

Name

Course Name

Instructor

Date

## The Relation between Moon, Earth, and Sun

### **Viewing Location**

The observation was carried out at home in an open place far from buildings and trees.

### **Statement of the Purpose**

The purpose of the lab experiment was to find out the relationship between the moon, earth, and sun in terms of their relative locations from 14 February to 16 March 2014.

Additionally, the other purpose was to relate different phases of the moon with the position of the moon relative to the earth and the sun.

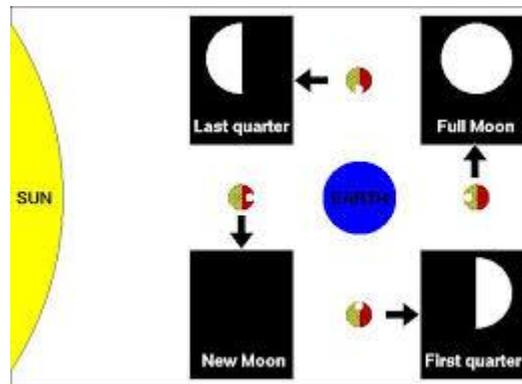
### **Procedure**

The moon was observed using a telescope on a cloudless day, and on the first week on 14 February there was a full moon that shown from around seven in the evening to six in the morning the following day. Approximately seven days later the half moon was observed, which became visible at around one hour after mid night. The observation conducted on the 1<sup>st</sup> of March at seven in the evening, at midnight and at dawn, the following day revealed that no moon was noted. The whole night was completely dark meaning that the moon phase was new moon. On 8 March at eight in the evening, an overhead half moon was observed, and after approximately six hours, it set. On the 16 march at eight in the evening, full moon was observed again approximately one month after the previous full observation.

### Data Recorded

date	time	Moon phase
14 February	7:00 pm	Full moon
22 February	1:00am	Half moon (last quarter)
1-2 March	7:00pm, 12:00am and 6:00 am	New moon
8 March	8:00pm	Half moon (first quarter)
16 March	8:00pm	Full moon

Table showing different phases of the moon



phases of the earth

Source: [https://ssl.gstatic.com/gb/images/v1\\_29726984.png](https://ssl.gstatic.com/gb/images/v1_29726984.png)

### Conclusion and Analysis

The moon occurs in eight phases, from new moon to full moon and then to the new moon again, and the cycle repeats itself. This occurs when the moon revolves around the moon and in the process reflecting light from the sun on the earth's surface. During the full moon phase, the earth moon and sun are approximately aligned, and the earth is between the moon and the sun. At this phase, the illuminated side of the moon faces towards the earth's surface as the light is reflected on the earth and the dark side faces away from the earth. After exactly one week, half

moon phase was observed better known as last quarter because it appeared after the full moon phase. During the half moon phase, the moon's position is approximately ninety degrees relative to the earth and the sun respectively.

After roughly seven days, no moon was observed, as the night was very dark meaning that it was new moon phase. During the phase the earth, moon and sun are aligned in the same axis with the moon lying between the earth and sun. Additionally, the moon's position with respect to the earth is roughly 180 degrees from the position of the full moon. During this phase, the illuminated side of the moon faces away from the earth's surface. Seven days after the new moon phases half moon phase well known as first quarter follows. At this time, the position of the moon is ninety degrees relative to the earth and the sun respectively, and in the opposite side with the position of the last quarter phase with respect to the earth.

During the first and last quarter phases of the moon, only half of the illuminated side faces the earth. Then a week later full moon was visible again, and from the analysis, it seems that moon takes approximately thirty days to revolve the earth against 29.6 days from scientific literatures. During the revolution, the illuminated part of the moon facing the earth increases gradually from new moon phase to the full moon phase, and starts to decrease again until it disappears completely during the successive new moon phase.