Astrophotography 101: how to take your first ever astrophoto

This short guide will outline the equipment needed and steps to take to capture your very first photo of the stars!

First things first: you'll need **a camera with manual settings** (such as a DSLR or mirrorless camera) and **a tripod**. You may have these already, but if not then maybe you can borrow them from a friend.

You'll need to know how to change five particular settings on your camera. Don't wait until it's nighttime and you're under the stars to learn how! Practise during the daytime when there's plenty of light, no time pressure, and you can check your camera's user manual or search for tips online.

1. Lens aperture
How much light your lens lets in.
Set this as low as you can, e.g. f2.8 or f3.5

2. Lens focal length
How "zoomed in" you are.
Suggested starting point: 24mm

3. Lens focus
How far away things are to be in focus.
Suggested starting point: infinity ∞

4. Camera ISO
How sensitive your camera is to light.
Suggested starting point: ISO 800

5. Camera shutter speed
How long your camera will collect light for.
Suggested starting point: 15 seconds

Once you're confident in how to change those settings, you're ready to head out under the stars! A torch is very useful to see the buttons on your camera, but even the light from your phone screen will do.

Simply set your camera up on its tripod, point it at some bright stars – bonus points if it's a constellation you recognise! – and start taking photos. Begin with the suggested settings, as these will get you in the right ballpark.

Then it's a case of trial and error. Take a photo and examine it using your camera's screen. Adjust your settings and try again. Each photo should be a little better than your last attempt, but it's no problem if you have a few missteps along the way. Don't aim for perfection – so long as your photo is well-exposed (not too dark or too bright) and the stars are in focus, you've done a good job. Take your time and remember to have fun! This table will help:

Problem	**Try this…**
The photo is too dark	Select a higher ISO and / or longer shutter speed
The photo is too bright	Select a lower ISO and / or shorter shutter speed
The stars are blurry	Tweak the focus on your lens and then try again
Stars appear as little zig-zag lines	Avoid knocking the tripod, and only touch the camera gently to take the photo
Stars appear as lines ("star trails")	Use a shorter shutter speed (perhaps 10 seconds)
The photo is covered in coloured speckles	Use a lower ISO (perhaps 400 or 200)
Too much / too little of the sky is in the picture	Decrease / increase lens focal length

Once you've taken your best astrophoto, email it to leempullen@hotmail.com

If you get good at taking astrophotos like this and want to take your skills to the next level, you can download some free software from www.startrails.de that will allow you to combine lots of photos to make stunning startrail pictures or even astro timelapses!