

HAS Texas 45: Object list

Winter objects: Jan-Feb-Mar

➤ Observe at least 10 of the 15 objects in this season's list. You may log objects at any time of year visible.

Class	Primary ID	Alternate ID	Con	RA 2000	Dec 2000	Mag	Ur. 2	PSA	TLO	Level
Open	M 45 Pleiades	NGC 1432	Tau	03h47m00.0s	+24°07'00"	1.5	78	15	64	Novice 15
Var	Hind's Crimson Star	R Lep	Lep	04h59m36.4s	-14°48'23"	8.6	137	16	--	Texas 45
Neb	M 42 Orion Nebula	NGC 1976	Ori	05h35m18.0s	-05°23'00"	4.0	116	16	52	Novice 15
Neb	M 78	NGC 2068	Ori	05h46m48.0s	+00°05'00"	8.0	116	14	--	Texas 45
Open	M 37	NGC 2099	Aur	05h52m18.0s	+32°33'12"	6.2	59	12	68	Texas 45
Open	M 35	NGC 2168	Gem	06h09m00.0s	+24°21'00"	5.6	76	25	72	Novice 30
Star	Canopus	Alpha Car	Car	06h23m57.1s	-52°41'44"	-0.7	201	29	--	Novice 15
Open	M 41	NGC 2287	CMa	06h46m01.0s	-20°45'24"	5.0	154	27	82	Novice 15
OC	Northern Jewel Box	NGC 2362	CMa	07h18m41.0s	-24°57'18"	4.0	154	27	86-87	Novice 30
PNe	Eskimo Nebula	NGC 2392	Gem	07h29m10.8s	+20°54'42"	8.6	75	25	74	Texas 45
Open	M 46	NGC 2437	Pup	07h41m46.0s	-14°48'36"	6.6	135	26	84	Novice 30
Open	M 93	NGC 2447	Pup	07h44m30.0s	-23°51'24"	6.5	153	26	88	Texas 45
Open	Collinder 165	NGC 2477	Pup	07h52m10.0s	-38°31'48"	5.7	171	28	--	Texas 45
Var	RS Pup	HD 68860	Pup	08h13m04.2s	-34°34'43"	7.1	171	28	--	Texas 45
Open	M 44 Beehive	NGC 2632	Cnc	08h40m24.0s	+19°40'00"	3.9	74	24	92	Novice 15

Ur.2: page# in *Uranometria 2nd ed.*; **PSA:** page# in *Pocket Sky Atlas*; **TLO:** page# in *Turn Left at Orion 5th ed.*; **Level:** object progression level

Spring objects: Apr-May-Jun

➤ Observe at least 10 of the 15 objects in this season's list. You may log objects at any time of year visible.

Class	Primary ID	Alternate ID	Con	RA 2000	Dec 2000	Mag	Ur. 2	PSA	TLO	Level
Gal	Spindle Galaxy	NGC 3115	Sex	10h05m14.0s	-07°43'07"	10.0	133	37	--	Texas 45
PNe	Ghost of Jupiter	NGC 3242	Hya	10h24m46.1s	-18°38'32"	8.6	151	37	98	Texas 45
Gal	M 105	NGC 3379	Leo	10h47m49.6s	+12°34'54"	10.2	92	34	102	Texas 45
PNe	M 97 Owl Nebula	NGC 3587	UMa	11h14m47.7s	+55°01'09"	9.7	24	32	--	Texas 45
Doub	M 40	HD 238107	UMa	12h22m12.5s	+58°04'58"	9.6	24	43	--	Texas 45
Gal	Needle Galaxy	NGC 4565	Com	12h36m20.8s	+25°59'15"	10.1	72	45	--	Novice 30
Gal	M 104 Sombrero Galaxy	NGC 4594	Vir	12h39m59.3s	-11°37'22"	9.1	130	47	--	Texas 45
Gal	M 64 Black Eye Galaxy	NGC 4826	Com	12h56m43.8s	+21°41'00"	9.3	71	45	110	Texas 45
Gal	Centaurus A	NGC 5128	Cen	13h25m27.7s	-43°01'07"	7.8	184	49	239	Novice 30
Glob	Omega Centauri	NGC 5139	Cen	13h26m46.0s	-47°28'36"	3.9	184	49	238	Novice 15
Gal	M 51 Whirlpool Galaxy	NGC 5194	CVn	13h29m52.3s	+47°11'40"	8.7	37	43	204	Novice 30
Glob	M 5	NGC 5904	Ser	15h18m34.0s	+02°05'00"	5.7	108	55	124	Novice 30
Glob	M 4	NGC 6121	Sco	16h23m36.0s	-26°31'30"	5.4	147	57	152	Novice 15
Glob	M 13 Keystone Cluster	NGC 6205	Her	16h41m41.0s	+36°27'36"	5.8	50	52	120	Novice 30
Glob	M 92	NGC 6341	Her	17h17m07.0s	+43°08'12"	6.5	34	52	122	Texas 45

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Rules: Observe and log each object at the HAS Dark Site. On the website, create a dark site log report for each observing session. Some Novice list objects can be seen with binoculars or naked eye. Goto telescopes are allowed. See observation log instructions for Goto restrictions on silver and gold levels. Email your completed observation log to Rene Gedaly at texas45@astronomyhouston.org. After verification, you will be presented your award at the HAS General Meeting and your name will be added to the

HAS Texas 45 Honor Roll on the [website](#). Clear skies!

HAS Texas 45: Object list

Summer objects: Jul-Aug-Sep

- Observe at least 10 of the 15 objects in this season's list. You may log objects at any time of year visible.

Class	Primary ID	Alternate ID	Con	RA 2000	Dec 2000	Mag	Ur. 2	PSA	TLO	Level
Open	M 6 Butterfly Cluster	NGC 6405	Sco	17h40m20.0s	-32°15'12"	4.6	164	58	156	Novice 30
Open	M 7	NGC 6475	Sco	17h53m51.0s	-34°47'36"	2.5	164	58	156	Novice 15
Open	M 23	NGC 6494	Sgr	17h57m04.0s	-18°59'06"	5.9	146	56	143	Texas 45
Neb	M 20 Trifid Nebula	NGC 6514	Sgr	18h02m22.0s	-22°59'12"	6.3	145	67	148	Texas 45
Neb	M 8 Lagoon Nebula	NGC 6523	Sgr	18h04m02.0s	-24°23'14"	5.0	145	67	146	Novice 15
Open	M 16 Eagle/Star Queen	NGC 6611	Ser	18h18m48.0s	-13°48'24"	6.5	126	67	142	Texas 45
Neb	M 17 Omega Nebula	NGC 6618	Sgr	18h20m48.0s	-16°11'00"	6.0	126	67	142	Texas 45
Con	Corona Australis	constellation	CrA	18h38m47.3s	-41°08'51"	5.2	180	69	--	Texas 45
Open	M 11 Wild Duck Cluster	NGC 6705	Sct	18h51m05.0s	-06°16'12"	6.1	125	67	140	Texas 45
Asterism	Coathanger	Collinder 399	Vul	19h25m24.0s	+20°11'00"	4.8	66	65	138	Novice 30
Dvar	Albireo	Beta 1 Cyg	Cyg	19h30m43.3s	+27°57'35"	3.1	66	64	132	Novice 15
PNe	M 27 Dumbbell	NGC 6853	Vul	19h59m36.3s	+22°43'16"	7.3	66	64	136	Texas 45
Con	Delphinus	constellation	Del	20h41m36.8s	+11°40'15"	5.7	84	64	--	Novice 15
PNe	Saturn Nebula	NGC 7009	Aqr	21h04m10.9s	-11°21'48"	8.3	123	77	168	Texas 45
Glob	M 15	NGC 7078	Peg	21h29m58.0s	+12°10'00"	6.3	83	75	164	Novice 30

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Autumn objects: Oct-Nov-Dec

- Observe at least 10 of the 15 objects in this season's list. You may log objects at any time of year visible.

Class	Primary ID	Alternate ID	Con	RA 2000	Dec 2000	Mag	Ur. 2	PSA	TLO	Level
Glob	M 30	NGC 7099	Cap	21h40m22.0s	-23°10'42"	6.9	143	77	170	Texas 45
Con	Grus, the constellation		Gru	22h27m23.5s	-46°21'07"	4.8	178	79	--	Novice 30
PNe	Helix Nebula	NGC 7293	Aqr	22h29m38.5s	-20°50'14"	6.3	142	77	172	Texas 45
Doub	Beta PsA	17 PsA	PsA	22h31m30.4s	-32°20'46"	4.3	160	76	--	Novice 30
Var	Fomalhaut	Alpha PsA	PsA	22h57m39.4s	-29°37'22"	1.2	160	76	--	Novice 15
Gal	M 31 Andromeda Galaxy	NGC 224	And	00h42m44.3s	+41°16'07"	4.3	30	3	176	Novice 15
Gal	Sculptor Galaxy	NGC 253	Scl	00h47m33.1s	-25°17'20"	7.9	158	7	174	Texas 45
Open	ET Cluster	NGC 457	Cas	01h19m35.0s	+58°17'12"	5.1	29	3	192	Novice 30
Gal	M 33 Triangulum Galaxy	NGC 598	Tri	01h33m50.9s	+30°39'36"	6.4	62	2	178	Texas 45
Var	Achernar	Alpha Eri	Eri	01h37m43.0s	-57°14'13"	0.4	203	8	--	Novice 30
PNe	M 76 Little Dumbbell	NGC 650/651	Per	01h42m19.9s	+51°34'31"	10.1	29	2	--	Texas 45
Open	Muscle Man Cluster	Stock 2	Cas	02h14m43.0s	+59°29'06"	4.4	29	2	--	Texas 45
Open	h Persei	NGC 869	Per	02h19m00.0s	+57°07'42"	4.3	29	2	186	Novice 15
Open	Chi Persei	NGC 884	Per	02h22m18.0s	+57°08'12"	4.4	29	2	186	Novice 15
Gal	M 77	NGC 1068	Cet	02h42m40.8s	-00°00'48"	9.7	119	6	--	Texas 45

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HAS Texas 45: Observation log

Winter objects Record observations for at least 10 of the season's 15 objects. Receive a **gold** level certificate by star hopping to all 15 objects. Or the **silver** level by either (1) star hopping to 10 objects or (2) using goto for all 15 objects. Or the **bronze** level by using goto to log 10 objects. Also log **5 solar system objects** of your choice on p. 7. The award pin is the same for all levels.

Object	Date	Time	Seeing	Trans- parency	Aperture (mm)	Eyepiece (mm)	Description
M45 Pleiades NGC 1432							
R Leporis Hind's Crimson Star							
M42 Orion Nebula NGC 1976							
M78 NGC 2068							
M37 NGC 2099							
M35 NGC 2168							
Canopus Alpha Carinae							
M41 NGC 2287							
NGC 2362 Northern Jewel Box							
NGC 2392 Eskimo Nebula							
M46 NGC 2437							
M93 NGC 2447							
NGC 2477 Collinder 165							
RS Puppis Cepheid Variable							
M44 Beehive NGC 2632							

HAS Texas 45: Observation log

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Object	Date obsv'd	Time obsv'd	Seeing	Trans- parency	Aperture (mm)	Eyepiece (mm)	Description
NGC 3115 Spindle Galaxy							
NGC 3242 Ghost of Jupiter							
M105 NGC 3379							
M97 Owl Nebula NGC 3587							
M40							
NGC 4565 Needle Galaxy							
M104 Sombrero Galaxy, NGC 4594							
M64 Black Eye Gxy 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 6205							
M92 NGC 6341							

HAS Texas 45: Observation log

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Object	Date obsv'd	Time obsv'd	Seeing	Trans- parency	Aperture (mm)	Eyepiece (mm)	Description
M6 Butterfly Cluster NGC 6405							
M 7 NGC 6475							
M23 NGC 6494							
M20 Trifid Nebula NGC 6514							
M8 Lagoon Nebula NGC 6523							
M16 Eagle/Star Queen, 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 Record observations for at least 10 of the season's 15 objects. Receive a **gold** level certificate by star hopping to all 15 objects. Or the **silver** level by either (1) star hopping to 10 objects or (2) using goto for all 15 objects. Or the **bronze** level by using goto to log 10 objects. Also log **5 solar system objects** of your choice on p. 7. The award pin is the same for all levels.

Object	Date obsv'd	Time obsv'd	Seeing	Trans- parency	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							

HAS Texas 45: Observation log

Solar System *Observer's choice*

Choose 5 solar system objects and record your observations. Objects can appear any time of year. Choose from planets, minor planets, moons, comets, asteroids, lunar targets, eclipses, transits, or planetary occultations.

	Object	Date obsv'd	Time obsv'd	Seeing	Trans- parency	Aperture (mm)	Eyepiece (mm)	Description
1.								
2.								
3.								
4.								
5.								

Observer's statement for the **gold level** or the **star-hopped silver level** award certificate:

I, _____, certify that I observed all required objects for the gold award or star-hopped silver award using the star-hopping method.

Print your name

Signature: _____

Date: _____