

Astronomy targets: December 2018

Unless stated otherwise, all times are for mid-month, for Birmingham UK and are GMT. Rise & set times are for 20 degrees above horizon. Dark & light times are nautical twilight times (Sun 12 degrees below horizon) and astronomical darkness (Sun 18 degrees below horizon).

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Sun times

Monday date	Sunset	Naut Dark	Astro Dark	Astro Light	Naut Light	Sunrise	Moon	Moon %
03/12/18	1556	1720	1802	0554	0635	0800	0417 →	12%
10/12/18	1554	1719	1800	0601	0643	0808	← 1850	12%
17/12/18	1554	1720	1802	0606	0648	0814	← 0232	74%
24/12/18	1557	1723	1805	0610	0652	0818	1813 →	93%
31/12/18	1603	1728	1810	0611	0653	0818	0327 →	23%

Calendar

6 Dec New Moon
14 Dec Geminids meteor shower (80 per hour)
22 Dec Full Moon

Planets

Mercury (low at Sunrise)
Venus (low at Sunrise)
Mars (Sunset-2100)
Uranus (Sunset-0100)
Neptune (Sunset-2030)

Lyra Sunset-1950

Planetary nebula: M57 Ring Nebula
Globular cluster: M56
Multiple stars:
Double-Double ϵ -Lyr (epsilon-Lyr) four white
Other Double-Double Σ 2470 & Σ 2474 four white

Sagitta Sunset-1930

Globular cluster: M71

Vulpecula Sunset-1940

Planetary nebula: M27 Dumbell Nebula
Open cluster: NGC6885 (C37)
Asterism: Coathanger

Cygnus Sunset-2000

Emission nebulae:
NGC6888 Crescent Nebula
NGC6960 Veil Nebula
IC5070 Pelican Nebula
IC7000 (C20) North American Nebula
Planetary nebulae:
IC5146 (C19) Cocoon Nebula
NGC6826 Blinking Nebula
NGC7008 Fetus Nebula
Open clusters:
M29
M39
NGC6871
NGC6883
NGC6910 Rocking Horse Cluster
Galaxy: NGC6946 (C12) Fireworks Galaxy
Multiple stars:
Albireo β -Cyg (beta-Cyg) gold & blue
61-Cyg orange & red

Delphinus Sunset-1940

Globular clusters:
NGC6934 (C47)
NGC7006 (C42)

Cepheus Sunset-0350 & 0550-Sunrise

Reflection nebula: NGC7023 (C4) Iris Nebula
Open clusters:
NGC188 (C1)
NGC7160
Coloured star: Garnet Star μ -Cep (mu-Cep)
Multiple stars:
 δ -Cep (delta-Cep) yellow & purple
 Σ 2816 yellow & two white

Aquarius 1720-1920

Planetary nebula: NGC7293 Helix Nebula
Globular clusters:
M2
M72
Open cluster: M73

Lacerta Sunset-2350

Open cluster: NGC7243 (C16)

Pegasus Sunset-2240, best 1810

Globular cluster: M15
Galaxies:
NGC7320 Stefan's Quintet galaxy cluster
NGC7331 (C30) galaxy cluster
Multiple star: Σ 2841 orange & green

Pisces Sunset-2140, best 1900

Galaxies: M74

Cassiopeia Sunset-0550, best 1910

Emission nebulae:
NGC281 Pacman Nebula
NGC7635 (C11) Bubble Nebula
IC1805 Heart Nebula
IC1848 Soul Nebula
Open clusters:
M52
M103
NGC457 (C13) Owl cluster
NGC654
NGC659
NGC663 (C10)
NGC7789
NGC7790
Multiple star: η -Cas (eta-Cas) gold & red

Andromeda Sunset-0050, best 1940

Planetary nebula: NGC7662 (C22) Blue Snowball
Open cluster: NGC752 (C28)
Galaxies:
M31, M32 & M110 Andromeda Galaxy
NGC404 Mirach's Ghost
NGC891 (C23)
Multiple star: Almaak γ -And (gamma-And) gold & green

Triangulum Sunset-0240, best 2000

Galaxy: M33 Triangulum Galaxy

Aries Sunset-0140, best 2040

Multiple star: Σ 326 orange & red

Cetus low, best 2120

Planetary nebula: NGC246 (C56)
Galaxy: M77

Perseus Sunset-0430, best 2200

Emission nebula: NGC1499 California Nebula

Planetary nebula: M76 Little Dumbell Nebula

Open clusters:

M34

NGC869 & NGC884 (C14) Double Cluster

NGC1528

NGC1582

Melotte 20

Multiple star: η -Per (eta-Per) gold & blue**Eridanus** partly visible, best 2250

Planetary nebula: NGC1535

Taurus 1840-0220, best 2310

Planetary nebulae:

M1 Crab Nebula

NGC1514

Open clusters:

M45 Pleiades

NGC1647

Melotte 25 Hyades

Camelopardalis all night, best 2310

Galaxy: NGC2403 (C7)

Asterism: Kemble's Cascade & NGC1502 cluster

Auriga 1740-0600, best 2340

Emission nebula: IC405 (C31) Flaming Star Nebula

Open clusters:

M36

M37

M38

Multiple star: O Σ 147 yellowish & two blue**Orion** 2020-0220, best 0000

Emission nebulae:

NGC2024 Flame Nebula

NGC2174 Monkey Head Nebula

IC434 Horsehead Nebula

Reflection nebulae:

M42 & M43 Orion Nebula

M78

NGC1977 Running Man

Open clusters:

NGC1662

NGC1981

Multiple star: Trapezium θ 1-Orion (theta-1-Orion) four white**Lepus** low, best 0030

Globular cluster: M79

Coloured star: Hind's Crimson Star R-Lep

Gemini 2040-0600, best 0100

Planetary nebula: NGC2392 (C39) Eskimo Nebula

Open cluster: M35

Multiple star: Castor α -Gem (alpha-Gem) two blue**Monoceros** 2340-0340, best 0140

Emission nebula: NCG2239 Rosette Nebula

Reflection nebula: NGC2261 (C46) Hubble's Variable Nebula

Open clusters:

M50

NGC2232

NGC2264

Multiple star: β -Mon (beta-Mon) three blue**Puppis** partly visible, best 0200

Open clusters:

M46

M47

M93

NGC2539

Hydra partly visible, best 0300

Globular cluster: M68

Open cluster: M48

Galaxy: M83

Cancer 2240-Sunrise, best 0330

Open clusters:

M44 Beehive Cluster

M67

Multiple star: ι -Cnc (iota-Cnc) gold & blue**Lynx** 2100-Sunrise, best 0350

Globular cluster: NGC2419 (C25)

Leo 0120-Sunrise, best 0450

Galaxies

M65, M66 & NGC3628 Leo Triplet

M95

M96

M105 & NGC3384

Multiple star: Algieba γ -Leo (gamma-Leo) two yellow**Ursa Major** Sunset-1850 & 2340-Sunrise

Planetary nebula: M97 Owl Nebula

Galaxies:

M81 Bode's Galaxy & M82 Cigar Galaxy

M101 Pinwheel Galaxy

M108

M109

Multiple star: Mizar & Alcor ζ -UMa (zeta-UMa) 3 white**Canes Venatici** 0020-Sunrise

Globular cluster: M3

Galaxies:

M51 Whirlpool Galaxy

M63 Sunflower Galaxy

M94

M106

NGC4631 Whale Galaxy

Coloured star: La Superba Y-CVn carbon star

Multiple star: Cor Caroli α -CVn (alpha-CVn) yellow & orange**Coma Berenices** 0220-Sunrise

Globular cluster: M53

Open clusters: Melotte 111

Galaxies:

M64 Black Eye Galaxy

M85

M88

M91

M98

M99

M100

NGC4565 Needle Galaxy

Virgo 0620-Sunrise

Galaxies:

M49

M58

M59

M60

M61

M84, M86, NGC4435, etc. Markarian's Chain

M87

M89

M90

M104 Sombrero Galaxy

Boötes 0310-SunriseMultiple star: ξ -Boo (xi-Boo) yellow & orange**Ursa Minor** all nightMultiple star: Polaris α -UMi (alpha-UMi) yellow & white**Draco** Sunset-2110 & 0320-Sunrise

Planetary nebula: NGC6543 Cats Eye Nebula

Galaxy: M102