

# Geoff “Star Dad” McLean

presents

## Information for Boy Scout Leaders

### **Rules**

#### **Lights**

The most important rule is: NO white lights. No blinking colored lights. Only RED flashlights allowed. Use only small lights – no 1,000,000 Candlepower lights. No lights requiring 6V batteries. Why? White light causes the eye to essentially remove the chemicals which aid the rods (black and white receptors) in night vision. The chemicals are replaced in darkness and that process takes between 20 minutes (for children) to over 40 minutes for adults. It only takes a second for the eye to react to the white light of a flash light. The human eye consists of about 7 million cones (color receptors) and up to 100 million rods and therefore is very well adapted to see at night. There really is no need for flashlights at all, except perhaps late at night on a moonless night, especially when star gazing.

#### **Behavior**

All persons attending a star gazing are expected to act in a respectful manner. No playing near the astronomical instruments. It takes quite a bit of time to set up the equipment and the equipment is very susceptible to damage. Why? Our telescopes are computer controller and carefully aligned with laser pointers, leveled with the earth, and calibrated with the stars for positional accuracy. Any physical disturbance will cause the telescopes to lose their ability to track objects and require reacquisition or even a complete re-alignment. Do not touch a telescope except with your eye and then only very gently.

#### **Time**

Waiting for the sky to darken takes a lot of time – up to 2 hours after sunset. We can provide a trivia game to help stimulate and keep occupied the children while waiting for optimal view time. While we strive to align the telescopes with their lasers and the earth, we cannot align the telescopes with the stars until they appear at dusk. If sunset is at 7:20PM expect to be able to use the telescopes no earlier than 9:20. During the summer, if children must be off to bedtime at or before 10PM it is not worth having an observation session. There might be time for one sighting. Attendees should anticipate being up until at least 11PM. During winter, and during regular Eastern Standard Time, the sun sets very early. Although it is colder, the viewing is not only better, but you can start much, much earlier, so bedtime is not usually a problem. Please plan accordingly. Perhaps you might plan an “all-night party” for older girls and sleep in really late on Saturday or Sunday.

## **What You Will See**

While we align the telescopes with the stars, Star Mom will give a brief talk on the history and stories of some of the constellations.

Generally speaking, we strive to view the planets first, especially if they will set early in the evening. Saturn and Jupiter are the best heavenly objects to WOW everyone. Venus is naught but a white light, sometimes with a crescent shape. Mars is usually too small and dim for a small telescope to resolve well. For a group of observers expect to spend about one minute per observer, especially if younger children are viewing as they tend to touch and therefor move the telescope requiring realignment.

Next up are comets, if any. Their long tails are a real treat to see.

Asteroids are next – but be prepared – in a small telescope they may just be points of light.

Galaxies, Nebula, Clusters. Andromeda, our nearest neighbor is a winter object. Open clusters consist of 100 stars or so over a relative large area. Most children cannot see them – even when they are pointed out. Clusters are larger groups of stars in a small area and are usually easier to see. Nebula are difficult to see and usually cover larger areas. Galaxies are very difficult for a small telescope to resolve even with high power and are usually fuzzy or hazy looking.

The Moon is big and bright and we can really zoom in on it. The smallest area we can resolve is about 1.2 miles. So we cannot find the lunar landing sight – per se, though we can certainly see where they were – we just won't find the flags.

The International Space Station. Yes, we can see it occasionally as it flies over Eastern Connecticut. No need for telescopes. You have only a couple of minutes as it races North to South overhead.

Last and definitely not least are any unusual events or objects – a supernova, eclipse of the moon, nearby comet. Any of these and more will be prime targets for the night's viewing. Prepare to stay up late. If you have any particular object you want to view, just ask us to set it up.

## **Weather**

Weather plays a very important role. Cloud interference is pretty obvious. Clear skies and low humidity aid in sight seeing, obviously. But even on those days, upper atmospheric disturbances can severely limit viewing. “Shimmering” of the atmosphere can slow down observations as you wait for the object to come into sharp focus. Perfect nights are very rare – so if you are going to have one enjoy the rare event.

## **What to Bring**

A blanket for sitting on, warm clothes (a jacket, long pants, gloves in the winter).

A warm drink. Snacks – but don't pollute the ground.

If necessary, a RED light.

Patience.

Binoculars and/or your own telescope.

Star Charts.

Stories to help pass the time while waiting.