OBSERVING MOON PHASES

By going outside and recording what they see, students can see that the moon really does change its shape and position in the sky.

From

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&
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Observing Moon Phases

Notes for the Teacher

Objective:

After completing this activity, students will be able to explain how the appearance of the moon changes in the sky during a period of two weeks.

Suggestions:

Make sure that the students complete their predictions before they start to observe the moon. Observing the moon to see if their predictions are correct, gives the students an incentive to complete the activity. You may wish to do the Observatory's **Demonstrating Moon Phases** activity before you do this one.

Remember that the dates need to be filled in on the calendar on which the students will be recording their observations. Since the activity begins at new moon, the dates of new moon for the next few years are given below. Don't expect your students to actually see the moon until a couple of days after new moon.

1997	1998	1999	2000
Jan. 9	Jan. 28	Jan. 17	Jan. 6
Feb. 7	Feb. 26	Feb. 16	Feb. 5
Mar. 9	Mar. 28	Mar. 17	Mar. 6
Apr. 7	Apr. 26	Apr. 16	Apr. 4
May 6	May 25	May 15	May 4
June 5	June 24	June 13	June 2
July 4	July 23	July 13	July 1
Aug. 3	Aug. 22	Aug. 11	July 31
Sept. 1	Sept. 20	Sept. 9	Aug. 29
Oct. 1	Oct. 20	Oct. 9	Oct. 27
Oct. 31	Nov. 19	Nov. 8	Nov. 25
Nov. 30	Dec. 18	Dec. 7	Dec. 25
Dec. 29			

Observing Moon Phases

Name _____

Discussion:

Is the moon in the sky every night? Is it always the same shape and in the same place? After you complete this activity you will be able to answer these questions and more.

Procedure:

1. Cut out the moon phases from the *Predicting Moon Phases* pages and put them in the order in which you think you will see them in the sky. Once you have them in the order you wish, glue them in the boxes.

2. Each night for the next 2 weeks go outside soon after sunset and observe the moon.

3. In the correct square on the calendar, draw a picture of the moon's shape as it appears each evening. If it happens to be cloudy draw a cloud in the square. If it is clear, but you can not see the moon, write "moon not visible" in the square.

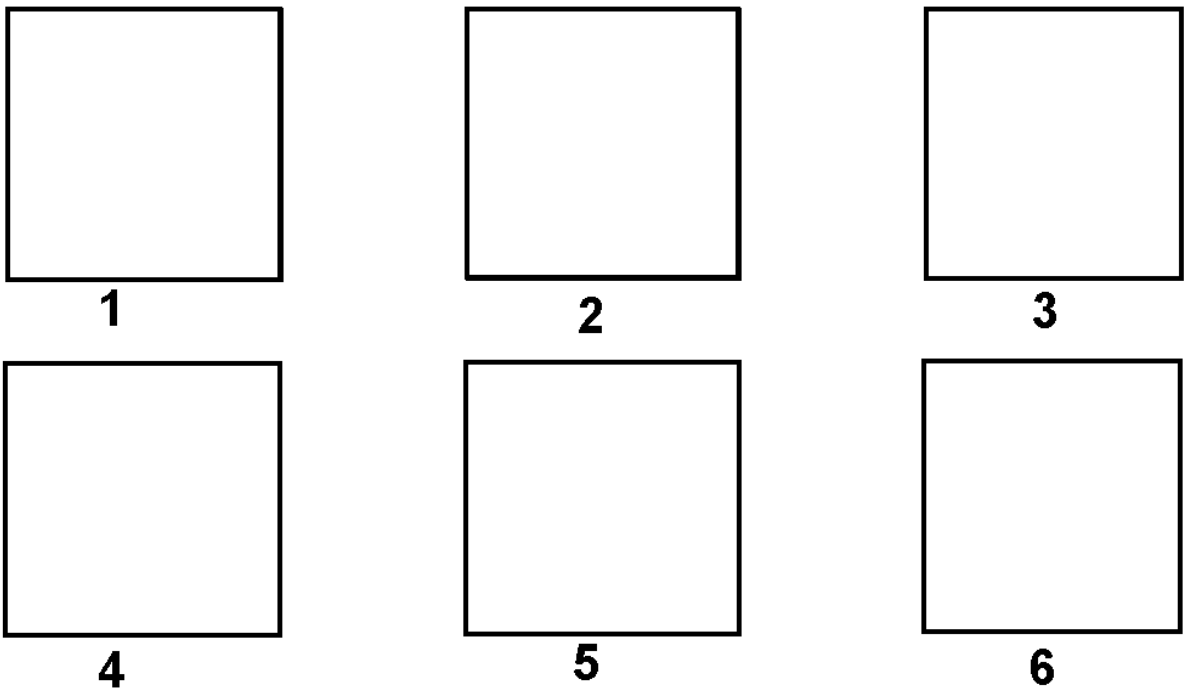
4. When the 2 weeks are up, compare your drawings of what you saw in the sky with your prediction. You will spend some time in class talking about what you saw.

Predicting Moon Phases

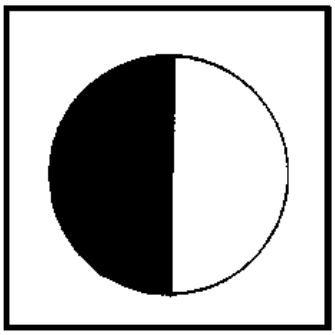
Name _____

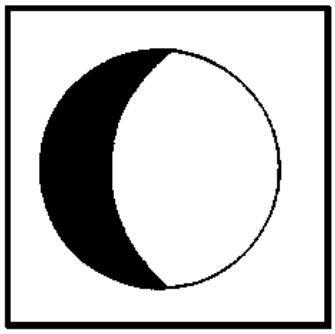
1. Cut out the different moon phases on the following sheet.
2. Put them in the order that you think you will see them in the sky.
3. Once you have them in order, glue them in the numbered boxes.
4. Now observe the moon for two weeks to see if your prediction is right.

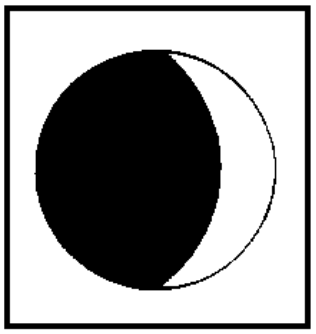
In the squares below glue your prediction of how the moon will change its shape during the next two weeks.

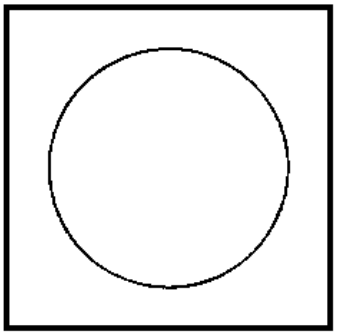


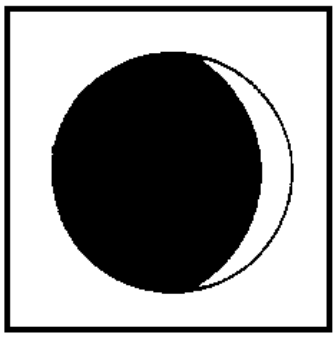
Cut these out and paste them in the squares on the other sheet.

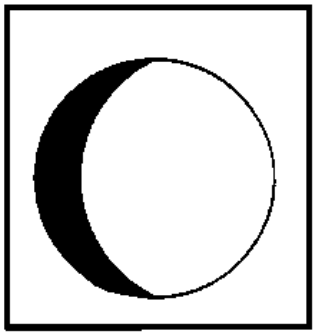












Observing Moon Phases

Name_____

DEAR PARENT: In science class your child is learning about the moon and its phases. During the two weeks from _____ to _____ your child will observe the moon to see how its appearance changes.
Observe the moon each night just after sunset. In the correct calendar square, draw a picture of the moon's shape as it appears each evening. If it happens to be cloudy draw a cloud in the square. If it is clear, but you can not see the moon, write "moon not visible" in the square.

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday

Observing Moon Phases

Discussion Questions

Name _____

1. Did the moon change its shape during the time you watched it?

2. Was there any order, or pattern, to the way its shape changed? If so, what was this pattern?

3. When did you see the smallest part of the moon -- at the beginning or end of your observation?

4. When did you see the largest part of the moon -- at the beginning or end of your observation?

5. What is the phase of the moon when it looks banana shaped?

6. What is the phase of the moon when it looks like half of a circle?

7. What is the moon's phase when it looks to be a complete circle?

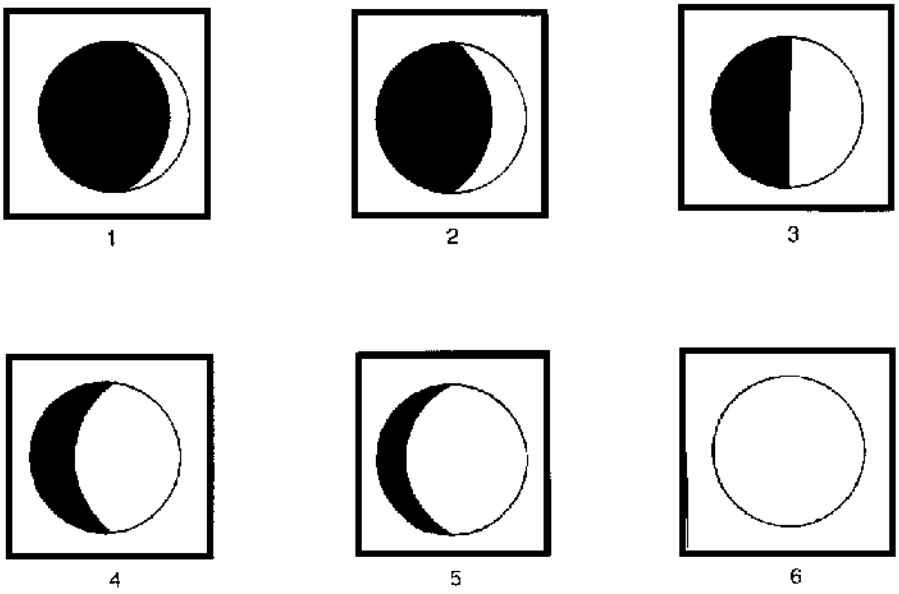
8. What causes the phases of the moon?

PREDICTING MOON PHASES

Name *Key*

1. Cut out the different moon phases on the following sheet.
2. Put them in the order that you think you will see them in the sky.
3. Once you have them in order, glue them in the numbered boxes.
4. Now observe the moon for two weeks to see if your prediction is right.

In the squares below glue your prediction of how the moon will change its shape during the next two weeks.

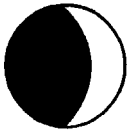
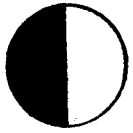
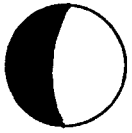
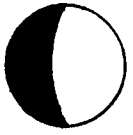
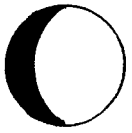
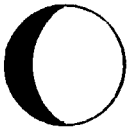
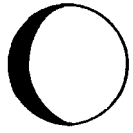
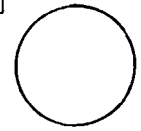
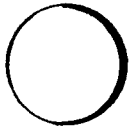


OBSERVING MOON PHASES

Name: *Key*

Observe the moon each night just after sunset. In the correct calendar square, draw a picture of the moon's shape as it appears each evening. If it happens to be cloudy draw a cloud in the square. If it is clear, but you can not see the moon, write "moon not visible" in the square.

The days listed on the calendar are the number of days after new moon. The pictures are representative of the moon's appearance on those days. Note that your students will have some cloudy days.

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
			new moon	1 *moon probably not visible*	2 	3 
4 	5 	6 	7 	8 	9 	10 
11 	12 	13 	14 	15 	16 	

Observing Moon Phases

Discussion Questions

Name _____*Key*_____

1. Did the moon change its shape during the time you watched it?

   The moon did change its shape during the time the students watched it.

2. Was there any order, or pattern, to the way its shaped changed? If so, what was this pattern?

   Yes there was a pattern to the way the moon's shaped changed. It started out as just a sliver (crescent) and got a little bigger each evening. At the end of the two weeks it was a full circle.

3. When did you see the smallest part of the moon -- at the beginning or end of your observation?

   At the beginning of the observation.

4. When did you see the largest part of the moon -- at the beginning or end of your observation?

   At the end of the observation.

5. What is the phase of the moon when it looks banana shaped?

   Crescent

6. What is the phase of the moon when it looks like half of a circle?

   First Quarter (Third Quarter Moon is also acceptable)

7. What is the moon's phase when it looks to be a complete circle?

   Full Moon

8. What causes the phases of the moon?
   As the moon orbits Earth the amount of the sunlit half that we see changes. At the beginning of the cycle, we only see a very small portion of the sunlit half; after one week we see half of the sunlit half; and after two weeks the entire sunlit half can be seen.