

This is information for Public viewing that you will sometime have to do when you graduate. Your new university may only have a small telescope to use.

These are some books and atlases that you may find useful.

- Atlas of the Heavens Antonin Becvar 1962
- Telescope and Techniques An introduction to Practical Astronomy
CR. Kitchin 1995 QB43.2.K555 1995
- Sky and Telescope's Pocket Sky Atlas Roger W. Sinnott 2006
- The Cambridge Double Star Atlas James Mullaney 2009
- The Cambridge Atlas of Herschel Objects James Mullaney 2011
- Sky Atlas 2000.0 Deluxe Wil Tirion and Roger W. Sinnott 1985
- Sky Atlas 2000.0 Desk Wil Tirion and Roger W. Sinnott 1985
- Sky Catalogue 2000.0 Vol 1 Stars
Alan Hirshfeld and Roger W. Sinnott 1985
- Sky Catalogue 2000.0 Vol 2 double stars Variable Stars and nonstellar
objects Alan Hirshfeld and Roger W. Sinnott 1985 Q86.S54
- Burnham's Celestial Handbook Vol 1 ,2,3
Robert Burnham Jr. 1978
- Star-Hopping Robert Garfinkle 1995 QB65.G37 1994
- Deep-sky Companions: The Messier Objects
Stephen O'Meara 1998 QB65.O44 1997
- The Cambridge Star Atlas Wil Tirion 2001
- The Next Step Finding and Viewing Messier's Objects
Ken Graun 2005 QB851,G73 2005
- Observing Handbook and Catalogue of Deep-Sky Objects
Christian B. Luginbuhl and Brian A. Skiff 1990 QB64.L84

Useful Formulas for Observating.

Limiting Visual Magnitude

$$\text{Mag.} = 7.0 + 5 * \text{Log}(\text{aperture diameter in CM})$$

Dawes' Limit (Limiting optical resolution of telescope)

Dawes' Limit in arc seconds

$$= 11.6 \text{ arc seconds} / \text{aperture diameter in CM}$$

Magnification of eyepiece

$$X = \text{Focal length of telescope in mm} / \text{Focal length of eyepiece in mm}$$

Visual resolution of eyepiece in arc seconds (smallest item in eyepiece)

$$X \text{ (in arc seconds)} = 120 \text{ arc second} / \text{Magnification}$$

Apparent field of view of eyepiece True field is from the Manufacturer

$$X \text{ (in degrees)} = \text{True field of view of eyepiece} / \text{Magnification power}$$

Exit Pupil of eyepiece

Exit Pupil of eye is 6.5 mm

$$\text{Exit Pupil (in mm)} = \text{aperture diameter (in mm)} / \text{Magnification power}$$

This is a list of objects that are used at Lick to observe for public groups.

* means not for regular public viewing and maybe faint or unusual.

!Comment	GALAXIES					
*Galaxies	00 00 00	00 00 00	2000	Galaxies*****		
M32	00 42 41.9	40 51 57.2	2000	Dist. 2.2MLY		
M31	00 42 44.3	41 16 09.4	2000	Andromeda Dist. 2.2MLY		
M77	02 42 40.8	-00 00 48.4	2000	Seyfert 2 Dist. 52MLY		
M81	09 55 33.2	69 03 55.1	2000	Dist. 12MLY		
M82	09 55 52.2	69 40 48.8	2000	Dist. 12MLY		
M87	12 30 49.4	12 23 28.0	2000	Dist. 50MLY		
NGC_4565	12 36 21.1	25 59 13.5	2000	Dist. 25MLY		
M104	12 39 59.4	-11 37 22.9	2000	Sombrero Dist. 40MLY		
M64	12 56 43.9	21 41 00.1	2000	Black Eye Dist. 24MLY		
M51	13 29 52.4	47 11 40.8	2000	Whirlpool Dist. 35MLY		
M101	14 03 12.5	54 20 53.1	2000	Pinwheel Dist. 25MLY		
M102	15 06 29.5	55 45 47.2	2000	Dist. 40MLY		
NGC_6503	17 49 26.5	70 08 39.6	2000	Dist. 17MLY		
*Sgr_dwarf	18 55 03.1	-30 28 42	2000	Sgr dwarf galaxy		
NGC_7331	22 37 04.3	34 24 58.5	2000	Dist. 45MLY		
!Comment	GLOBULAR CLUSTERS					
*Globular	00 00 00	00 00 00	2000	Globular Cluster*****		
M53	13 12 55.3	18 10 09.0	2000	Dist. 65KLY		
M3	13 42 11.2	28 22 31.6	2000	Dist. 35KLY		
M5	15 18 33.8	02 04 57.7	2000	Dist. 26KLY		
M13	16 41 41.4	36 27 36.9	2000	Dist. 25KLY		
M10	16 57 09.0	-04 05 57.6	2000	Dist. 14.3KLY		
M92	17 17 07.3	43 08 11.5	2000	Dist. 26KLY		
M15	21 29 58.4	12 10 00.6	2000	Dist. 33KLY		
M2	21 33 27.0	-00 49 23.7	2000	Dist. 37.5KLY		
!Comment	PLANETARY NEBULAE					
*Planetary	00 00 00	00 00 00	2000	Planetary Nebulae*****		
NGC_2392	07 29 10.8	20 54 42.5	2000	Eskimo Dist. 3KLY		
*ngc_2438	07 41 50.5	-14 44 07.7	2000	part m46 Dist. 2.9KLY		
NGC_3242	10 24 46.1	-18 38 32.6	2000	Ghost of Jupiter Dist. 2.5KLY		
NGC_6210	16 44 29.5	23 47 59.7	2000	Turtle Dist. 6.5KLY		
*M97	17 14 47.7	55 01 08.5	2000	Owl Dist. 2.6KLY		
NGC_6543	17 58 33.4	66 37 59.5	2000	Cat's Eye Neb. Dist. 3.2KLY		
*NGC_6572	18 12 06.4	06 51 13.0	2000	Emerald		
M57	18 53 35.1	33 01 45.0	2000	Ring Neb. Dist. 2.3KLY		
*PK_064+5.1	19 34 45.2	30 30 58.9	2000	Campbell star (red)		
*NGC_6818	19 43 58.0	-14 09 13.4	2000	Little Gem		
NGC_6826	19 44 48.5	50 31 30.3	2000	Blinking Neb. Dist. 2.2KLY		
*M27	19 59 36.4	22 43 15.8	2000	Dumbbell Dist. 800LY		
NGC_7009	21 04 10.8	-11 21 48.2	2000	Saturn Dist. 3.9KLY		
*NGC_7027	21 07 02.0	42 14 10.2	2000	proto-planetary Dist. 3KLY		
NGC_7662	23 25 53.6	42 32 06	2000	Blue Snowball Dist. 3.8KLY		

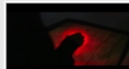
!Comment					GALACTIC NEBULAE	
*Nebulae	00 00 00	00 00 00	2000		Galactic Nebulae*****	
M1	05 34 32.0	22 00 52.1	2000		Crab Dist. 6.3KLY	
M42	05 35 17.3	-05 23 28	2000		Orion Dist. 1.8KLY	
M20	18 02 23	-23 01 48	2000		Trifid Dist. 7.6KLY	
M8	18 03 37	-24 23 12	2000		Lagoon Dist. 5.1KLY	
M17	18 20 45	-16 10 23	2000		Omega or Swan Dist. 5.7KLY	
M16	18 18 48	-13 49 00	2000		Eagle Dist. 7KLY	
!Comment					OPEN CLUSTERS	
*Open_clust	00 00 00	00 00 00	2000		Open clusters*****	
NGC_457	01 19 40	58 17 18	2000		Dist. 9KLY	
NGC_869	02 19 06	57 09 0	2000		h Persei Dist. 6.5KLY	
NGC_884	02 22 00	57 08 0	2000		chi Persei Dist. 7.5KLY	
M45	03 47 24	24 07 0	2000		Pleiades Dist. 440LY	
M38	05 28 43	35 51 18	2000		Dist. 4.2KLY	
M37	05 52 19	32 33 12	2000		Dist. 4.6KLY	
M35	06 09 06	24 21 0	2000		Dist. 2.8KLY	
M46	07 41 42	-14 49 0	2000		Dist. 5.4KLY	
M44	08 40 24	19 41 0	2000		Beehive Dist. 577LY	
M67	08 51 18	11 48 00	2000		Dist. 2.25KLY	
M23	17 57 00	-18 59 0	2000		Dist. 4.5KLY	
M17	18 20 26	-16 10 36	2000		Open cluster part Dist. 5.7KLY	
M11	18 51 00	-06 16 0	2000		Wild Duck Dist. 6KLY	
*NGC_7789	23 57 24	56 42 30	2000		Dist. 6KLY	
!Comment					OTHER GOOD STUFF	
*Misc.	00 00 00	00 00 00	2000		Miscellaneous*****	
Aldebaran	04 35 55.2	16 30 33.5	2000		Dist. 65LY	
Rigel	05 14 32.3	-08 12 50.9	2000		Dist. 770LY	
Betelgeuse	05 55 10.3	07 24 25.4	2000		Dist. 640LY	
Capella	05 16 41.4	45 59 52.8	2000		Dist. 42LY	
Capella	05 16 41.4	45 59 52.8	2000		Dist. 42LY	
Sirius	06 45 08.9	-16 42 58.0	2000		Dist. 8.6LY	
Procyon	07 39 18.1	05 13 30.0	2000		Dist. 11LY	
Pollux	07 45 19.0	28 01 34.3	2000		Dist. 34LY	
Regulus	10 08 22.3	11 58 02.0	2000		Dist. 77LY	
Spica	13 25 11.6	-11 09 40.8	2000		Dist. 262LY	
Arcturus	14 15 39.7	19 10 56.7	2000		Dist. 37LY	
Antares	16 29 24.5	-26 25 55.2	2000		Dist. 604LY	
Vega	18 36 56.3	38 47 01.2	2000		Dist. 27LY	
Altair	19 50 47.0	08 52 06.0	2000		Dist. 17LY	
Deneb	20 41 25.9	45 16 49.2	2000		Dist. 3.2KLY	
Fomalhaut	22 57 39.0	-29 37 20.1	2000		Dist. 25LY	
Albireo	19 30 43.3	27 57 34.8	2000		Dist. 380LY	
Epsilon_Lyra	18 44 20.3	39 40 12.5	2000		double double Dist. 180LY	
T_Lyrae	18 32 20.1	36 59 55.6	2000		Carbon star Dist. 2KLY v8	
Mu_Cephei	21 43 30.5	58 46 48.2	2000		Red supergiant	
*Cyg_X-1	19 58 21.7	35 12 05.8	2000		Black hole Dist. 7.5KLY	
*Barnard	17 57 48.5	04 41 36.2	2000		vis 9.54 Dist. 6LY	
*Kepler-16	19 16 18.2	51 45 26.8	2000		Dist. 196LY	
*PG_1718+481	17 19 38.2	48 04 12.2	2000		Dist. 2996MLY vis 14.6	
*7C1821+6419	18 21 57.2	64 20 36.2	2000		Dist. 1035MLY vis 14.2	
*3C273	12 29 06.7	02 03 08.7	2000		Dist. 584MLY vis 12.9	
*4c29.45	11 59 31.8	29 14 43.8	2000		Dist. 1457MLY vis 14.4	
*HS0624+6907	06 30 02.5	69 05 03.8	2000		Dist. 1254MLY vis 14.4	
*PG1634+706	16 34 29.0	70 31 32.4	2000		Dist. 3507MLY vis 14.7	
*HD_157881	17 25 45.2	02 06 41.1	2000		high proper motion v7.6	

!Comment	DOUBLE STARS						
*Double_star	00 00 00	00 00 00	2000	Double Stars*****			
*hip_207	00 02 36.0	66 05 56.2	2000	sep 15" 5.9-7.3			
55_PSC	00 39 55.6	21 26 18.6	2000	sep 6.5" 5.4-8.7			
*eta_Cas	00 49 06.3	57 48 54.7	2000	sep 12" 3.4-7.5			
alpha_Psc	02 02 02.8	02 45 49.5	2000	sep 1.9" 4.2-5.2			
gamma_AND	02 03 54.0	42 19 47.0	2000	sep 9.8" 2.3-4.8			
iota_Tri	02 12 22.3	30 18 11.0	2000	sep 3.9" 5.3-6.9			
*eta_PER	02 50 41.8	55 53 43.8	2000	sep 28" 3.9-8.6			
32_ERI	03 54 17.3	-02 57 09.9	2000	sep 6.8" 4.8-6.1			
omega_Aur	04 59 15.4	37 53 24.9	2000	sep 5.4" 5.0-8.0			
*bet_ORI	05 14 32.3	-08 12 05.9	2000	sep 9.4" 0.1-6.7			
lambda_Ori	05 35 08.3	09 56 03.0	2000	sep 4.4" 3.6-5.5			
8_MON	06 23 46.1	04 35 34.3	2000	sep 13" 4.5-6.5			
20_Gem	06 32 18.6	17 47 03.6	2000	sep 20" 6.3-6.9			
38_Gem	06 54 38.6	13 10 40.2	2000	sep 7" 4.7-7.7			
*hip_35210	07 16 36.8	-23 18 56.1	2000	sep 27" 5.0-5.8			
iota_CNC	08 46 41.8	28 45 35.6	2000	sep 31" 4.2-6.6			
gamma_Leo	10 19 58.4	19 50 29.3	2000	sep 4.4" 2.2-3.5			
*iota_Leo	11 23 55.5	10 31 46.2	2000	sep 1.5" 4.0-6.7			
*88_LEO	11 31 44.9	14 21 52.2	2000	sep 15" 6.4+8.4			
2_CVn	12 16 07.5	40 39 36.7	2000	sep 11" 5.8-8.1			
24_COM	12 35 07.8	18 22 37.4	2000	sep 20" 5.2-6.7			
epsilon_BOO	14 44 59.2	27 04 27.2	2000	sep 2.8" 2.5-4.9			
xi_BOO	14 51 23.4	19 06 01.7	2000	sep 7" 4.7-7.0			
zeta_CrB	15 39 22.7	36 38 09.0	2000	sep 6.3" 5.1-6.0			
lambda_Oph	16 30 54.8	01 59 02.1	2000	sep 1.5" 4.2-5.2			
alpha_Her	17 14 38.9	14 23 25.2	2000	sep 4.6" 3v-5.4			
*omi_oph	17 18 00.7	-24 17 12.9	2000	sep 11 5.4-6.9			
rho_Her	17 23 40.9	37 08 45.4	2000	sep 4.1" 4.6-5.6			
95_HER	18 01 30.4	21 35 44.8	2000	sep 6.3" 5.0-5.1			
70_Oph	18 05 27.4	02 29 59.3	2000	sep 1.6" 4.2-6.0			
59_Ser	18 27 12.5	00 11 46.0	2000	sep 3.8" 5.3-7.6			
*omi_Dra	18 51 12.0	59 23 18.0	2000	sep 34" 4.9-7.9			
beta_Cyg	19 30 43.3	27 57 34.8	2000	sep 34" 3.1-5.1			
pi_Aql	19 48 42.1	11 48 57.1	2000	sep 1.4" 6.1-6.9			
*eps_SGE	19 37 17.4	16 27 46.1	2000	sep 89" 5.7-8.0			
gamma_Del	20 46 39.5	16 07 27.4	2000	sep 9.6" 4.5-5.5			
*41_aqr	22 14 18.0	-21 04 28.4	2000	sep 5" 5.7-7.2			
delt							

PX20



Model: PX20



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Suggested retail: \$32.49

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Specifications

The PX20 dual color led flashlight combines five super bright white LEDs with one red LED, each color controlled with its own switch. The white light is for general flashlight use, while the red LED is perfect when you only need minimal light, such as when reading a map. Coast's Max Beam Optic System combined with the 5 high quality white LED's gives you a broad, diffused beam that lights up a large area with no dark spots. Built tough, an impact-resistant, lightweight aluminum casing resists rust and corrosion. Tested and rated to [ANSI/FL1 standards](#), the PX20 also features unbreakable LED's and rubberized O-ring for reliable water resistance and durability. Backed by Coast's lifetime warranty against defects in materials and workmanship.

Ordering numbers: Gift box – 19271; Clam pack – 19286

- Dual Color Red/White
- 125 lumen light output
- 5 hour 30 minute runtime
- 53 meter (173 ft) beam distance
- 3 X AAA batteries (included)
- Aluminum casing
- Heavy duty front dual switch; each LED controlled by its own switch
- Impact and water resistant
- Length: 3.95 in. / 10 cm
- Weight: 3.2 oz. / 90.7 g
- 1 in. / 25.4 mm diameter

18 comments ▾

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Ellen Butler · Volunteer at Smithsonian Marine Station and Ecosystems Exhibit

This is a great little light. I rigged my kayak for night paddling with it. The PX 20 fits perfectly into a 1 inch PVC pipe. I added a silicone safety cone over the top and it became a great stern light. I wish Coast or someone would make the soft rubber or silicone cone diffusers you used to be able to get for marine flashlights (mine is 30 years old).

[Reply](#) · [Like](#) · August 10 at 6:15am

G35

8+1 | 1 | Tweet | 2 | Like | 12 | Pin It



Model: G35

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Suggested retail: \$32.99

Specifications

The G35 Dual Color Flashlight is a perfect light for a user looking for a small flashlight with good light output and the added feature of a red LED. The red light can be used when only a small amount of light is needed and the user wants to preserve their night vision. Each LED is controlled by a separate switch, allowing you to turn on the desired color with one click; no cycling through switch modes to find your color. Coast's Max Beam Optic System shapes the available light from the LED into the most useable beam pattern giving you the maximum amount of light for your application. A lightweight aluminum casing offers great durability and will hold up to heavy daily use. Backed by Coast's lifetime warranty against defects in materials and workmanship. Tested and rated to **ANSI/FL1 standards** by an independent laboratory.

Ordering number: Clam pack – TT1106CP

Not available in the E.U.

- Dual Color Red/White
- 111 lumen light output
- 10 hours 15 minute runtime
- 47 meter (154 ft) beam distance
- 3 X AAA batteries (included)
- LED's: 5 white, 1 red (red preserves night vision)
- Aluminum casing
- Heavy duty front dual switch
- Impact and water resistant
- 5.2 ounces (including batteries)
- 6.07 inch length
- Diameter: Body - 1.05 inches; Bezel - 1.5 inches

14 comments

Add a comment



Chris Valdivia - Corporate College

Just purchased this today, I bought a tactical light mount for my rifle, and the lights that are "Tactical lights" are a fortune for a "flashlight". It is difficult to find a light that will fit into the mount because of all the rubber armor used today. Because this light has a machined grip, it fits perfectly without any slippage at all, its like you all sat down with the designers and really thought this out. It's also slim, and fits under my scope. The white and red lights are perfect for camping, hunting, and astronomy use. I'm a huge fan now!!! Thanks

Reply · Like · May 17 at 9:50pm



Joe Caruso - Anchorage, Alaska

Some Home Depot sell these.

www.zbattery.com/AA-Mini-Mag-Flashlight-with-Pocket-Clip-and-Colored-Lenses-RED

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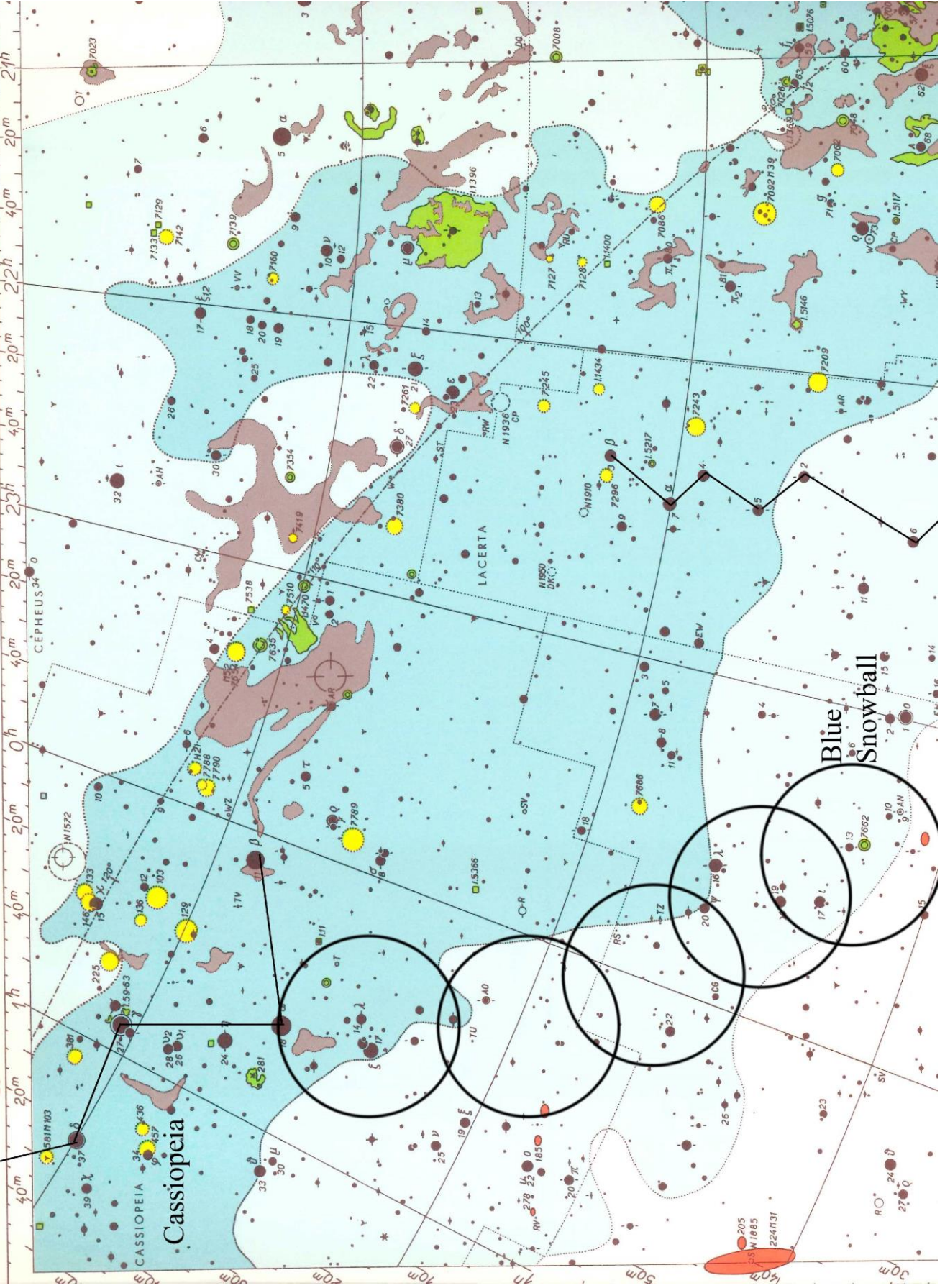
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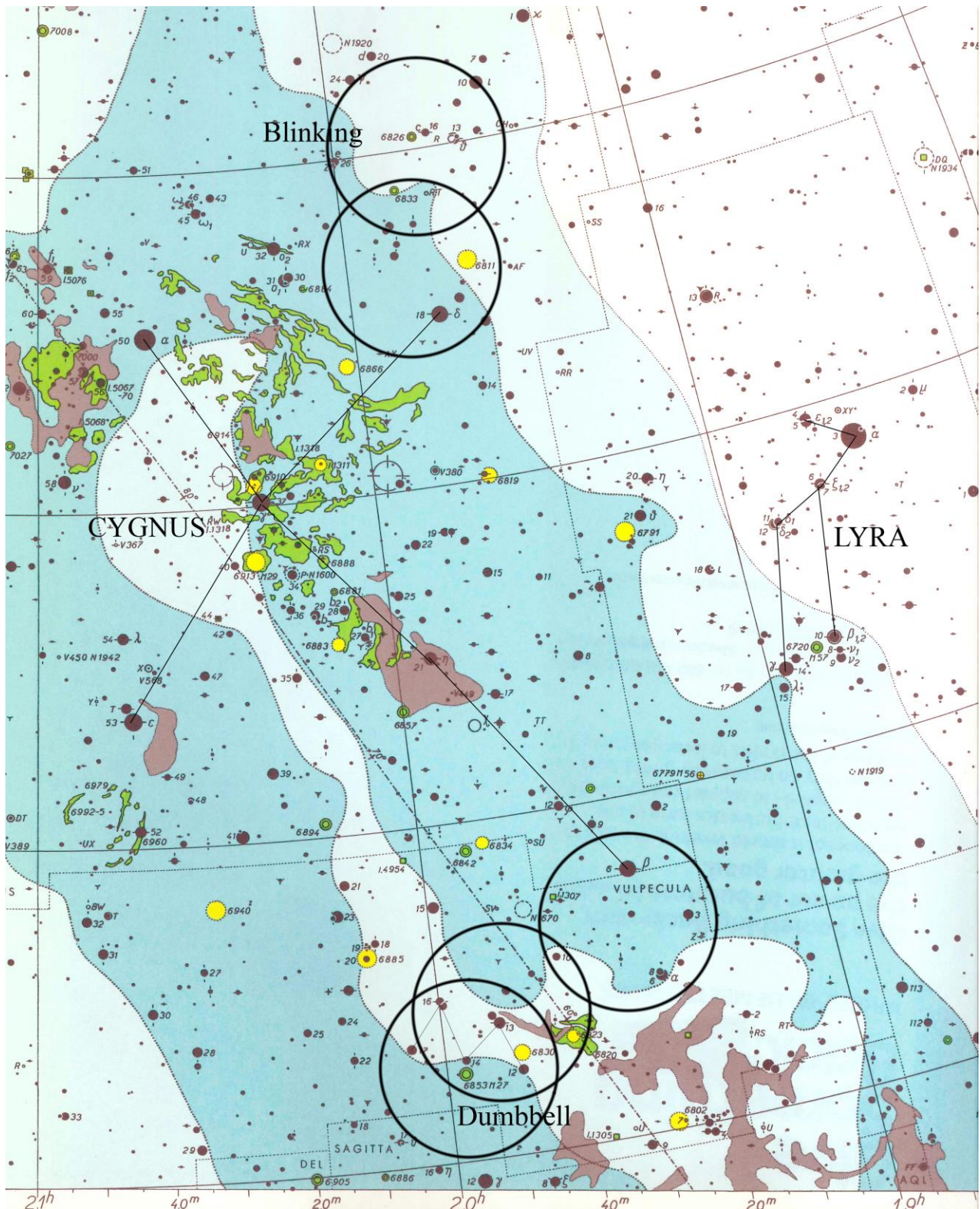
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Description	Specs	Reviews
<p>Mini Mag AA Maglite Incandescent Flashlight with ANSI Standard Ratings, RED FINISH</p> <p>Manufacturer part number: M2A03C, 106-000-346, 106-346, 106-000-714, 106-714</p> <p>UPC: 038739060576</p> <p>We also carry replacements parts for this item.</p> <p>The Accessory Kit includes: Wrist Lanyard, Pocket Clip, Lens Adapter/Anti-Roll Device, 2 Red and 1 Clear Lens.</p> <p>Peak Beam Intensity: 2305 candela Beam Distance: 96 meters Run Time: 5 hours 15 minutes Light Output: 14 lumens Water Resistant Impact Resistant up to 1 meter</p>		
<p>* Limited Lifetime Warranty in the Western Hemisphere and Japan; Ten-Year Limited Warranty Elsewhere. * All Mag flashlights are designed, patented and manufactured in the U.S.A. May contain some imported components.</p>		

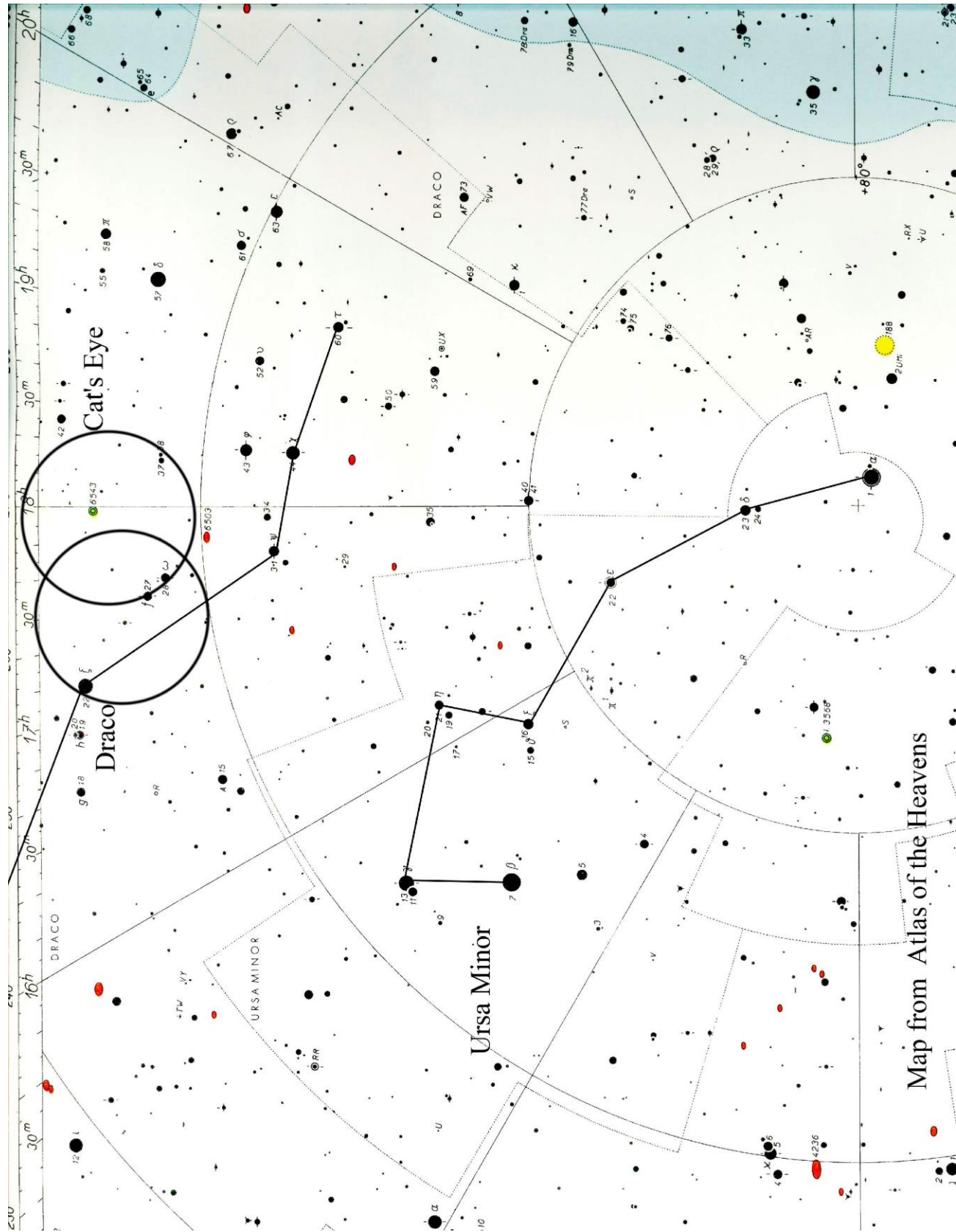
This comes in black (M2A01C) , blue (M2A11C) and camo.
These were picked because the kit comes with red filters.
If you just need red filters for AA mag lite . part no. 208-001

Map from Atlas of the Heavens





Map from Atlas of the Heavens 300°



Map from Atlas of the Heavens