Deep Sky Objects

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Name	Designation	Look for in the south (Equitorial Region)	Magnitude	Constellation
Beehive Cluster	M44	Loose open cluster of 50 stars near the center of Cancer – On the line between Pollux and Regulus – ¼ of the way from the midpoint of Castor and Regulus to Proycyon.	3.7	Cancer
Open Cluster	M67	"Cloud" near the bottom of Cancer – Middle of the Regulus, Castor and Procyon triangle side (Procyon - Regulus).	7.5	Cancer
Spiral Galaxy	C48 (NGC 2775)	Spiral galaxy below the right part of the upside down Y – toward Hydra.	10.1	Cancer
Ghost of Jupiter	C59 (NGC 3242)	Planetary nebula in Hydra near Crater.	7.7	Hydra
Antennae Galaxies	C60/61 (NGC 4038/4039)	Sprial galaxies in between Corvus and Crater.	10.3	Corvus
Algieba	γ Leonis	Double star (yellow and orange) at the left curve of the sickle– two stars up from Regulus – next brightest after Regulus.	2.6 & 3.8	Leo
Leo Triplet	M65 & M66 (NGC 3628)	Two galaxies between Chort (lower inner star of Leo's triangle) and Iota Leonis below the triangle about the same distance down as Regulus – east of 73 Leonis	10.5 & 10.0	Leo
Needle Galaxy	C38 (NGC 4565)	Spiral galaxy between Boötes to the southwest, Virgo to the southeast, and Leo to the northeast.	9.6	Coma Berenices
Coma Cluster	Melotte 111	Coma Berenices Star Cluster. Wide span (use binoculars). Between Boötes and Leo. Toward Leo from the end of the Big Dipper's handle (Alkaid and Mizar).	1.8	Coma Berenices
Triangle Galaxies	M98, M99 & M100	Three galaxies that form a triangle northwest of the Virgo cluster and east of Denebola (end of the triangle in Leo).	11.0, 10.5 & 10.5	Virgo
Coma-Virgo Galaxy Cluster	M84 & M86 (and others)	Many galaxies northwest of Virgo (toward Leo): M60 ->M59->M58->M89 then ->M90->M91->M88 or M87->M86->M84.	11.0 & 11.0	Virgo
Sombrero Galaxy	M104	Half way between the bottom of Virgo and the top of Corvus – Northwest of the midpoint between Spica and Gienah (top of the "kite") in Corvus.	9.5	Virgo
Globular Cluster	M3	One of the brightest clusters in the northern sky - northeast of Arcturus.	TBD	Boötes
Double Star	ν Coronae Borealis	Two redish stars in Corona Borealis – half way between the crown and the Keystone of Hercules (northwest starof the keystone and northeast star of the crown).	5.0	Corona Borealis
Hercules Cluster	M13	Globular cluster 2/3 of the way from Zeta (south) to Eta Herculis (north) - the west side of the Keystone in Hercules, toward Arcturus.	5.8	Hercules
Globular Cluster	M92	Half way between the foot of Hercules (lota) and Pi Herculis (northeast corner of the Keystone) toward the head of Draco - 1/3 of the way from Pi Hercules toward Eta Hercules (northwest) on the north side of the Keystone.	7.5	Hercules
Ras Algethi	α Herculis	Double star (orange and white) west of the nothern "point" in Ophiuchus – Top of Hercules' western arm (red and green?).	3.0 & 5.4	Hercules
Planetary Nebula	NGC 6210	Small and bright planetary nebula between Hercules' arms (roughly 1/3 of the way from beta to delta Hercules).	8.8	Hercules

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Globular Cluster	M5	Globular cluster in Serpens Caput (between Ophiuchus and Bootes). Half way between Antares and Arcturus.	5.0	Serpens
Globular Clusters	M10 & M12	Globular clusters in Ophiuchus. M10 2/3 from Rasalhagus (top alpha ophiuci) to zeta ophiuci (midpoint of "house" base). M12 ½ between M10 and Marfik (right side of the "house").	6.6	Ophiuchus
Planetary Nebula	NGC 6572	Green planetary Nebula in Ophiuchus.	8.1	Ophiuchus
Graffias	β Sorpii	Double star (yellow and blue) - Left most of the three stars that make up the head of Scorpius.	2.9 & 5.1	Scorpius
Globular Cluster	M80	Globular cluster above Antares and toward the head of Scoprius.	8.5	Scorpius
Cat's Eye Cluster	M4	Globular cluster just below Antares in Scorpius.	7.5	Scorpius
Ptolemy Cluster	M7	Open cluster of 20 spread out stars northeast of Shaula (end of the tail of Scorpius).	3.5	Scorpius
Butterfly Cluster	M6	Open cluster just above the Ptolemy cluster (M7). Northeast of Shaula (tail of Scorpius).	4.5	Scorpius
Lagoon Nebula	M8 (NGC 6530)	Nebula with an open cluster of 24 stars northeast of the teapot's lid (Kaus Borealis) in Sagittarius, near M20.	6.0	Sagittarius
Trifid Nebula	M20	Northeast of the teapot's lid (Kaus Borealis) in Sagittarius, near M8.	6.2	Sagittarius
Open Cluster	M21	Open cluster of 50 stars near M20 in Sagittarius.	7.0	Sagittarius
Open Cluster	M23	Open cluster of 100 stars above the Teapot lid.	6.0	Sagittarius
Open Cluster	M25	Loose open cluster of 100 stars above the Teapot lid.	4.9	Sagittarius
Sagittarius Cluster	M22	Globular Cluster just above and to the northeast of the Teapot lid.	5.1	Sagittarius
Swan Nebula	M17	Nebula above the Teapot lid .	6.0	Sagittarius
Eagle Nebula	M16	Above the Teapot lid (a bit farther than M17). Contains the "Pillars of Creation."	6.5	Sagittarius
Wild Duck Cluster	M11	Open cluster of 1,500 stars below Aquila	7.0	Sagittarius
Globular Cluster	M54	Globular Cluster ¼ of the way from Ascella (left) to Kraus Australis (right) along the teapot base. Looks like a out of focus star.	8.5	Sagittarius
Globular Cluster	M70	Globular Cluster ½ way between Ascella (left) to Kraus Australis (right) along the teapot base.	9.0	Sagittarius
Double-Double	ε Lyrae	A quadruple star system Epsilon-1 and Epsilon-2 northeast of Vega.	5 to 6	Lyra
Ring Nebula	M57	Planetary nebula between the southern two stars (delta/Sulafat and beta/Sheliak) of the rectangle in Lyra.	8.8	Lyra
Albireo	β Cygni	Double star (yellow and blue) at the head of Cygnus – In the middle of the summer triangle.	3.2 & 5.4	Cygnus
North America Nebula	NGC 7000	Wide nebula 2° x 1½° - 3° east (below) Deneb in Cygnus. Use a Nebula filter if you have trouble seeing it. Look for the Cygnus Wall on the "Baja Peninsula."	4.0	Cygnus
Pelican Nebula	IC 5070	Smaller Nebula between the North American Nebula and Deneb.	8.0	Cygnus

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Veil Nebulae	C33 (NGC 6960) & C34 (NGC 6992)	Eastern and Western Veil Nebulae. Part of the Cygnus loop of nebulae just in front of the right wing of Cygnus.	7.5	Cygnus
Pickering's Triangle		Pickering's Trangular Wisp within the Veil Nebula between the eastern and western Veil Nebulae.	tbd	Cygnus
Cresent Nebula	NGC 6888	Emission nebula along the body of cygnus between Sadr and Alberio.	7.4	Cygnus
Blinking Nebula	C15 (NGC 6826)	Blinking planetary nebula.	8.8	Cygnus
Cocoon Nebula	C19 (IC 5146)	Emission nebula on the swan's body toward Deneb from Sadr.	7.2	Cygnus
Open Cluster	M39	Open cluster of 30-40 stars - Go from Sadr (star in Cygnus where the wing cross the body) to Deneb and continue a bit more than the same distance and just to the east.	5.5	Cygnus
Dumbbell Nebula	M27	Planetary nebula just north of Gamma Sagittae (the point of the arrow).	7.5	Sagitta
Double Star	γ Delphini	Double star (orange/yellow & greenish/blue) in Delphinus (the nose of the dolphin).	4.5 & 5.5	Delphinus
Globular Cluster	M15	Globular cluster of 2 million stars just off the the nose of Pegasus.	7.5	Pegasus
Blue Snowman	NGC 7662	Planetary nebula above Pegasus toward Cassiopeia.	8.3	Pegasus
Deer Lick Group	C30 (NGC 7331)	Galaxies near the front legs of Pegasus.	9.5	Pegasus
Little Sombreo	C43 (NGC 7814)	Spiral galaxy near what would be the tail of Pegasus.	10.6	Pegasus
Propeller Galaxy	C44 (NGC 7479)	Sprial galaxy near the beginning of the front legs fo Pegasus.	10.9	Pegasus
Helix Nebula	C63 (NGC 7293)	Colorful planetary nebula well below the "sqwiggly line" in Aquarius toward Fomalhaut.	7.3	Aquarius
Saturn Nebula	C55 (NGC 7009)	Saturn planetary nebula in Aquarius toward and above Capricornus.	8.0	Aquarius
Sculptor Galaxy	NGC 253	Large spiral galaxy low on the horizon in Sculptor, well below Aquarius and near Fomalhaut	7.2	Sculptor
Phantom Galaxy	M74	Sprial galaxy toward the triangle in Pisces.	9.4	Pisces
Andromeda Galaxy	M31 (M32, M110)	Galaxy 3º across - From the upper left courner of Pegasus, count two stars out and then two stars up (Mirach and Mu Andromedae) 1º west of Nu Andromedae.	3.4 (10.0 & 10.0)	Andromeda
Triangulum Galaxy	M33	Spirial Galaxy seen face on in Triangulum. Down from Mirach in the opposite direction of the Andromedea Galaxy and about the same distance.	5.7	Andromeda
Sliver Sliver	C23 (NGC 891)	Silver Silver sprial galaxy just off the far tip of Andromeda.		Andromeda
Almach	γ Andromedae	Double star (red & greenish blue) in Andromeda. Three stars out from the upper left corner of Pegasus.	2.1	Andromeda
Open Cluster	M34	Open star cluster of with 60 stars above Algol (bright star in the arm of Perseus).	6.0	Perseus
Algol	β Persei	The Demon star – Eclipsing variable stars on the right arm of Perseus.	2.1 to 3.4	Perseus
Double Cluster	C14 (NGC 869/884)	Double cluster just above and to the right of the point of Perseus' head.	4.3	Perseus
Little Dumbbell	M76	Smaller version of the Dumbbell nebula between Cassiopeia and the tip of Andromeda.	10.1	Perseus
Pleiades	M45	Open star cluster ("Seven Sisters" or "Subaru") - fuzzy patch just above Taurus.	1.6	Taurus
Haydes	C41	Wide star cluster of over a 100 stars in the "V" of Taurus. Best with binoculars.	3.4	Taurus

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Name	Designation	Look for in the south (Equitorial Region)	Magnitude	Constellation
Crab Nebula	M1	1° northwest above the lower horn (zeta Tauri - not Alnath) of Taurus.	9.0	Taurus
Open Cluster	M36	Open cluster of 60-70 stars 1/3 of the way from Alnath to Menkalinan (star to the east of Capella) in Auriga.	6.5	Auriga
Open Cluster	M37	Open cluster with 100s of stars just outside the midpoint between Alnath and the 5th star that makes up the Pentagon in Auriga.	6.0	Auriga
Open Cluster	M38	Open cluster in Auriga – 1/3 to ½ of the way between Alnath and Capella.	7.0	Auriga
Open Cluster	M35	Open cluster just north of the feet of Castor in Gemini – ¼ of the way on the line from the lower horn (zeta Tauri - not Alnath) of Taurus toward Castor.	5.5	Auriga
Flame Nebula	NGC 2024	Emission nebula just outside of Alnitak in Orion's belt.	7.3	Orion
Horsehead Nebula	IC 434	Just below Alnitak in Orion's belt. Blocking light from IC 434.	7.3	Orion
Orion Nebula	M42 (M43)	Diffuse bright nebula. Middle object in Orion's Sword. M43 is north of M42.	4.0 (7.0)	Orion
Trapezium	Theta[1] ABCD Orionis	Four stars at the center of the Orion Nebula that form a trapezoid – Three more fainter stars can be found at higher magnification.	5.1 to 8.1	Orion
Star System	σ Orionis	Four stars below Alnitak (first belt star) – ¼ of the way to the sword.	3.8 to 10.0	Orion
Rosette Nebula	C49 (NGC 2237)	Emission nebula containing the open cluster NGC 2239. Offset from the line between Gemini & Orion.	5.5	Monoceros
Clown Face	C39 (NGC 2392)	Clown face nebula just outside the waste of the twin Pollux.	9.1	Gemini
Open Cluster	M41	Open cluster of 100 stars with a reddish star in the middle - 4° south of Sirius in Canis Major –1/3 of the way south along the dog's body, just west of pi Canis Majoris.	4.5	Canis Major
Open Cluster & Double Star	C64 (NGC 2362) & Herschel 3934	Above and to the left of Wezen – centered by Tau Canis Majoris. "The winter Albireo" - red and yellow double star just north of NGC2362.	TBD & 4.8/6.8	Canis Major
Open Cluster	M93	Graining open cluster out at the end of the tail of Canis Major – Near Xi Puppis (2nd to last star in the tail).	6.5	Canis Major
Open Clusters	M46 & M47	M47 star cluster of 50 star, M46 unimpressive star cluster that looks like a hasy cloud – Sirius to Mullphen (right ear), then 1 ½ times farther and arc down.	6.5 & 4.5	Canis Major
Open Cluster	M93	Open cluster of 20 stars in Puppis (the tail of Canis Major).	6.2	Canis Major
Open Cluster	M48	Open cluster in Hydra – Line from Gomeisa to Procyon (two brightest stars in Canis Minor) – at twice the distance, find eqilateral triangle of stars – the cluster is just beyond.	5.5	Canis Major

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Name	Designation	Look for in the north (Polar Region)	Magnitude	Constellation
Mizar and Alcor	ζ (Zeta) Ursae Majoris	Double stars in the middle of the Big Dipper's handle - Mizar itself is a double star.	2.2 & 4.0	Ursa Major
Pinwheel Galaxy	M101	Above the mid-point of the outer two stars of the Big Dipper's handle (Alkaid and Mizar).	7.9	Ursa Major
Whirlpool Galaxy	M51	3.5º below Alkaid (the end of the Big Dipper's handle).	8.4	Ursa Major
Bode's Galaxy & Cigar Galaxy	M81 & M82	Bright pair of galaxies. Follow the lower inner star (Phecda) of the Big Dipper's bowl to the upper outer star (Dubhe) and continue about the same distance (about 10.5º).	6.9 & 9.5	Ursa Major
Owl Nebula	M97	Planetary nebula just below and inside the lower outer star (Merak) of the Big Dipper's bowl.	9.9	Ursa Major
Galaxy	M108	Next to M97.	11.0	Ursa Major
Galaxy	M109	Just outside the lower inner star of the Big Dipper's bowl (Phecda).	11.0	Ursa Major
The North Star	Polaris	Yellow and blue double star at the end of the Little Dipper's handle.	2.1 & 9.0	Ursa Minor
Spindle Galaxy	M102 (NGC 5866)	Extremely small Lenticular galaxy near the tail of Draco.	9.9	Draco
Splinter Galaxy	NGC 5907	Knife Edge galaxy in Draco.	tbd	Draco
Cat's Eye	C6 (NGC 6543)	Cat's eye planetary nebula in the middle of Draco between the neck and body.	8.1	Draco
Delta Cephei	δ Cephei	Eclipsing binary start.	3.5 to 4.4	Cepheus
Herschel's Garnet Star	μ Cephei	One of the reddest stars. Found outside the midpoint of the bottom of the Cepheus "house" (line between Zeta and Alpha Cephei).	3.4 to 4.5	Cepheus
Scorpion Cluster	M52	Open cluster between Caph (right upper end star of the Cassiopeia W) and midpoint of the side of the Cepheus "house".	8.0	Cepheus
Firework Galaxy	C12 (NGC 6946)	Sprial galaxy near the celestial pole.	15.0	Cepheus
Iris Nebula	C4 (NGC 7023)	Reflection nebula off to the right of the house's base.	6.8	Cepheus
Bubble Nebula	C11 (NGC 7635)	Emission nebula equal distance from the right W. Near M52.	10.0	Cassiopeia
Owl Cluster	C13 (NGC 457)	ET cluster below the lower left star of the Cassiopeia W near Phi Cassiopeiae.	6.4	Cassiopeia
Open Cluster	NGC 7789	Open Cluster with 50-200 stars off to the right of the upper right star of Cassiopeia W near Rho Cassiopeiae.	6.7	Cassiopeia
Open Cluster	M103	Open Cluster of 60 stars 1º below left bottom star of the Cassiopeia W (Ruchbah).	7.0	Cassiopeia

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Object	Color	Description
Galaxy	Red	An island of stars such as the Milky Way
Globular Cluster	Green	A cluster of thousands of older stars within the Milky Way
Open Cluster	Blue	A cluster of a few hundred newer stars within the Milky Way
(Double) Star	Black	Stellar pair – two stars that are gravitationally attached to each other
Nebula	Purple	A cloud of hydrogen gas and dust. Area where new stars are forming.
Planetary Nebula	Orange	The remains of a collapsed star
Super Nova Remnant	Brown	The remains of a large star that exploded

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Description of night sky objects, what you can reasonably see and how to find them

1. Guy Consolmagno and Dan M. Davis. *Turn Left at Orion – A hundred Nightly Sky Objects to See in and Small Telescope and How to Find them*. Third Edition. Cambridge University Press 2000 ISBN 978-0-521-78190-9. http://books.google.com/books/about/Turn_Left_at_Orion.html?id=PexKTfPy3voC
2. Guy Consolmagno and Dan M. Davis. *Turn Left at Orion – A hundred Nightly Sky Objects to See in and Small Telescope and How to Find them*. Fourth Edition. Cambridge University Press 2011. http://books.google.com/books?id=h3712RgWkOYC&source=gbs_book_other_versions
3. Guy Consolmagno and Dan M. Davis. *Turn Left At Orion: Hundreds of Night Sky Objects to See in a Home Telescope – and How to Find Them*. 5th Edition. Cambridge University Press. 2018. https://www.amazon.com/Turn-Left-Orion-Hundreds-Telescope/dp/1108457568 & https://www.cambridge.org/turnleft/whats_up_tonight
4. Philip S. Harrington. *Star Watch – The Amateur Astronomer's Guide to Finding, Observing and Learning about Over 125 Celestial Objects*. John Wiley & Sons 2003 ISBN 0-471-41804-8. http://books.google.com/books?id=gRpOQxHkdQ8C
5. Mike Lynch. *Carolina Star Watch*. Voyageur Press 2007.
6. Terence Dickinson. *Nightwatch – an equinox guide to viewing the universe*. Camden House 1983 (see pages 84-107).
7. *The Constellations* International Astronomical Union. http://www.iau.org/public/constellations/

More Detailed Star Maps

1. Roger W. Sinnott. *Sky & Telescope's Pocket Sky Atlas*. Sky Publishing Corporation. Cambridge, Mass. 2010. http://books.google.com/books?id=SOXrAAAACAAJ
2. *Atlas of the Stars*. Astronomy Magazine Kalmbach Publishing Co. 2010. Digital version. http://www.astronomy.com/en/Magazine/Special%20Issues/2008/10/~/link.aspx?_id=ADB4489FE5C94B97B51899FBC1AF644B&_z=z

Messier Objects

1. "The Messier Catalog." SEDS. http://seds.org/messier/
2. "Messier Objects." *Astronomy Picture of the Day Index* NASA. http://apod.nasa.gov/apod/messier.html
3. New@Sky. http://news.sky-map.org/group?id=15
4. John Small. "Telrad Charts for Messier Objects." http://www.atmob.org/library/member/skymaps_jsmall.html
5. Wikipedia. http://en.wikipedia.org/wiki/List_of_Messier_objects