

HAS Texas 45 AP object list

Winter objects: Jan-Feb-Mar

➤ Photograph at least 10 of the 15 objects in this list. You may photograph objects at anytime of year visible.

Cls	Primary ID	Alternate ID	Con	RA 2000	Dec 2000	Mag	SA	Ur.2	PSA
Open	Pleiades	M 45	Tau	03h48m00.2s	+24°09'59"	1.5	4	78	15
Neb	Great Orion Nebula	M 42	Ori	05h36m08.0s	-05°22'41"	4.0	11	116	16
Dark	Horsehead Nebula	Barnard 33	Ori	05h41m50.2s	-02°27'19"	4.0	11	116	16
Neb	M 78	NGC 2068	Ori	05h47m40.2s	+00°05'03"	8.0	11	116	14
Open	M 37	NGC 2099	Aur	05h53m24.8s	+32°33'18"	6.2	5	59	12
Open	M 35	NGC 2168	Gem	06h10m02.6s	+24°20'39"	5.6	5	76	25
Neb	IC 443	Sh 2-248	Gem	06h18m49.9s	+22°48'25"	12.0	5	76	25
Neb	Rosette	NGC 2237	Mon	06h32m56.4s	+04°58'08"	5.5	12	116	25
Neb	Cone Nebula	NGC 2264	Mon	06h42m16.2s	+09°24'48"		12	95	25
Open	M 41	NGC 2287	CMa	06h46m45.1s	-20°46'54"	5.0	19	154	27
PNe	Eskimo Nebula	NGC 2392	Gem	07h30m11.5s	+20°52'24"	8.6	5	75	25
Open	M 46	NGC 2437	Pup	07h42m33.5s	-14°51'23"	6.6	12	135	26
Open	M 93	NGC 2447	Pup	07h45m13.9s	-23°54'17"	6.5	19	153	26
Open	NGC 2477	Collinder 165	Pup	07h52m47.2s	-38°34'53"	5.7	19	171	28
Open	Beehive	M 44	Cnc	08h41m23.3s	+19°36'11"	3.9	6	74	24

Ur.2: page # in Uranometria 2nd ed.; **PSA:** page # in Pocket Sky Atlas; **SA:** page # in Sky Atlas 2000

Spring objects: Apr-May-Jun

➤ Photograph at least 10 of the 15 objects in this list. You may photograph objects at any time of year visible.

Cls	Primary ID	Alternate ID	Con	RA 2000	Dec 2000	Mag	SA	Ur.2	PSA
Gal	Spindle Galaxy	NGC 3115	Sex	10h06m06.0s	-07°48'20"	10.0	13	133	37
PNe	Ghost of Jupiter	NGC 3242	Hya	10h25m36.8s	-18°43'59"	8.6	20	151	37
Gal	M 105	NGC 3379	Leo	10h48m44.7s	+12°29'21"	10.2	13	92	34
PNe	Owl Nebula	M 97	UMa	11h15m47.9s	+54°55'32"	9.7	2	24	32
Gal	NGC 4565	MCG 4-30-6	Com	12h37m12.7s	+25°53'31"	10.1	7	72	45
Gal	Sombrero Galaxy	M 104	Vir	12h40m54.0s	-11°43'06"	9.1	14	130	47
Gal	Whale Galaxy	NGC 4631	CVn	12h42m58.7s	+32°26'52"	9.5	7	53	43
Gal	Black Eye Galaxy	M 64	Com	12h57m35.2s	+21°35'22"	9.3	7	71	45
Gal	Centaurus A	NGC 5128	Cen	13h26m30.1s	-43°06'26"	7.8	21	184	49
Glob	Omega Centauri	NGC 5139	Cen	13h27m50.1s	-47°33'53"	3.9	21	184	49
Gal	Whirlpool Galaxy	M 51	CVn	13h30m36.6s	+47°06'19"	8.7	7	37	43
Glob	M 5	NGC 5904	Ser	15h19m26.8s	+02°01'16"	5.7	14	108	55
Glob	M 4	NGC 6121	Sco	16h24m39.8s	-26°33'42"	5.4	22	147	57
Glob	Keystone Cluster	M 13	Her	16h42m18.2s	+36°25'33"	5.8	8	50	52
Glob	M 92	NGC 6341	Her	17h17m39.0s	+43°06'58"	6.5	8	34	52

Ur.2: page # in Uranometria 2nd ed.; **PSA:** page # in Pocket Sky Atlas; **SA:** page # in Sky Atlas 2000

Program Rules: (1) Photograph at least 10 objects from each season plus any 5 solar system objects of your choice, (2) log into www.astronomyhouston.org to download the Texas 45AP Object List and Report form, (3) log your findings (Sample Log Report begins on p.3 and 4, email the completed Texas 45AP logs and images to Texas 45 AP Program Coordinator Chris Ober at Texas45AP@AstronomyHouston.org

HAS Texas 45 AP object list

Summer objects: Jul-Aug-Sep

➤ Photograph at least 10 of the 15 objects in this list. You may photograph objects at anytime of year visible.

Cls	Primary ID	Alternate ID	Con	RA 2000	Dec 2000	Mag	SA	Ur.2	PSA
Dark	Snake Nebula	Barnard 72	Oph	17h24m06.6s	-23°34'42"	6.0	22	146	56
Open	Butterfly Cluster	M 6	Sco	17h41m27.2s	-32°15'30"	4.6	22	164	58
Open	Tom Thumb Cluster	NGC 6451	Sco	17h51m47.1s	-30°12'39"	8.2	22	164	58
Open	M 23	NGC 6494	Sgr	17h58m04.6s	-18°59'04"	5.9	22	146	56
Neb	Trifid Nebula	M 20	Sgr	18h03m24.4s	-22°59'00"	6.3	22	145	67
Neb	Lagoon Nebula	M 8	Sgr	18h05m05.0s	-24°22'59"	5.0	22	145	67
Neb	Eagle Nebula	M 16	Ser	18h19m46.6s	-13°48'37"	6.0	15	126	67
Neb	Omega Nebula	M 17	Sgr	18h21m47.2s	-16°10'23"	6.0	15	126	67
Glob	M 22	NGC 6656	Sgr	18h37m26.4s	-23°53'09"	5.2	22	145	67
Open	Wild Duck Cluster	M 11	Sct	18h51m59.8s	-06°14'54"	6.1	16	125	67
Dark	Barnard's E	Barnard 143	Aql	19h41m30.2s	+10°59'22"	6.0	16	85	64
PNe	Dumbbell	M 27	Vul	20h00m20.2s	+22°45'59"	7.3	8	66	64
Neb	Veil Nebula (Any)	NGC 6960	Cyg	20h46m23.8s	+30°46'37"	7.0	9	47	62
PNe	Saturn Nebula	NGC 7009	Aqr	21h05m05.7s	-11°17'41"	8.3	16	123	77
Glob	M 15	NGC 7078	Peg	21h30m46.7s	+12°14'25"	6.3	16	83	75

Ur.2: page # in *Uranometria 2nd ed.*; **PSA:** page # in *Pocket Sky Atlas*; **SA:** page # in *Sky Atlas 2000*

Autumn objects: Oct-Nov-Dec

➤ Photograph at least 10 of the 15 objects in this list. You may photograph objects at anytime of year visible.

Cls	Primary ID	Alternate ID	Con	RA 2000	Dec 2000	Mag	SA	Ur.2	PSA
Gal	Andromeda Galaxy	M 31	And	00h43m39.3s	+41°21'36"	4.3	4	30	3
Gal	Sculptor Galaxy	NGC 253	Scl	00h48m21.8s	-25°11'54"	7.9	18	158	7
Neb	PacMan Nebula	NGC 281	Cas	00h53m59.0s	+56°42'28"	7.4	1	18	3
Open	ET Cluster	NGC 457	Cas	01h20m38.6s	+58°22'30"	5.1	1	29	3
Gal	Pinwheel Galaxy	M 33	Tri	01h34m47.7s	+30°44'42"	6.4	4	62	2
PNe	Little Dumbbell	M 76	Per	01h43m23.5s	+51°39'35"	10.1	4	29	2
Open	Muscle Man Cluster	Stock 2	Cas	02h15m55.5s	+59°33'49"	4.4	1	29	2
Open	h Persei	NGC 869	Per	02h20m11.2s	+57°12'21"	4.3	1	29	2
Open	Chi Persei	NGC 884	Per	02h23m29.7s	+57°12'48"	4.4	1	29	2
Gal	NGC 891	MCG 7-5-46	And	02h23m37.1s	+42°25'19"	10.9	4	44	2
Gal	M 77	NGC 1068	Cet	02h43m32.2s	+00°03'18"	9.7	10	119	6
Glob	M 30	NGC 7099	Cap	21h41m18.9s	-23°05'59"	6.9	23	143	77
Neb	Cocoon Nebula	IC 5146	Cyg	21h54m02.6s	+47°20'41"	10.0	9	31	73
PNe	Helix	NGC 7293	Aqr	22h30m33.0s	-20°44'59"	6.3	23	142	77
Gal	NGC 7331	MCG 6-49-45	Peg	22h37m50.3s	+34°30'09"	10.2	9	46	72

Ur.2: page # in *Uranometria 2nd ed.*; **PSA:** page # in *Pocket Sky Atlas*; **SA:** page # in *Sky Atlas 2000*

Program Rules: (1) Photograph at least 10 objects from each season plus any 5 solar system objects of your choice, (2) log into www.astronomyhouston.org to download the Texas 45AP Object List and Report form, (3) log your findings (Sample Log Report begins on p.3 and 4, email the completed Texas 45AP logs and images to Texas 45 AP Program Coordinator Chris Ober at Texas45AP@AstronomyHouston.org

Sample log:

1	Image Subject:			
2	Image Name:			
3	Date(s):			
4	Seeing/Trans:		HAS Log #	
5	Telescope Used:			
6	Camera Used:			
7	Exposure(s)			
	Total Exp. Time:			
	Notes:			

1	Image Subject:			
2	Image Name:			
3	Date(s):			
4	Seeing/Trans:		HAS Log #	
5	Telescope Used:			
6	Camera Used:			
7	Exposure(s)			
	Total Exp. Time:			
	Notes:			

1	Image Subject:			
2	Image Name:			
3	Date(s):			
4	Seeing/Trans:		HAS Log #	
5	Telescope Used:			
6	Camera Used:			
7	Exposure(s)			
	Total Exp. Time:			
	Notes:			

HAS Texas 45 AP: Photo log

Sample log:

HAS Log #	1234567890	
Date(s):	3/18, 3/19, 3/22, 2017	
Image name/Number:		
Imaging telescope or lens:	Orion 80mm EON APO, 500mm f/6.25	
Guiding Telescope or lens:	Orion ST80	
Imaging camera:	SBIG ST-10XME	
Guiding camera:	Meade DSI	
Mount:	Losmandy GII, Ovision worm	
Filters:	Astronomik LRGB, Astrodon HA	
Image scale:	2.8 arcsec/pix	
Software:	TheSkyX Camera control, Deepsky Stacker, PixInsight, Photoshop	
Exposures:	RGB: 22x600" bin 1x1, Lum: 10x600" bin 1x1, HA 10x600" bin 1x1	Total Integration time: 7hrs
Notes:		

HAS Log #		
Date(s):		
Image name/Number:		
Imaging telescope or lens:		
Guiding Telescope or lens:		
Imaging camera:		
Guiding camera:		
Mount:		
Filters:		
Image scale:		
Software:		
Exposures:		Total Integration time:
Notes:		