Introduction to the Phases of the Moon
Grade 5

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References:

- CPS curriculum guide

Benchmarks & Objectives:

ES-2: Explain that Earth is one of several planets to orbit the sun, and that the moon orbits the Earth.

Materials:

- Light bulb (bright), Globe, and small white styrafoam ball.

Procedure:

Begin a discussion with the class about the phases of the moon. What are the phases of the moon? Can we name some of the phases of the moon? (Full, crescent, half, gibbous). At this point we distributed a sheet that showed the various phases with their respective names, so that they could visualize them. Where does this come from? (Most students will incorrectly say that it is Earth casting a shadow on the moon.)

Next, have the students convince their selves that the Moon orbits the Earth (once a month). Demonstrate this. If the phases of the moon are caused by Earth's shadow, then that only occurs really at one spot on the orbit. So logically, we should have phases a couple of days a month, and we should have a full moon for the rest of the month. Right? This is incorrect; there must be something wrong with our model.

Demonstrate that all spherical objects in our deep dark vacuum of space (the globe, the Styrofoam ball) are half illuminated and half in shadow. Then ask the students to pretend to be standing on Earth. (At this point we put a little figure man on Earth) Explain that he can only see the bright (illuminated) part of the moon and cannot see the dark (shadowed) part of the moon. What shapes would he see as the moon revolves around the Earth?

Have the students work on a worksheet that probes at these ideas while at the same time giving them access to bulbs, globes, and Styrofoam balls so they can investigate first hand.

Discussion:

Does the moon produce its own light?