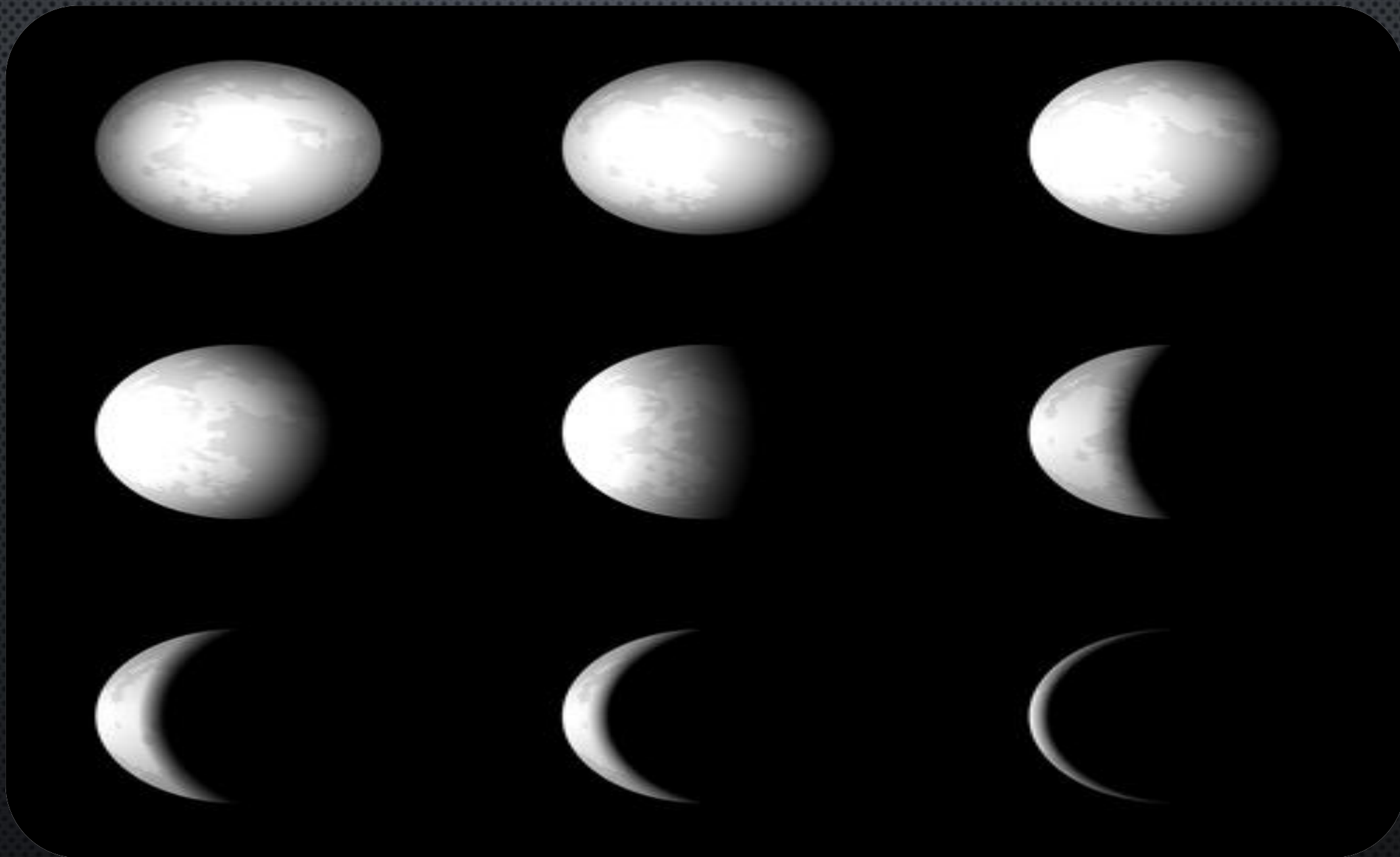


# IN THE NAME OF GOD

SASSAN FAKHIMI



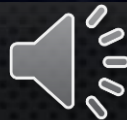
What is the meaning of **phases** of the moon?



First of all, the changes in the amount of the moon's surface that is lit up over the course of a month are called **phases**.



Can you guess the name of this song?



# What is moonlight

**The next thing to know is that the light we see coming from the moon isn't moonlight at all, it is sunlight. The moon does not emit any light itself. The Sun's light is reflected from the surface of the Moon to us.**





When the surface of the side of the moon facing Earth is completely illuminated, we see a **full moon**.



When none of the surface is illuminated and we can't see the moon at all, the phase is a **new moon**.





The phases when half the side of the moon facing Earth is lit up are called the first **and third quarters.**





When the visible moon seems to be getting bigger, we say it is **waxing moon**.



when the visible lighted surface seems to be getting smaller, we say the moon is **waning moon**.





**Full**



**Waning  
gibbous**



**Third  
quarter**



**Waning  
Crescent**



**new**



**Waxing  
Crescent**

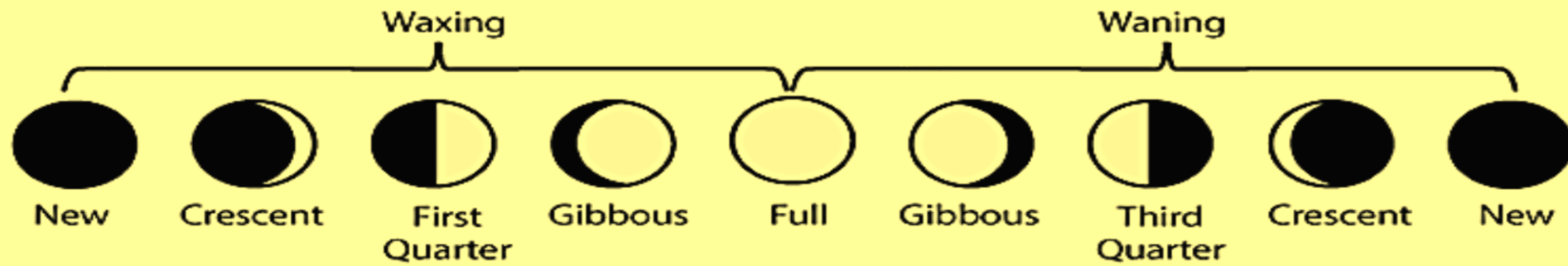


**first  
quarter**



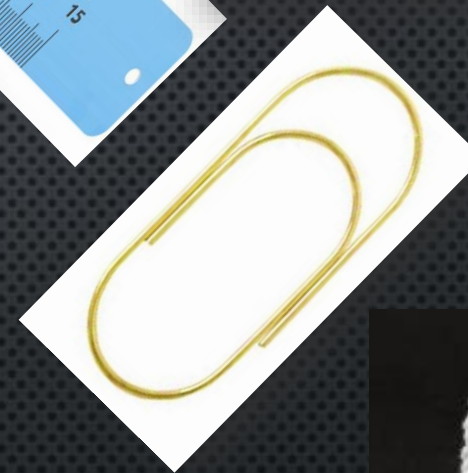
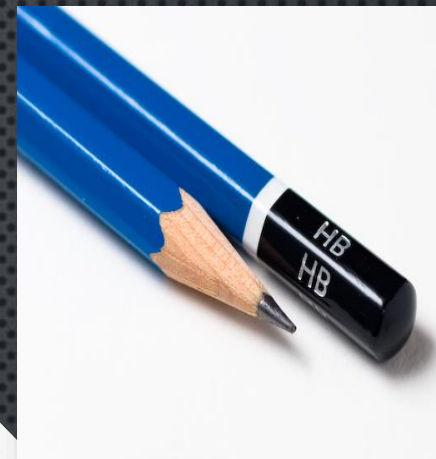
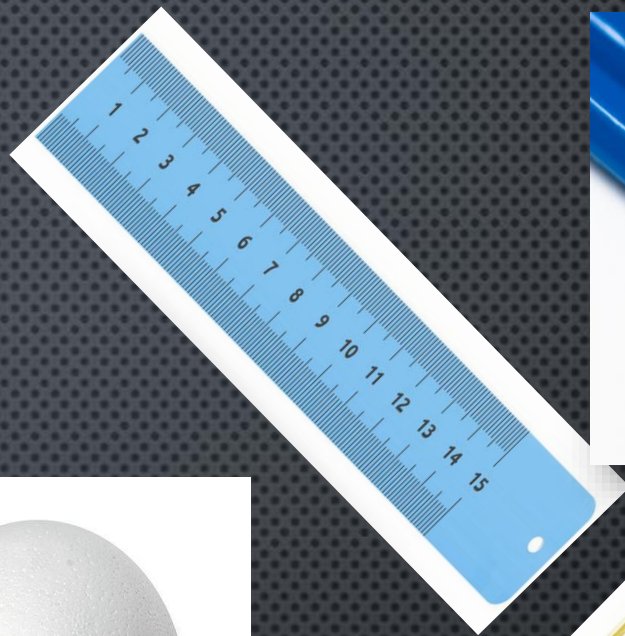
**Waxing  
gibbous**





**Astronomers have observed the phases of the moon for thousands of years and have found that it takes  $29 \frac{1}{2}$  days for the moon to go through its entire phase cycle. This is called a lunar month. That means that the months on the calendar we use don't exactly match the phases of the Moon. Have you ever heard the phrase "once in a blue moon"? You might remember that the phrase means an event that doesn't happen very often, like cleaning your room without being asked. A blue moon occurs when there is a second full moon during the same month. For example, there could be a full moon on October 2nd and another on October 31st, just in time for Halloween. A blue moon occurs every  $2 \frac{3}{4}$  years.**

# Materials



# Procedure



## Results

When you looked at the new moon, none of the surface facing you should have been lit up. When you viewed the first quarter, about half of surface you viewed was lit up. When you viewed the surface of the Styrofoam ball through the full moon opening, the whole surface should have been lit up. When you viewed the third quarter, about half of the surface you viewed was lit up. You might notice it was the opposite half from the first quarter that was lit.