

# activity 1 worksheet

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## Modeling The Moon's Motion

Move the Moon counterclockwise around the Earth (positions 1-8) as needed to answer the following questions. Make sure that the dot on the Moon always faces the Earth as it revolves around the Earth.

1. This motion of the Moon around the Earth is called (rotation/revolution)  
\_\_\_\_\_
2. The time that it takes for the Moon to make one complete revolution around the Earth is known as a (sidereal/lunar) \_\_\_\_\_ month.
3. How many Earth days does it take for the Moon to make one complete revolution around the Earth? \_\_\_\_\_
4. How many degrees does the Moon move during one complete revolution around the Earth?  
\_\_\_\_\_
5. Using your answers from questions 3 and 4, determine how many degrees the Moon moves each Earth day. \_\_\_\_\_. (Show your work for this answer. Round your answer to the nearest degree.)
6. Using your answer from question 5 above, determine how many degrees the Moon moves in 1 hour. \_\_\_\_\_. (Show your work for this answer.)
7. Does an Earth-bound observer ever see the back side of the Moon (that is, the side with no dot) at any point during the Moon's rotation? \_\_\_\_\_
8. To an Earth-bound observer, does the Moon appear to rotate? \_\_\_\_\_. Does the Moon actually rotate? \_\_\_\_\_.

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9. To an Earth-bound observer, in which direction does the Moon appear to move through the celestial sphere (east to west /west to east)? \_\_\_\_\_
10. Did the dot on the Moon always face the Sun? \_\_\_\_\_
11. Would an observer on the Sun ever see the back of the Moon (that is, the side with no dot on it) at any point during the Moon's rotation? \_\_\_\_\_
12. To an observer on the surface of the Sun, does the Moon appear to rotate? \_\_\_\_\_
13. From this activity, you should be able to see that the Moon rotates on its axis as it revolves around Earth. To an Earth-bound observer, however, the Moon does not appear to rotate as it revolves around the Earth. For this to occur, the Moon must rotate (faster than/slower than/at exactly the same speed as) \_\_\_\_\_ the speed of its revolution.
14. In other words, the Moon's rate of rotation is equal to its rate of revolution. Therefore, how many Earth days does it take for the Moon to complete one rotation? \_\_\_\_\_
15. A day is defined as the amount of time it takes for a body to complete one rotation. A year is defined as the time it takes a body to complete one revolution. A day on the Moon is (shorter than/longer than/ exactly as long as) \_\_\_\_\_ one Moon year. (HINT: Remember — the Moon's rate of rotation is equal to its rate of revolution.)