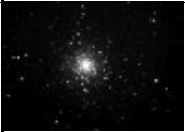










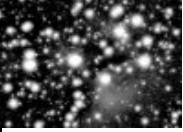







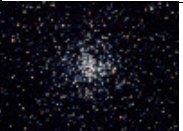




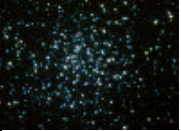

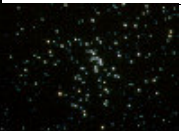
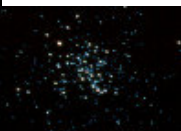
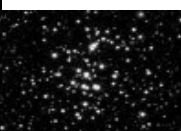














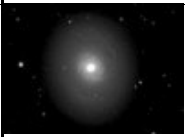






Seq	Image	Seen	M	mag v	Object	Cons	RA		Dec		Remarks	Dist Kly	Polar	Verified	NGC
							hr	min	°	min					
1			M79	8.4	GC	Lep	5	24.5	-24	33	A 20-cm telescope is needed to resolve the stars. Tough for northern marathoners due to its low altitude at sunset in March. (There is a 98 minute RA gap between M45 and M79)	39.8			1904
2			M77	8.9	G-SABab	Cet	2	42.7	0	1	A bright, compact Seyfert galaxy with a star-like nucleus - use high power. The closest Messier to the ecliptic (next is M78). Tough for northern marathoners due to its low altitude at sunset in March. (There is a 64 minute RA gap between M77 and M45.)	60,000			1068
3			M74	10.2	G-SAc	Psc	1	36.7	15	47	A large, face-on, faint, illusive spiral. One of the most difficult of the Messier objects especially in small telescopes and for northern marathoners due to its low altitude at sunset in March.	30,000			628
4			M32	8.7	G-E5pec	And	0	42.7	40	52	The closest companion to M31 - located slightly south of M31 and visible in the same low power field. (The smallest Messier RA gap is between M31 and M32.)	2,200	YesT**		221
5			M110	9.4	G-E3pec	And	0	40.4	41	41	A companion galaxy to M31, located NNE, with lower surface brightness than M32. (There is a 76 minute RA gap between M110 and M52 and a 3.0 hour RA gap between M110 and M30.)	2,200	YesT**		205
6			M31	4.8	G-SAb	And	0	42.7	41	16	!! The Andromeda Galaxy - the brightest galaxy in the sky, 4° wide. Look for dust lanes. (The smallest Messier RA gap is between M31 and M32.)	2,200	YesT**		224
7			M39	5.2	OC	Cyg	21	32.2	48	26	A very sparse cluster near pi Cygni - use low power.	0.825	YesT		7092
8			M33	6.7	G-SACd	Tri	1	33.9	30	39	A large diffuse spiral - requires a dark sky. This face-on spiral can be difficult to see due to it's large size. Use low power (may be easier to spot in finder or binoculars).	2,300			598









Seq	Image	Seen	M	mag v	Object	Cons	RA		Dec		Remarks	Dist Kly	Polar	Verified	NGC
							hr	min	°	min					
9			M42	4.0	E/RN	Ori	5	35.4	-5	27	!! The famous 'Orion Nebula' - the brightest and easiest to find emission nebula in the winter sky - a magnificent object - this nebula will fill a low power eyepiece field of view.	1.6			1976
10			M43	9.1	E/RN	Ori	5	35.6	-5	16	A fainter, detached part of Orion Nebula resembling a bloated coma. In the same field as M42.	1.6			1982
11			M78	10.3	RN	Ori	5	46.7	0	3	A featureless reflection nebula - one of the easiest reflection nebulas to observe. Use medium magnification, without filters. (The 2nd closest Messier to the ecliptic (closest is M77).	1.6			2068
12			M45	1.6	OC	Tau	3	47	24	7	!! The 'Pleiades' or 'Seven Sisters' star cluster. Very bright and large. Use low power and look for nebulosity. The closest Messier. (There is a 64 minute RA gap between M77 and M45 and a 98 minute RA gap between M45 and M79. If you observe bright M45 out of RA sequence, a total of a 162 minute RA gap between M77 and M79 - the 2nd largest Messier RA gap.)	0.4			----
13			M76	10.1	PN	Per	1	42.4	51	34	1:42:17ra? The Little Dumbbell Nebula - an 11th magnitude planetary nebula. A smaller version of The 'Dumbbell Nebula' in Vulpecula. One of the toughest, faintest Messier objects.	3.4	Yes		650
14			M103	7.4	OC	Cas	1	33.2	60	42	A smaller open cluster. Appears triangle-shaped. (3 NGC clusters nearby). Can be difficult from southern latitudes due to its high Declination.	8	Yes		581
15			M52	7.3	OC	Cas	23	24.2	61	35	A bright, young, rich cluster - faint Bubble Nebula nearby. There is a 104 minute RA gap between M52 and M30 and a 76 minute RA gap between M52 and M110, or, if you observe M52 out of RA sequence - a total of a 3.0 hour RA gap between M30 and M110 - the largest Messier RA gap and the main reason there is a Messier Marathon at all.)	7	Yes**		7654
16			M34	5.5	OC	Per	2	42	42	47	A bright, rich open cluster, easily visible in binoculars - best at very low power.	1.4	YesT		1039

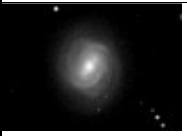







Seq	Image	Seen	M	mag v	Object	Cons	RA		Dec		Remarks	Dist Kly	Polar	Verified	NGC
							hr	min	°	min					
17			M1	8.2	SNR	Tau	5	34.5	22	1	!! The famous Crab Nebula - the brightest example of a supernova remnant, formed in 1054 and still expanding. The only SNR Messier object.	6.3			1952
18			M38	7.4	OC	Aur	5	28.7	35	50	28.4ram? The faintest of Auriga's Messier clusters. Many bright stars, arranged in pairs. (Look for the small cluster NGC 1907 1/2° S.)	4.2			1912
19			M36	6.3	OC	Aur	5	36.1	34	8	A bright, easy, scattered open cluster. Naked eye from a dark location. Best at low power.	4.1			1960
20			M37	6.2	OC	Aur	5	52.4	32	33	!! The finest of the 3 Auriga clusters - very rich.	4.6			2099
21			M35	5.3	OC	Gem	6	8.9	24	20	!! Gemini's finest open cluster, visible to the naked eye under good conditions. (Look for small cluster NGC 2158 1/4° SW.)	2.8			2168
22			M41	4.6	OC	CMa	6	47	-20	44	46ram? 4° The finest open cluster in Canis Major - bright but coarse, about 4° south of Sirius. Easily visible in binoculars, or to the naked eye from a dark site.	2.4			2287
23			M50	6.3	OC	Mon	7	3.2	-8	20	A bright open cluster between Sirius and Procyon, naked eye under ideal conditions. Look for several arcs of stars, and a single red star 7 arc minutes south of the cluster's centre. Use low power.	3			2323
24			M47	4.5	OC	Pup	7	36.6	-14	30	A coarse cluster, 1.5° W of M46.	1.6			2422








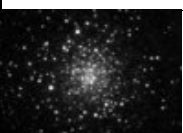
Seq	Image	Seen	M	mag v	Object	Cons	RA		Dec		Remarks	Dist Kly	Polar	Verified	NGC
							hr	min	°	min					
25			M46	6.0	OC	Pup	7	41.8	-14	49	!! Contains planetary nebula NGC 2438.	5.4			2437
26			M93	6.0	OC	Pup	7	44.6	-23	52	A compact bright cluster, fairly rich.	4.5			2447
27			M48	5.3	OC	Hya	8	13.8	-5	48	A large, sparse cluster. A former 'lost' Messier object.	1.5			2548
28			M67	6.1	OC	Cnc	8	50.4	11	49	A bright open cluster. Located five times as distant as M44, one of the oldest clusters, at 3.2 billion years. Easy in binoculars or finderscope.	2.25			2682
29			M44	3.7	OC	Cnc	8	40.1	19	59	!! The Beehive Cluster or 'Praesepe' - appears as a hazy patch of light. Use low power for a wide field.	0.5			2632
30			M82	8.8	G-I0	UMa	9	55.8	69	41	!! The 'exploding galaxy', with M81 1/2° S. Look for structure. Can be difficult from southern latitudes due to its high Declination - it is the most northerly Messier (next is M81).	12,000	Yes		3034
31			M81	7.9	G-SAab	UMa	9	55.6	69	4	!! A bright spiral, with M82 1/2° N. (M81 is rounder and brighter than M82.) Visible in binoculars from a good viewing site. Can be difficult from southern latitudes due to its high Declination - it is the 2nd most northerly Messier (M82 is higher).	12,000	Yes		3031
32			M95	10.4	G-SBb	Leo	10	44	11	42	A bright barred spiral with a bright central core and with M96 in the same field. (M95 can be difficult, M96 is bigger and brighter.) The bar and outer ring of material will require a large aperture and dark skies.	38,000			3351


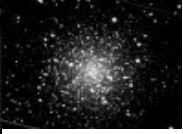





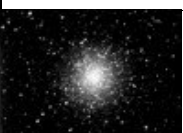
Seq	Image	Seen	M	mag v	Object	Cons	RA		Dec		Remarks	Dist Kly	Polar	Verified	NGC
							hr	min	°	min					
33			M96	9.1	G-SABab	Leo	10	46.8	11	49	A brighter barred spiral, with M95 in the same field.	38,000			3368
34			M105	9.2	G-E1	Leo	10	47.8	12	35	A small elliptical galaxy, but has very high surface brightness. Very near M95 and M96. M105 is the biggest object in a field with galaxies NGC 3384 and NGC 3389 (dimmer).	38,000			3379
35			M65	9.3	G-SABa	Leo	11	18.9	13	5	!! A bright elongated spiral galaxy with M65 and NGC 3628 in same field. (M66 is smaller and brighter than M65.) Very high surface brightness showing good detail in medium sized scopes.	35,000			3623
36			M66	8.2	G-SABb	Leo	11	20.2	12	59	!! A bright spiral galaxy with M65 and NGC 3628 in same field.	35,000			3627
37			M108	10.7	G-SBcd	UMa	11	11.5	55	40	A bright, nearly edge-on spiral, very close to M97. Shows dark patches and mottling in larger scopes.	45,000	Yes		3556
38			M97	9.9	PN	UMa	11	14.8	55	1	!! The Owl Nebula - a planetary nebula very close to M108. Appears brighter than 11.2 mag low surface brightness.	2.6	Yes		3587
39			M109	10.8	G-SBbc	UMa	11	57.6	53	23	A barred spiral near gamma UMa. Shows spiral structure easily in larger scopes.	55,000	Yes		3992
40			M40	9.1	OC 2 stars	UMa	12	22.4	58	5	The double star Winnecke 4 - separation of 50 arc seconds near Megrez in the Big Dipper. The most disappointing of the Messier objects.	0.51	Yes		WNC 4


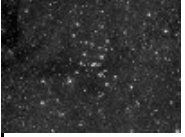
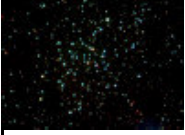


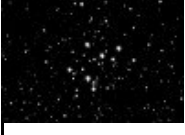


Seq	Image	Seen	M	mag v	Object	Cons	RA		Dec		Remarks	Dist Kly	Polar	Verified	NGC
							hr	min	°	min					
41			M106	8.6	G-SABbc	CVn	12	19	47	18	!! A large, bright spiral galaxy.	25,000	YesT		4258
42			M94	7.9	G-SAab	CVn	12	50.9	41	7	A bright, compact, tightly wound galaxy, with a very intense comet-like nucleus.	14,500	YesT		4736
43			M64	8.8	G-SAab	Com	12	56.7	21	41	!! The Black Eye Galaxy. An abnormally smooth and featureless galaxy except for a large dark dust cloud near the nucleus, which gives it the appearance of a black eye - the 'eye' needs a large aperture to resolve.	19,000			4826
44			M85	9.3	G-SA0*	Com	12	25.4	18	11	A bright elliptically shaped, lenticular galaxy. A member of the Virgo galaxy cluster.	60,000			4382
45			M98	11.7	G-SABab	Com	12	13.8	14	54	An elongated, nearly edge-on spiral near star 6 Comae B. It has Low surface brightness (the faintest mv).	60,000			4192
46			M99	10.1	G-SAc	Com	12	18.8	14	25	A bright, circular, nearly face-on spiral near M98.	60,000			4254
47			M61	10.1	G-SABbc	Vir	12	21.9	4	28	A face-on two-armed spiral galaxy.	60,000			4303
48			M100	10.6	G-SABbc	Com	12	22.9	15	49	A face-on spiral galaxy with starlike nucleus.	60,000			4321



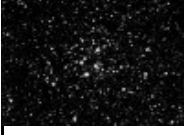





Seq	Image	Seen	M	mag v	Object	Cons	RA		Dec		Remarks	Dist Kly	Polar	Verified	NGC
							hr	min	°	min					
49			M84	9.3	G-E1	Vir	12	25.1	12	53	!! M84 and M86 are a bright pair of elliptical galaxies in the heart of the Coma-Virgo galaxy cluster. Part of the 'Markarian Chain'. Many NGC's nearby - lots to explore!	60,000			4374
50			M86	9.7	G-E3	Vir	12	26.2	12	57	!! M84 and M86 are a bright pair of elliptical galaxies in the heart of the Coma-Virgo galaxy cluster.	60,000			4406
51			M49	8.5	G-E2	Vir	12	29.8	8	0	A very bright elliptical galaxy.	60,000			4472
52			M87	9.2	G-E0-1	Vir	12	30.8	12	24	Another bright elliptical galaxy. One of the largest and most luminous know galaxies, also a strong radio and X-ray source - the one with the famous jet and black hole.	60,000			4486
53			M88	10.2	G-SAb	Com	12	32	14	25	A bright multiple-arm spiral galaxy.	60,000			4501
54			M91	9.5	G-SBb	Com	12	35.4	14	30	(Some lists say M91 is M58 or NGC 4689 (12:47.8,+13.8), not NGC 4548.)	60,000			4548
55			M89	9.5	G-E	Vir	12	35.7	12	33	An elliptical galaxy resembling M87, but smaller.	60,000			4552
56			M90	10.0	G-SABab	Vir	12	36.8	13	10	A bright spiral galaxy, near M89.	60,000			4569



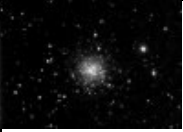

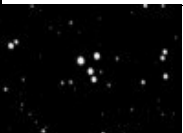



Seq	Image	Seen	M	mag v	Object	Cons	RA		Dec		Remarks	Dist Kly	Polar	Verified	NGC
							hr	min	°	min					
57			M58	9.2	G-SABb	Vir	12	37.7	11	49	A bright barred spiral. (M59 and M60 1° E.)	60,000			4579
58			M59	9.6	G-E5	Vir	12	42	11	39	A bright elliptical galaxy paired with M60.	60,000			4621
59			M60	8.9	G-E2	Vir	12	43.7	11	33	A bright elliptical galaxy paired with M59 and NGC 4647.	60,000			4649
60			M104	8.7	G-SA	Vir	12	40	-11	37	!! The 'Sombrero Galaxy' features a prominent dust lane. Tilted almost edge-on.	50,000			4594
61			M68	8.0	GC	Hya	12	39.5	-26	45	15-cm telescope needed to resolve	32.3			4590
62		not poss D	M83	7.6	G-SABc	Hya	13	37	-29	52	A face-on Sc spiral - large and diffuse, tough from northern latitudes.	10,000		-----	5236
63			M53	7.6	GC	Com	13	12.9	18	10	A bright, but small, globular cluster. Difficult to resolve - use a 15-cm telescope and high power.	56.4			5024
64			M3	6.3	GC	CVn	13	42.2	28	23	!! A bright globular cluster, visible in binoculars - contains many variable stars.	30.6			5272







Seq	Image	Seen	M	mag v	Object	Cons	RA		Dec		Remarks	Dist Kly	Polar	Verified	NGC
							hr	min	°	min					
65			M63	9.5	G-SAbc	CVn	13	15.8	42	2	!! The Sunflower Galaxy - bright, elongated, a bright core is visible in smaller scopes.	37,000	YesT		5055
66			M51	8.1	G-SAbc	CVn	13	29.9	47	12	!! The Whirlpool Galaxy - superb in big telescopes.	37,000	YesT		5194
67			M101	9.6	G-SABcd	UMa	14	3.2	54	21	!! The Pinwheel Galaxy - a large, diffuse, face-on spiral. Difficult to observe due to low surface brightness. Sky conditions are more important than aperture.	24,000	Yes		5457
68			M102	10.0	G-SA0*	Dra	15	6.5	55	46	A bright but almost featureless lenticular galaxy. Appears originally to be a duplicate observation of M101. (Look for NGC 5907 nearby.)	40,000	Yes		5866?
69			M5	6.2	GC	Ser	15	18.6	2	5	!! One of the finest globulars - should be 'naked eye' under good skies. (In Serpens Caput.)	22.8			5904
70			M80	7.7	GC	Sco	16	17	-22	59	A bright but very compressed globular.	27.4			6093
71			M4	6.4	GC	Sco	16	23.6	-26	32	A bright globular cluster near Antares. One of the most easily resolved globular clusters, having a loose, unconcentrated structure.	6.8			6121
72			M107	9.2	GC	Oph	16	32.5	-13	3	A small, faint globular.	19.6			6171

Seq	Image	Seen	M	mag v	Object	Cons	RA		Dec		Remarks	Dist Kly	Polar	Verified	NGC
							hr	min	°	min					
73			M13	5.7	GC	Her	16	41.7	36	28	!! The Hercules cluster - one of the finest globulars in the northern hemisphere. It is visible to the naked eye from a dark site. NGC 6207 is 1/2° NE.	22.2			6205
74			M12	6.6	GC	Oph	16	47.2	-1	57	A loose globular cluster.	17.6			6218
75			M10	6.7	GC	Oph	16	57.1	-4	6	A rich cluster with M12 3° NW.	13.4			6254
76		not poss D	M62	6.6	GC	Oph	17	1.2	-30	7	Unsymmetrical, in rich star field.	21.5		-----	6266
77			M19	6.6	GC	Oph	17	2.6	-26	16	An oblate cluster with M62 4° S.	27.1			6273
78			M92	6.5	GC	Her	17	17.1	43	8	A bright globular cluster, almost as spectacular as M13. Stars are more compact and fainter than M13, requires more magnification and aperture to resolve. 9° NE of M13. A fine object but often overlooked.	26.1	YesT		6341
79			M9	7.3	GC	Oph	17	19.2	-18	31	The smallest of the Ophiuchus globulars.	26.4			6333
80			M14	7.7	GC	Oph	17	37.6	-3	15	A 20-cm telescope is needed to resolve the stars.	27.4			6402

Seq	Image	Seen	M	mag v	Object	Cons	RA		Dec		Remarks	Dist Kly	Polar	Verified	NGC
							hr	min	°	min					
81		not poss D	M6	5.3	OC	Sco	17	40.1	-32	13	!! The Butterfly Cluster - best at low power. Can be difficult from northern latitudes due to its low declination.	2		-----	6405
82		not poss D	M7	4.1	OC	Sco	17	53.9	-34	49	!! A bright open cluster excellent in binocular or rich-field scope. Can be difficult from northern latitudes due to its low declination - it is the most southerly Messier (next is M69).	1		-----	6475
83			M23	6.9	OC	Sgr	17	56.8	-19	1	A bright loose cluster.	4.5			6494
84			M57	8.8	PN	Lyr	18	53.6	33	2	!! The Ring Nebula - a bright ring shaped planetary nebula. (The mag 15 central star is very tough.)	4.1			6720
85			M56	8.2	GC	Lyr	19	16.6	30	11	A bright globular cluster within a rich star field. Difficult to resolve with small scopes.	31.6			6779
86			M29	7.1	OC	Cyg	20	23.9	38	32	A small, poor open cluster 2° S of gamma Cygni.	7.2			6913
87			M27	7.4	PN	Vul	19	59.6	22	43	!! The Dumbbell Nebula - one of the brightest planetary nebula, it is easily visible in a finder scope or binoculars - a superb object.	1.25			6853
88			M71	9.0	GC	Sge	19	53.8	18	47	A bright, loose globular cluster, easily resolved with larger scopes - looks like an open cluster.	11.7			6838

Seq	Image	Seen	M	mag v	Object	Cons	RA		Dec		Remarks	Dist Kly	Polar	Verified	NGC
							hr	min	°	min					
89			M15	6.0	GC	Peg	21	30	12	10	A very rich, tightly packed globular with a very bright core.	32.6			7078
90			M11	6.3	OC	Sct	18	51.1	-6	16	!! The Wild Duck Cluster - perhaps the best open cluster.	6			6705
91			M26	9.3	OC	Sct	18	45.2	-9	24	A bright coarse cluster.	5			6694
92			M16	6.4	EN+OC	Ser	18	18.6	-13	58	18.8ram? 47dec? The Eagle Nebula with an embedded open cluster - use a nebula filter. (In Serpens Cauda.)	7			6611
93			M17	7.5	EN	Sgr	18	20.8	-16	11	!! The Swan or Omega Nebula - very high surface brightness - use nebula filter.	5			6618
94			M18	7.5	OC	Sgr	18	19.9	-17	8	A small open cluster of 12 stars, 1° S of M17. Gets 'lost' in scopes, due to the high number of background stars.	6			6613
95			M2	6.3	GC	Aqr	21	33.5	0	49	A bright globular cluster but a 20-cm telescope is needed to resolve the stars.	36.2			7089
96			M24	4.6	starcloud	Sgr	18	16.5	-18	50	16.9ram? 29dec? 27dec? The 'Small Sagittarius Star Cloud' - a naked eye detached section of the milky way - contains open cluster NGC 6603.	10			>6603

Seq	Image	Seen	M	mag v	Object	Cons	RA		Dec		Remarks	Dist Kly	Polar	Verified	NGC
							hr	min	°	min					
97			M25	6.5	OC	Sgr	18	31.6	-19	15	A bright but sparse cluster.	2			IC4725
98			M21	6.5	OC	Sgr	18	4.6	-22	30	A sparse cluster 0.7° NE of M20.	4.25			6531
99			M72	9.8	GC	Aqr	20	53.5	-12	32	Near NGC 7009 - the Saturn Nebula. Like nearby M73, may be difficult to observe in morning twilight.	52.8			6981
100			M20	9.0	E/RN	Sgr	18	2.3	-23	2	2.6ram? !! The Trifid Nebula - emission and reflection nebula. Observing the trisecting dark lanes requires fairly good skies.	2.2			6514
101			M73	9.0	OC 4 stars	Aqr	20	59	-12	38	58.9ram? This is one of the most disappointing of the Messier objects - an asterism of 4 stars. Like nearby M72, may be difficult to observe in morning twilight.	2,500			6994
102			M22	5.9	GC	Sgr	18	36.4	-23	54	A spectacular globular from southern latitudes.	10.1			6656
103			M8	6.0	EN	Sgr	18	3.8	-24	23	!! The Lagoon Nebula with embedded open cluster NGC 6530.	6.5			6523
104			M28	7.3	GC	Sgr	18	24.5	-24	52	A compact globular near M22,	17.9			6626

Seq	Image	Seen	M	mag v	Object	Cons	RA		Dec		Remarks	Dist Kly	Polar	Verified	NGC
							hr	min	°	min					
105			M75	8.0	GC	Sgr	20	6.1	-21	55	A small and distant globular - the smallest of the Messier globulars.	57.7			6864
106		not poss D	M54	8.0	GC	Sgr	18	55.1	-30	29	A compact globular - not easily resolved.	82.8		-----	6715
107		not poss D	M69	8.9	GC	Sgr	18	31.4	-32	21	A small poor globular. Can be difficult from northern latitudes due to its low Declination since it is the 2nd most southerly Messier (the lowest is M7).	25.4		-----	6637
108		not poss D	M70	9.6	GC	Sgr	18	43.2	-32	18	A small globular 2° E of M69. Can be difficult from northern latitudes due to its low Declination.	28		-----	6681
109		not poss D	M55	5.0	GC	Sgr	19	40	-30	58	A bright, loose globular.	16.6		-----	6809
110		not poss A	M30	8.4	GC	Cap	21	40.4	-23	11	A compact globular cluster. The toughest object (and usually the last one) in a one-night Messier marathon for northern observers due to its low altitude at sunrise in March. Cannot be viewed in March for observers above 35° N. (There is a 104 minute RA gap between M30 and M52 and a 3.0 hour RA gap between M30 and M110.)	24.8		-----	7099