HAS Texas 45 object list

Winter objects: Jan-Feb-Mar

- Observe 10 of the 15 objects on this list. You may also observe list objects at any hour or any season visible

Cls	Primary ID	Alternate ID	Con	RA 2000	Dec 2000	Mag	Ur. 2	PSA	TLO
Open	M 45 Pleiades	NGC 1432	Tau	03h47m00.0s	+24°07'00"	1.5	78	15	64
DVar	Keid	Omicron 2 Eri	Eri	04h15m14.3s	-07°39'55"	4.4	137	17	60
Var	Hind's Crimson Star	R Lep	Lep	04h59m36.4s	-14°48'23"	8.6	137	16	--
Neb	M 42 Orion Nebula	NGC 1976	Ori	05h35m18.0s	-05°23'00"	4.0	116	16	52
Neb	M 78	NGC 2068	Ori	05h46m48.0s	+00°05'00"	8.0	116	14	--
Open	M 37	NGC 2099	Aur	05h52m18.0s	+32°33'12"	6.2	59	12	68
Open	M 35	NGC 2168	Gem	06h09m00.0s	+24°21'00"	5.6	76	25	72
Star	Canopus	Alpha Car	Car	06h23m57.1s	-52°41'44"	-0.7	201	29	--
Open	M 41	NGC 2287	CMa	06h46m01.0s	-20°45'24"	5.0	154	27	82
PNe	Eskimo Nebula	NGC 2392	Gem	07h29m10.8s	+20°54'42"	8.6	75	25	74
Open	M 46	NGC 2437	Pup	07h41m46.0s	-14°48'36"	6.6	135	26	84
Open	M 93	NGC 2447	Pup	07h44m30.0s	-23°51'24"	6.5	153	26	88
Open	NGC 2477	Collinder 165	Pup	07h52m10.0s	-38°31'48"	5.7	171	28	--
Var	RS Pup	HD 68860	Pup	08h13m04.2s	-34°34'43"	7.1	171	28	--
Open	M 44 Beehive	NGC 2632	Cnc	08h40m24.0s	+19°40'00"	3.9	74	24	92

***Ur.2**: page # in Uranometria 2nd ed.; **PSA**: page # in Pocket Sky Atlas; **TLO**: page # in Turn Left at Orion 4th ed.*

Spring objects: Apr-May-Jun

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Cls	Primary ID	Alternate ID	Con	RA 2000	Dec 2000	Mag	Ur. 2	PSA	TLO
Gal	Spindle Galaxy	NGC 3115	Sex	10h05m14.0s	-07°43'07"	10.0	133	37	--
Pne	Ghost of Jupiter	NGC 3242	Hya	10h24m46.1s	-18°38'32"	8.6	151	37	98
Gal	M 105	NGC 3379	Leo	10h47m49.6s	+12°34'54"	10.2	92	34	102
PNe	M 97 Owl Nebula	NGC 3587	UMa	11h14m47.7s	+55°01'09"	9.7	24	32	--
Doub	M 40	Winnecke 4	UMa	12h22m12.5s	+58°04'58"	9.6	24	43	--
Gal	Needle Galaxy	NGC 4565	Com	12h36m20.8s	+25°59'15"	10.1	72	45	--
Gal	M 104 Sombrero Galaxy	NGC 4594	Vir	12h39m59.3s	-11°37'22"	9.1	130	47	--
Gal	M 64 Black Eye Galaxy	NGC 4826	Com	12h56m43.8s	+21°41'00"	9.3	71	45	110
Gal	Centaurus A	NGC 5128	Cen	13h25m27.7s	-43°01'07"	7.8	184	49	239
Glob	Omega Centauri	NGC 5139	Cen	13h26m46.0s	-47°28'36"	3.9	184	49	238
Gal	M 51 Whirlpool Galaxy	NGC 5194	CVn	13h29m52.3s	+47°11'40"	8.7	37	43	204
Glob	M 5	NGC 5904	Ser	15h18m34.0s	+02°05'00"	5.7	108	55	124
Glob	M 4	NGC 6121	Sco	16h23m36.0s	-26°31'30"	5.4	147	57	152
Glob	M 13 Keystone Cluster	NGC 6254	Her	16h41m41.0s	+36°27'36"	5.8	50	52	120
Glob	M 92	NGC 6341	Her	17h17m07.0s	+43°08'12"	6.5	34	52	122

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HAS Texas 45 object list

Summer objects: Jul-Aug-Sep

- Observe 10 of the 15 objects on this list. You may also observe list objects at any hour or any season visible

Cls	Primary ID	Alternate ID	Con	RA 2000	Dec 2000	Mag	Ur. 2	PSA	TLO
Open	M 6 Butterfly Cluster	NGC 6405	Sco	17h40m20.0s	-32°15'12"	4.6	164	58	156
Open	Tom Thumb Cluster	NGC 6451	Sco	17h50m41.0s	-30°12'36"	8.2	164	58	--
Open	M 23	NGC 6494	Sgr	17h57m04.0s	-18°59'06"	5.9	146	56	144
Neb	M 20 Trifid Nebula	NGC 6514	Sgr	18h02m22.0s	-22°59'12"	6.3	145	67	148
Neb	M 8 Lagoon Nebula	NGC 6523	Sgr	18h04m02.0s	-24°23'14"	5.0	145	67	146
Open	M 16 Eagle Nebula	NGC 6611	Ser	18h18m48.0s	-13°48'24"	6.5	126	67	142
Neb	M 17 Omega Nebula	NGC 6618	Sgr	18h20m48.0s	-16°11'00"	6.0	126	67	142
Con	Corona Australis	constellation	CrA	18h38m47.3s	-41°08'51"	5.2	180	69	--
Open	M 11 Wild Duck Cluster	NGC 6705	Sct	18h51m05.0s	-06°16'12"	6.1	125	67	140
Open	Collinder 399	The Coathanger	Vul	19h25m24.0s	+20°11'00"	4.8	66	65	139
Dvar	Albireo	Beta 1 Cyg	Cyg	19h30m43.3s	+27°57'35"	3.1	66	64	132
PNe	M 27 Dumbbell	NGC 6853	Vul	19h59m36.3s	+22°43'16"	7.3	66	64	136
Con	Delphinus	constellation	Del	20h41m36.8s	+11°40'15"	5.7	84	64	--
PNe	Saturn Nebula	NGC 7009	Aqr	21h04m10.9s	-11°21'48"	8.3	123	77	168
Glob	M 15	NGC 7078	Peg	21h29m58.0s	+12°10'00"	6.3	83	75	164

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Autumn objects: Oct-Nov-Dec

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Cls	Primary ID	Alternate ID	Con	RA 2000	Dec 2000	Mag	Ur. 2	PSA	TLO
Glob	M 30	NGC 7099	Cap	21h40m22.0s	-23°10'42"	6.9	143	77	--
Con	Grus	constellation	Gru	22h27m23.5s	-46°21'07"	4.8	178	79	--
PNe	Helix Nebula	NGC 7293	Aqr	22h29m38.5s	-20°50'14"	6.3	142	77	172
Doub	Beta PsA	17 PsA	PsA	22h31m30.4s	-32°20'46"	4.3	160	76	--
Var	Fomalhaut	Alpha PsA	PsA	22h57m39.4s	-29°37'22"	1.2	160	76	--
Gal	M 31 Andromeda Galaxy	NGC 224	And	00h42m44.3s	+41°16'07"	4.3	30	3	176
Gal	Sculptor Galaxy	NGC 253	Scl	00h47m33.1s	-25°17'20"	7.9	158	7	174
Open	ET Cluster	NGC 457	Cas	01h19m35.0s	+58°17'12"	5.1	29	3	193
Gal	M 33 Triangulum Galaxy	NGC 598	Tri	01h33m50.9s	+30°39'36"	6.4	62	2	178
Var	Achernar	Alpha Eri	Eri	01h37m43.0s	-57°14'13"	0.4	203	8	--
PNe	M 76 Little Dumbbell	NGC 650/651	Per	01h42m19.9s	+51°34'31"	10.1	29	2	--
Open	Muscle Man Cluster	Stock 2	Cas	02h14m43.0s	+59°29'06"	4.4	29	2	--
Open	h Persei	NGC 869	Per	02h19m00.0s	+57°07'42"	4.3	29	2	187
Open	Chi Persei	NGC 884	Per	02h22m18.0s	+57°08'12"	4.4	29	2	187
Gal	M 77	NGC 1068	Cet	02h42m40.8s	-00°00'48"	9.7	119	6	--

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HAS Texas 45: Observation log

Winter objects: Jan-Feb-Mar *Record your observations for 10 of the following 15 objects. Receive a gold level certificate by observing all 15 objects for each season*

Object	Date obsv'd	Time obsv'd	Pad log #	Seeing	Aperture (mm)	Eyepiece (mm)	Description
M45 Pleiades **NGC 1432**							
Keid Omicron 2 Eridani, 40 Eridani							
Hind's Crimson Star, R Leporis							
M42 Orion Nebula **NGC 1976**							
M78 **NGC 2068**							
M37 **NGC 2099**							
M35 **NGC 2168**							
Canopus Alpha Carinae							
M41 **NGC 2287**							
NGC 2392 Eskimo Nebula							
M46 **NGC 2437**							
M93 **NGC 2447**							
NGC 2477 Collinder 165							
RS Puppis Cepheid Variable							
M44 Beehive **NGC 2632**							

Spring objects: Apr-May-Jun *Record your observations for 10 of the following 15 objects. Receive a gold level certificate by observing all 15 objects for each season*

Object	Date obsv'd	Time obsv'd	Pad log #	Seeing	Aperture (mm)	Eyepiece (mm)	Description
NGC 3115 Spindle Galaxy							
NGC 3242 Ghost of Jupiter							
M105 **NGC 3379**							
M97 Owl Nebula **NGC 3587**							
M40 Winnecke 4							
NGC 4565 Needle Galaxy							
M104 Sombrero Galaxy, **NGC 4594**							
M64 Black Eye Galaxy **NGC 4826**							
NGC 5128 Centaurus A							
NGC 5139 Omega Centauri							
M51 Whirlpool Galaxy, **NGC 5194**							
M5 **NGC 5904**							
M4 **NGC 6121**							
M13 Keystone Cluster, **NGC 6254**							
M92 **NGC 6341**							

Summer objects: Jul-Aug-Sep *Record your observations for 10 of the following 15 objects. Receive a gold level certificate by observing all 15 objects for each season*

Object	Date obsv'd	Time obsv'd	Pad log #	Seeing	Aperture (mm)	Eyepiece (mm)	Description
M6 Butterfly Cluster **NGC 6405**							
NGC 6451 Tom Thumb Cluster							
M23 **NGC 6494**							
M20 Trifid Nebula **NGC 6514**							
M8 Lagoon Nebula **NGC 6523**							
M16 Eagle Nebula **NGC 6611**							
M17 Omega Nebula **NGC 6618**							
Constellation Corona Australis							
M11 Wild Duck Cluster **NGC 6705**							
Collinder 399 The Coathanger							
Albireo Beta Cygni							
M27 Dumbbell Nebula **NGC 6853**							
Constellation Delphinus							
NGC 7009 Saturn Nebula							
M15 **NGC 7078**							

HAS Texas 45: Observation log

Autumn objects: Oct-Nov-Dec *Record your observations for 10 of the following 15 objects. Receive a gold level certificate by observing all 15 objects for each season*

Object	Date obsv'd	Time obsv'd	Pad log #	Seeing	Aperture (mm)	Eyepiece (mm)	Description
M30 **NGC 7099**							
Constellation Grus							
NGC 7293 **The Helix Nebula**							
Beta PsA **17 Piscis Austrini**							
Fomalhaut **Alpha Piscis Austrini**							
M31 Andromeda Galaxy, **NGC 224**							
NGC 253 **Sculptor Galaxy**							
NGC 457 **ET Cluster**							
M33 Triangulum Galaxy, **NGC 598**							
Achernar **Alpha Eridani**							
M76 Little Dumbbell **NGC 650/651**							
Muscle Man Cluster Stock 2							
NGC 869 h Persei, ½ Double Cluster							
NGC 884 Chi Persei, ½ Double Cluster							
M77 **NGC 1068**							

Observer's choice

Record your observations of 5 solar system objects of your choice, any time of year. Objects can include planets, moons, comets, asteroids, or lunar targets.

	Object	Date obsv'd	Time obsv'd	Pad log #	Seeing	Aperture (mm)	Eyepiece (mm)	Description
1.								
2.								
3.								
4.								
5.								

Observer's statement for special award certificate

I, _____*, certify that I observed all objects using the star-hopping method.*
Print name

Signature: _____ Date: _____