

My Equipment Specifications

Optical Tube Assembly Specifications			
Manufacture:		Type:	
Model:		Purchase Date:	
Weight :	lbs/kg	Cost:	
Aperture :	mm	Focal Length:	mm
Calculations			
<u>Focal Ratio:</u>	f/	<u>Dawes Limit:</u>	Arc Sec
<u>Magnitude Limit:</u>	Mag	Light Grasp Ratio:	x Eye
<u>Max Useful Mag</u>	x		

- **Types:** Reflector (ie Newtonian, Dobsonian), Refractor, Catadioptric/Compound (Schmidt-Cassegrain, Maksutov-Cassegrain)
- **Aperture:** The size (in millimeters) of the optical opening gathering the light for the telescope.
- **Focal Length:** Distance required by a lens or mirror to bring the light to a focus.
- **Focal Ratio:**
- **Dawes Limit:** Approximation of how close two objects can be and yet still be detected as separate objects, usually measured in arc-seconds. This may also be called the telescope resolving limit.
- **Magnitude Limit:** Under ideal conditions the dimmest magnitude star visible through the telescope.
- **Light Grasp Ratio:** An estimate on how much more light gathering ability the telescope has compared to the human eye.
- **Max Useful Mag:** The highest magnification that provide useful information for a given telescope. This [may vary depending on the object being observed](#).

Telescope Equations

$$\mathbf{Focal\ Ratio} = (Focal\ Length)/(Aperture)$$

$$\mathbf{Dawes\ Limit} = (116)/(Aperture)$$

$$\mathbf{Magnitued\ Limit} = 7.7 + \left(5 \times \log \left(\frac{Aperture}{10} \right) \right)$$

$$\mathbf{Light\ Grasp\ Ratio} = \frac{(Aperture)^2}{7^2}$$

$$\mathbf{Useful\ Magnification} = 2.5 \times (Aperture)$$

Eyepieces

Manufacture	Type	Focal Length (mm)	Apparent Field of View (degrees)	Magnification	Field of View (degrees)
		mm	°	X	°
		mm	°	X	°
		mm	°	X	°
		mm	°	X	°
		mm	°	X	°

- **Type:** Refers to the design type of the eyepiece (ie Plossl, Wide, Zoom, Orthoscopic, Nagler, etc).
- **Magnification:** The magnification presented to the observer based on the OTA and Eyepiece combination.
- **Field of View:** The area of sky (in degrees) visible to the observer based on the OTA and Eyepiece combination.

Eyepiece Equations

$$\mathbf{Magnification} = (\mathit{Telescope\ FL}) / (\mathit{Eyepiece\ FL})$$

$$\mathbf{Field\ of\ View} = \frac{(\mathit{Eyepiece\ AFOV}) \times (\mathit{Eyepiece\ FL})}{(\mathit{Telescope\ FL})}$$

Astronomy Data

Northern Hemisphere Constellations List (Alphabetical)

Abr.	Constellation	Culm.	Abr.	Constellation	Culm.	Abr.	Constellation	Culm.
And	Andromeda	Sep-30	Cyg	Cygnus	Jun-29	Per	Perseus	Nov-07
Ant	Antlia	Feb-24	Del	Delphinus	Jul-31	Phe	Phoenix	Oct-04
Aqr	Aquarius	Aug-26	Dra	Draco	May-24	Psc	Pisces	Sep-27
Aql	Aquila	Jul-12	Equ	Equuleus	Aug-08	PsA	Pisces Austrinus	Aug-25
Ari	Aries	Oct-20	Eri	Eridanus	Nov-10	Pup	Puppis	Jan-09
Aur	Auriga	Dec-09	For	Fornax	Nov-02	Pyx	Pyxis	Feb-04
Boo	Bootes	Apr-30	Gem	Gemini	Jan-04	Sge	Sagitta	Jul-17
Cae	Caclum	Dec-01	Gru	Grus	Aug-28	Sgr	Sagittarius	Jul-05
Cam	Camelopardalis	Dec-23	Her	Hercules	Jun-13	Sco	Scorpius	Jun-03
Cnc	Cancer	Jan-30	Hya	Hydra	Feb-09	Scl	Sculptor	Sep-27
CVn	Canes Venatici	Apr-07	Lac	Lacerta	Aug-28	Sct	Scutum	Jul-01
CMa	Canis Major	Jan-01	Leo	Leo	Mar-01	Ser	Serpens	Jun-03
CMi	Canis Minor	Jan-14	LMI	Leo Minor	Feb-24	Sex	Sextans	Feb-21
Cap	Capricornus	Aug-05	Lep	Lepus	Dec-13	Tau	Taurus	Nov-30
Cas	Cassiopeia	Oct-09	Lib	Libra	May-09	Tel	Telescopium	Jul-10
Cen	Centaurus	Mar-30	Lup	Lupus	May-09	Tri	Triangulum	Oct-23
Cep	Cepheus	Sep-29	Lyn	Lynx	Jan-20	UMa	Ursa Major	Mar-11
Cet	Cetus	Oct-15	Lyr	Lyra	Jul-02	UMi	Ursa Minor	N/A
Col	Columba	Dec-18	Mic	Microscopium	Aug-04	Vel	Vela	Feb-13
Com	Coma Berenices	Apr-02	Mon	Monoceros	Jan-05	Vir	Virgo	Apr-12
CrA	Corona Australis	Jun-30	Nor	Norma	15 54.18	Vul	Vulpecula	Jul-26
CrB	Corona Borealis	May 19	Oph	Ophiucus	Jun-11			
Crv	Crovis	Mar-28	Ori	Orion	Dec-13			
Crt	Crater	Mar-12	Peg	Pegasus	Sep-01			

Meridian Transits Of The Constellations

DEC	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	DEC
-50							Tel						-50
-40		Vel		Cen		Nor		Gru		Phe			-40
-30				CVn		SCO	CrA	Mic	PsA	Scl	For	Cae	-30
-20	CMa	Pyx	Ant			Pup	Sgr				Eri	Col	-20
-10		Hya		Crt	Crv	Lup	Lib	Cap				Lep	-10
0	Mon		Sex		Vir		Ser	Oph	Sct	Aql		Ori	0
+10								Del	Equ				+10
+20	Gem	Cnc	Leo		Com			Sge	Vul	Peg	Psc	Ari	+20
+30						Boo	CrB	Her			Tri		+30
+40											And		+40
+50							Lyn	Cyg		Lac		Per	+50
+60								Lyr			Cep		+60
+70							Dra				Cas		+70
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	

Greek Alphabet

	Low	Up	Name		Low	Up	Name		Low	Up	Name		Low	Up	Name		Low	Up	Name
01	α	A	alpha	06	ζ	Z	zeta	11	λ	Λ	lambda	16	π	Π	pi	21	φ	Φ	phi
02	β	B	beta	07	η	H	eta	12	μ	M	mu	17	ρ	P	rho	22	χ	X	chi
03	γ	Γ	gamma	08	θ	Θ	theta	13	ν	N	nu	18	ς	Σ	sigma	23	ψ	Ψ	psi
04	δ	Δ	delta	09	ι	I	iota	14	ξ	Ξ	xi	19	σ	T	tau	24	ω	Ω	omega
05	ε	E	epsilon	10	κ	K	kappa	15	ο	O	omicron	20	τ	Υ	upsilon	25			

Potential Objects for Small Telescopes

(In the Northern Hemisphere)

Const	Object Type	ID	R. A.	DEC	Mag	Size	Description
Aqr	Gb	M-2	21h 35'	-00° 43'	6.5	16'	Globular in Aquarius
Peg	Gb	M-15	21h 31m	+12° 16'	6.0	18'	Densely packed core
Vul	Pn	M-27	20h 01m	+22° 47'	7.1	8.0' x 5.7'	Dumbbell – Brightest PN in sky
Sgr	Gb	M-55	19h 41m	-30° 55'	6.3	19'	Globular in Sagittarius
Cyg	Ms	Abireo	19h 32m	+28° 00'	3.1	34.6"	Great! - Yellow(3.1) and Blue(4.7)
Lyr	Pn	M-57	18h 54m	+33° 03'	8.8	1.4' x 1.1'	Ring Nebula planetary nebula
Lyr	Ms	ε Lyr	18h 45m	+39° 42'	5.0	2.2"	A Double Double star system
Sgr	Gb	M-22	18h 38m	-23° 53'	5.1	32'	Third brightest Globular in north sky
Sgr	BN	M-17	18h 22m	-16° 10'	6.0	46' x 37'	Swan Nebula
Sgr	BN	M-8	18h 05m	-24° 23'	6.0	90' x 40'	Lagoon Nebula with open cluster
Sco	Oc	M-7	17h 55m	-34° 47'	3.3	80'	Large, brilliant open cluster
Her	Gb	M-92	17h 18m	+43° 07'	6.4	14'	Bright globular
Her	Gb	M-13	16h 42m	+36° 25'	5.8	20'	Best Globular Cluster in sky
Sco	Gb	M-4	16h 25m	-26° 35'	5.6	36'	Large Globular Cluster in Scorpius
Ser	Gb	M-5	15h 20m	+02° 00'	5.6	23'	Fine Globular
CVn	Gb	M-3	13h 43m	+28° 16'	6.2	18'	A bright Globular
UMa	Sp	M-51	13h 31m	+47° 05'	7.9	14' x 12'	Face-On Spiral galaxy w companion
UMa	Ms	Mizar	13h 25m	+54° 48'	2.2	0.8"	ζ UMa with 2.2 & 3.9 mag stars
Vir	Sp	M-104	12h 41m	-11° 45'	8.1	8' x 5'	Sombrero Galaxy – Edge on
Leo	Sp	M-65, et. el.	11h 20m	+12° 58'	N/A	N/A	The Leo Trio three galaxies
UMa	Pn	M-97	11h 16m	+54° 54'	9.8	3' x 3'	Planetary Nebula Owl Nebula
UMa	Sp	M-81, M-82	09h 57m	+68° 57'	6.8	22' x 11'	Two galaxies close to each other
Com	Gb	M-53	09h 30m	+18° 03'	7.6	13'	Globular
Ori	Ms	Rigel	07h 53m	-08° 11'	0.3	9.4"	Double Star with 0.3 & 6.8 mag
Pup	Oc, Pn	M-46	07h 43m	-14° 51'	6.1	20'	Open cluster with sm Planetary Neb
CMa	Oc	M-41	06h 47m	-20° 46'	4.5	39'	Bright Open cluster
Mon	Oc, BN	NGC-2244	06h 33m	+04° 55'	4.8	29'	The Rosette Nebula
Aur	Oc	M-37	05h 54m	+32° 33'	6.0	14'	Bright Open Cluster
Oph	Gb	M-10	05h 46m	-04° 08'	6.6	20'	Good Globular
Aur	Oc	M-76	05h 38m	+34° 09'	6.0	10'	The Pinwheel Cluster
Ori	BN	M-42	05h 37m	-05° 26'	4.0	85' x 60'	The Great Orion Nebula
Tau	Pn	M-1	05h 36m	+22° 02'	8.4	6' x 4'	The Crab Nebula
Lup	GC	M-79	05h 25m	-24° 30'	7.7	9.6'	Small Globular
UMi	Ms	Polaris	03h 00m	+89° 22'	2.0	18.4"	Nice double with dim companion
Tau	Oc	M-45	03h 48m	+24° 11'	1.5	120'	The Pleiades
Cas	Ms	ι Cas	02h 31m	+67° 30'	4.6	2.6"	Fine Quadruple System 4.6 & 6.9
Per	Oc	NGC-869, NGC-884	02h 21m	+57° 13'	5.3	60' x 30'	Double Open Cluster
And	Ms	γ And	02h 05m	+42° 26'	2.2	9.4"	Double Star with 2.2 & 5.0 mag
Tri	Sp	M-33	01h 35m	+30° 47'	5.8	62' x 37'	The Triangulum Galaxy
And	Sp	M-31	00h 44m	+41° 43'	3.3	178' x 70'	Andromeda Galaxy best galaxy

Abbreviations

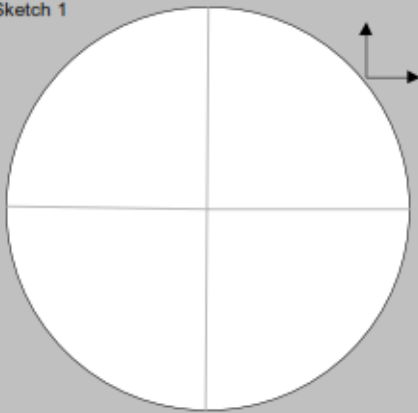
BN = Bright Nebula	Ms = Multiple Star System	Pn = Planetary Nebula	Sp = Spiral Galaxy
Gb = Globular Cluster	Oc = Open Cluster	Sn = Supernova Remnant	

Astronomy Log

Demographics and Condition	
Observer:	Site:
Date:	Time:
Comments:	

Object Details			
Object Name:		Rating(1-5):	
Alias:	Constellation:		
Object Type:			
Mag(M):	RA:	DEC:	
Meridian Transit:		Difficulty:	/10
MultipleStar Sep (°)/ PA (°):			

Sketch 1

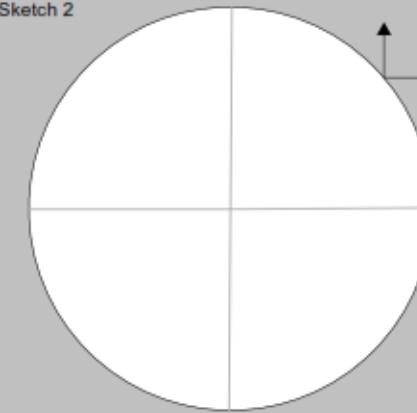


Eyepiece:

Sketch 1 Comments:

Sketch 2 Comments:

Sketch 2



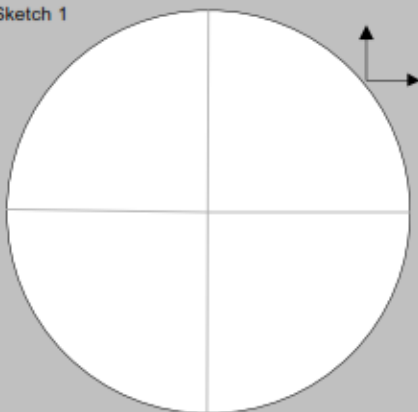
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Mag(M):	RA:	DEC:	
Meridian Transit:		Difficulty:	/10
MultipleStar Sep (°)/ PA (°):			

Sketch 1

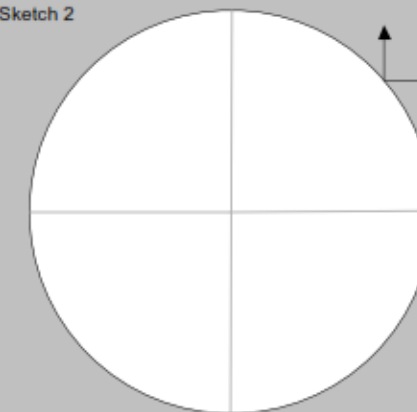


Eyepiece:

Sketch 1 Comments:

Sketch 2 Comments:

Sketch 2



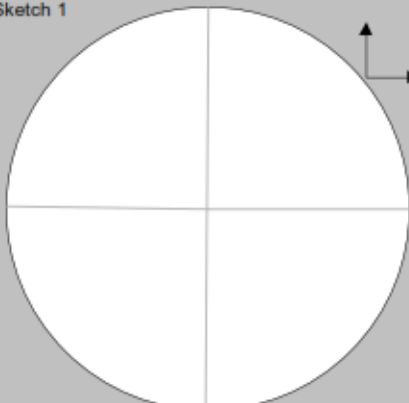
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Meridian Transit:		Difficulty:	/10
MultipleStar Sep (°)/ PA (°):			

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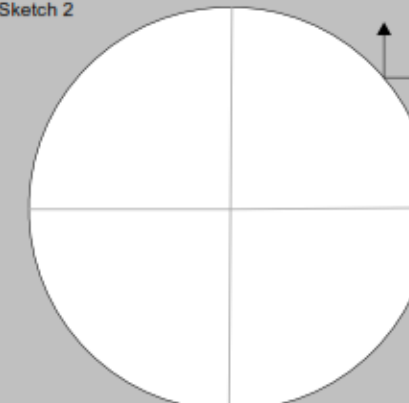


Eyepiece:

Sketch 1 Comments:

Sketch 2 Comments:

Sketch 2



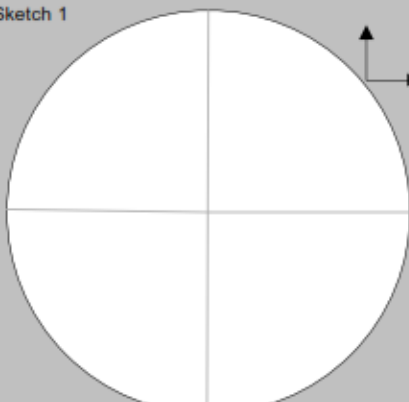
Eyepiece:

Astronomy Log

Demographics and Condition	
Observer:	Site:
Date:	Time:
Comments:	

Object Details			
Object Name:		Rating(1-5):	
Alias:	Constellation:		
Object Type:			
Mag(M):	RA:	DEC:	
Meridian Transit:		Difficulty:	/10
MultipleStar Sep (°)/ PA (°):			

Sketch 1

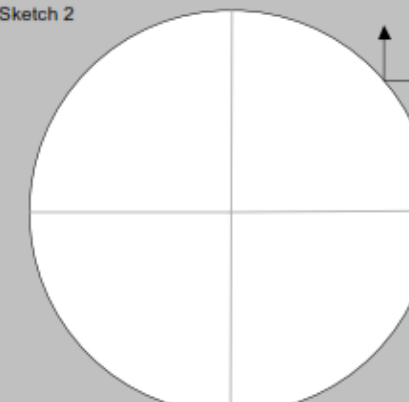


Eyepiece:

Sketch 1 Comments:

Sketch 2 Comments:

Sketch 2



Eyepiece: