

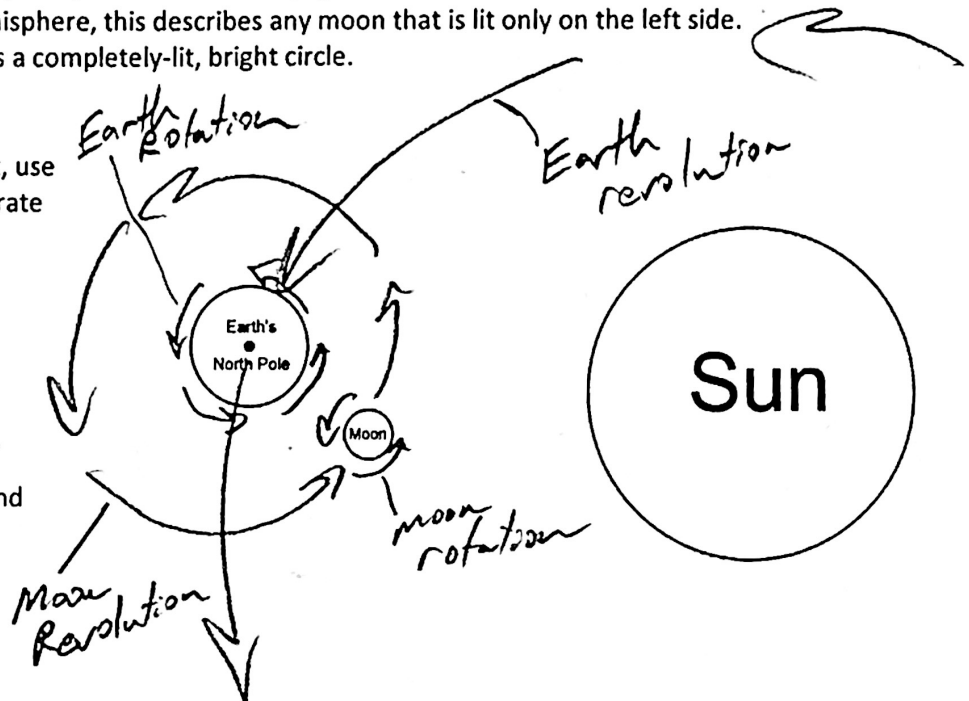
Matching Moon Phase Terms. Some terms are used more than once:

- A. Waxing B. Waning C. Crescent D. Gibbous E. Quarter F. New G. Full

1. A This describes any moon phase that is in the process of growing (the lighted part is getting bigger).
2. F A moon that is completely dark (the shaded side is facing Earth).
3. A In the Northern Hemisphere, this describes any moon that is lit only on the right side.
4. D A moon that is mostly lighted, with a curved slice of darkness on one side.
5. B This describes any moon phase that is in the process of shrinking (the lighted part is getting smaller).
6. E A moon phase that appears to be half light and half dark.
7. C A moon that is mostly dark, but with a curved, lighted slice on one side.
8. B In the Northern Hemisphere, this describes any moon that is lit only on the left side.
9. G A moon phase that is a completely-lit, bright circle.

10. On the diagram to the right, use labeled arrows to demonstrate each of the following:

- Earth's rotation
- Earth's revolution
- The Moon's rotation
- The Moon's revolution



Causes of phenomena:

11. What causes tides to rise and fall each day?

- a. Earth's rotation
- b. Earth's revolution
- c. Moon's rotation
- d. Moon's revolution

12. What causes the strength of tides to change – from neap tides to spring tides, and back?

- a. Earth's rotation
- b. Earth's revolution
- c. Moon's rotation
- d. Moon's revolution

13. What causes our seasons to change?

- a. Earth's rotation
- b. Earth's revolution
- c. Moon's rotation
- d. Moon's revolution

14. What causes the time of day to change (from morning to afternoon to night...)?

- a. Earth's rotation
- b. Earth's revolution
- c. Moon's rotation
- d. Moon's revolution

15. What causes eclipses to begin and end?

- a. Earth's rotation
- b. Earth's revolution
- c. Moon's rotation
- d. Moon's revolution

16. What causes the Moon's phase to change?

- a. Earth's rotation
- b. Earth's revolution
- c. Moon's rotation
- d. Moon's revolution

17. What causes the Moon to rise and set?

- a. Earth's rotation
- b. Earth's revolution
- c. Moon's rotation
- d. Moon's revolution

18-24. On the diagram below...

- Use arrows to show the direction of the Earth's rotation and the Moon's revolution.
- Shade the dark side of the Earth and the dark-side-of each of the moons.
- Label the time of day at each of the dots on the Earth's equator.

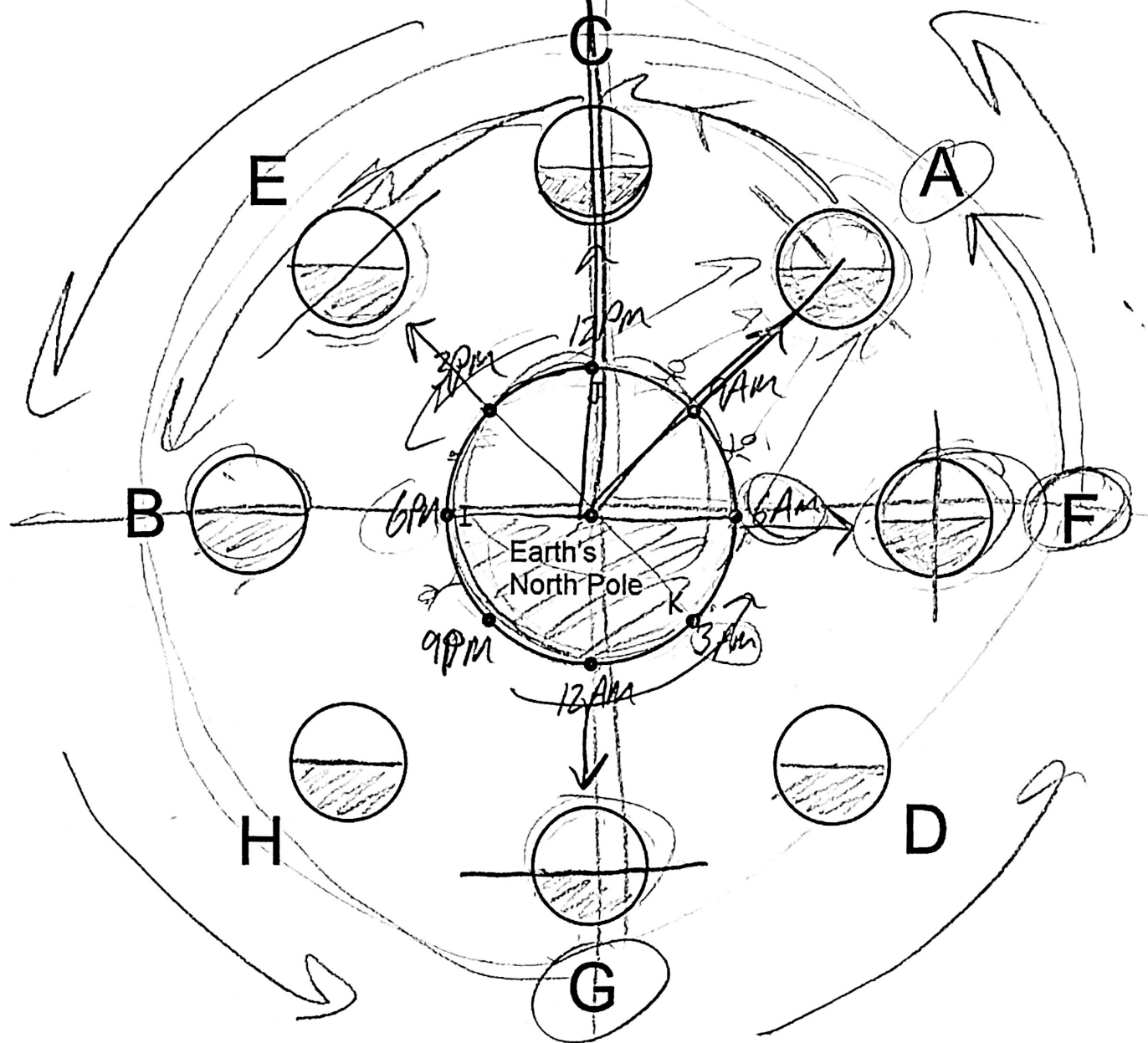
On the outside edge of the Earth, label each dot with the time.

18. What time is it at letter I?
 12am 3am 6am 9am 12pm 3pm 6pm 9pm
19. What time is it at letter J?
 12am 3am 6am 9am 12pm 3pm 6pm 9pm
20. What time is it at letter K?
 12am 3am 6am 9am 12pm 3pm 6pm 9pm



S U N I G H T

↓ ↓ ↓ ↓ ↓ ↓



Use the diagram from the opposite page to answer these questions

21. During which moon phase is it possible to have a solar eclipse?
 A B C D E F G H

22. During which moon phase is it possible to have a lunar eclipse?
 A B C D E F G H

23. Consider Moon/A...

a. Circle the picture that shows what this moon would look like from the Northern Hemisphere.



b. What is the shape of this moon phase?
 Full New Gibbous Crescent Quarter

c. This moon is Waning
 Waxing Waning Neither

d. How many weeks until the moon moves to position B?
 0 .5 1 1.5 2 2.5 3 3.5 4

e. How many weeks until the moon phase is a waxing crescent?
 0 .5 1 1.5 2 2.5 3 3.5 4

f. At what approximate time does this moon rise?
 12am 3am 6am 9am 12pm 3pm 6pm 9pm

g. What type of tides can we expect during this moon phase?
 Strong Tides Weak Tides Neither strong nor weak



24. Consider this moon:

a. What is the shape of this moon phase?
 Full New Gibbous Crescent Quarter

b. This moon is Waning
 Waxing Waning Neither

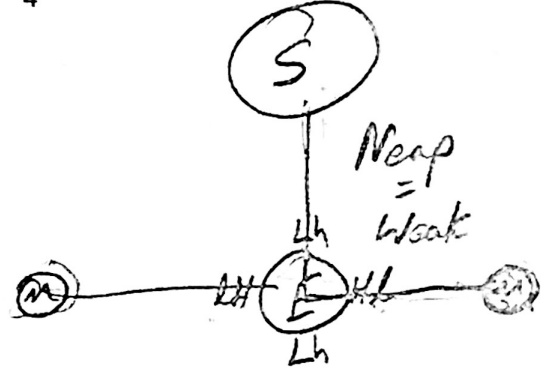
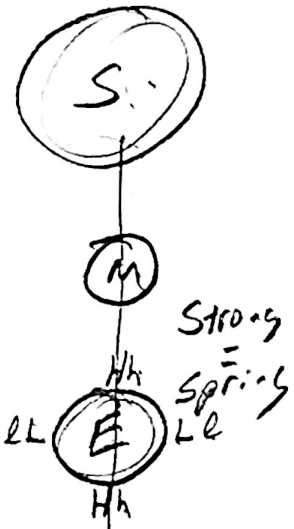
c. Which moon in the diagram looks like this when viewed from Earth?
 A B C D E F G H

d. How many weeks after this moon will the next full moon occur?
 0 .5 1 1.5 2 3 3.5 4

e. How many weeks until the moon phase is a waxing crescent?
 0 .5 1 1.5 2 2.5 3 3.5 4

f. At what approximate time is this moon highest in the sky?
 12am 3am 6am 9am 12pm 3pm 6pm 9pm

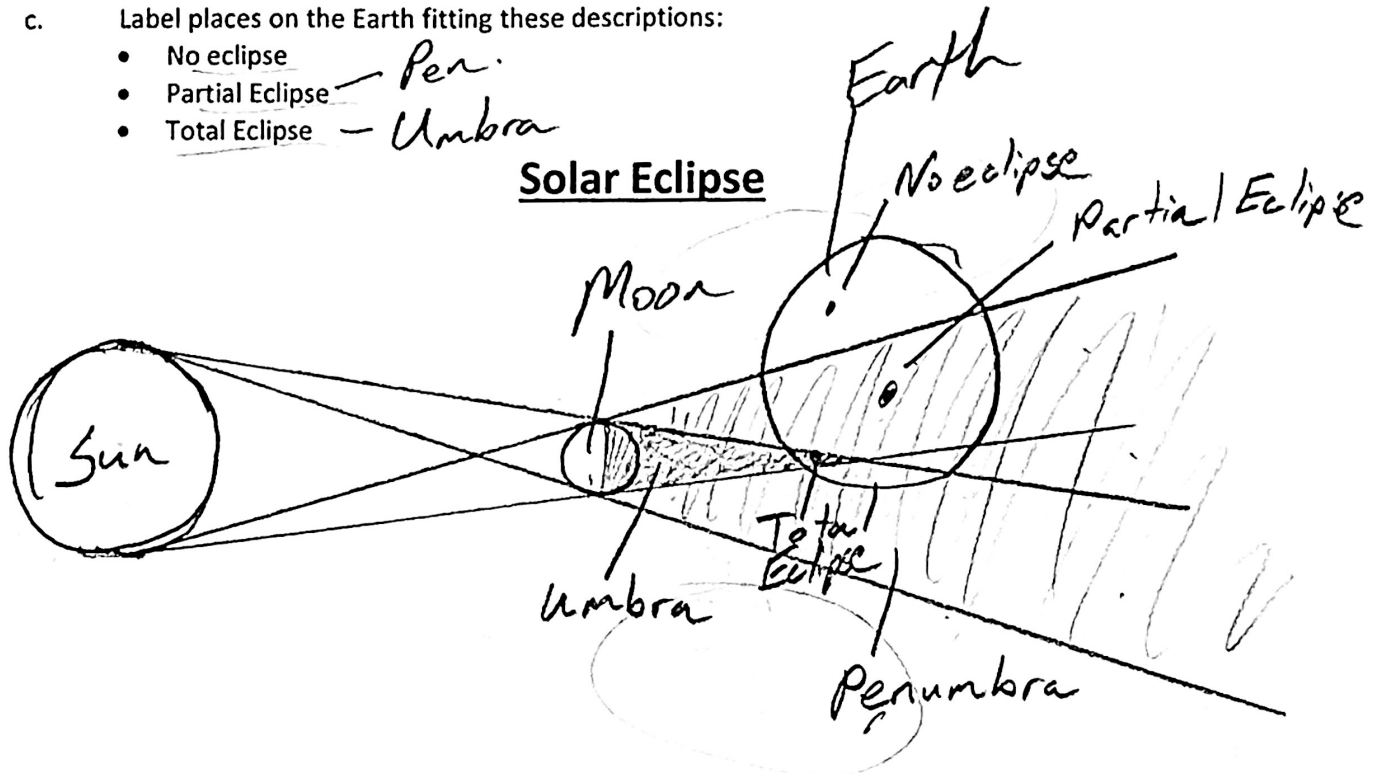
g. What type of tides can we expect during this moon phase?
 Strong Tides Weak Tides Neither strong nor weak



25. Create a diagram showing the umbra and penumbra during a solar eclipse. Your diagram does not have to be drawn to scale. In your diagram...

- Show, shade, and label both the umbra and penumbra. You only need to label one part of each.
- Label the Sun, Earth, and Moon.
- Label places on the Earth fitting these descriptions:

- No eclipse — Pen.
- Partial Eclipse — Umbra
- Total Eclipse — Umbra



26. Create a diagram showing the umbra and penumbra during a partial lunar eclipse. Your diagram does not have to be drawn to scale. In your diagram...

- Show, shade, and label both the umbra and penumbra. You only need to label one part of each.
- Label the Sun, Earth, and Moon.
- Make it obvious that this is what we call a partial lunar eclipse.

