

Names:

Grade	
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The Moon & Telescopes: Part 2

Pre-Lab Quiz

Record your team's answers as well as your reasonings and explanations.

1.

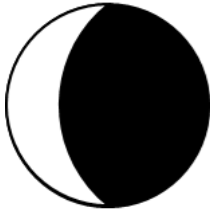
2.

3.

4.

Part 1: Phases of the Moon

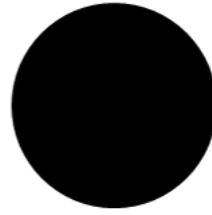
1. Identify the phase of the moon for each case below.



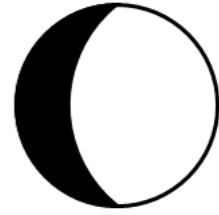
1



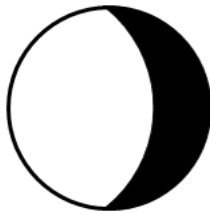
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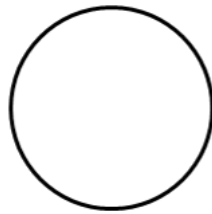
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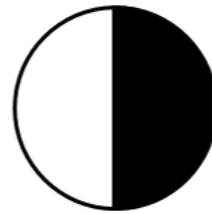
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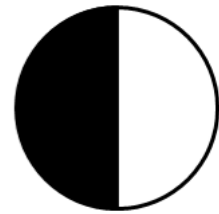
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6



7

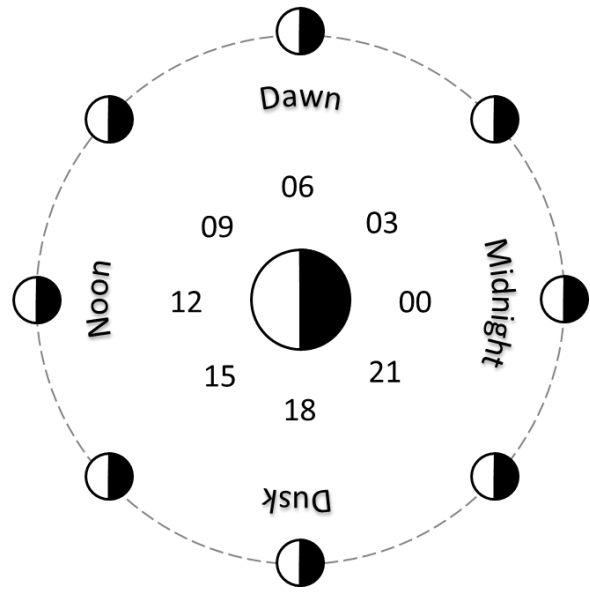
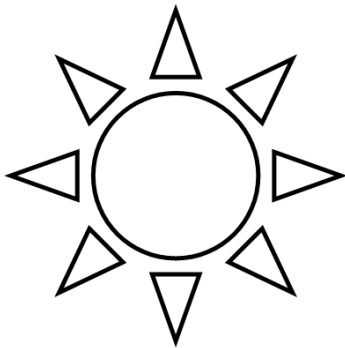


8

Number	Moon Phase
1	
2	
3	
4	
5	
6	
7	
8	

Telling Time with Moon Phases

1. On the chart below, label the New and Full Moons and indicate the direction of waxing and waning.



2. If the moon is on the meridian at midnight, what is the phase of the Moon?

3. What phase sets at midnight? What phase rises?

4. You see a waning Gibbous moon rising. What time of day is it?

5. You see a third quarter moon setting. What time of day is it?

6. What moon phase transits the meridian at 3 pm?

7. If you see the moon set at 10 am, what is the phase of the Moon?

8. If today is the full moon, how long will it be until the next full moon?

9. During a solar eclipse, what is the phase of the Moon? What about during a lunar eclipse?

10. It takes the moon about 27 days to orbit the Earth once, but it takes about 30 days to go through the lunar cycle. Why are these periods different?

Part 2: The Galileoscope

1. What are the differences between refracting and reflecting telescopes? Draw a diagram illustrating how each type of telescope focuses light.

2. Is the Galileoscope a refracting or reflecting telescope? What kinds of celestial objects would you be able to see with it? What kinds of objects would not be ideal for observing with the Galileoscope?

3. Describe the view using the Galilean eyepiece. You should think about the magnification and the field of view. How do you think this would have affected Galileo's observations?

4. Describe the view using the modern lens and compare the magnification and field of view to the Galilean eyepiece. Do you notice anything else that is different with the modern lens?

5. Compare the view using the Barlow lens to that of the other two lenses. Explain the differences in field of view, magnification, and any other parameter you may have noticed.

6. The telescope with the Galilean eyepiece has a magnification of 17. Based on your observations, estimate the magnification of the telescope with the Modern and Barlow eyepieces and explain your estimates.

Eyepiece	Modern	Barlow
Magnification		

7. Compare your observed magnifications with the real magnification as given by the TA. Use the percent error formula to compare how accurate you were.

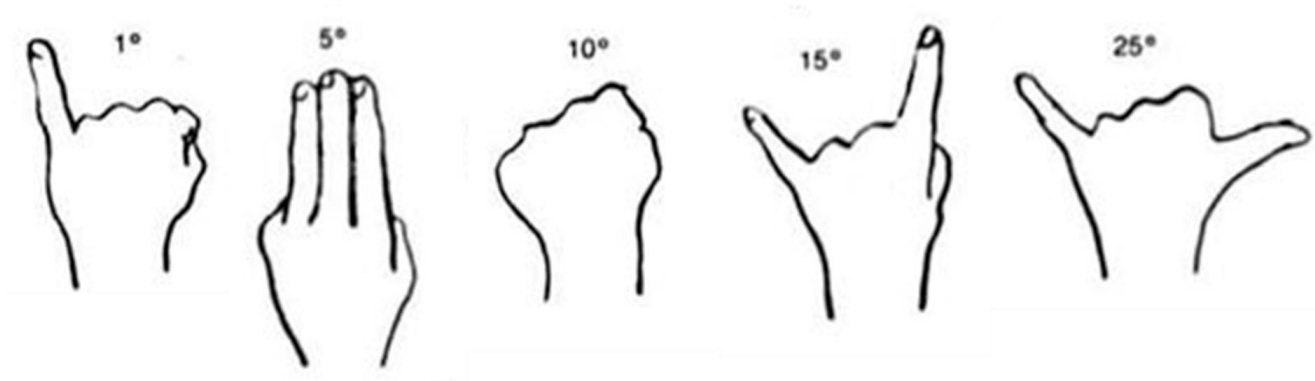
Part 3: Observing the Night Sky

1. Find the following objects in the night sky and point them out to your TA.

Object	Type	TA
Big Dipper	Asterism	
Northern Cross	Asterism	
Summer Triangle	Asterism	
Altair	Star	
Deneb	Star	
Vega	Star	

2. Find the following objects in the night sky and point them out to your TA.

Object	Type	TA
Great Square of Pegasus	Asterism	
Andromeda	Constellation	
Lyra	Constellation	
Cassiopeia	Constellation	
Ursa Minor	Constellation	



3. Estimate the azimuth, altitude, and angular size of the Moon.

Azimuth – angle around the horizon, starting from the North and increasing to the East. Ranges from 0° to 360° .

Altitude – angle above the horizon. Ranges from 0° at the horizon to 90° at the zenith.

Azimuth	Altitude	Angular Size

4. Given that the sky rotates 15° per hour towards the west, estimate the rise, set, and meridian transit times of the Moon. Explain how you arrived at your answers.