

# Tips For Simple Astrophotography With A Camera

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- Always shoot in raw format to get the maximum amount of data to process. When stretching images you need the greatest colour/brightness depth possible to give the maximum number of tones to stretch.
- Use a tripod / beanbag or some other form of camera rest.
- Use a remote control or use the camera's self-timer to open the shutter.
- Experiment with ISO settings, apertures and shutter speeds as they all affect the brightness of the image and are inter-related.
- Use the "high ISO noise reduction" function on the camera if you don't intend to stack pictures or process RAW files.
- Remember focus is everything!
- If possible, use magnified live view for focusing, but don't leave it on too long, as the sensor will heat up and may interfere with the image. (If using exposures of between 1/10 and 10 seconds, however, live view will help to prevent mirror vibration if you don't have a mirror lock on the camera.)
- Always focus manually when taking pictures of anything but the Moon.
- Modern lenses nearly all go past infinity. If you can, focus on something when it is light and then tape the focus ring into position (but beware of some zoom lenses which rotate the focus ring when zooming).
- Stopping the lens down one stop from fully open helps to give a sharper image and increases chances of being in focus.
- Set the colour temperature at 4000 K or less to minimise orange light pollution colour cast. Try incandescent or fluorescent light pre-sets or use a light pollution filter.
- Always carry spare batteries.
- Cold weather reduced digital noise from the sensor, but uses batteries faster.
- All digital cameras record EXIF data along with the picture.
- If you have a tracking mount, long, low-ISO exposures are generally better than short, high ISO ones. (Less digital noise).

- Always cover the viewfinder when taking long exposures.
- Use the “400 rule” (400/focal length of lens) to check the maximum exposure time to prevent trailing. (However see below.)
- Stars move faster nearer the horizon than they do overhead.
- The maximum exposure time to avoid stars trailing using a wide angle (18 mm) lens is 30 seconds. The longer the focal length the shorter the possible exposure.
- Any lens longer than 20 mm will really require a tracking mount to give acceptable results.
- Watch out for condensation on the lens. This can be prevented by heat (dew heaters or hand warmers) or air circulation (portable hair dryer or fan).
- Try to include some foreground objects to make the picture more interesting.
- Foreground objects can be “painted” in with the flash or a torch.
- Photos can be taken as one long exposure, or “stacked” from several shorter ones using suitable software.
- Either take separate dark frames or get the camera to take one automatically to prevent coloured “hot pixels” and “glow” from the sensor.
- Experiment with the software supplied with the camera (*Digital Photo Professional* for Canon), or download GIMP (freeware) and experiment with improving the images.
- Good settings to start with:
  - Widest angle lens.
  - Aperture 1 stop in from fully open.
  - ISO 1800 / 3600.
  - Exposure 20 to 30 seconds.

If you want to expand your horizons try making a barn door tracker (instructions on our website).

The 14 mm Samyang lens is fantastic value for money (£220-£250 second hand) and is used by many photographers to produce wonderful shots of the Milky Way.