Observing Stellar Evolution

Observing List

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This list is organized by category of object. Within each category, the list is sorted by RA to help you plan your observing.

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Total	**100**

Stellar Evolution – Stellar Nurseries (14 objects)

Type:

E = Emission
R = Reflection
D = Dark

Name	***Other name***	***Con***	***RA***	***Dec***	***Mag***	***Type***	***Note***
Tempel's Nebula	NGC 1435	Tau	03h 46m 10s	+23° 45' 24"	n/a	R	Nebulosity associated with the Pleiades cluster
Miniature Orion Nebula	NGC1931	Aur	05h 31m 26s	+34° 14' 42"	6.0	ER	Contains young star cluster; trapezium-like grouping. Mag is for star cluster
Orion Nebula	M42	Ori	05h 35m 17s	-05° 22' 51"	4.0	E	Very bright. Can see with unaided eye. Look for the trapezium of new stars
M78	NGC2068	Ori	05h 46m 46s	+00° 04' 10"	8.3	R	Contains 45 T Tauri stars (very young stars)
Rosette Nebula	NGC 2237	Mon	06h 30m 55s	+05° 02' 52"	8.0	E	Large and dim. Credit if you see the OC NGC2244 (Caldwell 50)
Cone Nebula	NGC2264	Mon	06h 40m 58s	+09° 53' 44"	4.1	ED	Cone is in southern part of object, the Christmas Tree cluster is at the north
Barnard 68		Sgr	17h 22m 38s	-23° 49' 34"		D	Req's dark skies
Trifid Nebula	M20	Sgr	18h 02m 28s	-22° 59' 11"	9.0	ERD	
Lagoon Nebula	M8	Sgr	18h 04m 08s	-24° 20’ 15”	6.0	ED	
Eagle Nebula	M16	Ser	18h 18m 54s	-13° 51' 04"	5.6	E	Pillars of Creation
Swan Nebula	M17	Sgr	18h 20m 48s	-16° 11' 00"	9.0	E	Also called the Omega nebula
Pelican Nebula	IC5070	Cyg	20h 50m 48s	+44° 21' 00"	8.0	E	Associated with the North American Nebula, req's dark skies, diffuse
North America	NGC7000 / Caldwell 20	Cyg	20h 58m 50s	+44° 31' 00"	8.0	E	Visible unaided eye under dark skies
IC1396		Cep	21h 39m 06s	+57° 30' 00"	3.5	E	A cluster with associated nebulosity. Region includes the ‘Elephant Trunk’

Colorful Stars (34 objects)

Name	***Other name***	***Color***	***Con***	***RA***	***Dec***	***Mag***	***Note***
Sun		G		--	--	-26.7	**Proper filter required**
Mu And	SAO 54281	A	And	00h 56m 45s	+38° 29' 58"	3.9	
107 Psc	HIP7981	K	Psc	01h 42m 30s	+20° 15’ 58”	5.2	
HD14633	SAO37987	O	And	02h 22m 54s	+41° 28' 48"	7.5	Part of a multiple
Polaris	North Star	F	UMi	02h 31m 49s	+89° 15' 51"	2.0	Always visible to northerners
Algol	SAO 45864	B	Per	03h 08m 10s	+40° 57’ 20s	2.1	Eclipsing binary – drops to 3.4 every 2.867 days
Epsilon Eri	18 Eri	K	Eri	03h 32m 55s	-09° 27' 30"	3.7	
Omega Aur	4 Aur	A	Aur	04h 59m 15s	+37° 53' 24"	5.1	
Rigel	Beta Ori	B	Ori	05h 14m 32s	-08° 11' 14"	0.1	
Alnitak	Zeta Ori	O	Ori	05h 40m 45s	-01° 56' 33"	1.7	
Gliese 229	SAO 171334	M	Lep	06h 10m 35s	-21° 52' 01"	8.2	18.8 ly
Plaskett’s Star	SAO114146	O	Mon	06h 37m 24s	06° 08’ 07”	6.0	Steely-blue
Sirius	Alpha CMa	A	CMa	06h 45m 09s	-16° 43' 11"	-1.4	Brightest star in the sky
Wezen	Delta CMa	F	CMa	07h 08m 23s	-26° 23' 35"	1.8	
Procyon	Alpha CMi	F	CMi	07h 39m 18s	+05° 13' 19"	0.4	
HD93521	HIP52849	O	LMi	10h 48m 23d	+37° 30' 55"	7.0	
Lalande 21185	SAO 62377	M	UMa	11h 03m 20s	+35° 57' 21"	7.5	One of the brighter red dwarfs
Theta Boo	23 Boo	F	Boo	14h 25m 12s	+51° 51' 02"	4.1	
Gliese 581	HO Lib	M	Lib	15h 19m 26s	-07° 43' 21"	10.6	Red dwarf, dim, close companion star 36" away
HD 139341	SAO 64800	K	Boo	15h 36m 03s	+39° 48' 08"	6.5	A double star, both K
14 Her	SAO45933	K	Her	16h 10m 04s	+43° 49’ 04”	6.6	
Zeta Oph	SAO 160006	O	Oph	16h 37m 10s	-10° 34' 02"	2.6	
Rasalgethi	Alpha Her	M	Her	17h 14m 39s	+14° 23' 26"	2.8	
Rasalhague	Alpha Oph	A	Oph	17h 34m 56s	+12° 33' 34"	2.1	

Name	*Other name*	*Color*	*Con*	*RA*	*Dec*	*Mag*	*Note*
Barnard's Star	HIP87937	M	Oph	17h 57m 48s	+04° 43' 26"	9.5	Red dwarf, quite dim
Vega	Alpha Lyr	A	Lyr	18h 36m 56s	+38° 47' 04"	0.0	
Ross 154	V1216 Sag	M	Sgr	18h 49m 50s	-23° 50' 12"	10.4	Flare star – hydrogen burning
Albireo A	Beta Cyg	K	Cyg	19h 30m 43s	+27° 57' 35"	3.1	Beautiful – the orange star
Albireo B	Beta Cyg	B	Cyg	19h 30m 43s	+27° 57' 35"	3.1	Beautiful – the blue star
Altair	Alpha Aql	A	Aql	19h 50m 47s	+08° 52' 10"	0.8	Altair, Vega, and Deneb form the summer triangle; all are 'A' stars
Alfirk	Beta Cep	B	Cep	21h 28m 51s	+70° 33' 39"	3.2	
Iota Peg	24 Peg	F	Peg	22h 07m 01s	+25° 20' 43"	3.8	
Matar	Eta Peg	G	Peg	22h 43m 00s	+30° 13' 17"	2.9	Binary yellow G and whiter F
Omega Psc	SAO 128513	F	Psc	23h 59m 19s	+06° 51' 48"	4.0	

Young Open Clusters (7 objects)

Name	*Other name*	*Age*	*Con*	*RA*	*Dec*	*Mag*	*Note*
Double Cluster	NGC 884, NGC 869	~ 4 M years	Per	02h 20m 50s	+57° 07' 58"	5.3	Great sight in a wide-field telescope!
Pleiades	M45	~100 M years	Tau	03h 46m 03s	+24° 07' 57"	1.6	Close, bright. 440 ly away
M37	NGC2099	300 M years	Aur	05h 52m 18s	+32° 33' 11"	5.6	
Beehive	M44	600 M years	Cnc	08h 39m 57s	+19° 40' 21"	3.1	
M6	NGC6405	100 M years	Sco	17h 40m 17s	-32° 16' 17'	4.5	Butterfly Cluster
NGC6530	Col 362	2.3 M years	Sgr	18h 05m 11s	-24° 20' 54"	4.6	Imbedded in M8 (Lagoon Neb)

Name	*Other name*	*Age*	*Con*	*RA*	*Dec*	*Mag*	*Note*
Wild Duck	M11	220 M years	Sct	18h 51m 06s	-06° 16' 00"	5.8	

Stellar Evolution – Low Mass Stars

Main Sequence Low Mass Stars (8 objects)

Name	*Other name*	*Color*	*Con*	*RA*	*Dec*	*Mag*	*Note*
Gliese 67	HD 10307 HIP 7918	G	And	01h 41m 48s	+42° 36' 46"	5.0	.97 solar mass
Tau Cet	HIP 8102	G	Cet	01h 44m 03s	-15° 56' 06"	3.5	.81 solar mass
Eta Ari	SAO 75204	F	Ari	02h 12m 48s	+21° 12' 40"	5.2	1.3 solar mass
Beta Com	SAO 82706	G	Com	13h 11m 52s	+27° 52' 51"	4.2	1.1 solar mass
18 Sco	SAO 141066	G	Sco	16h 15m 37s	-08° 22' 15"	5.5	1.0 solar mass
Sigma Dra	SAO 18396	K	Dra	19h 32m 22s	+69° 39' 21"	4.7	.82 solar mass
61 Cyg A	HD201091 HIP104214 HR 8085	K	Cyg	21h 06m 54s	+38° 44' 58"	5.2	.63 solar mass. Brighter member of binary pair
51 Peg	SAO 90896	G	Peg	22h 57m 28s	+20° 46' 08"	5.5	1.1 solar mass (Hosts first extra-solar planet ever found)

Red Giant Stars (6 objects)

Name	*Other name*	*RA*	*Dec*	*Mag*	*Note*
Mirach	Beta Andromedae	01h 09m 44s	+35° 37' 13"	2.1	
Aldebaran	Alpha Tau	04h 35m 55s	+16° 30' 31"	0.9	Orange giant

Capella	Alpha Aur	05h 16m 41s	+45° 59' 48"	0.1	Multiple stars. Early in red giant branch
Pollux	Beta Gem	07h 45m 18s	+28° 01' 34"	1.1	Orange giant
Arcturus	Alpha Boo	14h 15m 39s	+19° 10' 36"	-0.1	
Scheat	Beta Peg	23h 03m 47s	+28° 05' 00"	2.4	

Carbon Stars (5 objects)

Name	***Other name***	***RA***	***Dec***	***Mag***	***Note***
Hind's Crimson Star	R Lep	04h 59m 36s	-14◦ 48' 23"	5.5 – 11.7	
UU Aur	SAO 59280	06h 36m 33s	+38◦ 26' 44"	7.8-10	
X Cnc	SAO 98230	08h 55m 23s	+17◦ 13' 53"	5.6-7.5	
La Superba	Y CVn	12h 45m 08s	+45◦ 26' 25"	7.4-10	
Herschel's Garnet Star	Mu Cep	21h 43m 30s	+58◦ 46' 48"	3.4-5.1	

Planetary Nebulae / White Dwarfs (9 objects)

Name	***Other name***	***Con***	***RA***	***Dec***	***Mag***	***Note***
Eskimo Nebula	NGC 2392	Gem	07h 29m 11s	+20° 54' 45"	9.1	
NGC6210		Her	16h 44m 30s	23° 48’ 02”	9.3	
Cat's Eye Nebula	NGC 6543	Dra	17h 58m 33s	+66° 38' 01"	8.1	Includes central white dwarf
Ring Nebula	M57	Lyr	18h 53m 35s	+33° 01' 47"	8.8	White dwarf in center requires large telescope
Blinking Planetary	NGC 6826	Cyg	19h 44m 48s	50° 31' 29"	8.8	
Dumbbell Nebula	M27	Vul	19h 59m 36s	+22° 43' 18"	6.7	
Saturn Nebula	NGC 7009	Aqr	21h 04m 11s	-11° 21' 47"	8.0	
Helix Nebula	NGC 7293	Aqr	22h 29m 38s	-20° 50' 11"	7.3	
Blue Snowball	NGC 7662	And	23h 25m 54s	42° 32' 06"	8.3	

Stellar Evolution – High Mass Stars

High Mass Main Sequence Stars (6 objects)

Name	*Other name*	*Color*	*Con*	*RA*	*Dec*	*Mag*	*Note*
Delta Cet	SAO 110665	B	Cet	02h 39m 29s	+00° 19' 43"	4.1	9.5 solar masses
Bellatrix	Gamma Ori	B	Ori	05h 25m 08s	+06° 20' 59"	1.6	10 solar masses
Theta1 Orionis C	SAO132314	O	Ori	05h 35m 16s	-05° 23’ 23”	5.1	40 solar masses. Brightest in Trapezium
Adhara	Epsilon CMa	B	Cma	06h 58m 38s	-28° 58' 19"	1.5	10 solar masses
Spica	SAO 157923 Alpha Vir	B	Vir	13h 25m 12s	-11° 13' 03"	.98	10.25 solar masses
10 Lacertae	SAO 72575	O	Lac	22h 39m 16s	+39° 03' 01"	4.9	16 solar masses

Red Supergiant Stars (5 objects)

Name	*Other name*	*RA*	*Dec*	*Mag*	*Note*
Betelgeuse	Alpha Ori	05h 55m 10s	+07◦ 24' 26"	.5	Small amplitude variable
VY CMa	HD 58061	07h 22m 58s	-25◦ 46' 03"	6.5	Variable
Antares	Alpha Sco	16h 29m 24s	-26◦ 25' 55"	1.1	Small amplitude variable
VV Cep A	HD 208816	21h 56m 39s	+63◦ 37' 32"	4.8	Variable
RW Cep	SAO 34387	22h 03m 27s	+55◦ 57' 48"	8.6	Variable

Supernova Remnants (2 objects)

Name	*Other name*	*Con*	*RA*	*Dec*	*Mag*	*Note*
Crab Nebula	M1	Tau	05h 34m 32s	+22° 00' 52"	9.0	

Name	*Other name*	*Con*	*RA*	*Dec*	*Mag*	*Note*
Veil Nebula	NGC 6960	Cyg	20h 45m 42s	+30° 43' 00"	10.6	Very large

Variable Stars (4 objects)

Name	*RA*	*Dec*	*Mag*	*Note*
R Aql	19h 06m 22s	+08 13' 48"	5.5–12	Mira variable star
RR Lyra	19h 25m 28s	+42 47' 04"	7.1-8.1	RR Lyra variable star
η Aql	19h 52m 28s	+01 00' 20"	3.5-4.6	Cepheid variable star
δ Cep	22h 29m 10s	+58 27' 52"	3.5-4.4	Cepheid variable star

References

Name	*Type*	*Author*	*Note*
Observer's Guide to Stellar Evolution	Book	Inglis	Covers this subject is significant detail – contains observing lists
Astronomy Today	Book	Chaisson, McMillan	Textbook – covers a wide range of astronomical topics
American Association of Variable Star Observers	Organi-zation		www.aavso.org Submit variable star magnitude estimates.
The Brightest Stars	Book	Schaaf	Think you can't see anything from your driveway? This book tells you interesting facts about bright stars
The 100 Greatest Stars	Book	Kaler	Information about 100 of the most interesting stars in the sky.