mirror however they can be bulky so check out the weight and size.

Refractors we would recommend for beginners are the Altair Astro 70ed which is a bit more expensive but great for brighter objects, planets and moon.

The Celestron Inspire range is cheaper, has a red light and the dust cap also acts as a phone holder so great for kids.

As a beginner try to AVOID EQ mounted scopes as these slew with the skies, have dials, latitude and are generally tougher to get to grips with.

Electronic 'goto' tracking scopes like the Nexstar 6SE or 8SE range are Catadioptric type scopes which are great but you will need power so think about possibly a power pack if wanting to venture out, the great thing is they will find and track objects automatically once aligned with a few bright stars. Catadioptric scopes pretty much shorten the scope by bouncing the light off mirrors into a lens making them more portable but more expensive.

But before you buy why not pop along to a local event, society or group and try some out chat to them you can find a map on our website WWW.UKASTRONOMY.ORG from the go-stargazing team of events near you.

Now onto the bits and bobs we have been asked in our FB group....

FINDER SCOPES

Finder scopes are the little ones on the top of your main scope they have a bigger field of view than the main scope so help you find the object your looking for in your main scope, don't forget to align it. Find the object in your crosshairs or red dot pop a 25mm eyepiece or biggest numbered one you have in the main scope move till its centred in main scope. Then go back to the finder scope and adjust the knobs, wheels or use Allen key to move the crosshairs or dot until it to is centre on the object. Again check it's still centred in the main scope so now whatever your finder looks at it should now be in your main scope.

APERTURE & EYEPIECES

Sometimes there is a misunderstanding on the primary function of telescopes, the telescope itself is all about how much light it can take in. This is linked to the aperture/diameter of the mirror or lens, this is why when we describe telescopes, we usually mention the aperture, 6 or 8 inch for example. However, it's the combination of the eyepiece and the focal length of the telescope which gives us the magnification.

Telescopes usually come with 25mm and 10mm eyepieces, the larger the number the less the magnification however you will have a bigger field of view which will help with finding objects, the higher the magnification the smaller the field of view, therefore it's not always the case that the highest magnification is the best for whatever object you're looking at for example with the andromeda galaxy that takes up quite a good part of the sky

There are a couple of 'zoom' eyepieces that you 'twist' to change the focal length these are ok but we have found they aren't as sharp as the fixed focal length eyepieces.

BARLOWS

Barlow lenses help multiply your eyepiece by 2 or 3 times thereby giving you a stronger magnification. We find you're better off just getting a range of cheap eyepieces say 25mm, 20mm, 15mm, 10mm or one that can zoom with a twist. Barlows are great when used with ccd cameras for astrophotography.

FILTERS

There are many different types of filters, Moon filters help dim the brightness of our Moon and also can be used on other objects like ISS and Venus to bring out more detail. UHC and OII filters help

bring out details on planets as well as nebulae but do dim them from what we have seen. Coloured filters can bring more out of the Planets.

BOOKS

Turn left at Orion, the Phillips 101 objects in the sky has an ISPY like tick sheet for each object which is great for finding things with the kids.

DK also have a range of books that give you loads of info about the universe you're looking at. Magazine wise the Sky at Night is prob the best, Astronomy Now is a more in depth look and All About Space is great for the kids.

APPS

Were lucky to live in a world full of apps for all kinds of things, the ones we use the most are:

Weather

- Sat24, Clear Outside, Scope Nights

Sky apps

– Stellarium, SkySafari, Solar Walk

Moon

- MoonGlobeHD, Moon Calendar

Astrophotography

– NightCap Pro, PS Express

PHONE ADAPTERS

The Altair Astro phone holder is the best and easiest we have tried but it's around £50-60 if you use your headphones +- to take the pics it will stop the wobble making the pictures clearer. You can try making your own using an old phone cover, make a hole in and eyepiece lid and glue it to the phone holder... voila.

NIGHTCAP PRO

NightCap Pro is an app that you can use on your phone or Ipad to take pics of the skies, you can change focus and iso settings etc and has some great features such as ISS mode, Star trail mode, meteor mode so well worth a play.

DSLR

You can get a T ring adapter for most cameras to enable you to attach your camera directly onto your scope be aware that there may be focussing issues so be sure to check that your telescope is suitable. A tracking mount like a Star Adventurer or the iOptron will enable you to take longer exposure photographs (longer than 30 seconds) CCD cameras are used a lot for astrophotography with a refractor and motorised EQ mount.

CLEANING MIRRORS

Telescope mirrors have a special coating that generally won't need cleaning and it takes a lot of dust to make your viewing worse. Baader optical wonder fluid sprayed on a camera or glasses cloth wiped gently on the mirrors works well.

ASTROPHOTOGRAPHY

Can be quite an advanced subject with many different instruments and tools available, our charity UK Astronomy is more about visual observing we won't delve into it too much, but whether your just using your smartphone, CCD or DSLR camera it can be amazing fun and you'd be blown away at what you can get.

Our resident Astrophotographer Wil Cheung has written a beginner's guide which can be found on our website or files tab on our FB group hope this all helps as a rough guide for you.