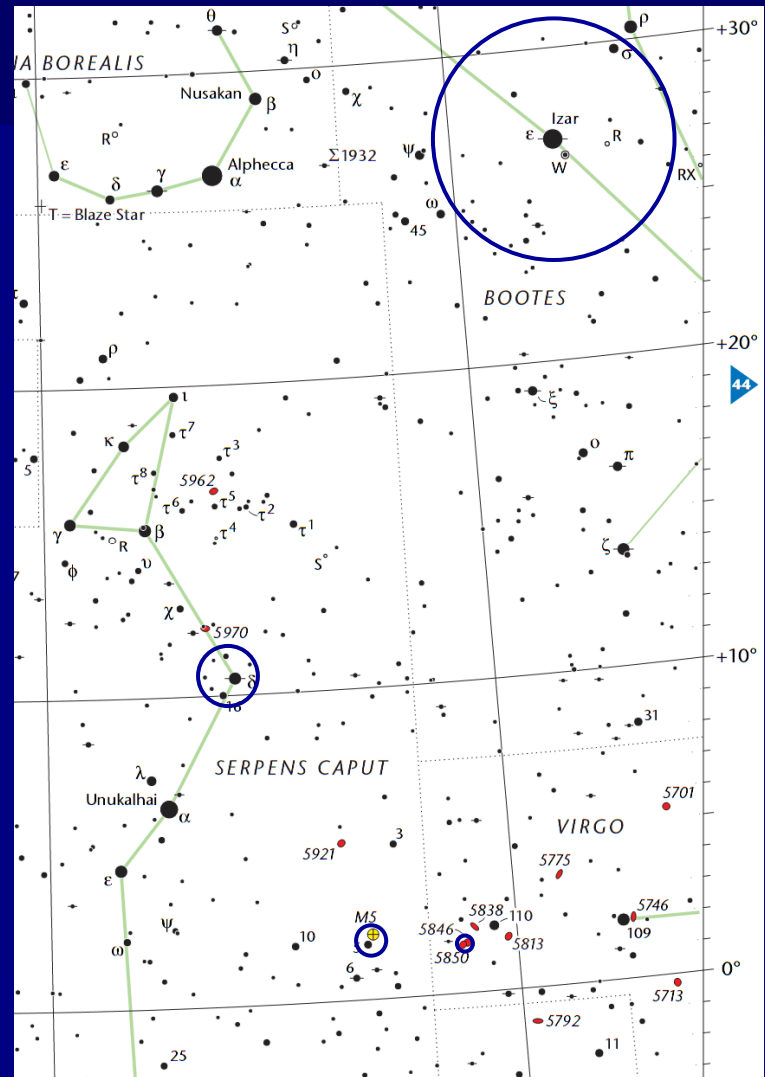


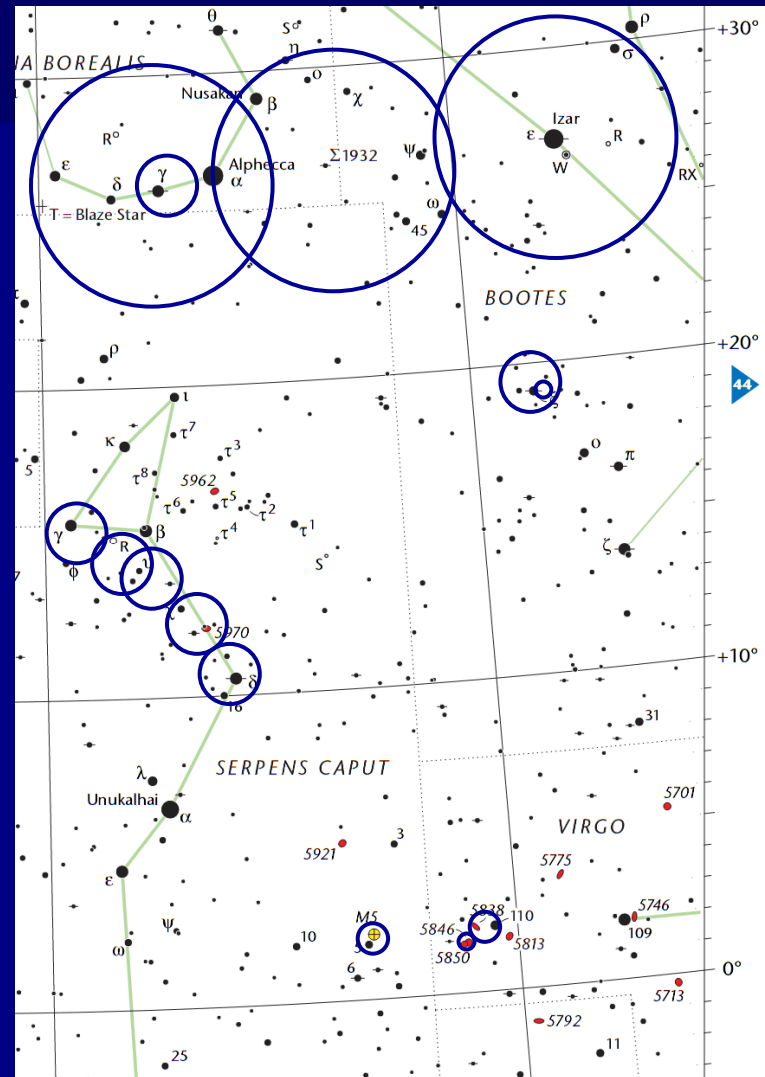
DIY: field of view templates

Blake Nancarrow



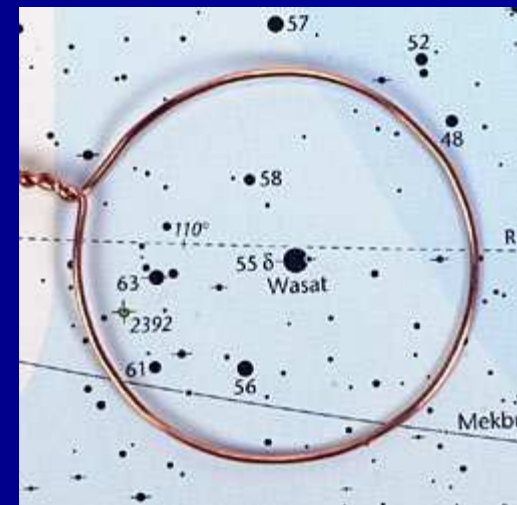
why?

- sense of scale
- eyepiece selection
- star hopping



inspiration

- wire rings
Sky & Telescope
- acetate template
with Tirion



what you need

- telescope & eyepiece data
- star chart
- ruler
- calculator or spreadsheet
- drawing or presentation software
- printer (ideally laser)
- acetate film or transparency sheets

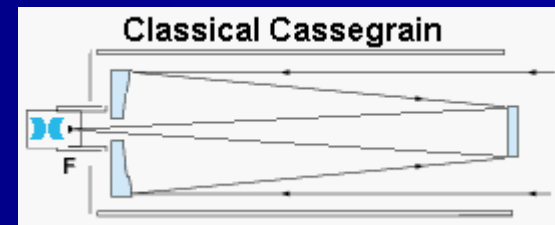


process

1. gather telescope data (finder too)
2. gather eyepiece data (binos too)
3. calculate TFOV sizes
4. get scale of star chart
5. draw scaled TFOV rings
6. test print
7. final print

telescope data

- focal length



telescope data – example

- focal length (in mm)
 - Celestron SP-C8: 2000
 - Edmund SSC 6": 1220

eyepiece data

- focal length
- apparent field of view (AFOV)
 - manufacturer literature
 - fine folks on internet
 - drift tests

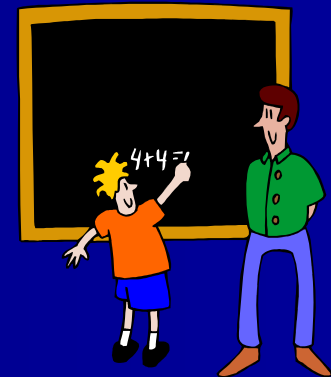


eyepiece data – example

	fl (mm)	AFOV (°)
baader hyperion-aspheric	36	72
Celestron plössl	26	52
Meade orthoscopic	18	40

calculate

- $TFOV = AFOV_{ep} / (fl_t / fl_{ep})$
- where:
 - TFOV = true (real) field of view
 - $AFOV_{ep}$ = apparent field of view eyepiece
 - fl_t = focal length telescope
 - fl_{ep} = focal length eyepiece



calculate – example

eyepiece	f_{ep}	$AFOV_{ep}$	f_t	TFOV (°)
baader	36	72	2000	1.296
Celeston	26	52	2000	0.676
Meade	18	40	2000	0.360
baader	36	72	1220	2.125
Celeston	26	52	1220	1.108
Meade	18	40	1220	0.590
binos 376' at 1000 yards				7.162

chart scale

- measure with accurate ruler
- watchout
 - scales may vary

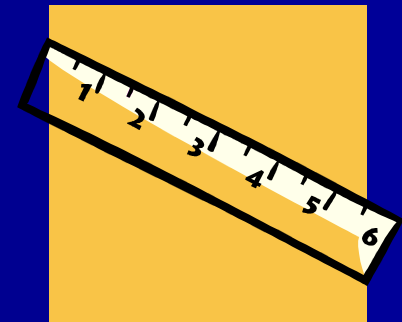
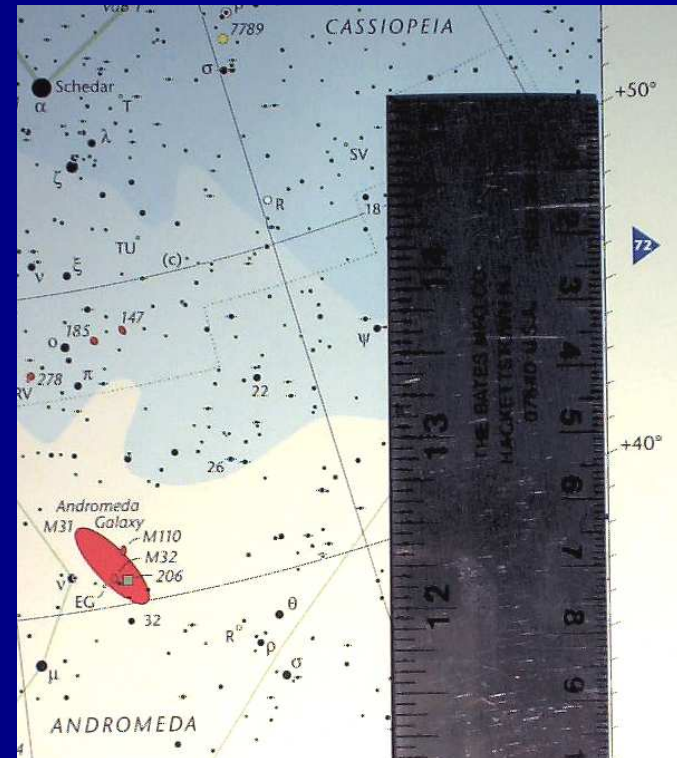


chart scale – example

- Pocket Sky Atlas
 - 18.3 cm = 35°
 - 7.15 cm = 15°
- average ratio of ° per cm:
0.4991



make rings

- use a presentation app
 - PowerPoint (Window\$)
 - Impress (Linux)
 - Keynote (Mac)
- use a drawing app
 - Illustrator or Fireworks
 - (OO) Draw
- calculate scaled ring sizes

make rings – example

eyepiece	scope	TFOV (°)	ring (cm)
baader	SP-C8	1.296	0.647
Celeston	SP-C8	0.676	0.337
Meade	SP-C8	0.360	0.180
baader	SSC 6"	2.125	1.060
Celeston	SSC 6"	1.108	0.553
Meade	SSC 6"	0.590	0.295
binos		7.162	3.575

make rings – live demo

○ 36mm in SP-C8

○ 26mm in SP-C8

○ 18mm in SP-C8

○ 36mm in SSC 6"

○ 26mm in SSC 6"

○ 18mm in SSC 6"

binos

Telrad

make rings – example

○ 36mm in SP-C8

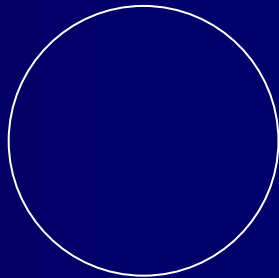
○ 26mm in SP-C8

○ 18mm in SP-C8

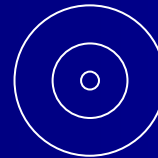
○ 36mm in SSC 6"

○ 26mm in SSC 6"

○ 18mm in SSC 6"



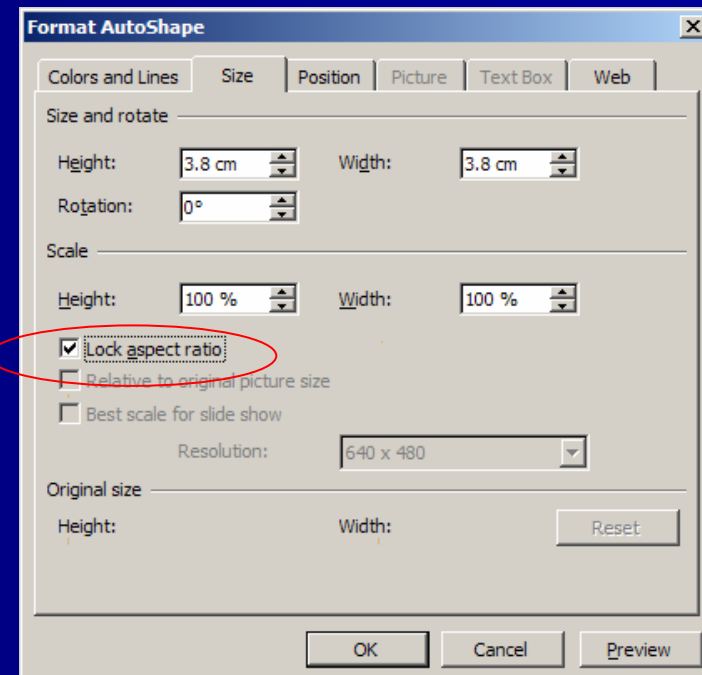
binos



Telrad

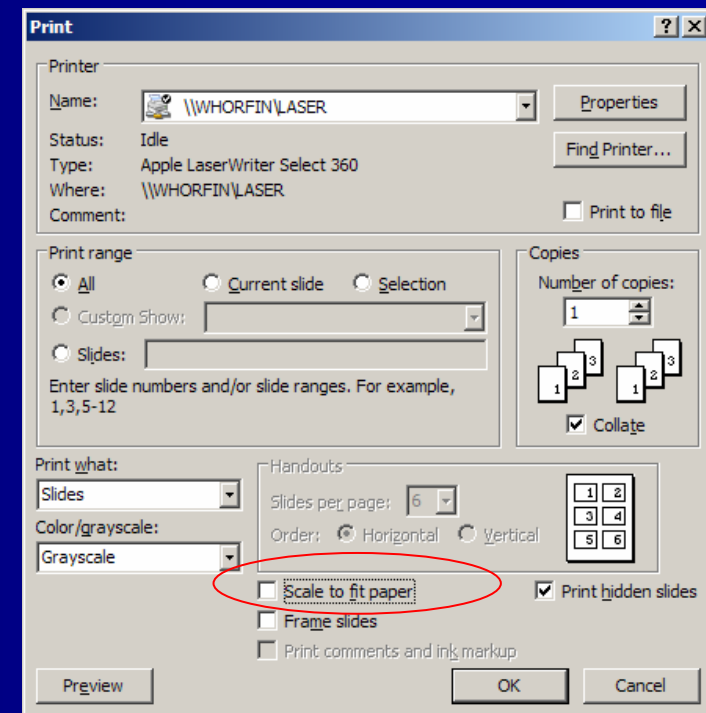
PowerPoint tips

- use Shift key to draw perfect circles
- check on *Lock Aspect Ratio*
- enter size with two or three digits
- follow size figure with units (" or cm)



print

- turn off scaling, i.e. print at 100%
- test on paper sheets
- verify scale with chart
- final print on clear acetate film



other tips

- label printout for particular chart
- beside circles show mm, TFOV in $^{\circ}$, x
- include other scaled objects
 - Moon $1/2^{\circ}$
 - Andromeda $2 1/2^{\circ}$
 - Big Dipper 25°



sample

eyepiece viewing circles

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revised 20080811













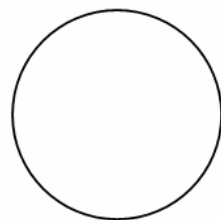
Telrad
finder
0x



calibrated to the
Sky & Telescope's
Pocket Sky Atlas
First Edition
Second Printing 2006



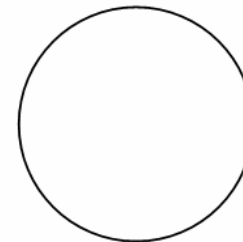
fist 10°
three fingers 6°
width of finger 1°
nail of little finger ½°

	baader 36mm	Celestron 26mm	Edmund 1"	Meade 18mm	Meade 4mm
8" Celestron catadioptric	56x 1.30° 	77x 0.68° 	79x 0.51° 	111x 0.36° 	500x 0.08° 
6" Edmund reflector	34x 2.13° 	47x 1.11° 	48x 0.83° 	68x 0.59° 	305x 0.13° 



 Full Moon ½°
 Andromeda Galaxy 2½°

Canon
binoculars
8x



Celestron
Finderscope
6x

Bushnell
binoculars
7x

fin

- thanks
- questions?

