

Astronomy targets: December 2017

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

Date	S.Set	Dark	Astro dark	Light	S.Rise	Moon
02/12/17	1557	1721	1802	0553	0635	0759 ☾ ☾ ☾
09/12/17	1554	1719	1800	0600	0642	0807 ☾ ☾
16/12/17	1554	1720	1801	0606	0648	0814
23/12/17	1557	1723	1804	0610	0652	0817 ☾
30/12/17	1602	1728	1809	0611	0653	0818 ☾ ☾ ☾

Moon phases

Full Moon 2 Dec; New Moon 17 Dec

Calendar

13 Dec: Geminids meteor shower (80 per hour)

22 Dec: Ursids meteor shower (10 per hour)

Planets

- ☐ Mars: from 0630
- ☐ Uranus: to 0035
- ☐ Neptune: to 2005

Andromeda (Sunset-0050, best 1940)

- GA M31, M32 & M110 Andromeda Galaxy
- GA NGC404 Mirach's Ghost
- GA NGC891 (C23) galaxy
- PN NGC7662 (C22) Blue Snowball
- OC NGC752 (C28) open cluster
- DS Almaak γ (gamma): gold & green

Aquarius (1720-1920)

- PN NGC7293 Helix Nebula
- GC M2 globular cluster
- GC M72 globular cluster
- OC M73 open cluster

Aries (Sunset-0140, best 2040)

- DS Σ 326: orange & red

Auriga (1740-0600, best 2340)

- EN IC405 (C31) Flaming Star Nebula
- OC M36 open cluster
- OC M37 open cluster
- OC M38 open cluster
- DS Ω Σ 147: yellowish & two blue

Boötes (0310-Sunrise)

- DS ξ (xi): yellow & orange

Camelopardalis (all night, best 2310)

- GA NGC2403 (C7) galaxy
- AS Kemble's Cascade & NGC1502 cluster

Cancer (2240-Sunrise, best 0330)

- OC M44 Beehive Cluster
- OC M67 open cluster
- DS ι (iota): gold & blue

Canes Venatici (0020-Sunrise)

- GA M51 Whirlpool Galaxy
- GA M63 Sunflower Galaxy
- GA M94 galaxy
- GA M106 galaxy
- GA NGC4631 Whale Galaxy
- GC M3 globular cluster
- DS Cor Caroli α (alpha): yellow & orange
- ST La Superba Y carbon star

Canis Major (partly visible, best 0120)

- OC M41 open cluster
- OC NGC2362 open cluster

Cassiopeia (Sunset-0550, best 1910)

- EN NGC281 Pacman Nebula
- EN NGC7635 (C11) Bubble Nebula
- EN IC1805 Heart Nebula
- EN IC1848 Soul Nebula
- OC M52 open cluster
- OC M103 open cluster
- OC NGC457 (C13) Owl cluster
- OC NGC654 open cluster
- OC NGC659 open cluster
- OC NGC663 (C10) open cluster
- OC NGC7789 open cluster
- OC NGC7790 open cluster
- DS η (eta): gold & red

Cepheus (Sunset-0350 & 0550-Sunrise)

- RN NGC7023 (C4) Iris Nebula
- OC NGC188 (C1) open cluster
- OC NGC7160 open cluster
- DS δ (delta): yellow & purple
- DS Σ 2816: yellow & two white
- ST The Garnet Star: μ (mu)

Cetus (low, best 2120)

- GA M77 galaxy
- PN NGC246 (C56) planetary nebula

Coma Berenices (0220-Sunrise)

- GA M64 Black Eye Galaxy
- GA M85 galaxy
- GA M88 galaxy
- GA M91 galaxy
- GA M98 galaxy
- GA M99 galaxy
- GA M100 galaxy
- GA NGC4565 Needle Galaxy
- GC M53 globular cluster
- OC Melotte 111 open cluster

Cygnus (Sunset-2000)

GA NGC6946 (C12) Fireworks Galaxy
 EN NGC6888 Crescent nebula
 EN NGC6960 Veil nebula
 EN IC5070 Pelican Nebula
 EN IC5146 (C19) Cocoon Nebula
 EN IC7000 (C20) North American Nebula
 PN NGC6826 Blinking Nebula
 PN NGC7008 Fetus Nebula
 OC M29 open cluster
 OC M39 open cluster
 OC NGC6871 open cluster
 OC NGC6883 open cluster
 OC NGC6910 Rocking Horse Cluster
 DS Albireo β (beta): gold & blue
 DS 61: orange & red

Delphinus (Sunset-1940)

GC NGC7006 (C42) globular cluster
 GC NGC6934 (C47) globular cluster
 DS γ (gamma): yellow & blue

Draco (Sunset-2110 & 0320-Sunrise)

GA M102 galaxy
 PN NGC6543 Cats Eye Nebula

Eridanus (partly visible, best 2250)

PN NGC1535 planetary nebula

Gemini (2040-0600, best 0100)

PN NGC2392 (C39) Eskimo Nebula
 OC M35 open cluster
 DS Castor α (alpha): two blue

Hydra (partly visible, best 0300)

GA M83 galaxy
 GC M68 globular cluster
 OC M48 open cluster

Lacerta (Sunset-2350)

OC NGC7243 (C16) open cluster

Leo (0120-Sunrise, best 0450)

GA M65, M66 & NGC3628 Leo Triplet
 GA M95 galaxy
 GA M96 galaxy
 GA M105 & NGC3384 galaxies
 DS Algieba γ (gamma): two yellow

Lepus (low, best 0030)

GC M79 globular cluster
 ST Hind's Crimson Star: R

Lynx (2100-Sunrise, best 0350)

GC NGC2419 (C25) globular cluster

Lyra (Sunset-1950)

PN M57 Ring Nebula
 GC M56 globular cluster
 DS Double-Double ϵ (epsilon): four white
 DS Other Double-Double Σ 2470 & Σ 2474: four white

Monoceros (2340-0340, best 0140)

EN NCG2239 Rosette Nebula
 RN NGC2261 (C46) Hubble's Variable Nebula
 OC M50 open cluster
 OC NGC2232 open cluster
 OC NGC2264 open cluster
 DS β (beta): three blue

Orion (2020-0220, best 0000)

RN M42 & M43 Orion Nebula
 RN M78 nebula
 RN NGC1977 Running Man
 EN NGC2024 Flame Nebula
 EN NGC2174 Monkey Head Nebula
 EN IC434 Horsehead Nebula
 OC NGC1662 open cluster
 OC NGC1981 open cluster
 DS Trapezium θ 1 (theta-1): four white

Pegasus (Sunset-2240, best 1810)

GA NGC7320 Stefan's Quintet galaxy cluster
 GA NGC7331 (C30) galaxy cluster
 GC M15 globular cluster
 DS Σ 2841: orange & green

Perseus (Sunset-0430, best 2200)

EN NGC1499 California Nebula
 PN M76 Little Dumbell Nebula
 OC M34 open cluster
 OC NCG869 & NGC884 (C14) Double Cluster
 OC NGC1528 open cluster
 OC NGC1582 open cluster
 OC Melotte 20 open cluster
 DS η (eta): gold & blue

Pisces (Sunset-2140, best 1900)

GA M74 galaxy

Puppis (partly visible, best 0200)

OC M46 open cluster
 OC M47 open cluster
 OC M93 open cluster
 OC NGC2539 open cluster

Sagitta (Sunset-1930)

GC M71 globular cluster

Taurus (1840-0220, best 2310)

PN M1 Crab Nebula
 PN NGC1514
 OC M45 Pleiades
 OC NGC1647 open cluster
 OC Melotte 25 Hyades

Triangulum (Sunset-0240, best 2000)

GA M33 Triangulum Galaxy

Ursa Major (Sunset-1850 & 2340-Sunrise)

GA M81 Bode's Galaxy & M82 Cigar Galaxy
 GA M101 Pinwheel Galaxy
 GA M108 galaxy
 GA M109 galaxy
 PN M97 Owl Nebula
 DS Mizar & Alcor ζ (zeta): 3 white

Ursa Minor (all night)

DS Polaris α (alpha): yellow & white

Virgo (0620-Sunrise)

GA M49 galaxy
 GA M58 galaxy
 GA M59 galaxy
 GA M60 galaxy
 GA M61 galaxy
 GA M84, M86, NGC4435, etc. Markarian's Chain
 GA M87 galaxy
 GA M89 galaxy
 GA M90 galaxy
 GA M104 Sombrero Galaxy

Vulpecula (Sunset-1940)

- PN** M27 Dumbell Nebula
- OC** NGC6885 (C37) open cluster
- AS** Coathanger

Key

- GA** Galaxy
- EN** Emmission nebula
- RN** Reflection nebula
- PN** Planetary nebula
- GC** Globular cluster
- OC** Open cluster
- AS** Asterism
- DS** Double star
- ST** Star