

# ***Isabel Williamson Lunar Observing Logbook***

The certificate applicant must use this logbook (or an equivalent means) to qualify. Enter the date, time, and other details for each observation as indicated.

The R (required) objectives are mandatory; the C (challenge) objectives are optional. Sketch drawings are also optional, but encouraged. Use the small template provided, or the larger one found on p. 84 of this logbook.

## **PART 1 – Introducing the Moon**

### **A – Lunar Phases and Orbital Motion**

R 1 – Enter in the notes section the date and time for each phase observed.

R 2 – Date \_\_\_\_\_ Time \_\_\_\_\_

R 3 – Date \_\_\_\_\_ Time \_\_\_\_\_

        Date \_\_\_\_\_ Time \_\_\_\_\_

Notes

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### **B – Major Basins (Maria) & Pickering Unaided Eye Scale**

R 1 – Date \_\_\_\_\_ Time \_\_\_\_\_

C 1 – Date \_\_\_\_\_ Time \_\_\_\_\_

C 2 – Date \_\_\_\_\_ Time \_\_\_\_\_

Notes (see p. 81 of this logbook for optional Pickering Unaided Eye Scale)

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### **C – Ray System Extent**

R 1 – Date \_\_\_\_\_ Time \_\_\_\_\_

C 1 – Date \_\_\_\_\_ Time \_\_\_\_\_

Notes (see p. 82 of this logbook for optional Ray System Extent template)

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D – Crescent Moon Less Than 24 Hours From New

C 1 – Date	Age in Hours	Location
_____	_____	_____

Notes

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E – Binocular & Unaided Eye Libration

R 1 – Date _____	Time _____
C 1 – Date _____	Time _____

Notes (see p. 83 of this logbook for Unaided Eye Libration template)

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## PART 2 – MAIN OBSERVING LIST

As in part one, only the R (required observations) and the date and time they were observed need to be completed to obtain the Isabel Williamson Lunar Observing Certificate.

The numbers for ‘Seeing’ and ‘Transparency’ refer to the condition of the sky at the time the observation was made. ‘Seeing’ refers to the steadiness of the atmosphere and ‘Transparency’ to the clarity. In both cases, it is the Antoniadi Scale where 1 is best, 2 is better-than-average, 3 is average, 4 is below average, and 5 is poor.

The telescope and magnification fields provide a space to record the instrument(s) and the power used for each observation. The magnification, or power, is the focal length of the telescope divided by the focal length of the eyepiece used.

**Objective 1a: Eastern Mare Crisium**

Required Observations (Eastern Mare Crisium)	Date	Time
R1		

Challenge Observations (Eastern Mare Crisium)	Date	Time
C1		

Notes

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Seeing:                    1 2 3 4 5  
 Transparency:        1 2 3 4 5  
 Telescope: \_\_\_\_\_  
 Magnification: \_\_\_\_\_

**Objective 1b: Western Mare Crisium**

Required Observations (Western Mare Crisium)	Date	Time
R1		
R2		

Challenge Observations (Western Mare Crisium)	Date	Time
C1		

Notes

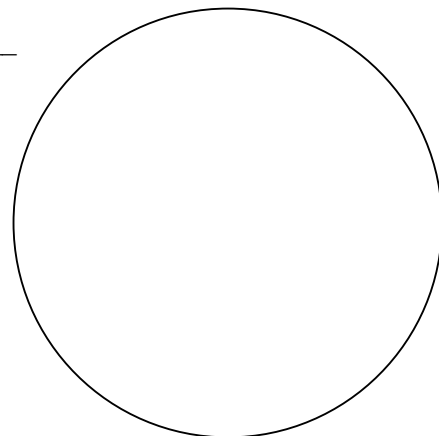
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Seeing:                    1 2 3 4 5  
 Transparency:        1 2 3 4 5  
 Telescope: \_\_\_\_\_  
 Magnification: \_\_\_\_\_

## Objective 2: Eastern Basin Group

Required Observations	Date	Time
R1		
R2		
R3		

Challenge Observations	Date	Time
C1		

### Notes

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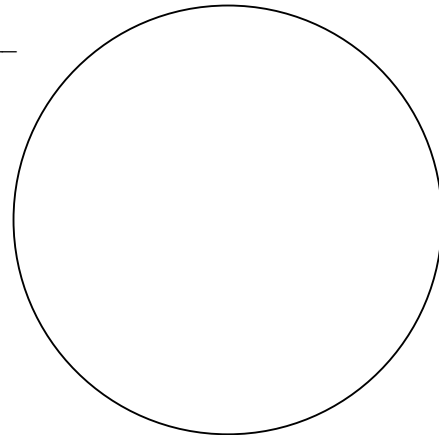
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Seeing:                    1 2 3 4 5  
 Transparency:        1 2 3 4 5  
 Telescope: \_\_\_\_\_  
 Magnification: \_\_\_\_\_



## Objective 3: Mare Anguis

Required Observations	Date	Time
R1		
R2		

Challenge Observations (None)	Date	Time

### Notes

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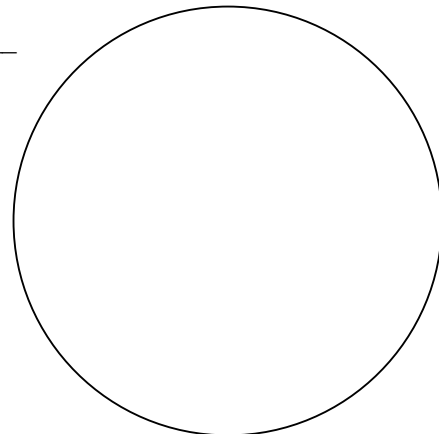
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Seeing:                    1 2 3 4 5  
 Transparency:        1 2 3 4 5  
 Telescope: \_\_\_\_\_  
 Magnification: \_\_\_\_\_



### Objective 4: Vendelinus

Required Observations	Date	Time
R1		
R2		
R3		

Challenge Observations (None)	Date	Time

Notes

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Seeing:                    1 2 3 4 5  
 Transparency:        1 2 3 4 5  
 Telescope: \_\_\_\_\_  
 Magnification: \_\_\_\_\_

### Objective 5: Langrenus

Required Observations	Date	Time
R1		
R2		

Challenge Observations	Date	Time
C1		
C2		

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Seeing:                    1 2 3 4 5  
 Transparency:        1 2 3 4 5  
 Telescope: \_\_\_\_\_  
 Magnification: \_\_\_\_\_

### Objective 6: Petavius

Required Observations	Date	Time
R1		
R2		
R3		

Challenge Observations	Date	Time
C1		
C2		
C3		

Notes

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Seeing:                    1 2 3 4 5  
 Transparency:            1 2 3 4 5  
 Telescope: \_\_\_\_\_  
 Magnification: \_\_\_\_\_

### Objective 7: Furnerius & Fraunhofer

Required Observations	Date	Time
R1		

Challenge Observations	Date	Time
C1		

Notes

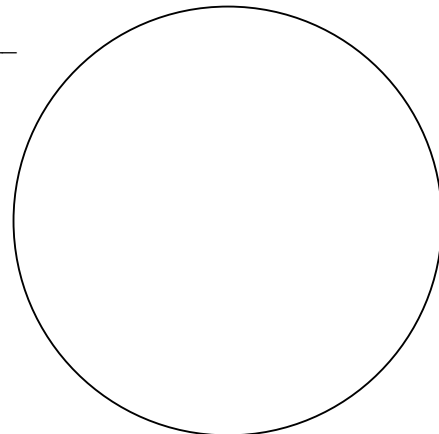
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Seeing:                    1 2 3 4 5  
 Transparency:            1 2 3 4 5  
 Telescope: \_\_\_\_\_  
 Magnification: \_\_\_\_\_

**Objective 8: Geminus & Lacus Spei**

Required Observations	Date	Time
R1		
R2		

Challenge Observations	Date	Time
C1		
C2		

Notes

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Seeing:                    1 2 3 4 5  
 Transparency:        1 2 3 4 5  
 Telescope: \_\_\_\_\_  
 Magnification: \_\_\_\_\_

**Objective 9: Endymion & Mare Humboldtianum**

Required Observations	Date	Time
R1		

Challenge Observations	Date	Time
C1		
C2		

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Seeing:                    1 2 3 4 5  
 Transparency:        1 2 3 4 5  
 Telescope: \_\_\_\_\_  
 Magnification: \_\_\_\_\_

### Objective 10: Snellius & Vallis Snellius

Required Observations	Date	Time
R1		
R2		

Challenge Observations	Date	Time
C1		
C2		

Notes

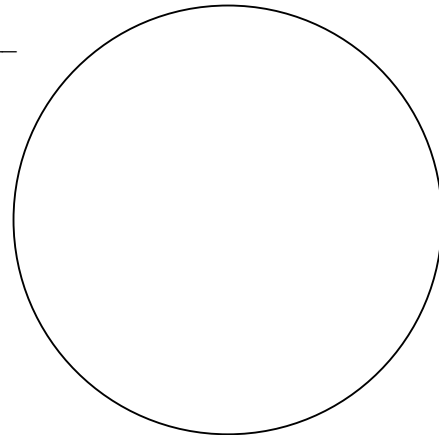
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Seeing:                    1 2 3 4 5  
 Transparency:        1 2 3 4 5  
 Telescope: \_\_\_\_\_  
 Magnification: \_\_\_\_\_

### Objective 11: Cleomedes & Macrobius

Required Observations	Date	Time
R1		
R2		

Challenge Observations	Date	Time
C1		
C2		
C3		

Notes

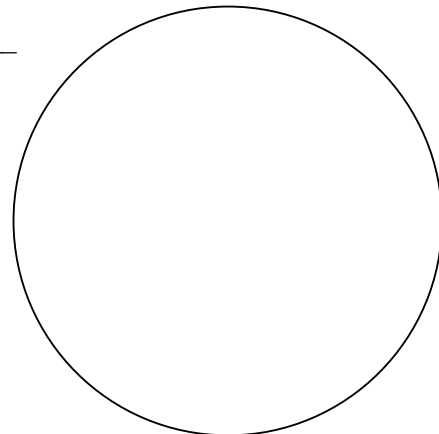
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Seeing:                    1 2 3 4 5  
 Transparency:        1 2 3 4 5  
 Telescope: \_\_\_\_\_  
 Magnification: \_\_\_\_\_



### Objective 12: Stevinus

Required Observations	Date	Time
R1		

Challenge Observations	Date	Time
C1		

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Seeing:                    1 2 3 4 5  
 Transparency:            1 2 3 4 5  
 Telescope: \_\_\_\_\_  
 Magnification: \_\_\_\_\_

### Objective 13a: Eastern Mare Fecunditatis

Required Observations (Eastern Mare Fecunditatis)	Date	Time
R1		

Challenge Observations (None)	Date	Time

Notes

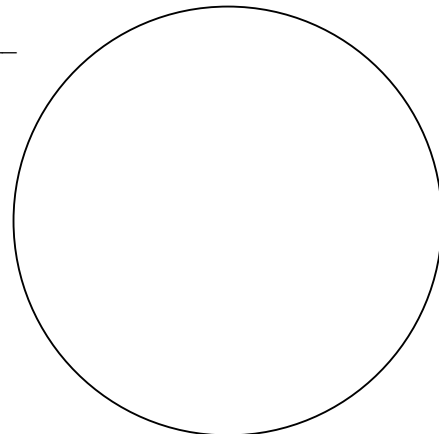
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Seeing:                    1 2 3 4 5  
 Transparency:            1 2 3 4 5  
 Telescope: \_\_\_\_\_  
 Magnification: \_\_\_\_\_

**Objective 13b: Central Mare Fecunditatis**

Required Observations (Central Mare Fecunditatis)	Date	Time
R1		
R2		

Challenge Observations (Central Mare Fecunditatis)	Date	Time
C1		

Notes

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Seeing:                    1 2 3 4 5  
 Transparency:        1 2 3 4 5  
 Telescope: \_\_\_\_\_  
 Magnification: \_\_\_\_\_

**Objective 13c: Western Mare Fecunditatis**

Required Observations (Western Mare Fecunditatis)	Date	Time
R1		
R2		

Challenge Observations (Western Mare Fecunditatis)	Date	Time
C1		
C2		

Notes

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Seeing:                    1 2 3 4 5  
 Transparency:        1 2 3 4 5  
 Telescope: \_\_\_\_\_  
 Magnification: \_\_\_\_\_

**Objective 14: Vallis Rheita**

Required Observations	Date	Time
R1		

Challenge Observations	Date	Time
C1		
C2		

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Seeing:                    1 2 3 4 5  
 Transparency:        1 2 3 4 5  
 Telescope: \_\_\_\_\_  
 Magnification: \_\_\_\_\_

**Objective 15: Promontoria Lavinium & Olivium**

Required Observations	Date	Time
R1		

Challenge Observations	Date	Time
C1		

Notes

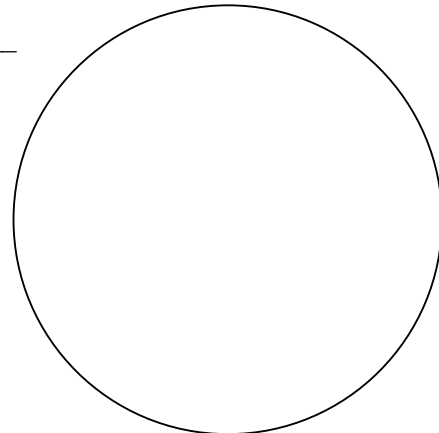
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Seeing:                    1 2 3 4 5  
 Transparency:        1 2 3 4 5  
 Telescope: \_\_\_\_\_  
 Magnification: \_\_\_\_\_

**Objective 16: Franklin & Cepheus**

Required Observations	Date	Time
R1		
R2		

Challenge Observations (None)	Date	Time

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Seeing:                    1 2 3 4 5  
 Transparency:        1 2 3 4 5  
 Telescope: \_\_\_\_\_  
 Magnification: \_\_\_\_\_

**Objective 17: Steinheil & Watt**

Required Observations	Date	Time
R1		

Challenge Observations	Date	Time
C1		

Notes

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Seeing:                    1 2 3 4 5  
 Transparency:        1 2 3 4 5  
 Telescope: \_\_\_\_\_  
 Magnification: \_\_\_\_\_

**Objective 18: Palus Somni & Proclus**

Required Observations	Date	Time
R1		

Challenge Observations	Date	Time
C1		

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Seeing:                    1 2 3 4 5  
 Transparency:        1 2 3 4 5  
 Telescope: \_\_\_\_\_  
 Magnification: \_\_\_\_\_

**Objective 19: Newcomb**

Required Observations	Date	Time
R1		

Challenge Observations (None)	Date	Time

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Seeing:                    1 2 3 4 5  
 Transparency:        1 2 3 4 5  
 Telescope: \_\_\_\_\_  
 Magnification: \_\_\_\_\_

**Objective 20: Metius & Fabricius**

Required Observations	Date	Time
R1		

Challenge Observations	Date	Time
C1		

Notes

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Seeing:                    1 2 3 4 5

Transparency:           1 2 3 4 5

Telescope: \_\_\_\_\_

Magnification: \_\_\_\_\_

**Objective 21: Sinus Concordiae**

Required Observations	Date	Time
R1		

Challenge Observations (None)	Date	Time

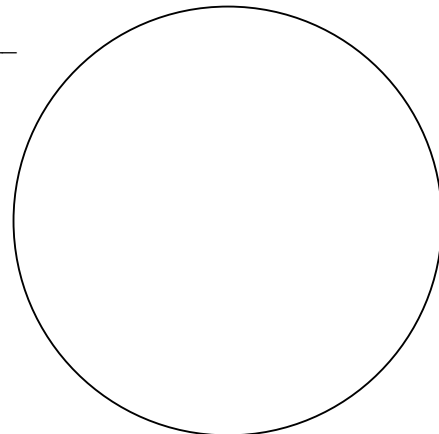
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Seeing:                    1 2 3 4 5

Transparency:           1 2 3 4 5

Telescope: \_\_\_\_\_

Magnification: \_\_\_\_\_

**Objective 22: Janssen**

Required Observations	Date	Time
R1		

Challenge Observations	Date	Time
C1		

Notes

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Seeing:                    1 2 3 4 5  
 Transparency:        1 2 3 4 5  
 Telescope: \_\_\_\_\_  
 Magnification: \_\_\_\_\_

**Objective 23: Montes Pyrenaeus**

Required Observations	Date	Time
R1		

Challenge Observations (None)	Date	Time

Notes

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Seeing:                    1 2 3 4 5  
 Transparency:        1 2 3 4 5  
 Telescope: \_\_\_\_\_  
 Magnification: \_\_\_\_\_

### Objective 24: Atlas & Hercules

Required Observations	Date	Time
R1		
R2		

Challenge Observations	Date	Time
C1		
C2		
C3		

Notes

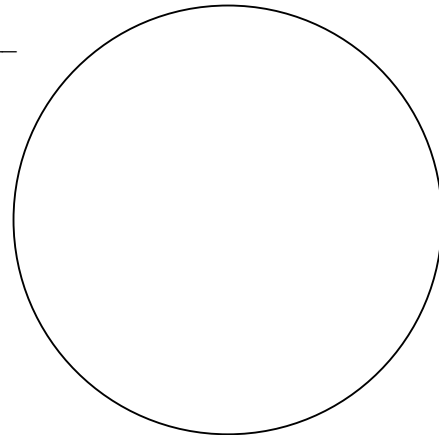
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Seeing:                    1 2 3 4 5  
 Transparency:        1 2 3 4 5  
 Telescope: \_\_\_\_\_  
 Magnification: \_\_\_\_\_

### Objective 25: Mare Nectaris

Required Observations	Date	Time
R1		

Challenge Observations	Date	Time
C1		
C2		

Notes

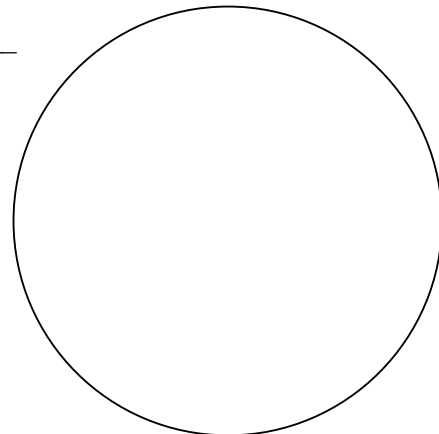
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Seeing:                    1 2 3 4 5  
 Transparency:        1 2 3 4 5  
 Telescope: \_\_\_\_\_  
 Magnification: \_\_\_\_\_



### Objective 26: Rupes Cauchy & Cauchy Domes

Required Observations	Date	Time
R1		
R2		

Challenge Observations	Date	Time
C1		
C2		

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Seeing:                    1 2 3 4 5  
 Transparency:        1 2 3 4 5  
 Telescope: \_\_\_\_\_  
 Magnification: \_\_\_\_\_

### Objective 27: Sinus Amoris

Required Observations	Date	Time
R1		
R2		
R3		

Challenge Observations (None)	Date	Time

Notes

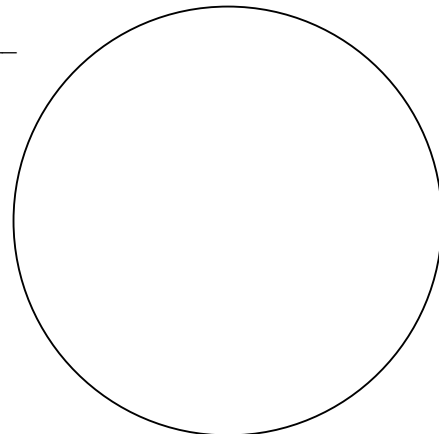
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Seeing:                    1 2 3 4 5  
 Transparency:        1 2 3 4 5  
 Telescope: \_\_\_\_\_  
 Magnification: \_\_\_\_\_

**Objective 28: Capella & Vallis Capella**

Required Observations	Date	Time
R1		
R2		

Challenge Observations	Date	Time
C1		
C2		

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Seeing:                    1 2 3 4 5  
 Transparency:        1 2 3 4 5  
 Telescope: \_\_\_\_\_  
 Magnification: \_\_\_\_\_

**Objective 29: Fracastorius**

Required Observations	Date	Time
R1		

Challenge Observations	Date	Time
C1		

Notes

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Seeing:                    1 2 3 4 5  
 Transparency:        1 2 3 4 5  
 Telescope: \_\_\_\_\_  
 Magnification: \_\_\_\_\_

**Objective 30: Hommel**

Required Observations	Date	Time
R1		
R2		

Challenge Observations	Date	Time
C1		

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Seeing:                    1 2 3 4 5  
 Transparency:        1 2 3 4 5  
 Telescope: \_\_\_\_\_  
 Magnification: \_\_\_\_\_

**Objective 31: Piccolomini**

Required Observations	Date	Time
R1		

Challenge Observations	Date	Time
C1		

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Seeing:                    1 2 3 4 5  
 Transparency:        1 2 3 4 5  
 Telescope: \_\_\_\_\_  
 Magnification: \_\_\_\_\_

**Objective 32: Wohler**

Required Observations	Date	Time
R1		

Challenge Observations	Date	Time
C1		
C2		

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Seeing:                    1 2 3 4 5  
 Transparency:        1 2 3 4 5  
 Telescope: \_\_\_\_\_  
 Magnification: \_\_\_\_\_

**Objective 33: Posidonius**

Required Observations	Date	Time
R1		
R2		

Challenge Observations	Date	Time
C1		
C2		

Notes

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Seeing:                    1 2 3 4 5  
 Transparency:        1 2 3 4 5  
 Telescope: \_\_\_\_\_  
 Magnification: \_\_\_\_\_

### Objective 34: Dorsa Aldrovandi & Mons Argaeus

Required Observations	Date	Time
R1		
R2		
R3		

Challenge Observations	Date	Time
C1		
C2		

Notes

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Seeing:                    1 2 3 4 5  
 Transparency:        1 2 3 4 5  
 Telescope: \_\_\_\_\_  
 Magnification: \_\_\_\_\_

### Objective 35: Jansen

Required Observations	Date	Time
R1		

Challenge Observations	Date	Time
C1		
C2		

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Seeing:                    1 2 3 4 5  
 Transparency:        1 2 3 4 5  
 Telescope: \_\_\_\_\_  
 Magnification: \_\_\_\_\_

**Objective 36: Lacus Mortis & Burg**

Required Observations	Date	Time
R1		
R2		
R3		

Challenge Observations	Date	Time
C1		

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Seeing:                    1 2 3 4 5  
 Transparency:        1 2 3 4 5  
 Telescope: \_\_\_\_\_  
 Magnification: \_\_\_\_\_

**Objective 37: Theophilus (Sinus Asperitatis & Mare Nectaris Area)**

Required Observations	Date	Time
R1		
R2		
R3		
R4		

Challenge Observations	Date	Time
C1		

Notes

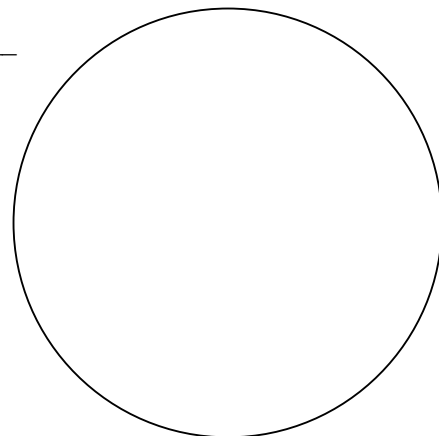
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Seeing:                    1 2 3 4 5  
 Transparency:        1 2 3 4 5  
 Telescope: \_\_\_\_\_  
 Magnification: \_\_\_\_\_

**Objective 38: Cyrillus (Sinus Asperitatis & Mare Nectaris Area)**

Required Observations	Date	Time
R1		
R2		

Challenge Observations	Date	Time
C1		
C2		
C3		

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Seeing:                    1 2 3 4 5  
 Transparency:        1 2 3 4 5  
 Telescope: \_\_\_\_\_  
 Magnification: \_\_\_\_\_

**Objective 39: Catharina (Sinus Asperitatis & Mare Nectaris Area)**

Required Observations	Date	Time
R1		

Challenge Observations	Date	Time
C1		
C2		

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Seeing:                    1 2 3 4 5  
 Transparency:        1 2 3 4 5  
 Telescope: \_\_\_\_\_  
 Magnification: \_\_\_\_\_

### Objective 40: Rupes Altai

Required Observations	Date	Time
R1		
R2		

Challenge Observations	Date	Time
C1		

Notes

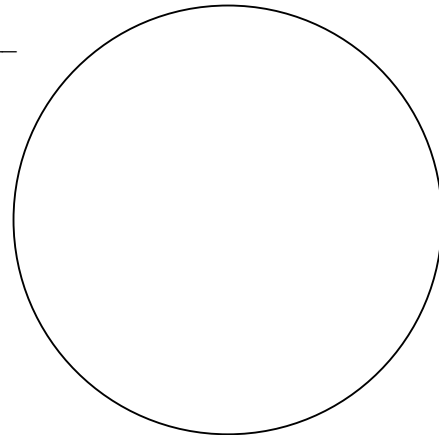
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Seeing:                    1 2 3 4 5  
 Transparency:           1 2 3 4 5  
 Telescope: \_\_\_\_\_  
 Magnification: \_\_\_\_\_

### Objective 41: Mare Serenitatis

Required Observations	Date	Time
R1		
R2		

Challenge Observations	Date	Time
C1		
C2		

Notes

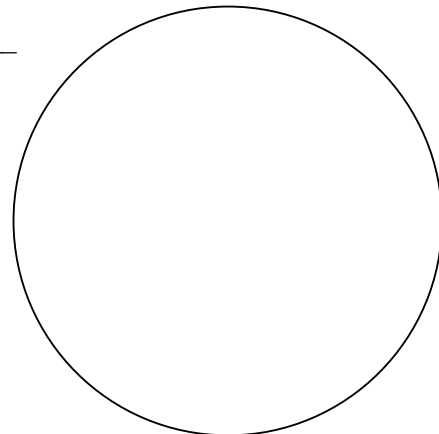
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**Objective 42: Sinus Asperitatis**

Required Observations	Date	Time
R1		

Challenge Observations	Date	Time
C1		

Notes

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Seeing:                    1 2 3 4 5  
 Transparency:        1 2 3 4 5  
 Telescope: \_\_\_\_\_  
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**Objective 43: Plinius**

Required Observations	Date	Time
R1		

Challenge Observations	Date	Time
C1		
C2		
C3		

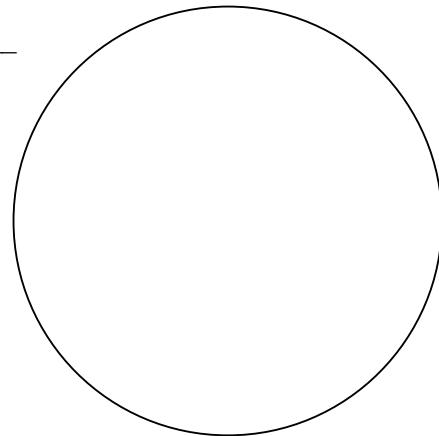
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Seeing:                    1 2 3 4 5  
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 Telescope: \_\_\_\_\_  
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**Objective 44: Lamont, Arago, & Ross**

Required Observations	Date	Time
R1		
R2		
R3		

Challenge Observations	Date	Time
C1		
C2		
C3		
C4		

Notes

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Seeing:                    1 2 3 4 5  
 Transparency:        1 2 3 4 5  
 Telescope: \_\_\_\_\_  
 Magnification: \_\_\_\_\_

**Objective 45: Moltke & Rimae Hypatia**

Required Observations	Date	Time
R1		

Challenge Observations	Date	Time
C1		
C2		

Notes

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Seeing:                    1 2 3 4 5  
 Transparency:        1 2 3 4 5  
 Telescope: \_\_\_\_\_  
 Magnification: \_\_\_\_\_

**Objective 46: Zagut, Rabbi Levi, & Lindenau**

Required Observations	Date	Time
R1		
R2		

Challenge Observations (None)	Date	Time

Notes

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Seeing:                    1 2 3 4 5

Transparency:           1 2 3 4 5

Telescope: \_\_\_\_\_

Magnification: \_\_\_\_\_

**Objective 47: Delambre**

Required Observations	Date	Time
R1		
R2		

Challenge Observations	Date	Time
C1		

Notes

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Seeing:                    1 2 3 4 5

Transparency:           1 2 3 4 5

Telescope: \_\_\_\_\_

Magnification: \_\_\_\_\_

**Objective 48: Aristoteles & Eudoxus**

Required Observations	Date	Time
R1		
R2		
R3		
R4		

Challenge Observations	Date	Time
C1		
C2		

Notes

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Seeing:                    1 2 3 4 5  
 Transparency:        1 2 3 4 5  
 Telescope: \_\_\_\_\_  
 Magnification: \_\_\_\_\_

**Objective 49: Sacrobosco & Playfair**

Required Observations	Date	Time
R1		

Challenge Observations	Date	Time
C1		

Notes

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Seeing:                    1 2 3 4 5  
 Transparency:        1 2 3 4 5  
 Telescope: \_\_\_\_\_  
 Magnification: \_\_\_\_\_

**Objective 50: Maurolycus & Barocius**

Required Observations	Date	Time
R1		

Challenge Observations	Date	Time
C1		

Notes

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Seeing:                    1 2 3 4 5  
 Transparency:        1 2 3 4 5  
 Telescope: \_\_\_\_\_  
 Magnification: \_\_\_\_\_

**Objective 51: Gemma Frisius**

Required Observations	Date	Time
R1		
R2		

Challenge Observations	Date	Time
C1		

Notes

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Seeing:                    1 2 3 4 5  
 Transparency:        1 2 3 4 5  
 Telescope: \_\_\_\_\_  
 Magnification: \_\_\_\_\_

**Objective 52: Montes Haemus & Mare Serenitatis Lacus Group**

Required Observations	Date	Time
R1		
R2		

Challenge Observations (None)	Date	Time

Notes

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Seeing:                    1 2 3 4 5  
 Transparency:        1 2 3 4 5  
 Telescope: \_\_\_\_\_  
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**Objective 53: Rima Ariadaeus**

Required Observations	Date	Time
R1		
R2		
R3		

Challenge Observations (None)	Date	Time

Notes

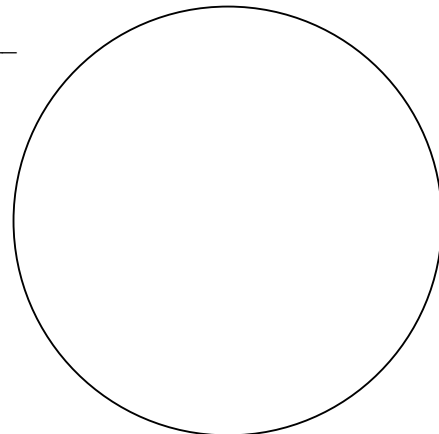
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Seeing:                    1 2 3 4 5  
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 Telescope: \_\_\_\_\_  
 Magnification: \_\_\_\_\_

**Objective 54: Abulfeda & Catena Abulfeda**

Required Observations	Date	Time
R1		
R2		

Challenge Observations	Date	Time
C1		
C2		
C3		

Notes

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Seeing:                    1 2 3 4 5  
 Transparency:        1 2 3 4 5  
 Telescope: \_\_\_\_\_  
 Magnification: \_\_\_\_\_

**Objective 55: Abenezra & Azophi**

Required Observations	Date	Time
R1		

Challenge Observations	Date	Time
C1		
C2		

Notes

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Seeing:                    1 2 3 4 5  
 Transparency:        1 2 3 4 5  
 Telescope: \_\_\_\_\_  
 Magnification: \_\_\_\_\_

**Objective 56: Dorsum von Cotta & Dorsum Buckland**

Required Observations	Date	Time
R1		
R2		

Challenge Observations	Date	Time
C1		

Notes

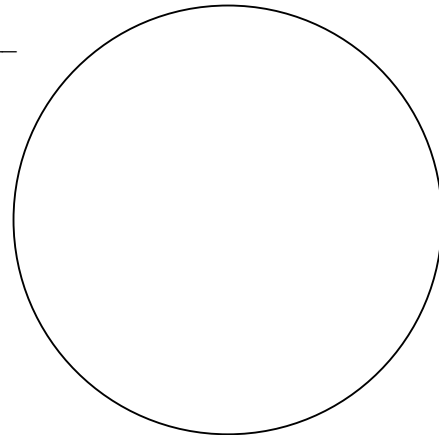
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Seeing:                    1 2 3 4 5  
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**Objective 57: Linné**

Required Observations	Date	Time
R1		
R2		

Challenge Observations	Date	Time
C1		

Notes

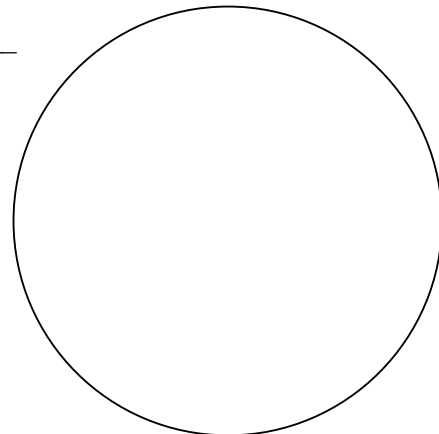
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Seeing:                    1 2 3 4 5  
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 Telescope: \_\_\_\_\_  
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**Objective 58: Cuvier**

Required Observations	Date	Time
R1		

Challenge Observations	Date	Time
C1		
C2		

Notes

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Seeing:                    1 2 3 4 5  
 Transparency:        1 2 3 4 5  
 Telescope: \_\_\_\_\_  
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**Objective 59: Manilius**

Required Observations	Date	Time
R1		

Challenge Observations	Date	Time
C1		
C2		

Notes

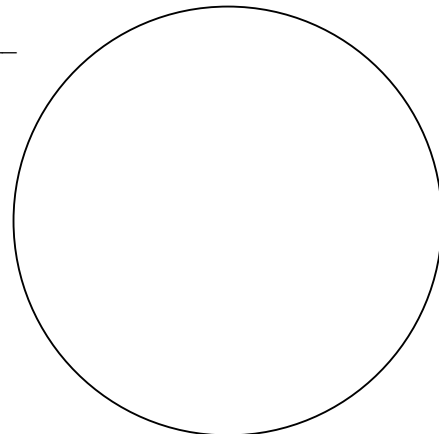
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Seeing:                    1 2 3 4 5  
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### Objective 60: Montes Caucasus

Required Observations	Date	Time
R1		

Challenge Observations	Date	Time
C1		

Notes

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Seeing:                    1 2 3 4 5  
 Transparency:        1 2 3 4 5  
 Telescope: \_\_\_\_\_  
 Magnification: \_\_\_\_\_

### Objective 61: Rima Hyginus

Required Observations	Date	Time
R1		
R2		

Challenge Observations	Date	Time
C1		

Notes

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Seeing:                    1 2 3 4 5  
 Transparency:        1 2 3 4 5  
 Telescope: \_\_\_\_\_  
 Magnification: \_\_\_\_\_

**Objective 62: Stofler & Faraday**

Required Observations	Date	Time
R1		
R2		
R3		
R4		

Challenge Observations (None)	Date	Time

Notes

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Seeing:                    1 2 3 4 5  
 Transparency:        1 2 3 4 5  
 Telescope: \_\_\_\_\_  
 Magnification: \_\_\_\_\_

**Objective 63: Airy, Arglander & Vogel**

Required Observations	Date	Time
R1		

Challenge Observations	Date	Time

Notes

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Seeing:                    1 2 3 4 5  
 Transparency:        1 2 3 4 5  
 Telescope: \_\_\_\_\_  
 Magnification: \_\_\_\_\_

**Objective 64: Rimae Triesnecker**

Required Observations	Date	Time
R1		
R2		
R3		

Challenge Observations	Date	Time
C1		

Notes

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Seeing:                    1 2 3 4 5  
 Transparency:        1 2 3 4 5  
 Telescope: \_\_\_\_\_  
 Magnification: \_\_\_\_\_

**Objective 65: Hipparchus**

Required Observations	Date	Time
R1		
R2		

Challenge Observations	Date	Time
C1		
C2		

Notes

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Seeing:                    1 2 3 4 5  
 Transparency:        1 2 3 4 5  
 Telescope: \_\_\_\_\_  
 Magnification: \_\_\_\_\_

**Objective 66: Albategnius**

Required Observations	Date	Time
R1		
R2		

Challenge Observations	Date	Time
C1		

Notes

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Seeing:                    1 2 3 4 5  
 Transparency:        1 2 3 4 5  
 Telescope: \_\_\_\_\_  
 Magnification: \_\_\_\_\_

**Objective 67: Werner & Aliacensis**

Required Observations	Date	Time
R1		
R2		

Challenge Observations	Date	Time
C1		

Notes

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Seeing:                    1 2 3 4 5  
 Transparency:        1 2 3 4 5  
 Telescope: \_\_\_\_\_  
 Magnification: \_\_\_\_\_

**Objective 68: Montes Alpes & Vallis Alpes**

Required Observations	Date	Time
R1		
R2		
R3		

Challenge Observations	Date	Time
C1		
C2		

Notes

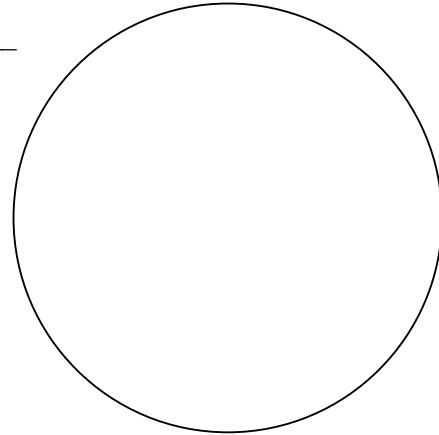
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Seeing:                    1 2 3 4 5  
 Transparency:        1 2 3 4 5  
 Telescope: \_\_\_\_\_  
 Magnification: \_\_\_\_\_

**Objective 69: Aristillus & Autolycus**

Required Observations	Date	Time
R1		
R2		
R3		

Challenge Observations	Date	Time
C1		

Notes

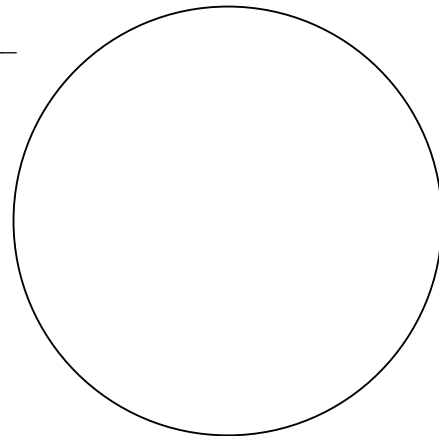
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Seeing:                    1 2 3 4 5  
 Transparency:        1 2 3 4 5  
 Telescope: \_\_\_\_\_  
 Magnification: \_\_\_\_\_

**Objective 70: Montes Apenninus & Apennine Bench**

Required Observations	Date	Time
R1		
R2		

Challenge Observations	Date	Time
C1		
C2		
C3		

Notes

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Seeing:                    1 2 3 4 5  
 Transparency:        1 2 3 4 5  
 Telescope: \_\_\_\_\_  
 Magnification: \_\_\_\_\_

**Objective 71: Walther (Walter before 1979)**

Required Observations	Date	Time
R1		
R2		

Challenge Observations	Date	Time
C1		

Notes

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Seeing:                    1 2 3 4 5  
 Transparency:        1 2 3 4 5  
 Telescope: \_\_\_\_\_  
 Magnification: \_\_\_\_\_

**Objective 72: Huggins, Nasireddin, & Miller**

Required Observations	Date	Time
R1		
R2		

Challenge Observations (None)	Date	Time

Notes

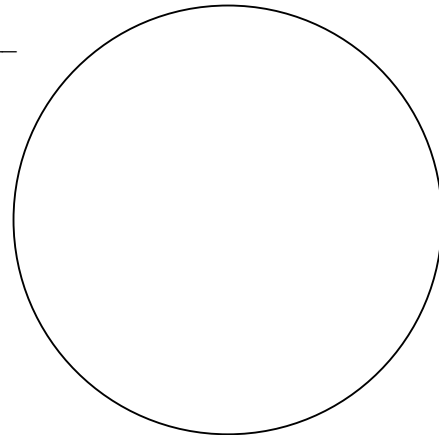
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Seeing:                    1 2 3 4 5  
 Transparency:        1 2 3 4 5  
 Telescope: \_\_\_\_\_  
 Magnification: \_\_\_\_\_

**Objective 73: Regiomontanus**

Required Observations	Date	Time
R1		
R2		

Challenge Observations (None)	Date	Time

Notes

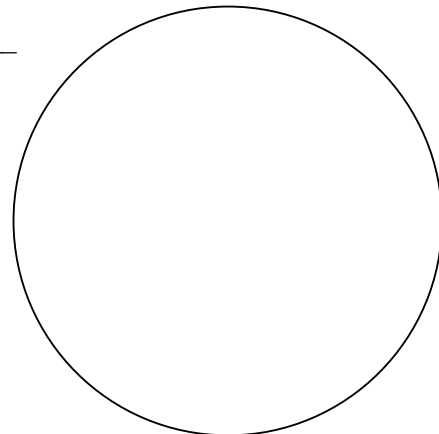
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Seeing:                    1 2 3 4 5  
 Transparency:        1 2 3 4 5  
 Telescope: \_\_\_\_\_  
 Magnification: \_\_\_\_\_



### Objective 74: Arzachel

Required Observations	Date	Time
R1		
R2		
R3		

Challenge Observations	Date	Time
C1		
C2		

Notes

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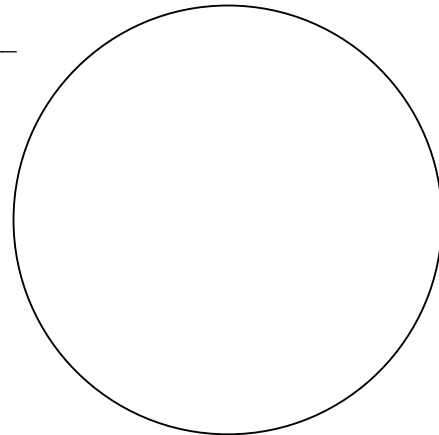
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Seeing:                    1 2 3 4 5  
 Transparency:        1 2 3 4 5  
 Telescope: \_\_\_\_\_  
 Magnification: \_\_\_\_\_



### Objective 75: Ptolemaeus & Alphonsus

Required Observations	Date	Time
R1		
R2		

Challenge Observations	Date	Time
C1		
C2		

Notes

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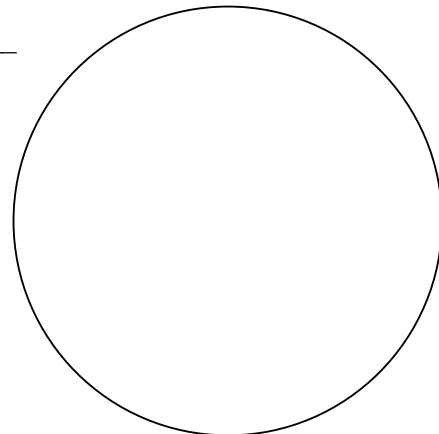
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Seeing:                    1 2 3 4 5  
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**Objective 76: Goldshmidt**

Required Observations	Date	Time
R1		
R2		

Challenge Observations	Date	Time
C1		
C2		
C3		

Notes

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Seeing:                    1 2 3 4 5  
 Transparency:        1 2 3 4 5  
 Telescope: \_\_\_\_\_  
 Magnification: \_\_\_\_\_

**Objective 77: Montes Spitzbergen & Mons Piton**

Required Observations	Date	Time
R1		
R2		

Challenge Observations	Date	Time
C1		

Notes

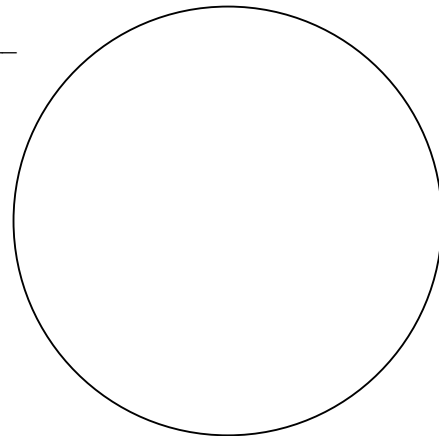
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 Transparency:        1 2 3 4 5  
 Telescope: \_\_\_\_\_  
 Magnification: \_\_\_\_\_

**Objective 78: Archimedes & Montes Archimedes**

Required Observations	Date	Time
R1		
R2		

Challenge Observations (None)	Date	Time

Notes

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Seeing:                    1 2 3 4 5  
 Transparency:        1 2 3 4 5  
 Telescope: \_\_\_\_\_  
 Magnification: \_\_\_\_\_

**Objective 79: Deslandres**

Required Observations	Date	Time
R1		

Challenge Observations	Date	Time
C1		

Notes

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Seeing:                    1 2 3 4 5  
 Transparency:        1 2 3 4 5  
 Telescope: \_\_\_\_\_  
 Magnification: \_\_\_\_\_

### Objective 80: Moretus & South Polar Region

Required Observations	Date	Time
R1		
R2		

Challenge Observations	Date	Time
C1		

Notes

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Seeing:                    1 2 3 4 5  
 Transparency:        1 2 3 4 5  
 Telescope: \_\_\_\_\_  
 Magnification: \_\_\_\_\_

### Objective 81: Maginus

Required Observations	Date	Time
R1		
R2		

Challenge Observations	Date	Time
C1		

Notes

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Seeing:                    1 2 3 4 5  
 Transparency:        1 2 3 4 5  
 Telescope: \_\_\_\_\_  
 Magnification: \_\_\_\_\_

### Objective 82: Davy & Catena Davy

Required Observations	Date	Time
R1		
R2		

Challenge Observations	Date	Time
C1		

Notes

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Seeing:                    1 2 3 4 5  
 Transparency:        1 2 3 4 5  
 Telescope: \_\_\_\_\_  
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### Objective 83: Rupes Recta

Required Observations	Date	Time
R1		
R2		
R3		

Challenge Observations	Date	Time
C1		

Notes

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Seeing:                    1 2 3 4 5  
 Transparency:        1 2 3 4 5  
 Telescope: \_\_\_\_\_  
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**Objective 84: Mons Pico & Mons Teneriffe**

Required Observations	Date	Time
R1		

Challenge Observations (None)	Date	Time

Notes

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Seeing:                    1 2 3 4 5  
 Transparency:        1 2 3 4 5  
 Telescope: \_\_\_\_\_  
 Magnification: \_\_\_\_\_

**Objective 85: Plato**

Required Observations	Date	Time
R1		
R2		

Challenge Observations	Date	Time
C1		
C2		
C3		

Notes

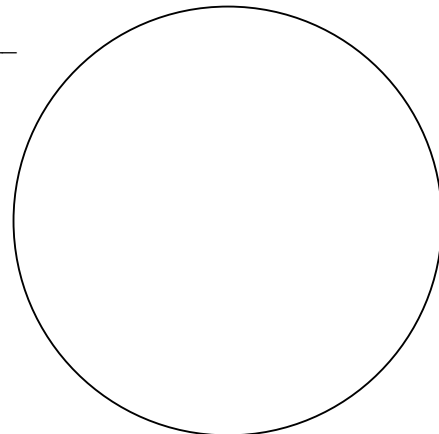
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Seeing:                    1 2 3 4 5  
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### Objective 86: Tycho

Required Observations	Date	Time
R1		

Challenge Observations	Date	Time
C1		

Notes

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Seeing:                    1 2 3 4 5  
 Transparency:           1 2 3 4 5  
 Telescope: \_\_\_\_\_  
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### Objective 87: Eratosthenes

Required Observations	Date	Time
R1		
R2		
R3		

Challenge Observations (None)	Date	Time

Notes

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Seeing:                    1 2 3 4 5  
 Transparency:           1 2 3 4 5  
 Telescope: \_\_\_\_\_  
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**Objective 88: Gauricus & Wurzelbauer**

Required Observations	Date	Time
R1		

Challenge Observations (None)	Date	Time

Notes

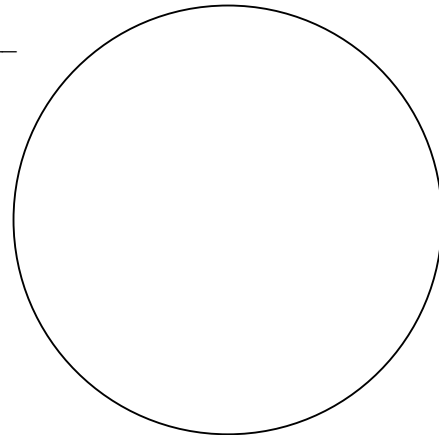
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Seeing:                    1 2 3 4 5  
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**Objective 89: Timocharis**

Required Observations	Date	Time
R1		
R2		

Challenge Observations	Date	Time
C1		
C2		

Notes

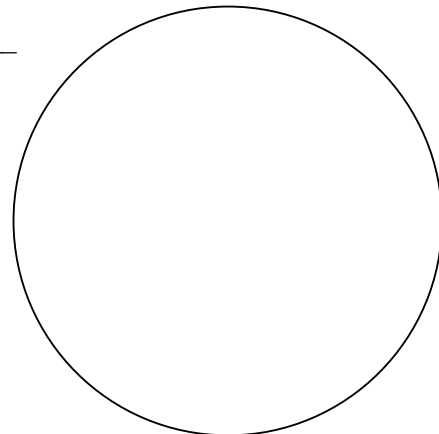
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Seeing:                    1 2 3 4 5  
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**Objective 90: Pitatus**

Required Observations	Date	Time
R1		

Challenge Observations	Date	Time
C1		

Notes

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Seeing:                    1 2 3 4 5  
 Transparency:        1 2 3 4 5  
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**Objective 91: Stadius**

Required Observations	Date	Time
R1		
R2		
R3		

Challenge Observations (None)	Date	Time

Notes

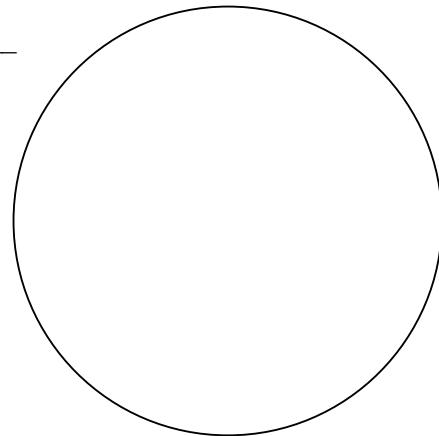
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 Telescope: \_\_\_\_\_  
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**Objective 92: Clavius**

Required Observations	Date	Time
R1		
R2		

Challenge Observations	Date	Time
C1		

Notes

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Seeing:                    1 2 3 4 5  
 Transparency:        1 2 3 4 5  
 Telescope: \_\_\_\_\_  
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**Objective 93: Fra Mauro Formation**

Required Observations	Date	Time
R1		
R2		

Challenge Observations	Date	Time
C1		
C2		

Notes

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Seeing:                    1 2 3 4 5  
 Transparency:        1 2 3 4 5  
 Telescope: \_\_\_\_\_  
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### Objective 94: Montes Recti

Required Observations	Date	Time
R1		

Challenge Observations (None)	Date	Time

Notes

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Seeing:                    1 2 3 4 5  
 Transparency:        1 2 3 4 5  
 Telescope: \_\_\_\_\_  
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### Objective 95: Copernicus

Required Observations	Date	Time
R1		
R2		

Challenge Observations	Date	Time
C1		
C2		

Notes

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Seeing:                    1 2 3 4 5  
 Transparency:        1 2 3 4 5  
 Telescope: \_\_\_\_\_  
 Magnification: \_\_\_\_\_

**Objective 96: Mare Imbrium / Eratosthenes / Copernicus System**

Required Observations	Date	Time
R1		
R2		
R3		
R4		

Challenge Observations (None)	Date	Time

Notes

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Seeing:                    1 2 3 4 5  
 Transparency:        1 2 3 4 5  
 Telescope: \_\_\_\_\_  
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**Objective 97: Wilhelm & Heinsius**

Required Observations	Date	Time
R1		
R2		

Challenge Observations (None)	Date	Time

Notes

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Seeing:                    1 2 3 4 5  
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 Telescope: \_\_\_\_\_  
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**Objective 98: Blaucanus & Scheiner**

Required Observations	Date	Time
R1		

Challenge Observations	Date	Time
C1		

Notes

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Seeing:                    1 2 3 4 5  
 Transparency:        1 2 3 4 5  
 Telescope: \_\_\_\_\_  
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**Objective 99: Longomontanus**

Required Observations	Date	Time
R1		
R2		

Challenge Observations	Date	Time

Notes

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Seeing:                    1 2 3 4 5  
 Transparency:        1 2 3 4 5  
 Telescope: \_\_\_\_\_  
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**Objective 100: Bullialdus**

Required Observations	Date	Time
R1		
R2		

Challenge Observations	Date	Time

Notes

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Seeing:                    1 2 3 4 5  
 Transparency:        1 2 3 4 5  
 Telescope: \_\_\_\_\_  
 Magnification: \_\_\_\_\_

**Objective 101: Kies, Mercator, & Campanus**

Required Observations	Date	Time
R1		
R2		

Challenge Observations	Date	Time
C1		
C2		

Notes

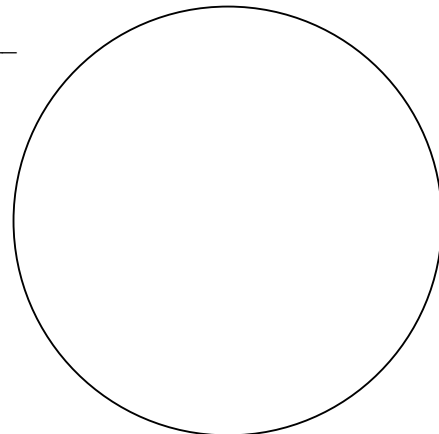
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Seeing:                    1 2 3 4 5  
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**Objective 102: Mare Cognitum & Kuiper**

Required Observations	Date	Time
R1		
R2		

Challenge Observations	Date	Time
C1		
C2		

Notes

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Seeing:                    1 2 3 4 5  
 Transparency:        1 2 3 4 5  
 Telescope: \_\_\_\_\_  
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**Objective 103: Reinhold & Lansberg**

Required Observations	Date	Time
R1		
R2		

Challenge Observations	Date	Time
C1		
C2		

Notes

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Seeing:                    1 2 3 4 5  
 Transparency:        1 2 3 4 5  
 Telescope: \_\_\_\_\_  
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### Objective 104: Dorsum Zirkel & Dorsum Heim

Required Observations	Date	Time
R1		
R2		
R3		

Challenge Observations	Date	Time
C1		
C2		

Notes

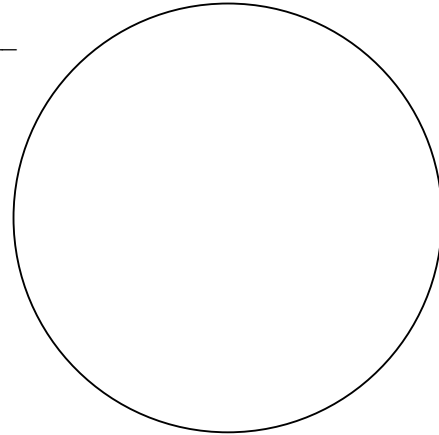
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### Objective 105: Montes Carpatius

Required Observations	Date	Time
R1		

Challenge Observations	Date	Time
C1		
C2		

Notes

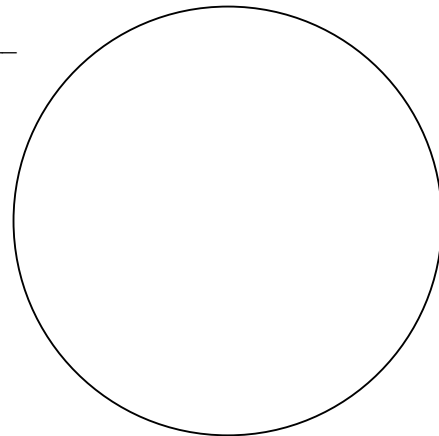
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Seeing:                    1 2 3 4 5  
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**Objective 106: Sinus Iridum**

Required Observations	Date	Time
R1		
R2		
R3		

Challenge Observations	Date	Time
C1		
C2		

Notes

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Seeing:                    1 2 3 4 5  
 Transparency:        1 2 3 4 5  
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**Objective 107: Klaproth & Casatus**

Required Observations	Date	Time
R1		

Challenge Observations (None)	Date	Time

Notes

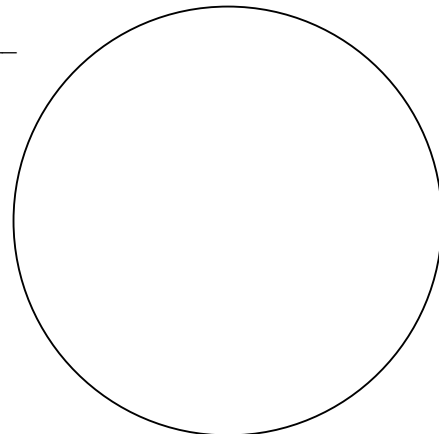
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### Objective 108: Palus Epidemiarum

Required Observations	Date	Time
R1		
R2		

Challenge Observations	Date	Time
C1		

Notes

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Seeing:                    1 2 3 4 5  
 Transparency:           1 2 3 4 5  
 Telescope: \_\_\_\_\_  
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### Objective 109: Lacus Timoris

Required Observations	Date	Time
R1		
R2		

Challenge Observations	Date	Time
C1		

Notes

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Seeing:                    1 2 3 4 5  
 Transparency:           1 2 3 4 5  
 Telescope: \_\_\_\_\_  
 Magnification: \_\_\_\_\_

**Objective 110: Montes Riphaeus**

Required Observations	Date	Time
R1		

Challenge Observations	Date	Time
C1		

Notes

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Seeing:                    1 2 3 4 5  
 Transparency:        1 2 3 4 5  
 Telescope: \_\_\_\_\_  
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**Objective 111: Hortensius & Hortensius Domes**

Required Observations	Date	Time
R1		
R2		

Challenge Observations	Date	Time
C1		

Notes

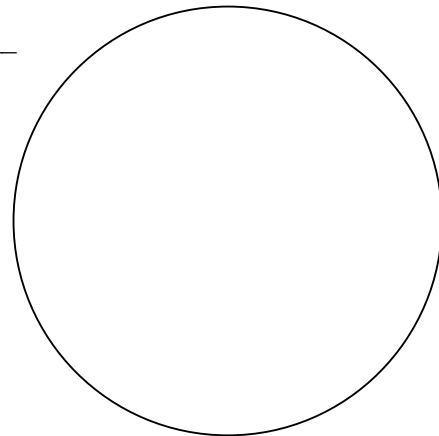
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### Objective 112: Mare Insularum Volcanic Complex

Required Observations	Date	Time
R1		

Challenge Observations	Date	Time
C1		
C2		
C3		

Notes

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Seeing:                    1 2 3 4 5  
 Transparency:        1 2 3 4 5  
 Telescope: \_\_\_\_\_  
 Magnification: \_\_\_\_\_

### Objective 113: Promontorium Kelvin & Rupes Kelvin

Required Observations	Date	Time
R1		
R2		
R3		

Challenge Observations	Date	Time
C1		

Notes

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Seeing:                    1 2 3 4 5  
 Transparency:        1 2 3 4 5  
 Telescope: \_\_\_\_\_  
 Magnification: \_\_\_\_\_

**Objective 114: Mons Delisle & Mons Vinogradov**

Required Observations	Date	Time
R1		
R2		

Challenge Observations (None)	Date	Time

Notes

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Seeing:                    1 2 3 4 5  
 Transparency:        1 2 3 4 5  
 Telescope: \_\_\_\_\_  
 Magnification: \_\_\_\_\_

**Objective 115: Kepler & Encke**

Required Observations	Date	Time
R1		
R2		

Challenge Observations	Date	Time
C1		
C2		

Notes

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Seeing:                    1 2 3 4 5  
 Transparency:        1 2 3 4 5  
 Telescope: \_\_\_\_\_  
 Magnification: \_\_\_\_\_

**Objective 116: Gassendi**

Required Observations	Date	Time
R1		

Challenge Observations	Date	Time
C1		

Notes

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Seeing:                    1 2 3 4 5  
 Transparency:        1 2 3 4 5  
 Telescope: \_\_\_\_\_  
 Magnification: \_\_\_\_\_

**Objective 117: Mons Gruithuisen Gamma & Delta**

Required Observations	Date	Time
R1		

Challenge Observations	Date	Time
C1		
C2		

Notes

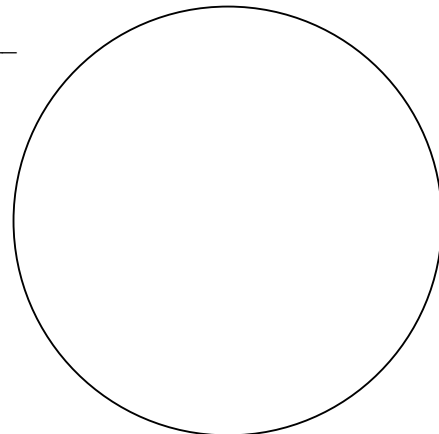
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**Objective 118: Schiller & the Schiller-Zucchi Basin**

Required Observations	Date	Time
R1		
R2		

Challenge Observations	Date	Time
C1		

Notes

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Seeing:                    1 2 3 4 5  
 Transparency:        1 2 3 4 5  
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**Objective 119: Montes Harbinger**

Required Observations	Date	Time
R1		

Challenge Observations	Date	Time
C1		

Notes

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Seeing:                    1 2 3 4 5  
 Transparency:        1 2 3 4 5  
 Telescope: \_\_\_\_\_  
 Magnification: \_\_\_\_\_

### Objective 120: Letronne & Flamsteed

Required Observations	Date	Time
R1		
R2		

Challenge Observations	Date	Time
C1		

Notes

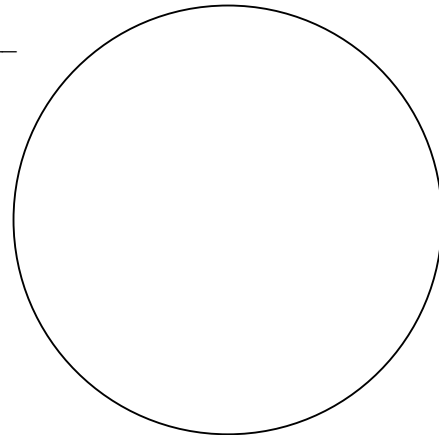
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Seeing:                    1 2 3 4 5  
 Transparency:        1 2 3 4 5  
 Telescope: \_\_\_\_\_  
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### Objective 121: Rupes Liebig

Required Observations	Date	Time
R1		

Challenge Observations	Date	Time
C1		

Notes

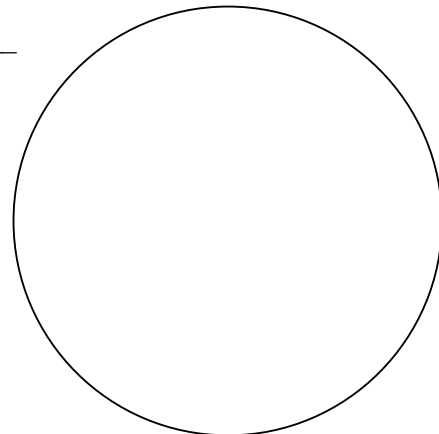
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 Telescope: \_\_\_\_\_  
 Magnification: \_\_\_\_\_



**Objective 122: Aristarchus Plateau & Vallis Schröteri**

Required Observations	Date	Time
R1		
R2		
R3		

Challenge Observations	Date	Time
C1		
C2		
C3		

Notes

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Seeing:                    1 2 3 4 5  
 Transparency:        1 2 3 4 5  
 Telescope: \_\_\_\_\_  
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**Objective 123: Mersenius & Rimae Mersenius**

Required Observations	Date	Time
R1		
R2		

Challenge Observations (None)	Date	Time

Notes

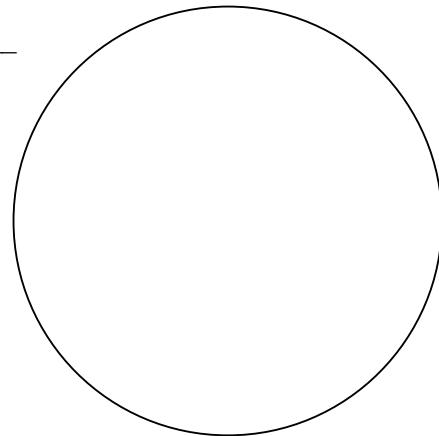
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Seeing:                    1 2 3 4 5  
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 Telescope: \_\_\_\_\_  
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**Objective 124: Billy & Hansteen**

Required Observations	Date	Time
R1		
R2		

Challenge Observations (None)	Date	Time

Notes

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Seeing:                    1 2 3 4 5  
 Transparency:        1 2 3 4 5  
 Telescope: \_\_\_\_\_  
 Magnification: \_\_\_\_\_

**Objective 125: Zucchius, Bettinus, & Kircher**

Required Observations	Date	Time
R1		
R2		

Challenge Observations (None)	Date	Time

Notes

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Seeing:                    1 2 3 4 5  
 Transparency:        1 2 3 4 5  
 Telescope: \_\_\_\_\_  
 Magnification: \_\_\_\_\_

**Objective 126: Marius & Marius Hills**

Required Observations	Date	Time
R1		
R2		

Challenge Observations	Date	Time
C1		
C2		
C3		

Notes

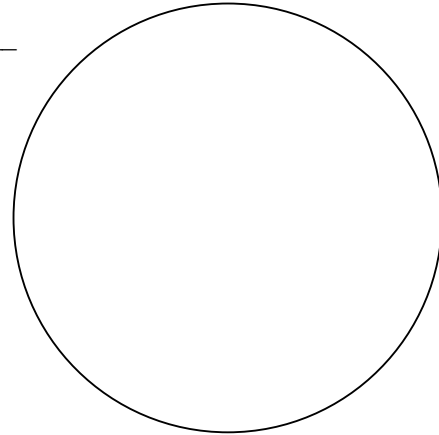
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Seeing:                    1 2 3 4 5  
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 Telescope: \_\_\_\_\_  
 Magnification: \_\_\_\_\_

**Objective 127: Schickard & Lacus Excellentiae**

Required Observations	Date	Time
R1		
R2		
R3		
R4		

Challenge Observations	Date	Time
C1		

Notes

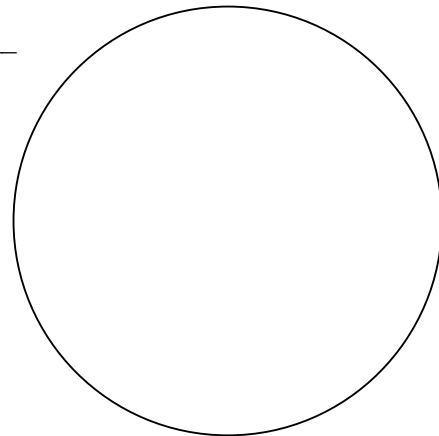
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Seeing:                    1 2 3 4 5  
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 Magnification: \_\_\_\_\_

**Objective 128: Vieta & Fourier**

Required Observations	Date	Time
R1		

Challenge Observations	Date	Time
C1		

Notes

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Seeing:                    1 2 3 4 5  
 Transparency:        1 2 3 4 5  
 Telescope: \_\_\_\_\_  
 Magnification: \_\_\_\_\_

**Objective 129: Phocylides & Wargentín**

Required Observations	Date	Time
R1		
R2		

Challenge Observations	Date	Time
C1		

Notes

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Seeing:                    1 2 3 4 5  
 Transparency:        1 2 3 4 5  
 Telescope: \_\_\_\_\_  
 Magnification: \_\_\_\_\_

### Objective 130: Mons Rümker

Required Observations	Date	Time
R1		

Challenge Observations	Date	Time
C1		

Notes

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Seeing:                    1 2 3 4 5  
 Transparency:        1 2 3 4 5  
 Telescope: \_\_\_\_\_  
 Magnification: \_\_\_\_\_

### Objective 131: Reiner Gamma & Galilaei

Required Observations	Date	Time
R1		
R2		
R3		
R4		

Challenge Observations	Date	Time
C1		

Notes

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Seeing:                    1 2 3 4 5  
 Transparency:        1 2 3 4 5  
 Telescope: \_\_\_\_\_  
 Magnification: \_\_\_\_\_

**Objective 132: Sirsalis & Rimae Sirsalis**

Required Observations	Date	Time
R1		
R2		

Challenge Observations	Date	Time
C1		
C2		

Notes

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Seeing:                    1 2 3 4 5  
 Transparency:        1 2 3 4 5  
 Telescope: \_\_\_\_\_  
 Magnification: \_\_\_\_\_

**Objective 133: Pythagoras, Harpalus, & Bouguer**

Required Observations	Date	Time
R1		
R2		
R3		
R4		

Challenge Observations	Date	Time
C1		
C2		

Notes

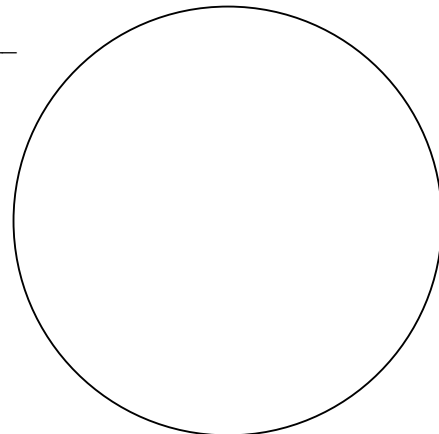
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**Objective 134: Grimaldi**

Required Observations	Date	Time
R1		

Challenge Observations	Date	Time
C1		

Notes

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Seeing:                    1 2 3 4 5  
 Transparency:        1 2 3 4 5  
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**Objective 135: Lacroix & Southwestern Limb Region**

Required Observations	Date	Time
R1		
R2		

Challenge Observations	Date	Time
C1		

Notes

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Seeing:                    1 2 3 4 5  
 Transparency:        1 2 3 4 5  
 Telescope: \_\_\_\_\_  
 Magnification: \_\_\_\_\_

## PART 3 – Libration Challenge Features (Optional)

### Objective L1: Mare Australe

Optional Challenge Objective	Date	Time

Challenge Observations	Date	Time
C1		

Notes

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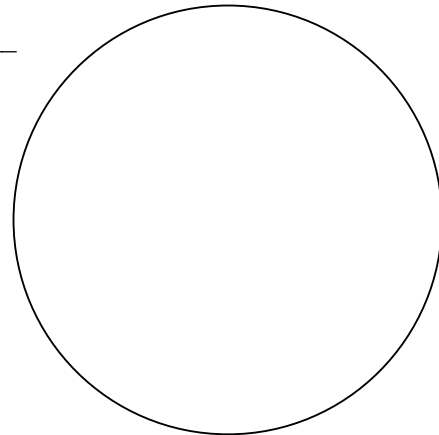
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### Objective L2: Mare Marginis

Optional Challenge Objective	Date	Time

Challenge Observations	Date	Time
C1		

Notes

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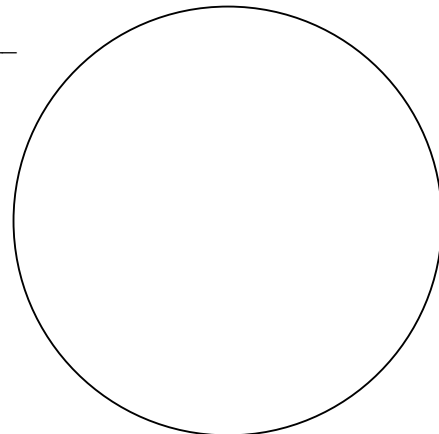
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### Objective L3: Mare Smythi

Optional Challenge Objective	Date	Time

Challenge Observations	Date	Time
C1		

Notes

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Seeing:                    1 2 3 4 5  
 Transparency:           1 2 3 4 5  
 Telescope: \_\_\_\_\_  
 Magnification: \_\_\_\_\_

### Objective L4: Hubble

Optional Challenge Objective	Date	Time

Challenge Observations	Date	Time
C1		

Notes

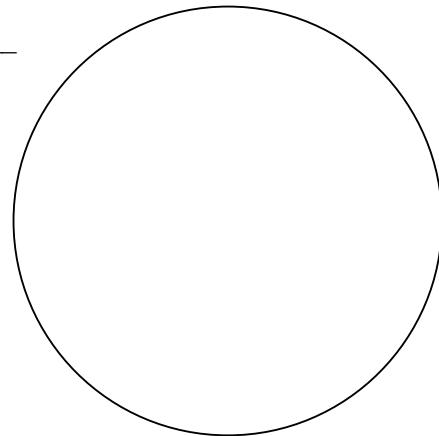
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Seeing:                    1 2 3 4 5  
 Transparency:           1 2 3 4 5  
 Telescope: \_\_\_\_\_  
 Magnification: \_\_\_\_\_

### Objective L5: Gartner & Democritus

Optional Challenge Objective	Date	Time

Challenge Observations	Date	Time
C1		

Notes

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Seeing:                    1 2 3 4 5  
 Transparency:        1 2 3 4 5  
 Telescope: \_\_\_\_\_  
 Magnification: \_\_\_\_\_

### Objective L6: Markov

Optional Challenge Objective	Date	Time

Challenge Observations	Date	Time
C1		

Notes

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Seeing:                    1 2 3 4 5  
 Transparency:        1 2 3 4 5  
 Telescope: \_\_\_\_\_  
 Magnification: \_\_\_\_\_

### Objective L7: Seleucus

Optional Challenge Objective	Date	Time

Challenge Observations	Date	Time
C1		

Notes

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Seeing:                    1 2 3 4 5  
 Transparency:           1 2 3 4 5  
 Telescope: \_\_\_\_\_  
 Magnification: \_\_\_\_\_

### Objective L8: Bailly

Optional Challenge Objective	Date	Time

Challenge Observations	Date	Time
C1		
C2		

Notes

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Seeing:                    1 2 3 4 5  
 Transparency:           1 2 3 4 5  
 Telescope: \_\_\_\_\_  
 Magnification: \_\_\_\_\_

### Objective L9: Ulugh Beigh & Aston

Optional Challenge Objective	Date	Time

Challenge Observations	Date	Time
C1		
C2		

Notes

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Seeing:                    1 2 3 4 5  
 Transparency:        1 2 3 4 5  
 Telescope: \_\_\_\_\_  
 Magnification: \_\_\_\_\_

### Objective L10: Mare Orientale

Optional Challenge Objective	Date	Time

Challenge Observations	Date	Time
C1		

Notes

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Seeing:                    1 2 3 4 5  
 Transparency:        1 2 3 4 5  
 Telescope: \_\_\_\_\_  
 Magnification: \_\_\_\_\_

## PART 4—Observable Craters with Canadian Connections (optional)

<b>Objective CAN1 – Avery – 1.4 S 81.4 E</b>
Size: 9 km Rukl: 49 & IV
<b>Named for Oswald Avery (1877-1955), born in Halifax, NS. US physician and DNA researcher.</b>
A bowl-shaped impact crater on the edge of Mare Smythii [L3], W of Haldane. Former name Gilbert U. Libration object.

Date \_\_\_\_\_ Time \_\_\_\_\_

Seeing 1 2 3 4 5 Transparency 1 2 3 4 5

Telescope \_\_\_\_\_ Magnification \_\_\_\_\_

Notes: \_\_\_\_\_

Sketch:

<b>Objective CAN2 – Banting – 26.6 N 16.4 E</b>
Size: 5 km Rukl: 23
<b>Named for Sir Frederick Banting (1891-1941), born in Alliston Ont. Doctor and Nobel laureate for co-discovery of insulin.</b>
Isolated bowl-shaped impact crater on Mare Serenitatis [41], Se of Linné [57]. Former name Linné E.

Date \_\_\_\_\_ Time \_\_\_\_\_

Seeing 1 2 3 4 5 Transparency 1 2 3 4 5

Telescope \_\_\_\_\_ Magnification \_\_\_\_\_

Notes: \_\_\_\_\_

Sketch:

<b>Objective CAN3 – Beals – 37.3 N 86.5 E</b>
Size: 48 km Rukl: 16 & III
<b>Named for Carlyle Beals (1899-1979), born in Canso, NS. Former Dominion Astronomer, former President of the RASC (1951-1952), and Officer of the Order of Canada. Namesake asteroid Beals 3314</b>
Impact crater E of Gauss and Geminus [8]. Former name Riemann A. Libration object.

Date \_\_\_\_\_ Time \_\_\_\_\_

Seeing    1 2 3 4 5                      Transparency    1 2 3 4 5

Telescope \_\_\_\_\_ Magnification \_\_\_\_\_

Notes: \_\_\_\_\_

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Sketch:

<b>Objective CAN4 – Cook – 17.5 S 48.9 E</b>
Size: 5 km Rukl: 23
<b>Named for British naval captain and explorer James Cook (1728-1779 who spent four winters (1758-1762) in Halifax, NS, preparing charts and sailing directions for eastern Canadian seaways, five years (1763-1767) carrying out the first accurate coastal survey of Newfoundland, and he established the location of the Coast of British Columbia (in 1778).</b>
Flooded crater in western Mare Fecunditatis [13] near Colombo.

Date \_\_\_\_\_ Time \_\_\_\_\_

Seeing    1 2 3 4 5                      Transparency    1 2 3 4 5

Telescope \_\_\_\_\_ Magnification \_\_\_\_\_

Notes: \_\_\_\_\_

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Sketch:

<b>Objective CAN5 – Daly – 5.7 N 59.6 E</b>
Size: 17 km Rukl: 38
<b>Named for Reginald Daly (1871-1957), born in Napanee, Ont. Highly honoured Harvard professor of geology.</b>
Impact crater NW of Appollonius. Former name Appollonius P.

Date \_\_\_\_\_ Time \_\_\_\_\_

Seeing    1 2 3 4 5                      Transparency    1 2 3 4 5

Telescope \_\_\_\_\_ Magnification \_\_\_\_\_

Notes: \_\_\_\_\_

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Sketch:

<b>Objective CAN6 – Newcomb – 29.9 N 43.8 E</b>
Size: 39 km Rukl: 25
<b>Named for Simon Newcomb (1835-1909), born in Wallace, NS. Professor of Mathematics at US Naval Observatory and internationally renowned astronomer of his time. Namesake asteroid Newcomb 855. His popular astronomy writing inspired the RASC Simon Newcomb Award.</b>
Fresh impact crater already included as objective [19], between Cleomedes and Posidonius, NW of Mare Crisium.

Date \_\_\_\_\_ Time \_\_\_\_\_

Seeing    1 2 3 4 5                      Transparency    1 2 3 4 5

Telescope \_\_\_\_\_ Magnification \_\_\_\_\_

Notes: \_\_\_\_\_

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Sketch:

**Objective CAN7 – Plaskett – 82.3 N 176.2 W**

Size: 110 km Rukl: II

**Named for John Plaskett (1865-1941), born in Hickson, Ont. Former Director of the Dominion Astrophysical Observatory in Victoria, BC, and former President of the RASC (1914-1915). Namesake asteroid Plaskett 2905. The RASC and the Canadian Astrophysical Society jointly award the Plaskett Medal every two years to the best doctoral thesis in astronomy or astrophysics.**

Large, fresh impact crater technically on the far side of the Moon, beyond Goldschmidt [76]. Extremely difficult if not impossible to view; both maximum libration of the north limb combined with favourable illumination would be required. Suggested as location for a lunar base.

Date \_\_\_\_\_ Time \_\_\_\_\_

Seeing 1 2 3 4 5 Transparency 1 2 3 4 5

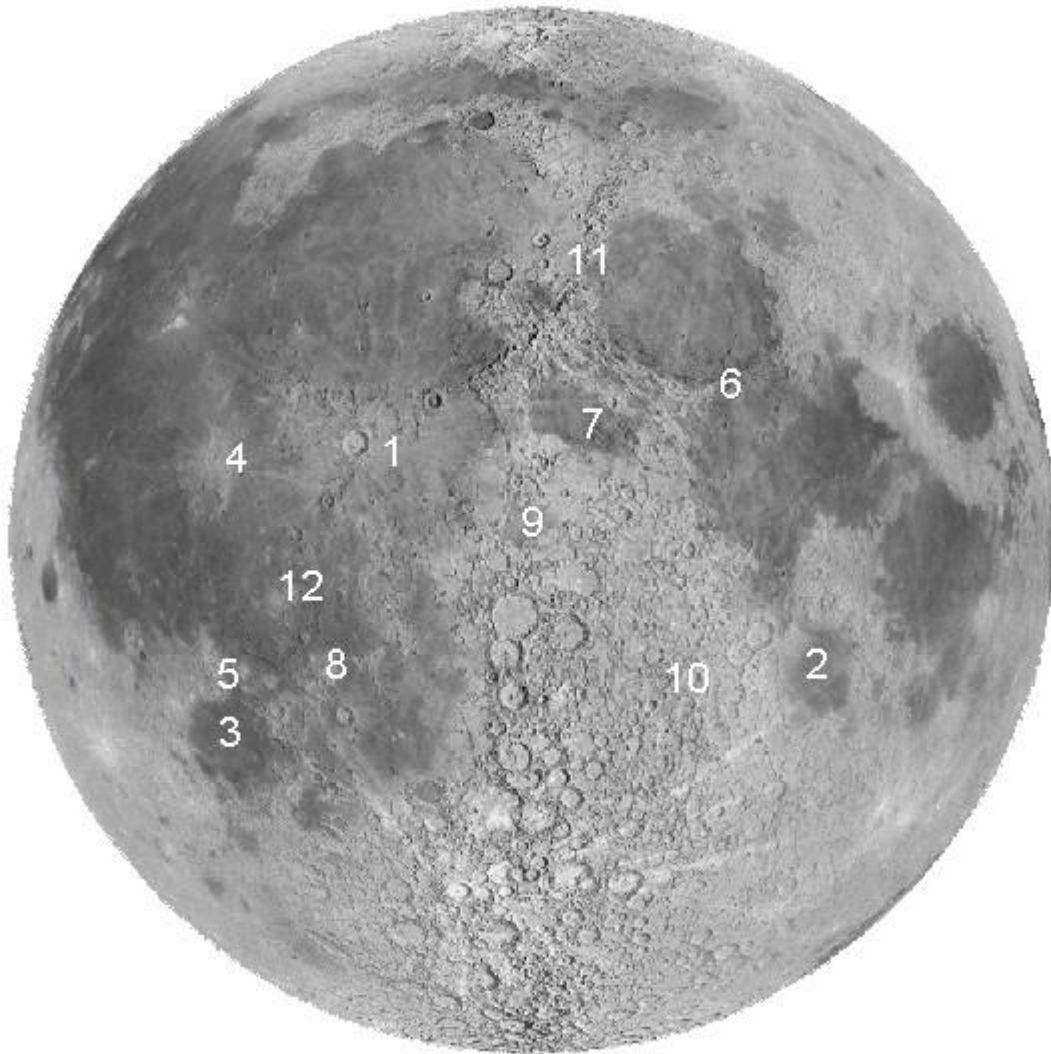
Telescope \_\_\_\_\_ Magnification \_\_\_\_\_

Notes: \_\_\_\_\_

Sketch:



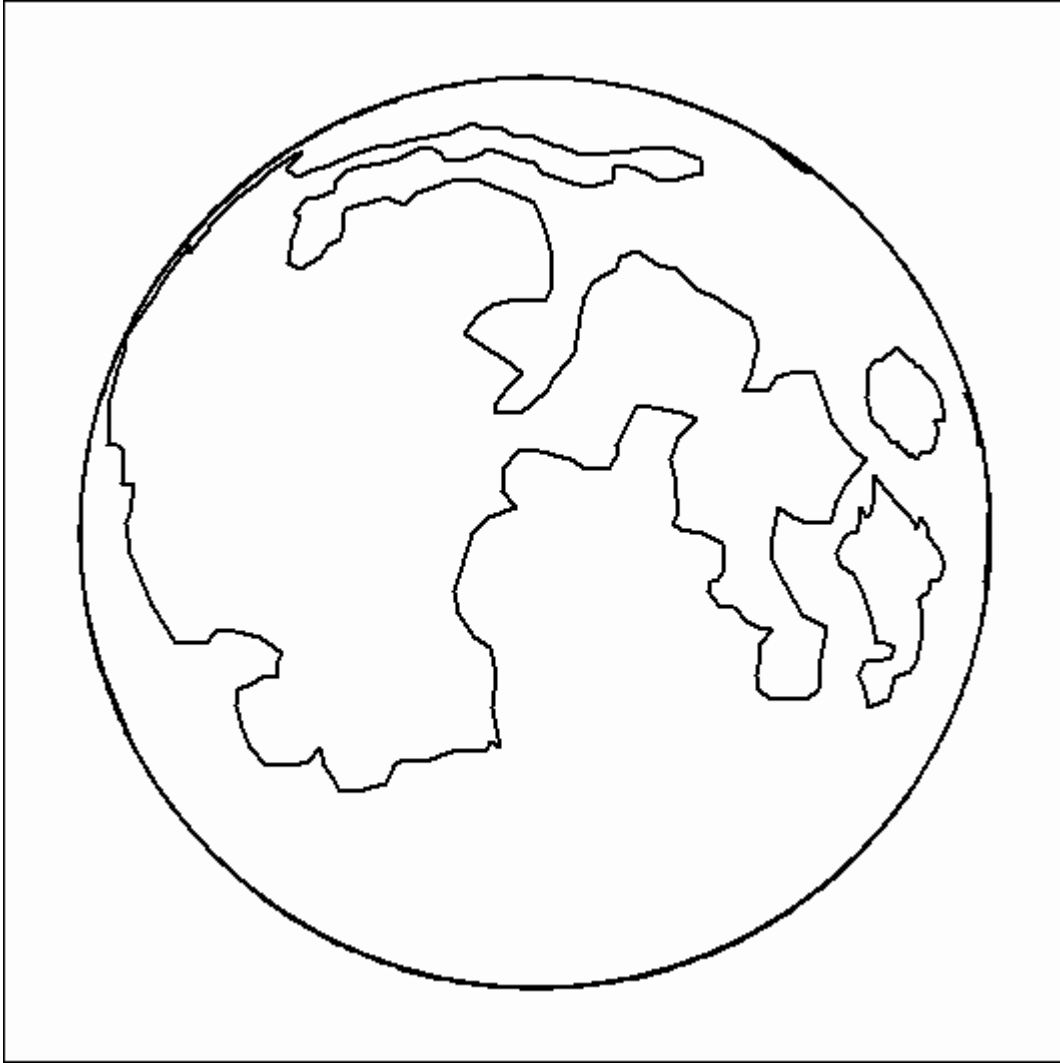
## W.H. Pickering Unaided Eye Scale



This challenge activity will test the sharpness of your vision and help you gain a better understanding of pre-telescopic observations of the Moon. The following list, originally proposed by W.H. Pickering, presents, in order of probable difficulty, twelve lunar features you may be able to observe **without** any optical aid.

- |   |   |
|---|---|
| 1. Bright surroundings of crater Copernicus | 7. Mare Vaporum                               |
| 2. Mare Nectaris                            | 8. Crater Lubiniezky Region                   |
| 3. Mare Humorum                             | 9. Sinus Medii                                |
| 4. Bright surroundings of crater Kepler     | 10. Faint shading near crater Sacrobosco      |
| 5. Region of crater Gassendi                | 11. Dark spot at foot of the Montes Apennines |
| 6. Region of crater Plinius                 | 12. Montes Riphaeus                           |

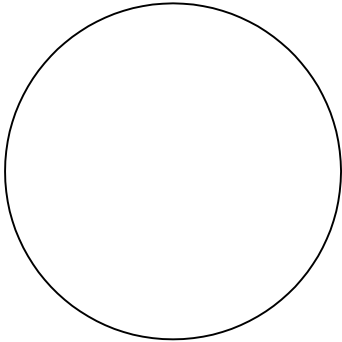
## Ray System Extent



### **Instructions for this optional challenge activity:**

Using a pencil, and using this line drawing as a base map, shade in your observations of the major ray systems on the Moon. Observe within a day or two of full Moon using tripod-mounted binoculars, or a telescope at low power,

# Unaided Eye Libration Challenge

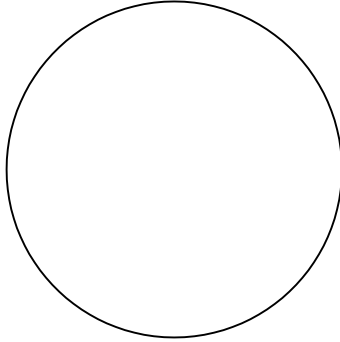


Date: \_\_\_\_\_

Time: \_\_\_\_\_

Notes: \_\_\_\_\_

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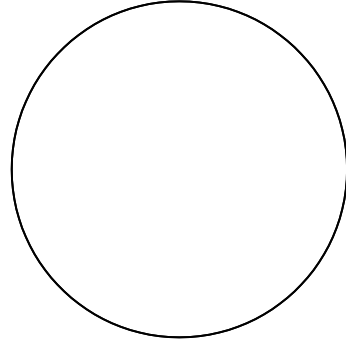


Date: \_\_\_\_\_

Time: \_\_\_\_\_

Notes: \_\_\_\_\_

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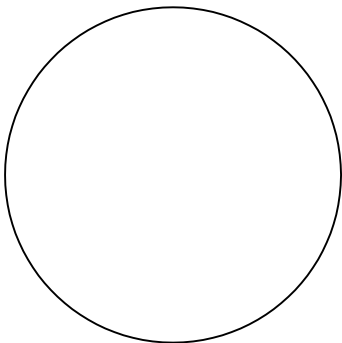


Date: \_\_\_\_\_

Time: \_\_\_\_\_

Notes: \_\_\_\_\_

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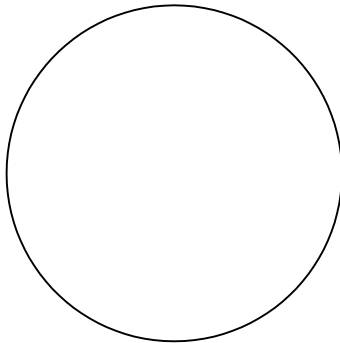


Date: \_\_\_\_\_

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Notes: \_\_\_\_\_

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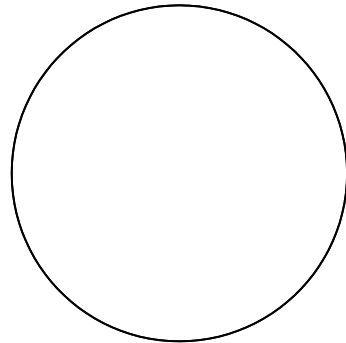


Date: \_\_\_\_\_

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Notes: \_\_\_\_\_

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Date: \_\_\_\_\_

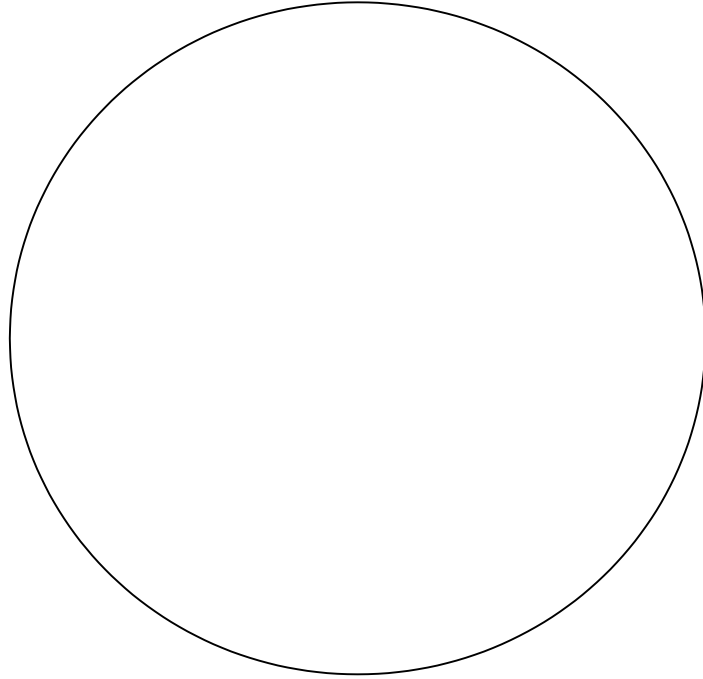
Time: \_\_\_\_\_

Notes: \_\_\_\_\_

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# Lunar Drawing Template

Feature: \_\_\_\_\_



Instrument: \_\_\_\_\_

Magnification: \_\_\_\_\_

Date: \_\_\_\_\_

Time: \_\_\_\_\_

Notes: \_\_\_\_\_  
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