Discover the deepsky for yourself

Discover the southern constellations
This workbook is ideal for learning all the constellations visible from the southern hemisphere, and for discovering the brighter deepsky objects on your own.

Chart 1 shows the constellations around the south pole. Use the brightest stars – Pointers, Crux, Canopus and Achernar – to orient the chart properly. Charts 2 to 6 show the regions immediately surrounding Chart 1. Chart 7 shows the brighter stars around Orion, a prominent summer constellation. Charts 8 to 13 show the regions surrounding Orion. The remainder of the charts covers the rest of the sky, with generous overlap between charts for easy use. Along the borders of each chart appears the map number of neighbouring charts. For each constellation, a pronunciation guide is given, as well as the English name, genitive and abbreviation. You may want to make photocopies of the star charts, as you will be writing on them, plotting in any objects you discover as you go along.

Take a moment to examine the tables on this page. The table at the bottom of the page lists the charts visible at 21:00 for mid-month, for each month of the year. The adjacent table lists those constellations that are directly overhead at 21:00 and 02:00 at the beginning of each month.

To use this workbook, you will also need a clipboard, pencil, eraser and a very dim, red-shielded torch – you don’t want to compromise your night vision. Observe from the darkest skies you can safely reach, avoiding bright lights at all costs. Give your eyes sufficient time to dark adapt (about 30 minutes) before starting to observe.

While using the charts in this workbook to find your way around the sky as you learn the constellations, you may notice some interesting non-stellar objects. From a dark (rural) observing site, several deepsky objects can be seen with the naked eye. From brighter (sub-urban) skies, many are visible in binoculars. While working with a particular chart, study the sky carefully and mark any non-stellar object you come across on the chart. Make a note of your discovery, describing each object in as much detail as you can (see the last two pages for guidelines).

Binocular observers already familiar with the constellations can use these maps to seek out any non-stellar objects hidden amongst the stars on the maps. Plot all discoveries, number them, and provide descriptions and sketches. A separate record sheet is provided to note the colours of the brighter stars. Once a map has been thoroughly examined, send your annotated star charts and observing notes to the ASSA Deep-Sky Section Director (via post to Auke Slotegraaf, 14 Mount Grace, Somerset Ridge, Somerset West, 7130; or as a digitised version via e-mail to [auke@psychohistorian.org]). Your observations will be returned along with detailed feedback.

Happy hunting!

### Contents of the charts

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<th>Constellations</th>
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<td>Jan – Dec</td>
<td>Apus, Carina, Chamaeleon, Cruc, Dorado, Hydrus, Mensa, Musca, Octans, Pavo, Recticulum, Triangulum Australe, Tucana, Volans</td>
</tr>
<tr>
<td>02</td>
<td>Feb – Sep</td>
<td>Centaurus, Cirrus, Crux, Musca, Triangulum Australe</td>
</tr>
<tr>
<td>03</td>
<td>Mar – Sep</td>
<td>Ara, Cirinus, Lupus, Norma, Triangulum Australe</td>
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<tr>
<td>04</td>
<td>Nov – May</td>
<td>Antlia, Carina, Pictor, Puppis, Pyxis, Vela, Volans</td>
</tr>
<tr>
<td>05</td>
<td>Oct – Apr</td>
<td>Caelum, Dorado, Horologium, Pictor, Recticulum</td>
</tr>
<tr>
<td>06</td>
<td>Jul – Jan</td>
<td>Grus, Indus, Microscopium, Pavo, Phoenix, Piscis Austrinus, Tucana</td>
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<td>07</td>
<td>Dec – Mah</td>
<td>Auriga, Canis Major, Canis Minor, Columbia, Gemini, Lepus, Orion, Perseus, Taurus</td>
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<td>08</td>
<td>Nov – Apr</td>
<td>Orion</td>
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<td>09</td>
<td>Nov – Apr</td>
<td>Canis Major, Columbia, Lepus</td>
</tr>
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<td>10</td>
<td>Nov – Feb</td>
<td>Taurus</td>
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<tr>
<td>11</td>
<td>Dec – Jan</td>
<td>Auriga, Perseus</td>
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<td>12</td>
<td>Nov – Mar</td>
<td>Eridanus</td>
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<td>13</td>
<td>Jan – Apr</td>
<td>Canis Minor, Gemini, Monoceros</td>
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<td>14</td>
<td>Jan – Apr</td>
<td>Cancer, Lynx</td>
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<td>15</td>
<td>Mar – Jun</td>
<td>Coma Berenices, Leo, Leo Minor</td>
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<tr>
<td>16</td>
<td>Feb – May</td>
<td>Hydra, Sextans</td>
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<td>17</td>
<td>Feb – Jul</td>
<td>Corvus, Crael, Hydra</td>
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<td>18</td>
<td>Apr – Jul</td>
<td>Virgo</td>
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<tr>
<td>19</td>
<td>May – Jul</td>
<td>Boötes, Corona Borealis</td>
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<tr>
<td>20</td>
<td>Jul – Sep</td>
<td>Hercules, Ophiuchus, Serpens</td>
</tr>
<tr>
<td>21</td>
<td>May – Oct</td>
<td>Corona Australis, Libra, Sagittarius, Scorpius, Scutum, Telescopium</td>
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<tr>
<td>22</td>
<td>Aug – Oct</td>
<td>Aquila, Cygnus, Delphinus, Equuleus, Lyra, Sagitta, Scutum, Vulpecula</td>
</tr>
<tr>
<td>23</td>
<td>Aug – Nov</td>
<td>Aquarius, Capricornus, Piscis Austrinus</td>
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<tr>
<td>24</td>
<td>Oct – Dec</td>
<td>Andromeda, Ariës, Pegasus, Pisces, Triangulum</td>
</tr>
<tr>
<td>25</td>
<td>Oct – Dec</td>
<td>Cetus, Fornax, Sculptor</td>
</tr>
</tbody>
</table>

### Which charts to use

<table>
<thead>
<tr>
<th>Month</th>
<th>Charts that can be used (mid-month at 21:00)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jan</td>
<td>1, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 25</td>
</tr>
<tr>
<td>Feb</td>
<td>1, 2, 4, 5, 7, 8, 9, 10, 12, 13, 14, 16, 25</td>
</tr>
<tr>
<td>Mar</td>
<td>1, 2, 3, 4, 5, 7, 8, 9, 12, 13, 14, 15, 16, 17</td>
</tr>
<tr>
<td>Apr</td>
<td>1, 2, 3, 4, 5, 8, 9, 13, 14, 15, 16, 17, 18</td>
</tr>
<tr>
<td>May</td>
<td>1, 2, 3, 4, 15, 16, 17, 18, 19, 21</td>
</tr>
<tr>
<td>Jun</td>
<td>1, 2, 3, 15, 17, 18, 19, 21</td>
</tr>
<tr>
<td>Jul</td>
<td>1, 2, 3, 6, 7, 8, 18, 19, 20, 21</td>
</tr>
<tr>
<td>Aug</td>
<td>1, 2, 3, 6, 20, 21, 22, 23</td>
</tr>
<tr>
<td>Sep</td>
<td>1, 2, 3, 6, 20, 21, 22, 23</td>
</tr>
<tr>
<td>Oct</td>
<td>1, 5, 6, 21, 22, 23, 24, 25</td>
</tr>
<tr>
<td>Nov</td>
<td>1, 4, 5, 6, 8, 9, 10, 12, 23, 24, 25</td>
</tr>
<tr>
<td>Dec</td>
<td>1, 4, 5, 6, 7, 8, 9, 10, 11, 12, 24, 25</td>
</tr>
</tbody>
</table>

### Constellations overhead at 21:00 and 02:00

<table>
<thead>
<tr>
<th>Month</th>
<th>Overhead at 21:00</th>
<th>Overhead at 02:00</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jan</td>
<td>Cae, Eri, For, Hor, Phe, Ret, Scl</td>
<td>Ant, Car, CMA, Col, Pic, Pup, Pyx, Vel</td>
</tr>
<tr>
<td>Feb</td>
<td>Cae, CMA, Col, Dor, Hor, Lep, Pic, Ret</td>
<td>Ant, Hya, Pxy, Sex, Vel</td>
</tr>
<tr>
<td>Mar</td>
<td>Cae, Car, CMA, Col, Lep, Pic, Pup, Pyx</td>
<td>Ant, Cen, Crt, Cru, Crt, Cru, Hy</td>
</tr>
<tr>
<td>Apr</td>
<td>Ant, Car, Hya, Pup, Pxy, Vel</td>
<td>Cen, Cru, Crt, Hy</td>
</tr>
<tr>
<td>May</td>
<td>Ant, Cen, Crt, Cru, Hya, Pxy, Vel</td>
<td>Ant, Cen, Cru, Lyr, Nor, Soc</td>
</tr>
<tr>
<td>Jun</td>
<td>Cen, Crt, Cru, Hya, Lyr, Vel</td>
<td>Ara, Cen, Cru, Nor, Soc, Sct, Ser, Sgr, Tel</td>
</tr>
<tr>
<td>Jul</td>
<td>Cen, Lyr, Lyr, Lyr, Soc</td>
<td>Cap, C/A, Mic, Sct, Sgr, Tel</td>
</tr>
<tr>
<td>Aug</td>
<td>Ara, C/A, Lyr, Lyr, Nor, Soc, Sgr, Tel</td>
<td>Ara, Cap, Cru, Ind, Mic, Psa</td>
</tr>
<tr>
<td>Sep</td>
<td>Ara, Cap, C/A, Mic, Soc, Sgr, Tel</td>
<td>Cen, Cen, Scl, Phe, Gru, PsA</td>
</tr>
<tr>
<td>Oct</td>
<td>Cap, C/A, Gru, Mic, PsA, Sgr, Tel</td>
<td>Cen, Eri, For, Hor, Phe, Scl</td>
</tr>
<tr>
<td>Nov</td>
<td>Cap, Cru, Ind, Mic, Phe, PsA, Scl</td>
<td>Cae, Cae, Eri, For, Hor, Lep, Pic, Ret</td>
</tr>
<tr>
<td>Dec</td>
<td>Cef, For, For, Phe, Scl</td>
<td>Cae, CMA, Col, Dor, Hor, Lep, Pic, Pup</td>
</tr>
</tbody>
</table>
Guide to orienting the chart
Use the small star map on the right to help orient Chart 1. Start by finding the most appropriate date in the left-most column of the table on the right. In the top row, locate the time of observing. Note the letter found at the intersection. Now turn the star chart so that this letter is at the bottom. Then, stand so that you face South. (To find South, stand so that you are facing the direction where the Sun sets, i.e., west. South is then directly towards your left). The chart will now approximately match the position of Crux, the Pointers, Achernar and Canopus in the sky. Because of the Earth’s motion around the Sun, the sky shifts by one letter each two weeks. Use this fact to interpolate between dates. For example, on January 15 at 21:00, “Q” should be at the bottom.
**Discover!**

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**Centaurus** [sen-TOR-us], the Centaur. (Centauri, Cen)

**Circinus** [SUR-seh-nus], the Compasses. (Circini, Cir)

**Crux** [KRU-KS], the Southern Cross. (Crucis, Cru)

**Musca** [MUSS-kah], the Fly. (Muscae, Mus)

**Triangulum Australe** [tri-ANG-gyu-lum os-TRAH-lee], the Southern Triangle. (Trianguli Australis, TrA)

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Centaurus

- α (alpha) alpha
- β (beta) beta
- γ (gamma) gamma
- δ (delta) delta
- ε (epsilon) epsilon
- ζ (zeta) zeta
- η (eta) eta
- θ (theta) theta
- ι (iota) iota
- κ (kappa) kappa
- λ (lambda) lambda
- μ (mu) mu
- ν (nu) nu
- ξ (xi) xi
- ο (omicron) omicron
- π (pi) pi
- ρ (rho) rho
- σ (sigma) sigma
- τ (tau) tau
- υ (upsilon) upsilon
- ϕ (phi) phi
- χ (chi) chi
- ψ (psi) psi
- ω (omega) omega

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Circinus

- α (alpha) alpha
- β (beta) beta
- γ (gamma) gamma

---

Crux

- α (alpha) alpha
- β (beta) beta
- γ (gamma) gamma
- δ (delta) delta

---

Musca

- α (alpha) alpha
- β (beta) beta
- γ (gamma) gamma

---

Triangulum Australe

- α (alpha) alpha
- β (beta) beta
- γ (gamma) gamma
- δ (delta) delta

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Notes

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Image of constellation chart with star positions labeled.
Ara [AR-uh], the Altar. (Arae, Ara)
Circinus [SUR-seh-nus], the Compasses. (Circini, Cir)
Lupus [LOO-pus], the Wolf. (Lupi, Lup)
Norma [NOR-muh], the Level and Square. (Normae, Nor)

Triangulum Australe [tri-ANG-gyu-lum os-TRAH-lee], the Southern Triangle. (Trianguli Australis, TrA)

Notes

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• Antlia [ANT-lee-uh], the Air Pump. (Antliae, Ant)
• Carina [ka-REY-nah], the Keel. (Carinae, Car)
• Pictor [PIK-tor], the Painter’s Easel. (Pictoris, Pic)
• Puppis [PUP-iss], the Stern. (Puppis, Pup)

• Pyxis [PIK-sis], the Mariner’s Compass. (Pyxidis, Pyx)
• Vela [VEE-laht], the Sails. (Velorum, Vel)
• Volans [VOH-lanz], the Flying Fish. (Volantis, Vol)

Notes

November – May

α, alpha, β, beta, γ, gamma, δ, delta, ε, epsilon, ζ, zeta, η, eta, θ, theta, ι, iota, κ, kappa, λ, lambda, μ, mu, ν, nu, χ, chi, ψ, psi, ω, omega
Caelum [SEE-lum], the Chisel (Cae, Caeli)
Dorado [doh-RAH-doh], the Swordfish (Dor, Doradus)
Horologium [hor-oh-LOH-jee-um], the Pendulum Clock (Hor, Horologi)

Pictor [PIK-tor], the Painter's Easel (Pic, Pictoris)
Reticulum [reh-TIK-u-lum], the Reticule or Rhomboidal Net (Ret, Reticuli)

α alpha, β beta, γ gamma, δ delta, ε epsilon, ζ zeta, η eta, θ theta, iota, κ kappa, λ lambda, μ mu, ν nu, ς xi, oomicron, π pi, ρ rho, σ sigma, τ tau, υ upsilon, ϕ phi, χ chi, ψ psi, ω omega

October – April

Notes
- **Grus** [GROOS], the Crane. (Grus, Gru)
- **Indus** [IN-dus], the Indian. (Indi, Ind)
- **Microscopium** [my-kro-SKO-pee-um], the Microscope. (Microscopi, Mic)
- **Pavo** [PAH-vo], the Peacock. (Pavonis, Pav)
- **Phoenix** [FEE-nicks], the Phoenix. (Phoenicis, Phe)
- **Piscis Austrinus** [PIE-sis OSS-trih-nuss], the Southern Fish. (Piscis Austrini, PsA)
- **Tucana** [too-KAN-ah], the Toucan. (Tucanae, Tuc)

### Constellations

- **Grus** - the Crane
- **Indus** - the Indian
- **Microscopium** - the Microscope
- **Pavo** - the Peacock
- **Phoenix** - the Phoenix
- **Piscis Austrinus** - the Southern Fish
- **Tucana** - the Toucan

### Greek Letters

- α alpha
- β beta
- γ gamma
- δ delta
- ε epsilon
- ζ zeta
- η eta
- θ theta
- ι iota
- κ kappa
- λ lambda
- μ mu
- ν nu
- ξ xi
- ο omicron
- π pi
- ρ rho
- σ sigma
- τ tau
- υ upsilon
- ϕ phi
- χ chi
- ψ psi
- ω omega

### Diagram

- **July – January**
- **Discover! Chart 06**
- **10°**
- **_coordinates and constellations marked**

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*Discover! An observing project of the Deep-Sky Observing Section, Astronomical Society of Southern Africa • v.3.0 • http://assa.saaoc.ac.za/sections/deep-sky*
- **Auriga** [oh-RYE-gah], the Charioteer (Aurigae, Aur)
- **Canis Major** [KAH-niss MAY-er], the Big Dog. (Canis Majoris, CMa)
- **Canis Minor** [KAH-niss MY-ner], the Little Dog. (Canis Minoris, CMI)
- **Columba** [koh-LUM-bah], the Dove. (Columbae, Col)
- **Gemini** [JEM-eh-nye], the Twins. (Geminorum, Gem)
- **Lepus** [LEE-pus], the Hare. (Leporis, Lep)
- **Orion** [oh-RYE-un], the Hunter. (Orionis, Ori)
- **Perseus** [PURR-see-us], the Champion (Persei, Per)
- **Taurus** [TORR-us], the Bull. (Tauri, Tau)

- **α** alpha, **β** beta, **γ** gamma, **δ** delta, **ε** epsilon, **ζ** zeta, **η** eta, **θ** theta, **ι** iota, **κ** kappa, **λ** lambda, **μ** mu, **ν** nu, **ξ** xi, **ο** omicron, **π** pi, **ρ** rho, **σ** sigma, **τ** tau, **υ** upsilon, **φ** phi, **χ** chi, **ψ** psi, **ω** omega

- **December – March**

- **Discover!**

- **chart 07**

- **December – March**

- **Discover!**

- **Auriga** [oh-RYE-gah], the Charioteer (Aurigae, Aur)
- **Canis Major** [KAH-niss MAY-er], the Big Dog. (Canis Majoris, CMa)
- **Canis Minor** [KAH-niss MY-ner], the Little Dog. (Canis Minoris, CMI)
- **Columba** [koh-LUM-bah], the Dove. (Columbae, Col)
- **Gemini** [JEM-eh-nye], the Twins. (Geminorum, Gem)
- **Lepus** [LEE-pus], the Hare. (Leporis, Lep)
- **Orion** [oh-RYE-un], the Hunter. (Orionis, Ori)
- **Perseus** [PURR-see-us], the Champion (Persei, Per)
- **Taurus** [TORR-us], the Bull. (Tauri, Tau)
Orion [oh-RYE-un], the Hunter. (Orionis, Ori)

November – April

α, α alpha, β, β beta, γ, γ gamma, δ, δ delta, ε, epsilon, ζ, ζ zeta, η, η eta, θ, θ theta, ι, iota, κ, κ kappa, λ, lambda, μ, mu, ν, nu, ξ, xi, ο, omicron, π, pi, ρ, rho, σ, sigma, τ, tau, υ, upsilon, ϕ, phi, χ, chi, ψ, psi, ω, omega
• Canis Major [KAH-niss MAY-jer], the Big Dog. (Canis Majoris, CMa)
• Columba [koh-LUM-bah], the Dove. (Columbae, Col)
• Lepus [LEE-pus], the Hare. (Leporis, Lep)

Notes

November – April

α, β, γ, δ, ε, ζ, η, θ, ι, κ, λ, μ, ν, ξ, ο, π, ρ, σ, τ, υ, ϕ, χ, ψ, ω
Discover! Taurus [TORR-us], the Bull. (Tauri, Tau)

α, α, β, β, γ, γ, δ, δ, ε, ε, ζ, ζ, η, η, θ, θ, ι, ι, κ, κ, λ, λ, μ, μ, ν, ν, ξ, ξ, ο, ο, π, π, ρ, ρ, σ, σ, τ, τ, υ, υ, ϕ, ϕ, χ, χ, ψ, ψ, ω, ω

Notes

November – February

ERIDANUS

ORION

GEMINI

PERSEUS

AURIGA

Notes

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Discover!

**Auriga** [oh-RYE-gah], the Charioteer (Aurigae, Aur)
**Perseus** [PURR-see-us], the Champion (Persei, Per)

December – January

α, β, γ, δ, ε, ζ, η, θ, ι, κ, λ, μ, ν, ξ, ο, π, ρ, σ, τ, υ, ϕ, χ, ψ, ω

Notes
Eridanus [eh-RID-an-us], the River Eridanus. (Eridani, En)

α, β, γ, δ, ε, ζ, η, θ, ι, κ, λ, μ, ν, ξ, ο, π, ρ, σ, τ, υ, ϕ, χ, ψ, ω

November – March

Discover!
Discover! An observing project of the Deep-Sky Observing Section, Astronomical Society of Southern Africa

Gemini [JEM-eh-nye], the Twins. (Geminorum, Gem)
Canis Minor [KAH-niss MY-ner], the Little Dog. (Canis Minoris, CMI)

Monoceros [moh-NO-ser-us], the Unicorn. (Monocerotis, Mon)

α alpha, β beta, γ gamma, δ delta, ε epsilon, ζ zeta, η eta, θ theta, ι iota, κ kappa, λ lambda, μ mu, ν nu, ξ xi, ο omicron, π pi, ρ rho, σ sigma, τ tau, υ upsilon, ϕ phi, χ chi, ψ psi, ω omega

January – April

Notes
- **Cancer [CAN-сер], the Crab. (Cancri, Cnc)**
- **Lynx [ЛИНКС]. (Lyncis, Lyn)**

January – April

α, α, β, β, γ, γ, δ, δ, ε, ε, ζ, ζ, η, η, θ, θ, ι, ι, κ, κ, λ, λ, μ, μ, ν, ν, ξ, ξ, ο, ο, π, π, ρ, ρ, σ, σ, τ, τ, υ, υ, ϕ, ϕ, χ, χ, ψ, ψ, ω, ω
• **Leo** [LEE-oh], the Lion. (Leonis, Leo)
• **Leo Minor** [LEE-oh MY-ner], the Little Lion. (Leonis Minoris, LMi)

• **Coma Berenices** [KOH-mah bear-eh-NEE-seez], Berenice’s Hair (Comae Berenices, Com)

March – June

α, β, γ, δ, ε, ζ, η, θ, ι, κ, λ, μ, ν, ξ, ο, π, ρ, σ, τ, υ, ϕ, χ, ψ, ω
- Hydra (HY-dra), the Water Monster. (Hydrae, Hya)
- Sextans (SEX-tanz), the Sextant. (Sextantis, Sex)

Notes

February – May

α alpha, β beta, γ gamma, δ delta, ε epsilon, ζ zeta, η eta, θ theta, ι iota, κ kappa, λ lambda, μ mu, ν nu, ξ xi, ο omicron, π pi, ρ rho, σ sigma, τ tau, υ upsilon, ϕ phi, χ chi, ψ psi, ω omega
• **Hydra** [HY-dra], the Water Monster. (Hydrae, Hya)
• **Crater** [KRAY-ter], the Cup. (Crateris, Crt)
• **Corvus** [KOR-vus], the Crow. (Corvi, Crv)

**Notes**
Virgo [VER-go], the Virgin. (Virginis, Vir)

April – July

α alpha, β beta, γ gamma, δ delta, ε epsilon, ζ zeta, η eta, θ theta, ι iota, κ kappa, λ lambda, μ mu, ν nu, ξ xi, ο omicron, π pi, ρ rho, σ sigma, τ tau, υ upsilon, ψ psi, ω omega

Notes
- Boötes [boh-OH-teez], the Herdsman. (Boötes, Boo)
- Corona Borealis [kor-OH-nah bor-ee-AL-is], the Northern Crown. (Coronae Borealis, CrB)

May – July

α alpha, β beta, γ gamma, δ delta, ε epsilon, ζ zeta, η eta, θ theta, ι iota, κ kappa, λ lambda, μ mu, ν nu, ξ xi, ο omicron, π pi, ρ rho, σ sigma, τ tau, υ upsilon, ϕ phi, χ chi, ψ psi, ω omega
- Hercules [HER-kyu-leez], (Herculis, Her)
- Serpens [SIR-penz], the Serpent. (Serpentis, Ser)
  (caput, head; cauda, tail)
- Ophiuchus [oh-fee-U-cuss], Ophiuchus the Serpent-Holder. (Ophiuchi, Oph)

July – September

α alpha, β beta, γ gamma, δ delta, ε epsilon, ζ zeta, η eta, θ theta, ι iota, κ kappa, λ lambda, μ mu, ν nu, ξ xi, οomicron, π pi, ρ rho, σ sigma, τ tau, υ upsilon, ψ psi, ω omega
Scorpius [SKOR-pee-us], the Scorpion. (Scorpii, Sco)
Sagittarius [sadge-ih-TAIR-ee-us], Archer. (Sagittarii, Sgr)
Libra [LEE-bra], the Scales. (Librae, Lib)
Scutum [SKU-tum], the Shield. (Scuti, Sct)
Telescopium [tel-eh-SKO-pee-um], the Telescope. (Telescopi, Tel)
Corona Australis [kor-OH-nah os-TRAH-lis], Southern Crown. (Coronae Australis, CrA)
May – October
α, β, γ, δ, ε, ζ, η, θ, ι, κ, λ, µ, ν, ξ, ο, π, ρ, σ, τ, υ, ϕ, χ, ψ, ω
• Delphinus [del-FIE-nus], the Dolphin. (Delphini, Del)
• Scutum [SKU-tum], the Shield. (Scuti, Sc)
• Equuleus [eh-KWOO-lee-us], Little Horse. (Equulei, Equ)
• Vulpecula [vul-PECK-you-ah], the Fox. (Vulpeculae, Vul)
• Aquila [uh-KWI-uh], the Eagle. (Aquila, Aql)
• Sagitta [sa-JIT-ah], the Arrow. (Sagittae, Sge)
• Cygnus [SIG-nus], the Swan. (Cygni, Cyg)
• Lyra [LYE-rah], the Lyre. (Lyrae, Lyr)

August – October

α alpha, β beta, γ gamma, δ delta, ε epsilon, ζ zeta, η eta, θ theta, ι iota, κ kappa, λ lambda, μ mu, ν nu, ξ xi, ο omicron, π pi, ρ rho, σ sigma, τ tau, υ upsilon, ϕ phi, χ chi, ψ psi, ω omega

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Aquarius [ah-KWAIR-ee-us], Water Bearer. (Aquarii, Aqr)
Capricornus [kap-reh-KOR-nuss], the Sea-Goat. (Capricorni, Cap)
Piscis Austrinus [PIE-sis OSS-trih-nuss], the Southern Fish. (Piscis Austrini, PsA)

α alpha, β beta, γ gamma, δ delta, ε epsilon, ζ zeta, η eta, θ theta, ι iota, κ kappa, λ lambda, μ mu, ν nu, ξ xi, ο omicron, π pi, ρ rho, σ sigma, τ tau, υ upsilon, ϕ phi, χ chi, ψ psi, ω omega

August – November

23 chart

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• Pegasus [PEG-a-sus], Winged Horse. (Pegasi, Peg)
• Pisces [PIE-seez], the Fish. (Piscium, Psc)
• Andromeda [an-DROH-me-duh], the Chained Woman (Andromedae, And)
• Triangulum [tri-ANG-gyu-lum] the Triangle. (Trianguli, Tri)
• Aries [AIR-eez], the Ram. (Arietis, Ari)

α, beta, gamma, delta, epsilon, zeta, eta, theta, iota, kappa, lambda, mu, nu, xi, omicron, pi, rho, sigma, tau, upsilon, phi, chi, psi, omega

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October – December

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- Cetus [SÉE-tus], the Whale. (Ceti, Cet)
- Fornax [FOR-nax], the Chemical Furnace. (Fornacis, For)
- Sculptor [SČULP-tor], the Sculptor’s Workshop.
  (Sculptoris, Scl)

α alpha, β beta, γ gamma, δ delta, ε epsilon, ζ zeta, η eta, θ theta, ι iota, κ kappa,
λ lambda, μ mu, ν nu, ξ xi, ο omicron, π pi, ρ rho, σ sigma, τ tau, υ upsilon, ϕ phi,
χ chi, ψ psi, ω omega

October – February
Observing log


Sky conditions: ..........................  Quality of observation: ..........................

Description and sketch..........................

Note the size of the field of view sketched, and its orientation.

Discover!  Discover the deepsky for yourself.

Star colour record sheet

<table>
<thead>
<tr>
<th>Star name or identification number</th>
<th>Colour (select one)</th>
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<tbody>
<tr>
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</tbody>
</table>

Discover!  Discover the deepsky for yourself.
Newels

What are your first impressions?
How easy is it to see? (visibility; brightness; magnitude)
What shape is the nebula?
How big is the nebula?
How does the brightness change from edge to centre? (brightness profile)
Is there a nuclear region?
Are the edges sharp or diffuse?
Are there darker parts or areas of uneven brightness?
How well does the nebula stand out from the background field?
What colour is the nebula?
Are there stars very near, or within, the nebula?
How does it relate to the surrounding star field?
Rate your confidence in this observation.

Star clusters

What are your first impressions?
How easy is it to see? (visibility; brightness; magnitude)
What shape is the cluster?
How big is the cluster?
Are individual stars seen? (unresolved .. granular .. partially resolved .. well resolved, etc.)
Are the stars concentrated towards the centre? (not at all .. slightly .. strongly, etc.)
How does the brightness change from edge to centre? (brightness profile)
How many stars can you see? (make an estimate; count the number within a specified diameter)
What is the range of their brightness? (nearly the same .. mixed; estimate magnitudes)
Is there an obvious central or other prominent star?
Do any of the stars have a particular colour?
Are any of the stars double?
Are there chains, rows, or clumps of stars?
Are there prominent empty spaces or starless patches?
Is there a background glow (unresolved stars/nebulousity)?
How does the cluster relate to the surrounding star field?
Rate your confidence in this observation.