

Name _____ Period _____

Answer Key - Review for Test – Earth, Moon, and Outer Space

1. What affects how much gravity there is between two objects?
The mass of each object and the distance between them

2. Describe the Earth in terms of radius and diameter?

The radius is 4000 miles and the diameter is about 8000 miles

3. How large is the moon's diameter in comparison to the Earth?
The Moon's diameter is about $\frac{1}{4}$ that of the Earth

4. How far is the Moon from the Earth in miles?
250,000 miles (it actually varies throughout the month)

5. If I set up a model using a 1 foot diameter ball as the Earth, how far away would I place the moon?
The moon would be about 30 Earth diameters from the Earth

6. What daily effect does the moon have on the Earth? How often does this change?
The ocean's tides. We have a high tide about every 12 hours

7. How far above the Earth would you find the International Space Station? ___220 miles
Satellites? - anywhere from 110 miles to about 1200 miles. GPS satellites are 12,000 mi_____

8. Describe how tides work.

The moon and the Earth attract each other in terms of gravity. The mostly liquid surface of the Earth is also attracted toward the moon and flows toward the moon as much as it can. The side closest to the moon gets water flowing from both sides. The point in the middle, where the water is flowing toward, gets high tides. As the Earth rotates, different parts of the Earth's oceans are attracted to the moon and the water will change the direction because of this "new" position of the moon compared to where each continent on Earth is at that point.

9. What is the difference between waxing and waning?

These refer to the phases of the moon. When the moon appears to get larger each night, it is like a candle being dipped into wax and it gets larger and larger. Waning is when the moon appears to get smaller each night. The moon itself is not changing size, just the part that we can see each night.

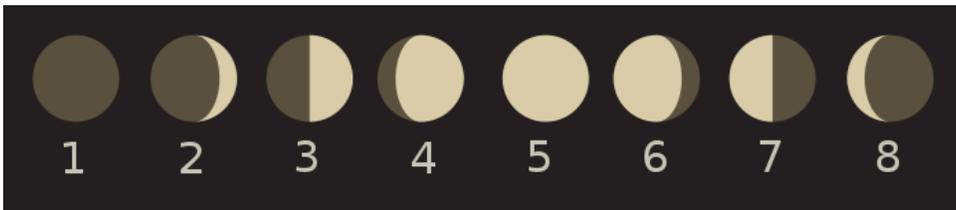
10. Name all the planets, in order, from the Sun all the way out to Pluto (not a real planet).

Sun Mercury Venus Earth Mars Jupiter Saturn Uranus Neptune Pluto

11. What causes the phases of the moon?

The sun always shines on the moon and it reflects light from that lit side. However, we mostly see the moon at night and we can see the side that is lit but often only at an angle. The angle that we see the lit side of the moon will determine which phase of the moon that we see. A full moon has its lit side fully facing the Earth while a new moon is has only the dark side of the moon facing the Earth.

12. Given the diagram below, label the phases of the moon, include waxing and waning where needed.



1. New moon

2. Waxing crescent

3. 1st Quarter moon

4. Waxing Gibbous

5. Full moon

6. Waning Gibbous

7. 3rd Quarter moon

8. Waning crescent

13. What is an eclipse? Any time where the light from an object is being blocked

14. What is the umbra and the penumbra?

Umbra The dark shadow of whatever is blocking the light.

Penumbra The fuzzy part of the shadow, not completely dark

15. Describe what happens during a Lunar Eclipse.

The moon is behind the Earth and the light from the Sun is blocked by the Earth.

It turns the moon dark and it can often look red during a Lunar eclipse.

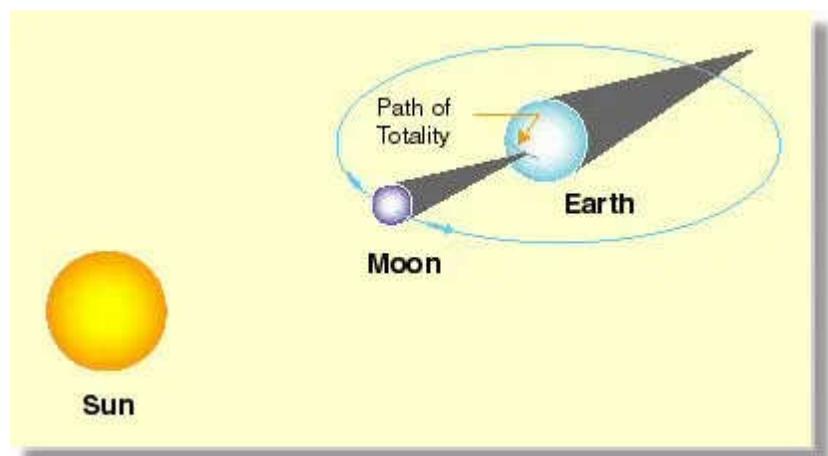
16. Draw a diagram of a Lunar Eclipse.



17. Describe what happens during a Solar Eclipse.

The moon gets between the Sun and the Earth and light is blocked from a very small portion of the Earth. In the umbra, there is total darkness on the Earth and it moves in a path called the Path of Totality. Around this path will be an area that only gets dimmer because it is in the penumbra.

18. Draw a diagram of a Solar Eclipse.



19. How far is it from the Earth to the Sun? 93,000,000 miles

20. If you are in a plane travelling at 500 mi/hr and someone walks by you at one mile per hour. You see that this walking is not fast. However, a person standing on a mountain sees the person inside the plane moving at 501 miles per hour. How is this so and what is it called when you have different observers and they both see different speeds and they are both right?

Name of this situation ___Frame of Reference_____

How is it so?

The person on the plane sees the walking person pass by them at one mile per hour, but their frame of reference is located inside the plane. The person on the mountain has a frame of reference using the Earth as his viewpoint. He sees the plane at 500 mi/hr and, through the window, the person at one mi/hr which adds up to 501 mi/hr.

21. On Earth you weigh 120 lbs. On Jupiter, we know that the relative gravity is 2.34. What would be your weight on Jupiter? $120 \text{ lbs} \times 2.34 = 280.8 \text{ lbs}$

22. How far does light travel in one second? _____186,000 miles_____

23. Describe a light year.

The distance that light travels in one year. (really far) 5,878,625,373,183.6 miles almost 6 Trillion miles