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Lesson Implementation & Reflection

Description

I used 'Moon Phases' activity from JPL's website. This activity was most appropriate for my middle school 6th grade students and is also aligned with the Florida Middle School science standards that I am teaching this year. There are two classroom activities related to Moon Phases on the JPL's website – 'Moon Phases' and 'Look at the Moon! Journaling Project'. We worked on 'Moon Phases' activity for a block period of 90 minutes and all students had the opportunity to participate in the whole process. I had also assigned some students to record the phases of moon every day for a month during the month of October. So, some students also had the pictures of moon as observed on different days of the month, and they compared it to the real pictures in the classroom, and identified those phases.

This activity is directly related to the following Florida middle school science standard –

SC.8. E.5.9 Explain the impact of objects in space on each other, including: 1. the Sun on the Earth, including seasons and gravitational attraction; 2. the Moon on the Earth, including phases, tides, and eclipses, and the relative position of each body.

Link –

<https://www.jpl.nasa.gov/edu/teach/activity/moon-phases/>

Artifacts –

Please see the attachments below.

Summary

I loved doing this activity with the kids. I chose this activity because it's aligned with my current standards. It's a very simple yet powerful activity that can develop deeper understanding of the relationships among earth, moon, and sun. I loved this activity even more than I had thought because of the student outcome. Every single student was able to answer questions, explain the process, and form their own perspectives. Kids also loved it. They were all excited and engaged throughout the lesson. Kids were curious to see the lamp in the center of the class and multiple sized white Styrofoam balls. Some of them already had the idea of what the lesson was about. I started the lesson by asking them questions about the moon phases. It turned out that only 1 or 2 students knew what it meant, how many types of phases are there, and what causes this to happen. Then I explained and engaged them in a short discussion. I opened on the NASA activity link on the board, so I could explain the procedure by using the steps that were listed there. I did

a small demonstration and then had a student volunteer to demonstrate the process. Then, students did it by themselves.

Students drew the pictures as they observed in the classroom and compared those to the real moon phases. Kids were very excited to see the resemblance between our work and the real phases from the animations. The fact that this activity was done in a dark room made it very fun for the kids. My six grade students loved it. All the students had fun working on the activity. Their engagement level was very high as compared to the other activities we had done this year. This could also be because they really get fascinated when I mention them that the lesson is from NASA.

I really like the way the activity is presented in the NASA's website. It's very simple, and the outcome this activity can produce is tremendous. It's designed in a way that kids can actually use their imagination to make sense of the natural process and develop understanding of the concept. And it also makes use of "authentic space data" to compare our work with the real images of the moon phases. There is a wonderful animation of the moon phases included in the NASA's lesson, and there's more than enough data about the Moon on the NASA's website. I cannot think of any recommendations to this activity. It worked perfectly for me and my students. We all loved it and our 90 minutes were very productive.

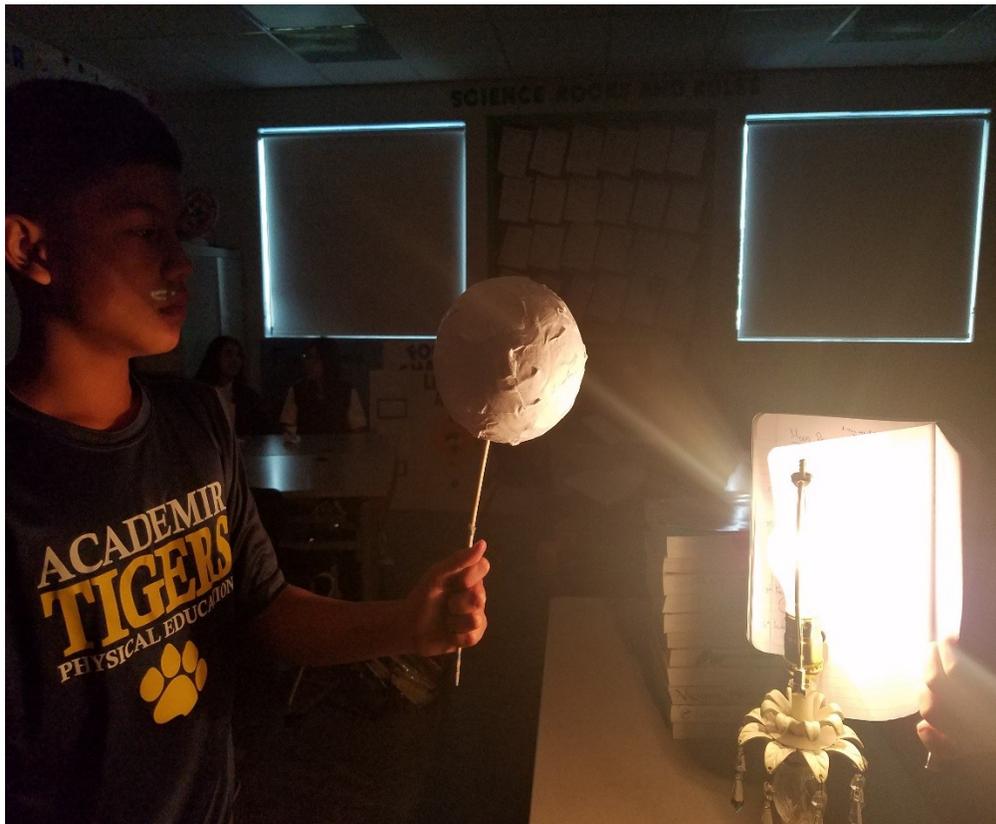


Figure 1 New Moon



Figure 2 Waxing Crescent

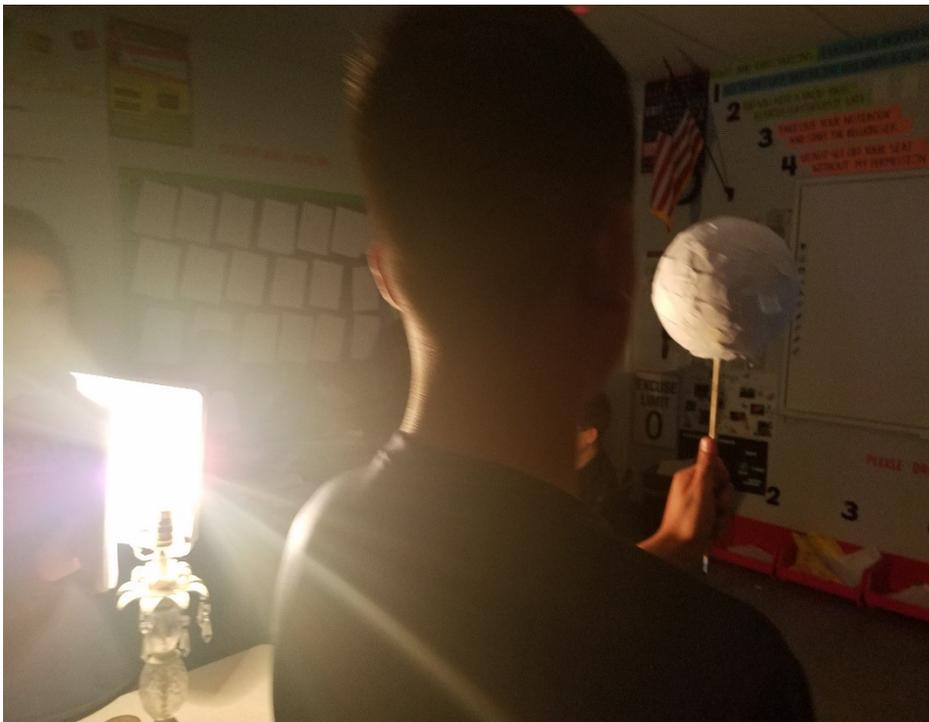


Figure 3 First Quarter

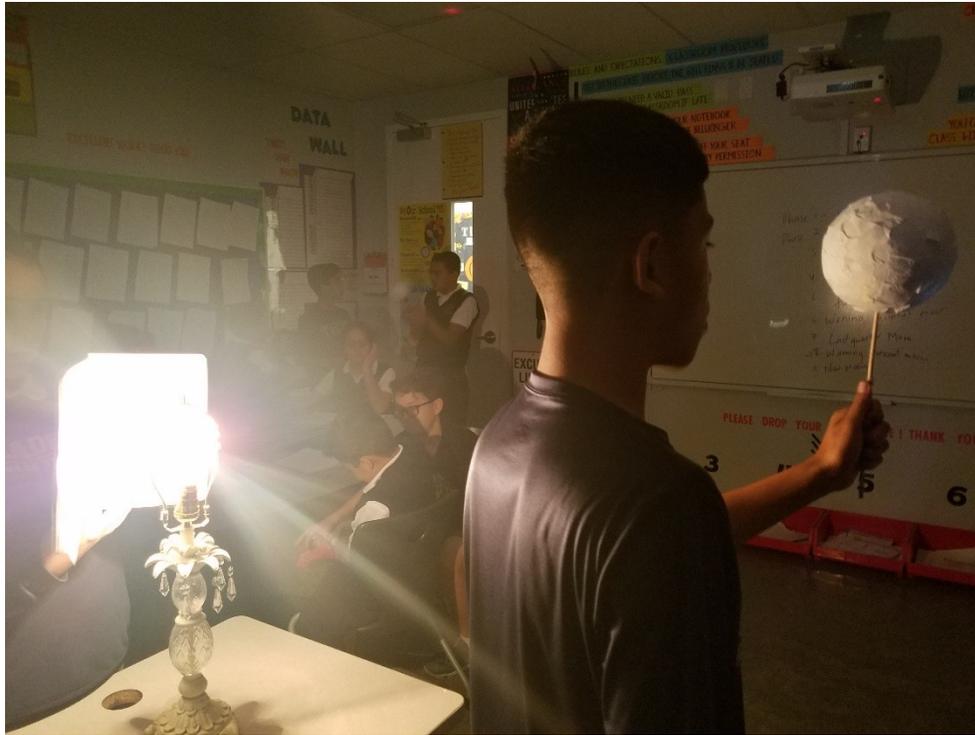


Figure 4 Waxing Gibbous Moon

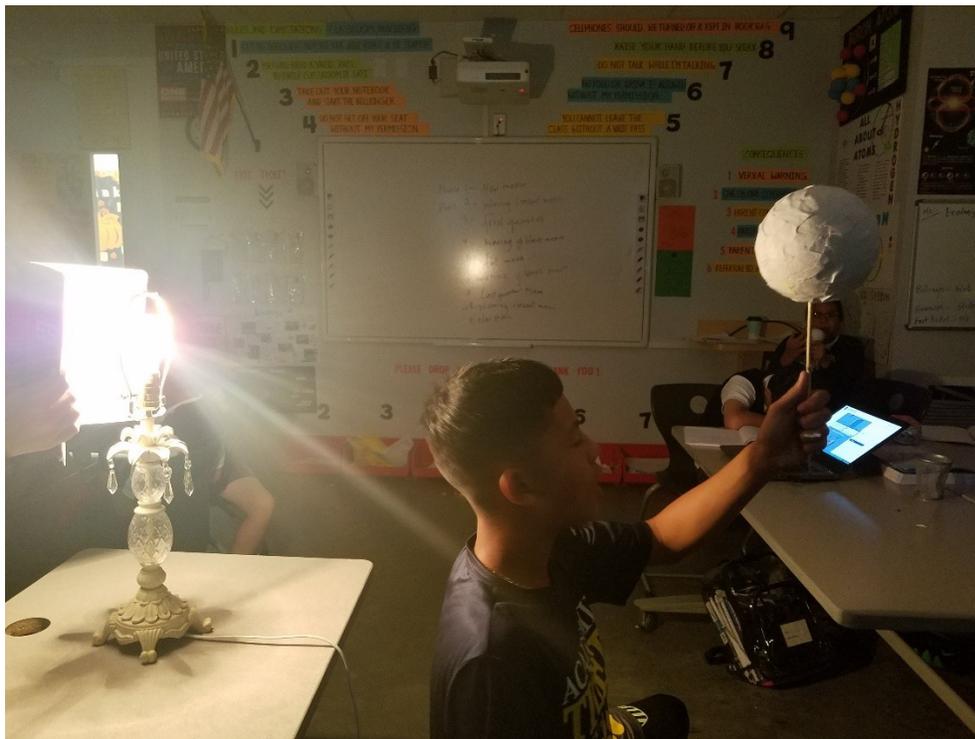


Figure 5 Full Moon



Figure 6 Waning Gibbous Moon

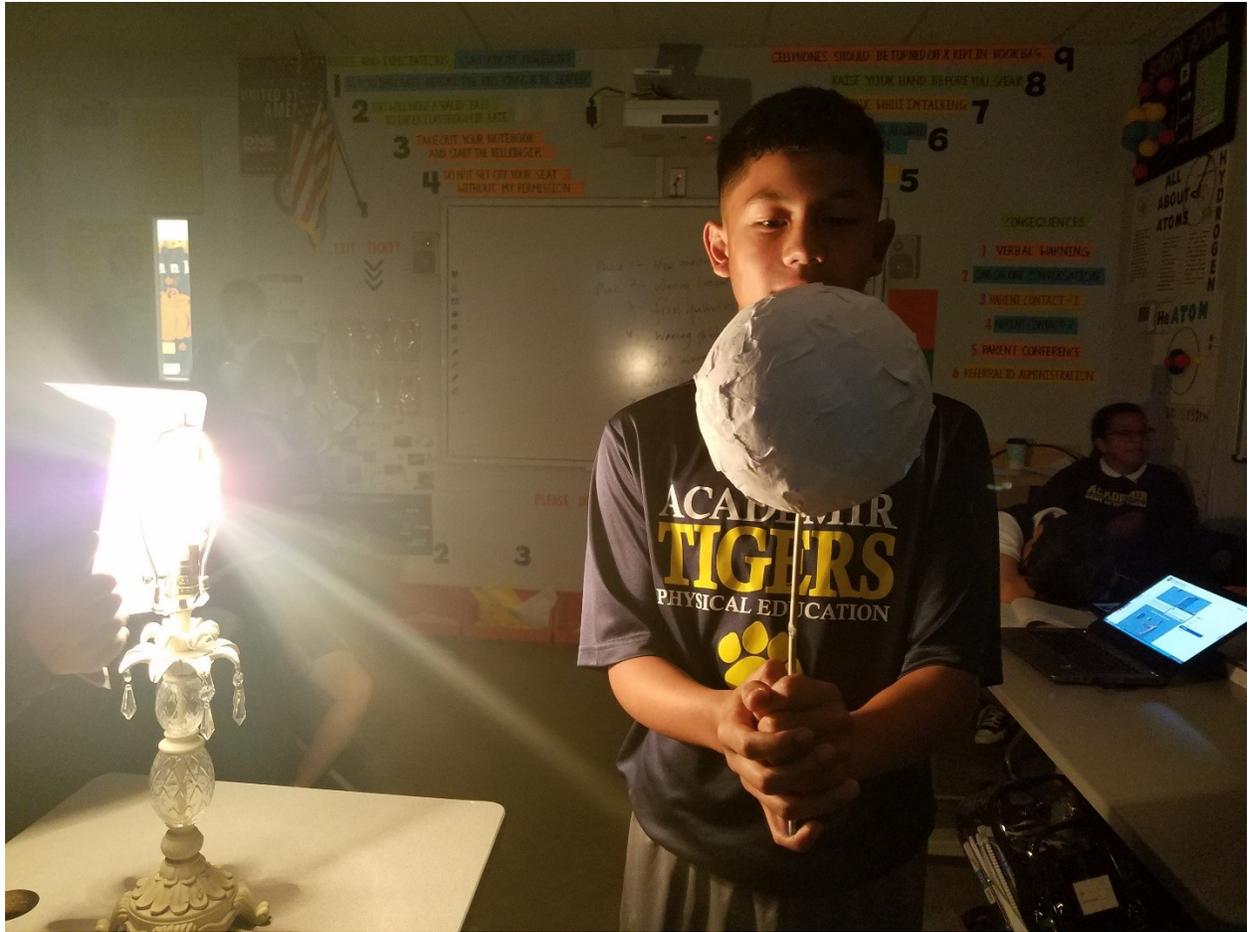


Figure 7 Third or Last Quarter Moon

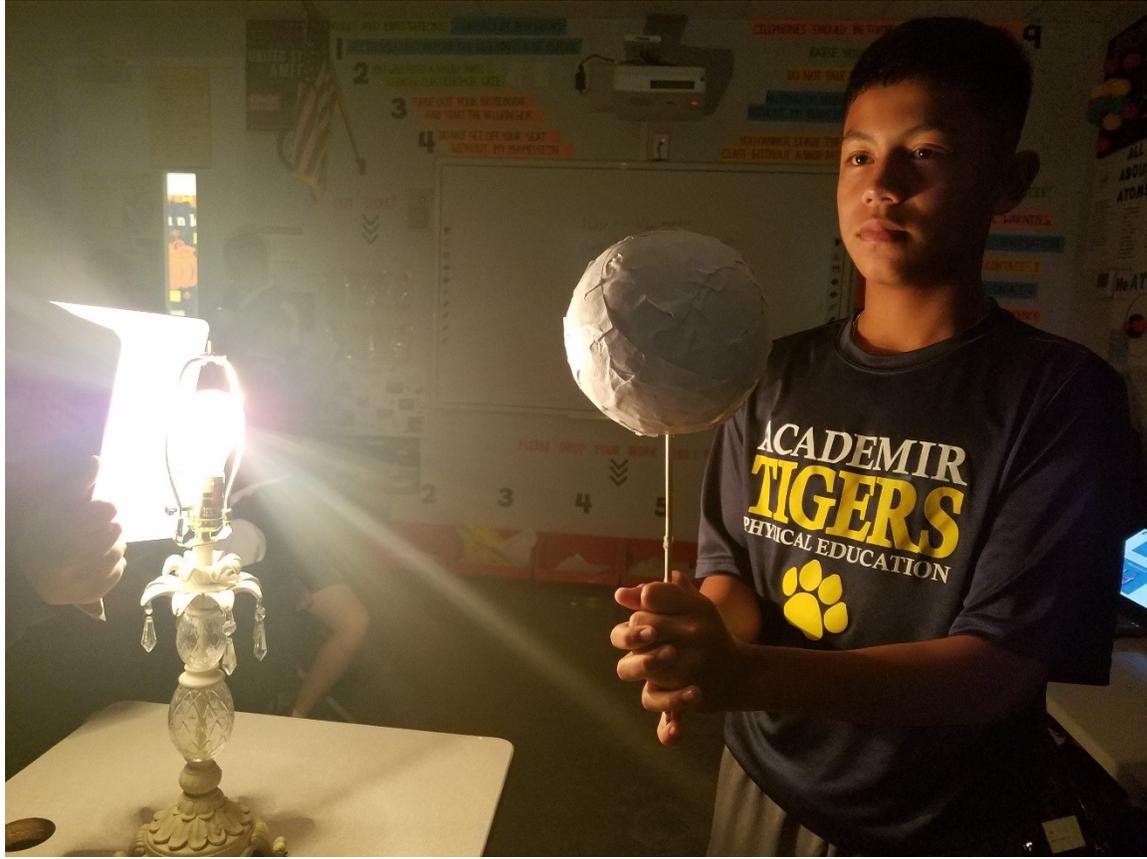


Figure 8 Waning Crescent Moon



Figure 9 Return to the new moon

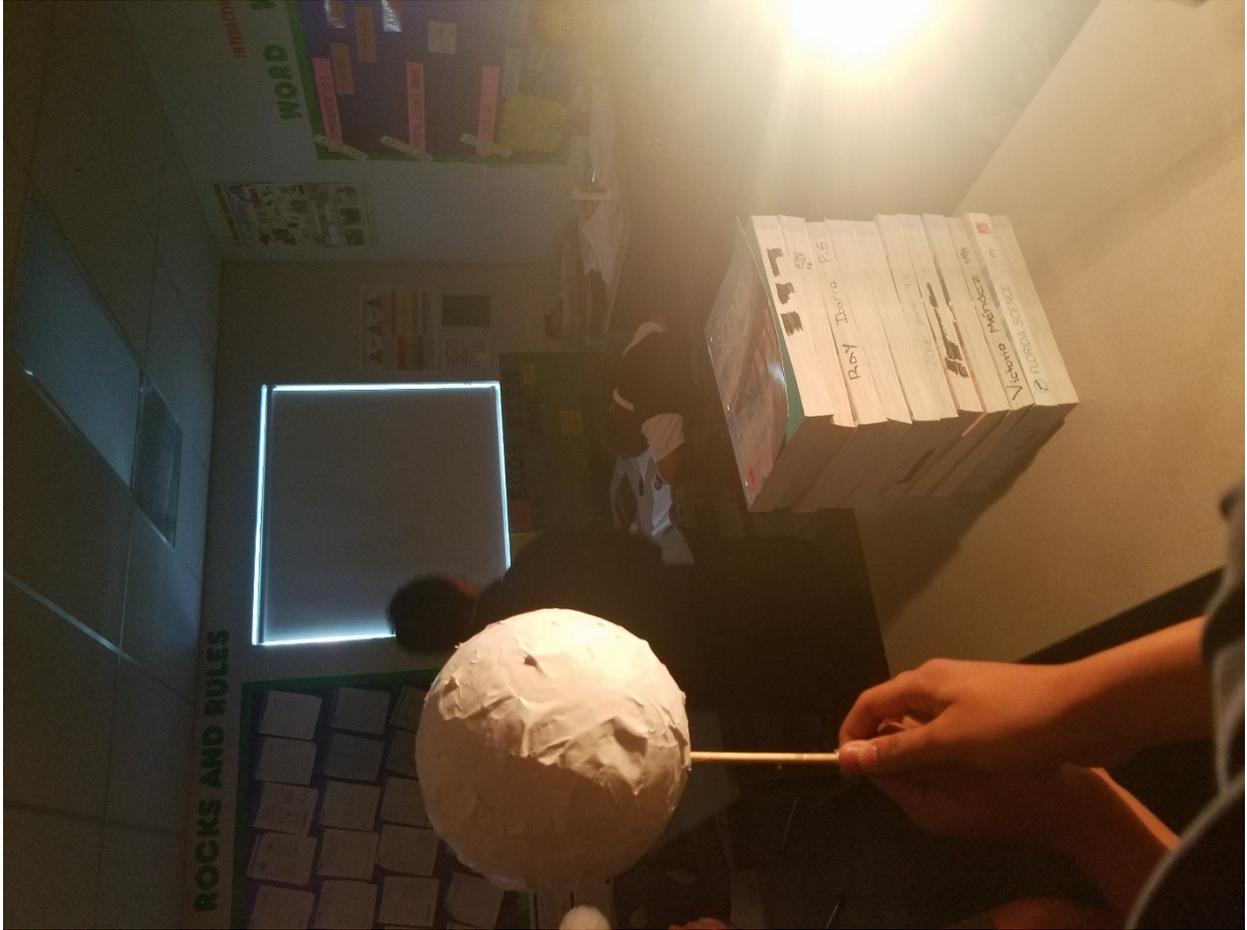


Figure 10 Waxing Crescent Moon

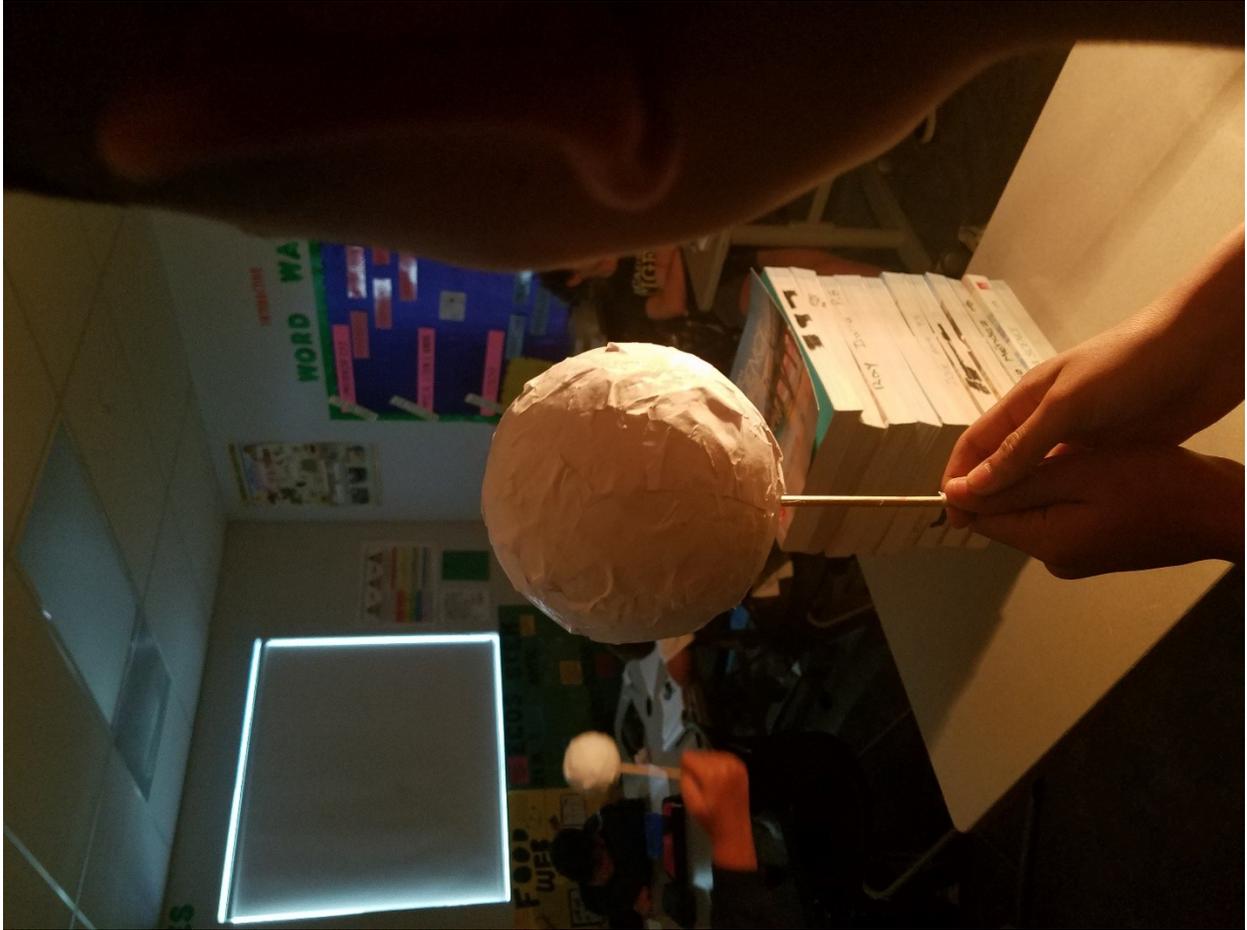


Figure 11 Waxing Crescent Moon

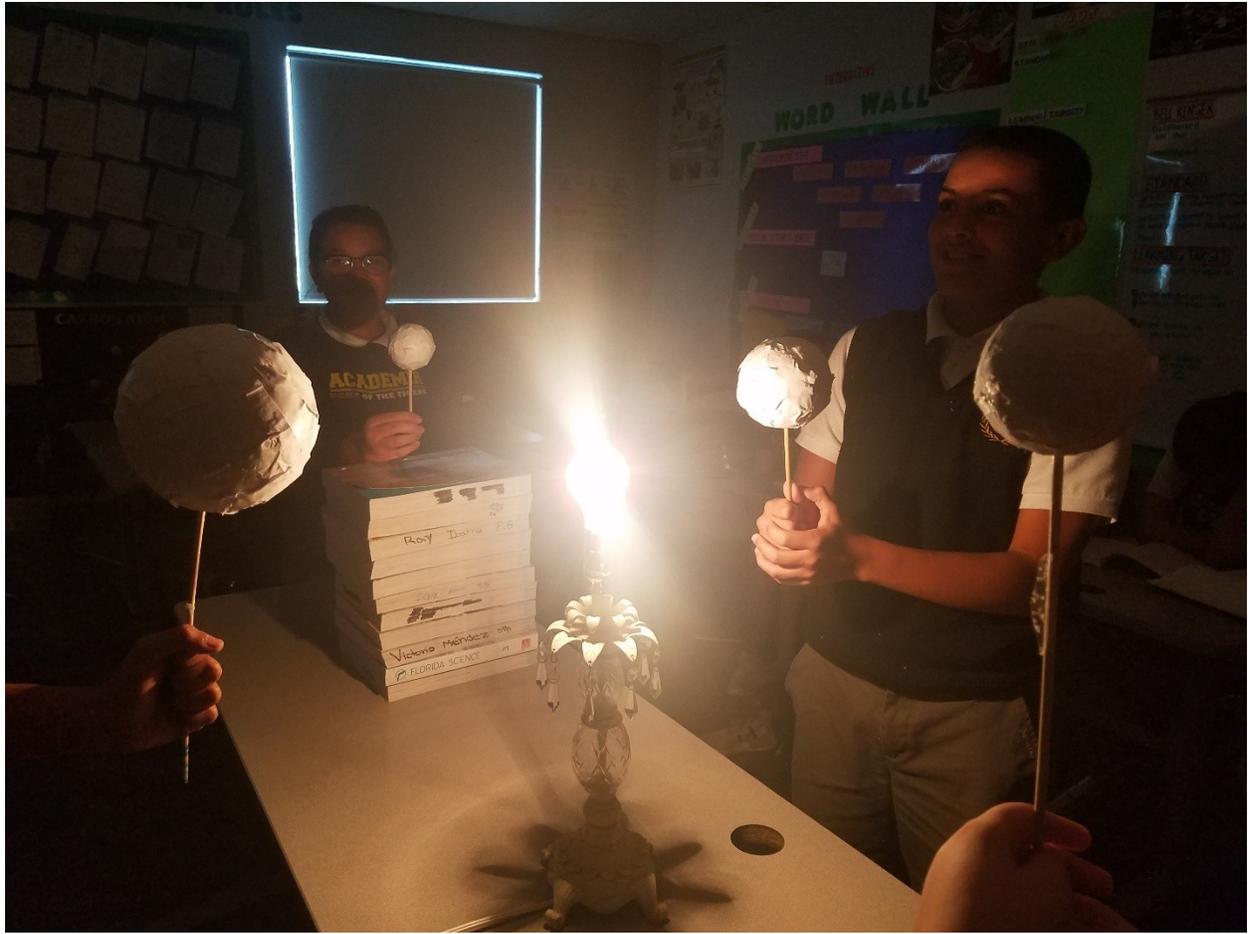


Figure 12 New Moon

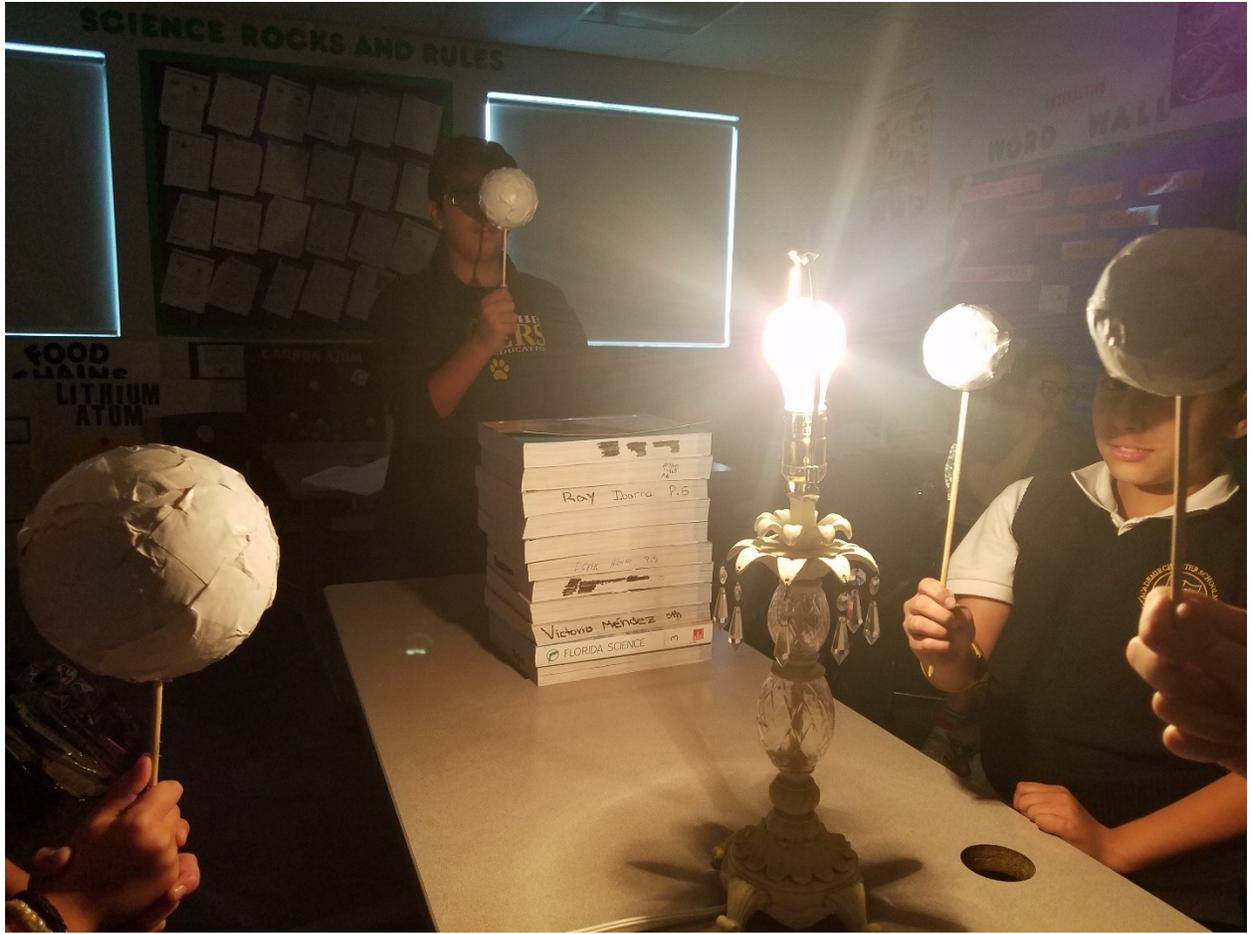


Figure 13 New Moon



Figure 14 Waning Crescent Moon

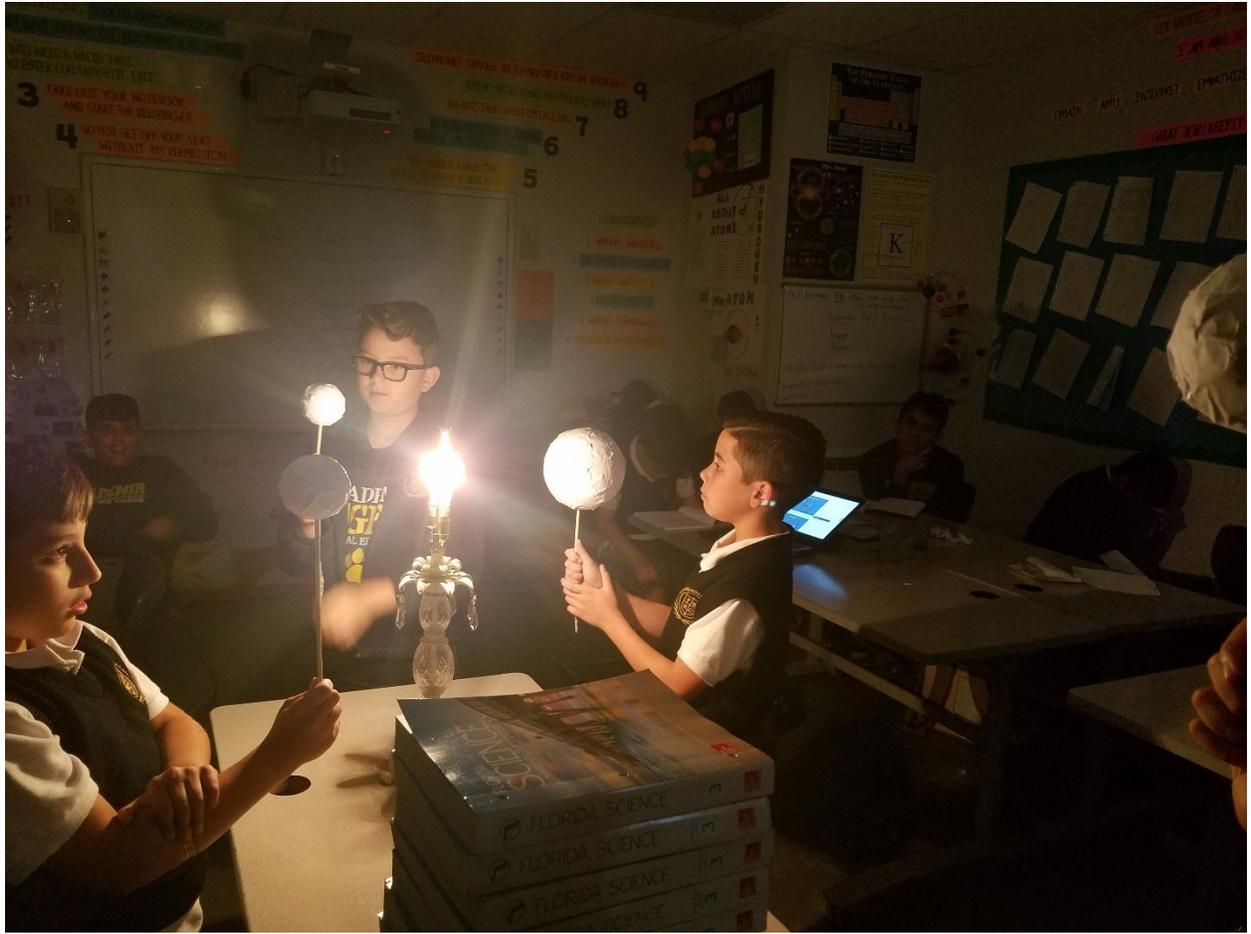


Figure 15 Waning Crescent Moon

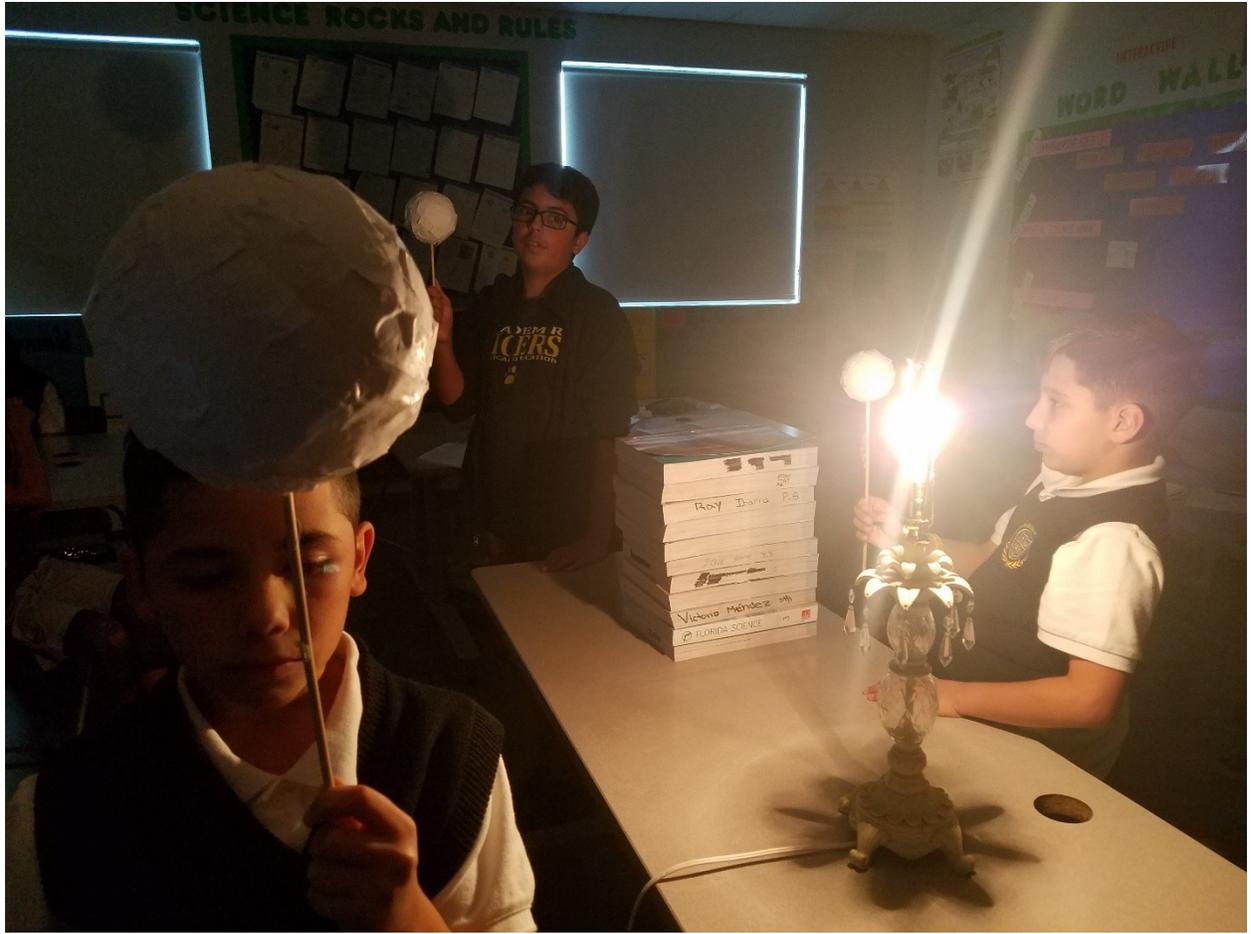


Figure 16 Waning Crescent Moon

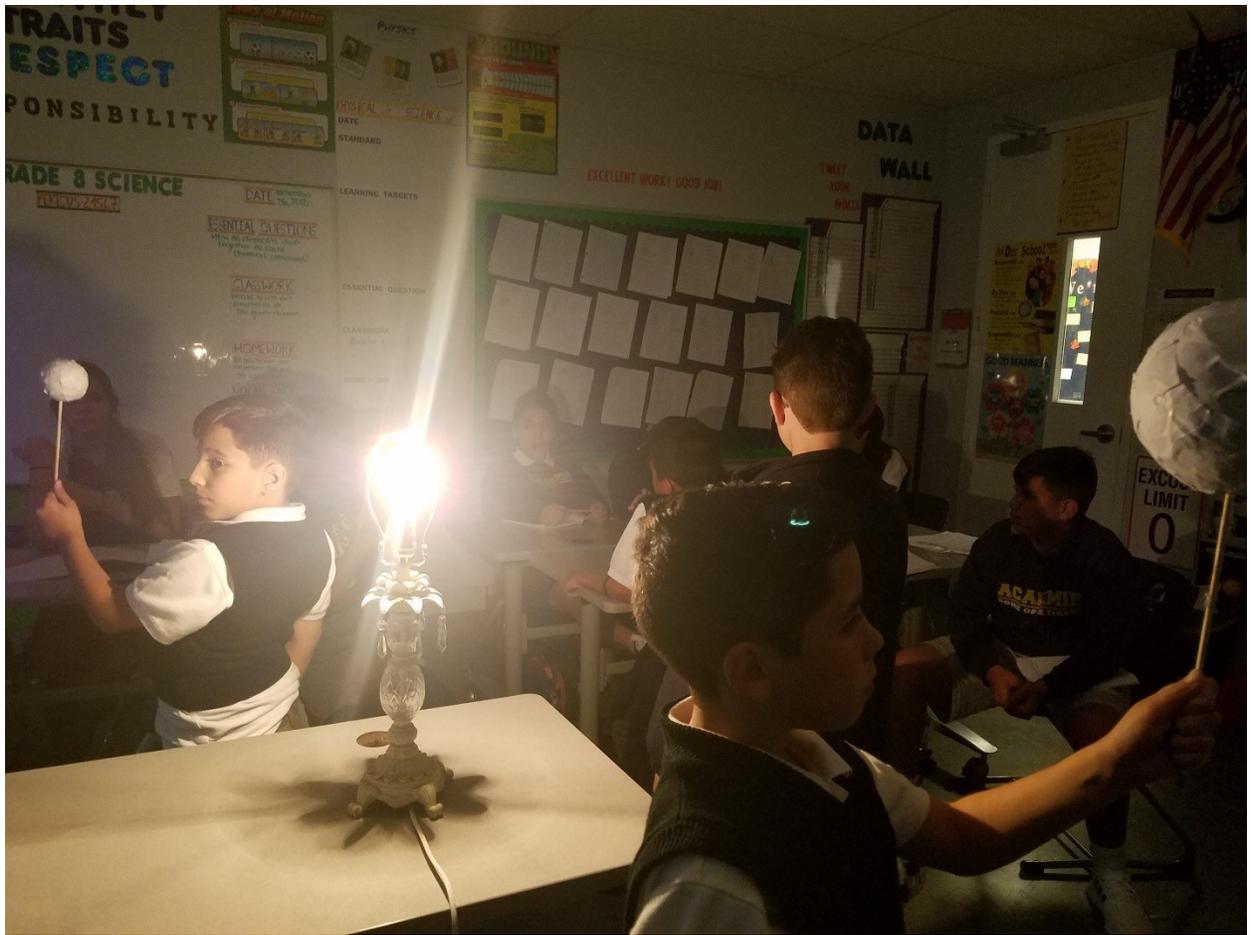


Figure 17 Third or Last Quarter Moon

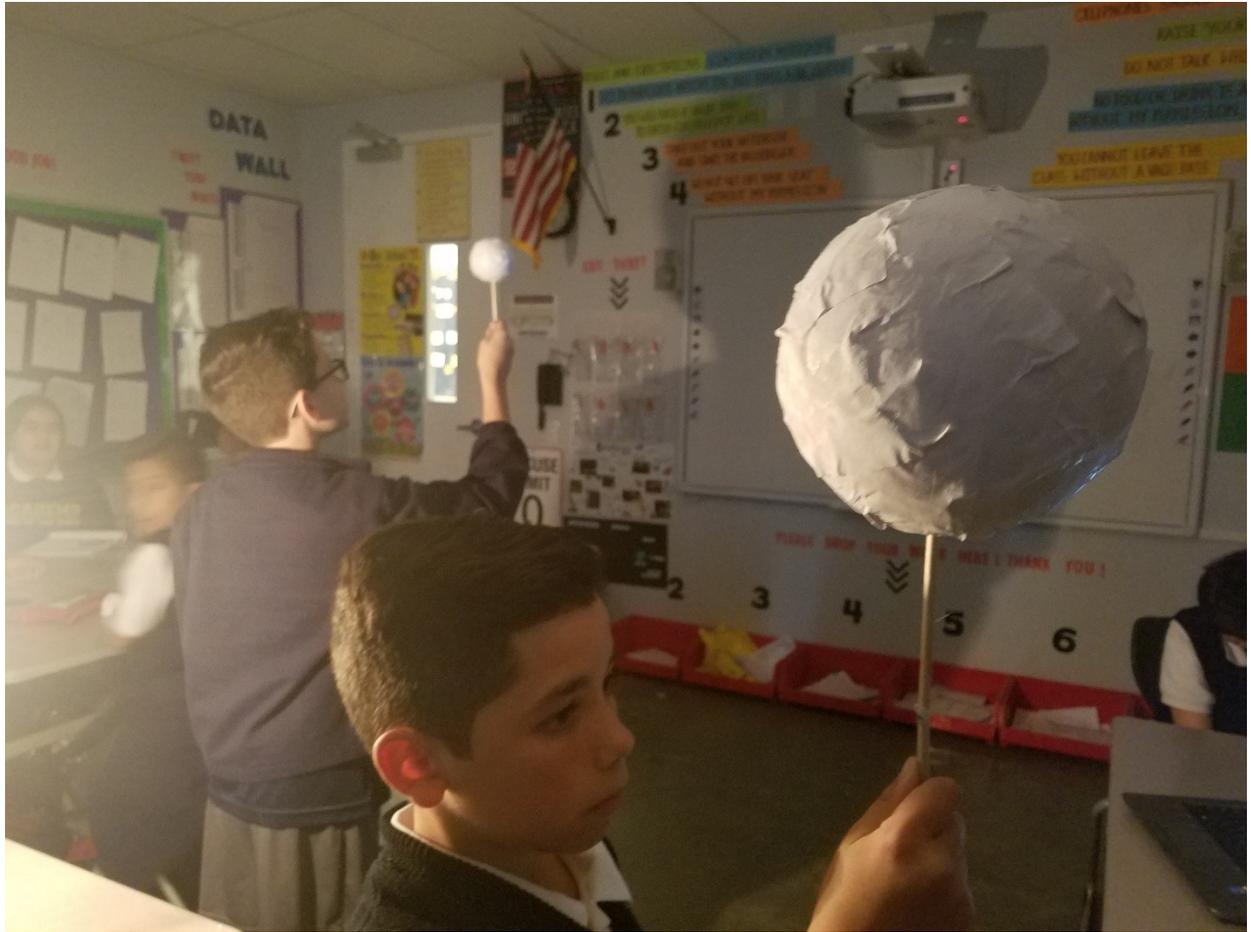


Figure 18 Waning Gibbous Moon

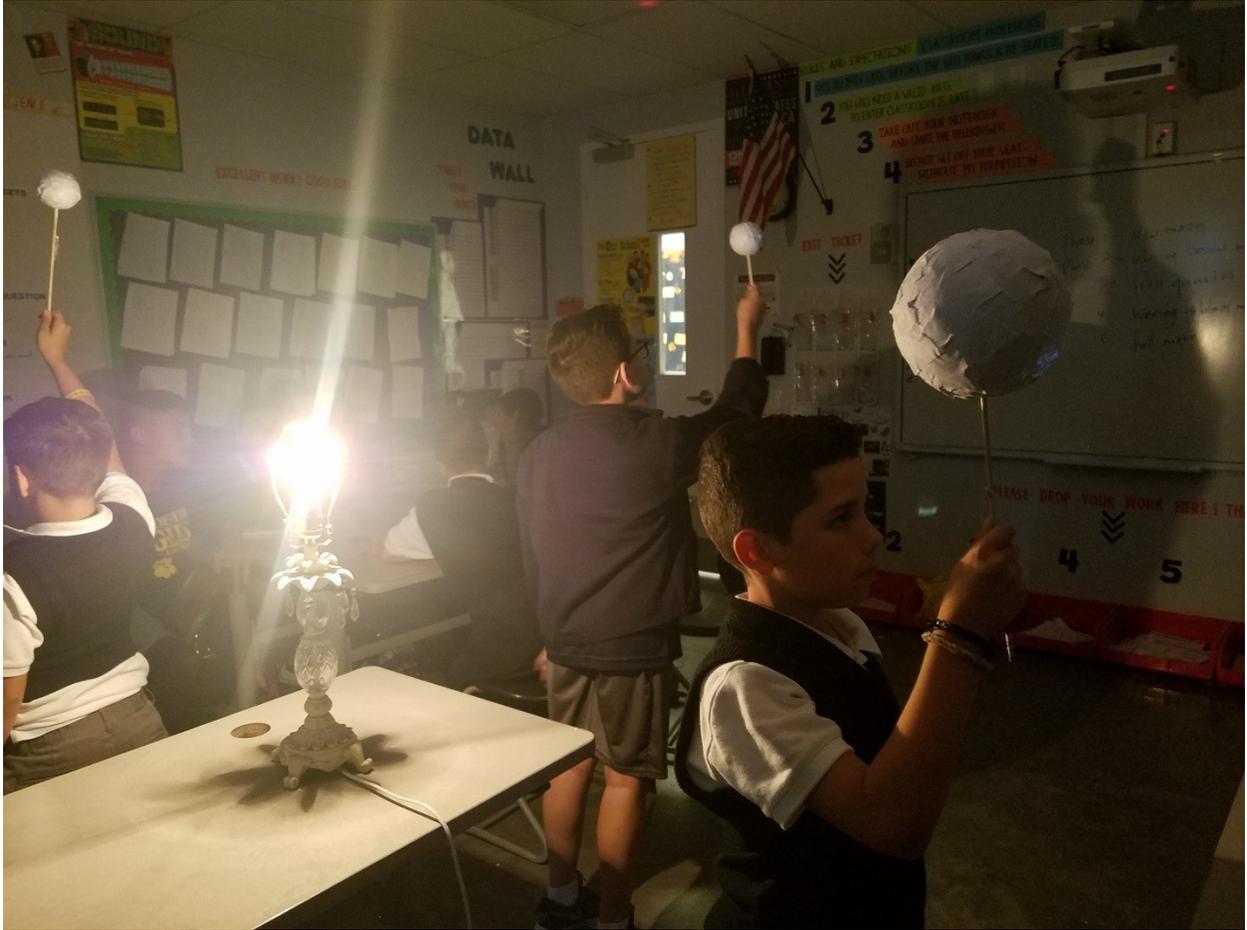


Figure 19 Full Moon

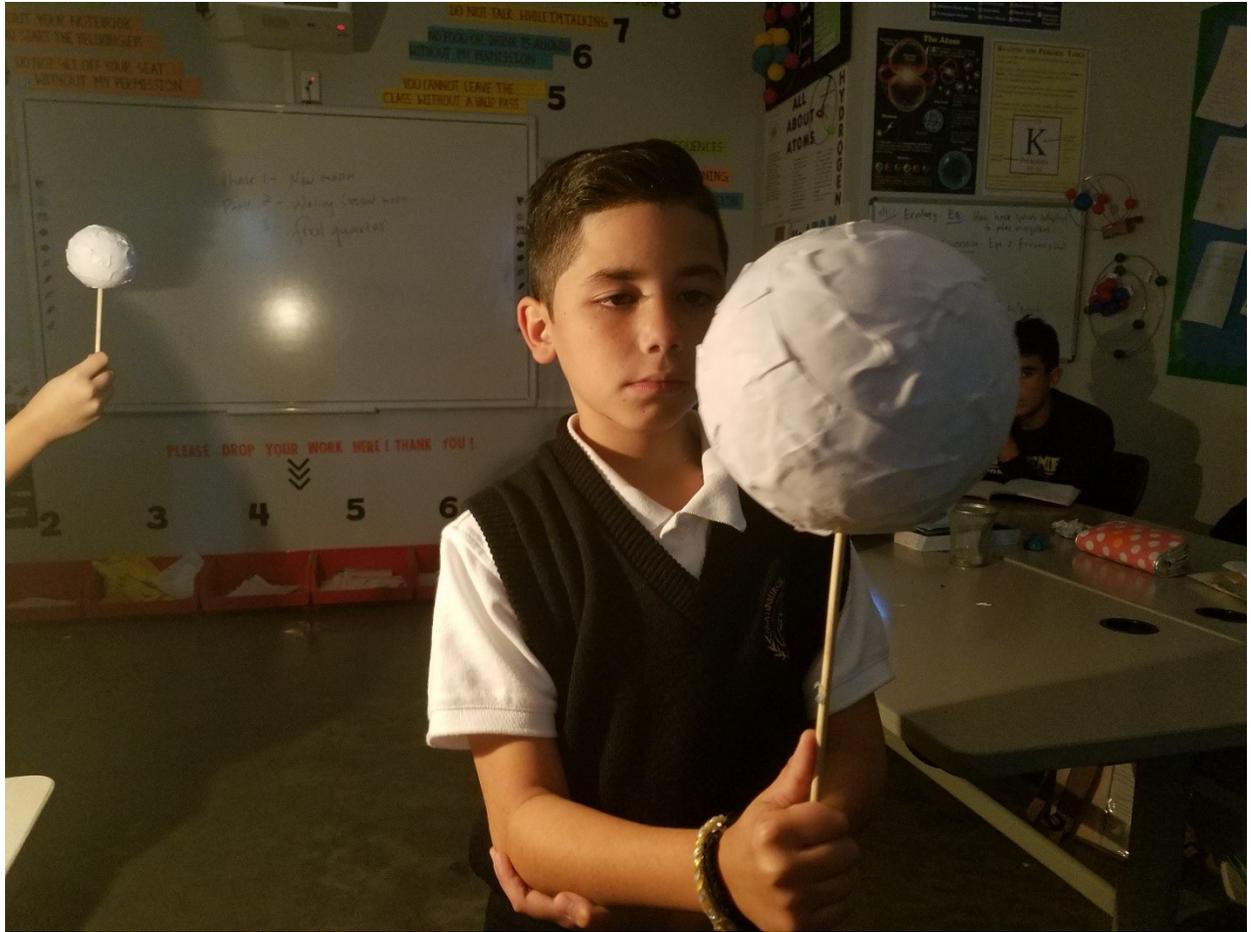


Figure 20 Waxing Gibbous Moon



Figure 21 First Quarter



Figure 22 Waxing Crescent Moon

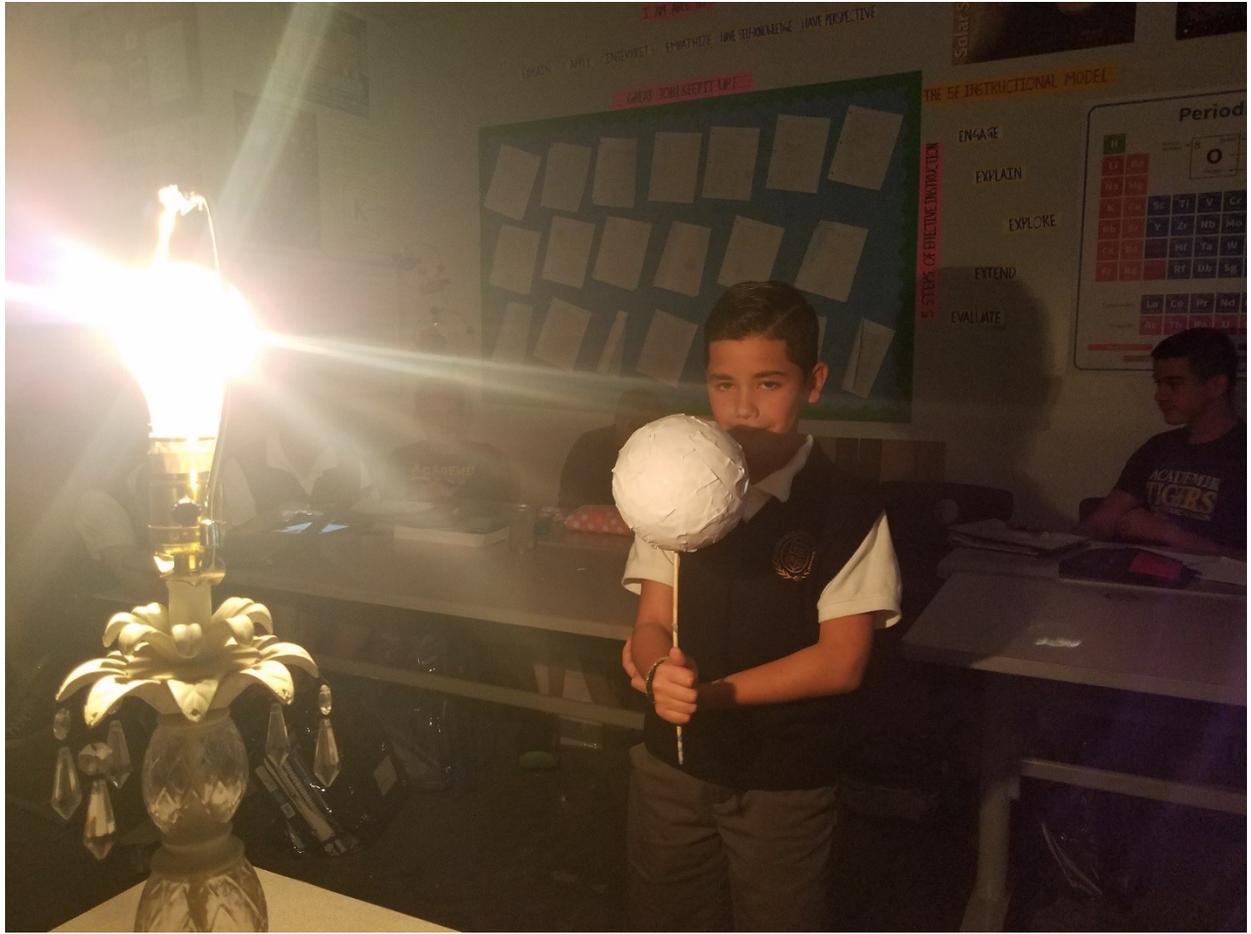


Figure 23 New Moon

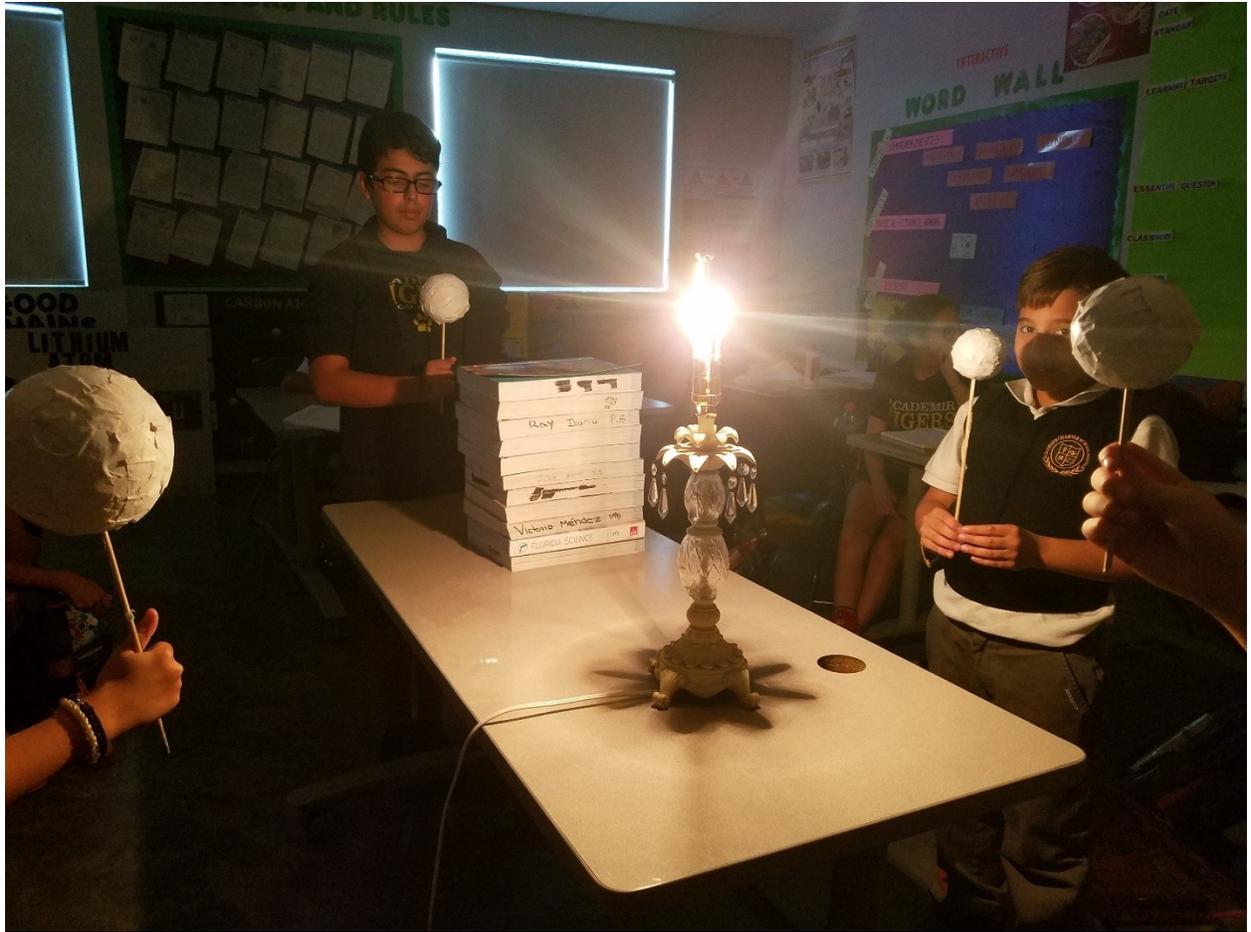


Figure 24 New Moon



Figure 25 New Moon

Reflection (Moon Phases)

Before, I knew alot about the moon phases but I forgot after a long time. I knew that that the new moon was the beginning and the end of the moon cycle and that a full moon is the middle of the cycle. I now know that the new moon was the start of the moon cycle and that the different planets that faced earth could see a full moon and that earth could see nothing, The full moon was the middle phase and that the earth could see a full moon and the planets surrounding it can see a new moon. Also, I learned that there were 9 phases not 8 phases.

October	
15	 First quarter
16	 Waxing gibbous
17	 Full moon
18	 Waning gibbous
19	 Waxing gibbous
20	 First quarter
21	 Waxing gibbous
22	 Full moon
23	 Waning gibbous
24	 First quarter
25	 Waxing gibbous
26	 Full moon
27	 Waning gibbous
28	 Waxing gibbous
29	 First quarter
30	 Waxing gibbous
31	 Full moon
November	
1	 Waning gibbous
2	 Waxing gibbous
3	 First quarter
4	 Waxing gibbous

Station Earth

Moon Phases

1st New Moon - totally dark



2nd Waxing Crescent Moon



3rd First Quarter



4th Waxing Gibbous Moon



5th Full Moon



6th Waning Gibbous Moon



Station Earth

Moon Phases

7th Last Quarter



8th Waning Crescent Moon



9th New Moon



New moon



Waxing Crescent



First Quarter



Waxing Gibbous



Full moon



Waning Gibbous

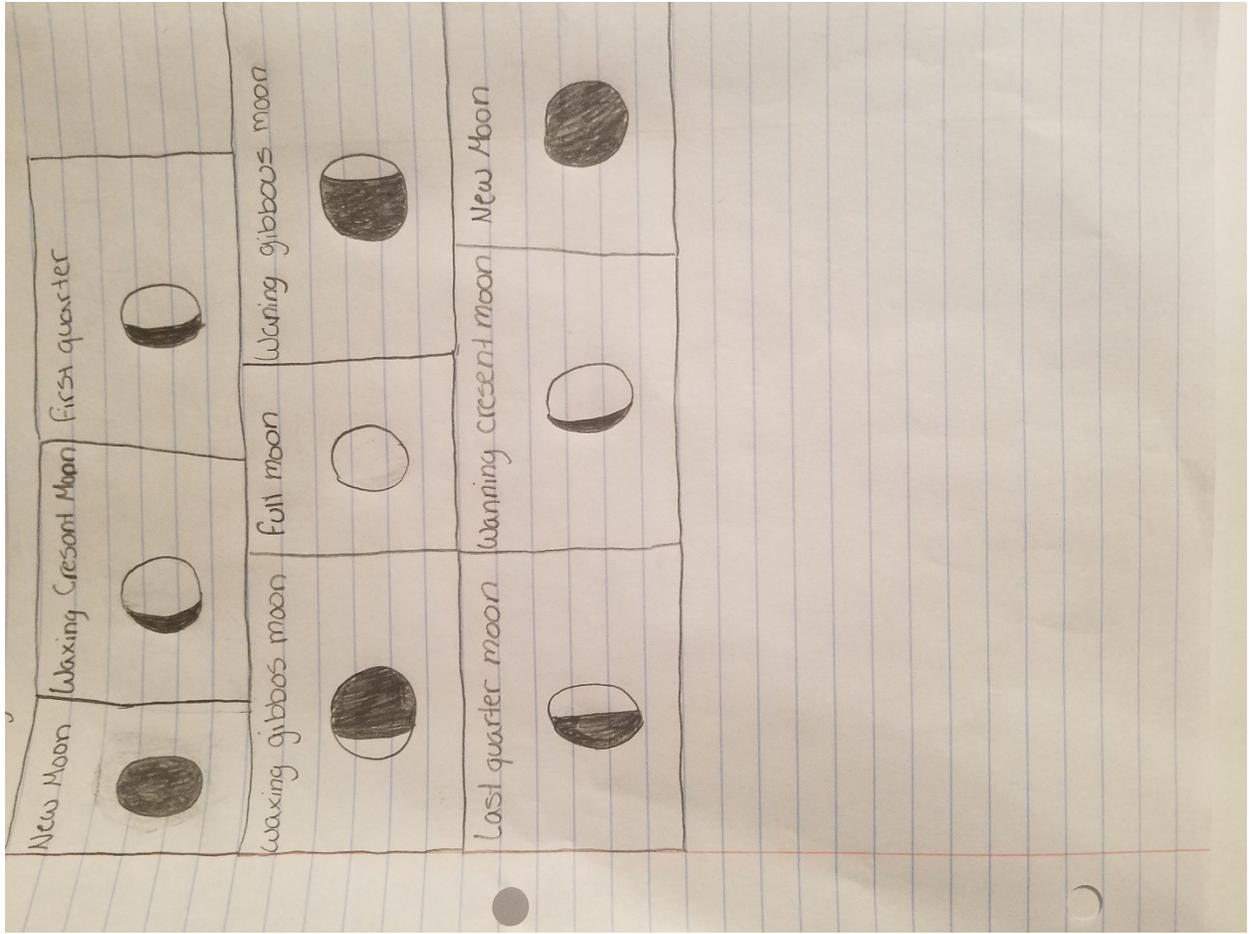


Last Quarter

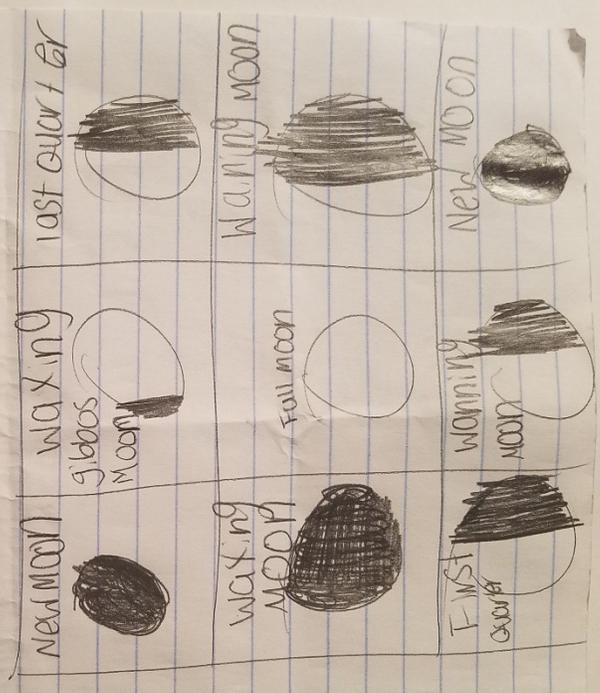


Waning Crescent





Phase 1 New Moon - u dont see it
 Phase 2 Waxing crescent moon = after the new
 Phase 3 First quarter = first half
 Phase 4 Waxing gibbous: 1th Face of the new moon
 Phase 5 Full moon - Full viewed moon.
 Phase 6 Waning gibbous moon - Second Face of
 Phase 7 Last quarter moon - Third Face of Full moon
 Phase 8 Waning crescent moon -
 Phase 9 New moon -



Oct. 20



Oct. 21



Oct. 22



Oct. 23



Oct. 24



Oct. 25



Oct. 26



Oct. 27



Oct. 28



Oct. 29



Oct. 30



Oct. 31



Nov. 1



Nov. 2



Nov. 3



Nov. 4



Nov. 5



Nov. 6



Nov. 7 1% visible

Nov. 8 1% visible

Nov. 9



Nov. 10



Nov. 11



Nov. 12



Nov. 13



Nov. 14



Nov. 15



Nov. 16



Nov. 17



Nov. 18



Nov. 19



Nov. 20

