

## Things to Look For . . .

### General:

- Is this the first time the object has been seen?
- Is the object difficult to identify in the star field?
- What aperture was used?
- What eyepieces (magnifications) were used?
- What filters were used?

### Galaxy:

- Can it be seen with direct vision?
- What is the overall shape?
- Can any lanes or mottling be seen?
- Are the edges sharp or diffuse?
- What is the orientation and angle?
- Is the core compact, stellar, or is there an obvious bulge?

### Globular Cluster:

- Can it be seen with direct vision?
- Is the core bright, compact, or indistinguishable?
- Is the cluster tight or loose?
- Is any mottling visible?
- Can any part of the cluster be resolved into stars?

### Multiple Star:

- How many stars are visible?
- What is their general position?
- What are their colors?
- Estimate the magnitudes of each component.
- Estimate the separation of each component
- Estimate the position angle of each component relative to the primary.

### Nebula:

- Can it be seen with direct vision?
- What is the overall shape?
- Are there any dark lanes or patches?
- Can any color be detected?
- Are there any bright streamers or filaments?
- Is any part of the nebula brighter or more concentrated?

### Open Cluster:

- Is the cluster easily distinguished from the background stars?
- What is the overall shape?
- How many stars are visible?
- Are the stars more or less concentrated anywhere?
- Fully resolved, does any nebulosity remain?
- Describe the brighter stars.
- Describe the color of the stars.

### Planetary Nebula:

- Is a central star visible?
- Can it be seen with direct vision?
- What is the overall shape?
- Is it easy or difficult to identify?
- Can any color be detected?
- Are the edges sharp or diffuse?
- Is the center brighter, darker, or the same as the edges?

Eyepiece Data				
Focal Length	Magnification	With 2x Barlow	Field of View	
			Degrees	ArcMin

Telescope Limiting Mags					
Ap "	Probability of Detection				
	98%	90%	50%	20%	10%
6	13.6	14.1	14.6	15.1	15.6
8	14.2	14.7	15.2	15.7	16.2
<b>10</b>	<b>14.7</b>	<b>15.2</b>	<b>15.7</b>	<b>16.2</b>	<b>16.7</b>
12.5	15.2	15.7	16.2	16.7	17.2
14	15.5	16.0	16.5	17.0	17.5
16	15.7	16.2	16.7	17.2	17.7
20	16.2	16.7	17.2	17.7	18.2
24	16.6	17.1	17.6	18.1	18.6
30	17.1	17.6	18.1	18.6	19.1

Basic Formulas
Focal Length = Objective Size (mm) x F number
Magnification = $\frac{\text{Focal Length Telescope (mm)}}{\text{Focal Length Eyepiece (mm)}}$
Field of View = $\frac{\text{Field of View (apparent)}}{\text{Magnification}}$

Seeing Scale
I. <b>Perfectly steady.</b>
II. <b>Steady</b> for several seconds.
III. <b>Average</b> – Some fuzzy periods.
IV. <b>Poor</b> – Almost constant fuzzing out.
V. <b>Bad</b> – No detail at all.

Views in Various Optical Systems
<b>N</b> Direct View (Erect-Image Systems) <b>E</b> $\downarrow$
<b>W</b> $\uparrow$ <b>Inverted View (Newtonian / Dobsonian)</b> <b>N</b>
<b>N</b> Mirror Reversed (SCT / Mak / Refractor with diagonal) <b>L</b> <b>E</b>

Transparency Scale
0. <b>Did not Observe</b> -- Completely cloudy.
1. <b>Very Poor</b> – Mostly cloudy.
2. <b>Poor</b> – Partly cloudy or heavy haze. 1 or 2 Little Dipper stars visible.
3. <b>Somewhat Clear</b> – Cirrus or moderate haze. 3 or 4 Little Dipper stars visible.
4. <b>Partly Clear</b> – Slight haze. 4 or 5 Little Dipper stars visible.
5. <b>Clear</b> – No clouds. Cygnus Milky Way visible with averted vision. 6 Little Dipper stars visible.
6. <b>Very Clear</b> – Milky Way and M31 visible. 7 Little Dipper stars visible.
7. <b>Extremely Clear</b> – M33 and/or M81 are visible with naked eye.

The Greek Alphabet					
Alpha	A	$\alpha$	Nu	N	$\nu$
Beta	B	$\beta$	Xi	$\Xi$	$\xi$
Gamma	$\Gamma$	$\gamma$	Omicron	O	$\omicron$
Delta	$\Delta$	$\delta$	Pi	$\Pi$	$\pi$
Epsilon	E	$\epsilon$	Rho	P	$\rho$
Zeta	Z	$\zeta$	Sigma	$\Sigma$	$\sigma$
Eta	H	$\eta$	Tau	T	$\tau$
Theta	$\Theta$	$\theta$	Upsilon	Y	$\upsilon$
Iota	I	$\iota$	Phi	$\Phi$	$\phi$
Kappa	K	$\kappa$	Chi	X	$\chi$
Lambda	$\Lambda$	$\lambda$	Psi	$\Psi$	$\psi$
Mu	M	$\mu$	Omega	$\Omega$	$\omega$