

Praxis “Making Science Fun”

Why is the Full Moon so Bright?

Why does the full moon appear 10 times brighter than a half moon?

Materials:

- Tennis ball or equivalent
- Bright flashlight or lamp

Procedure: (Remember to be sure to have your parent’s permission and they have the time to watch and help you.)



- You will be the Earth, the flashlight or lamp the sun and the tennis ball the moon.
- Darken the room (lights off – window shades closed).
- Turn on the lamp, and sit with your back to it.
- Hold the ball out in front of you, so the entire surface of the ball is well lit.
- This is how the moon is positioned during a full moon. Notice how the light from the Sun (the lamp) is reflecting off the moon (the ball) back to you, making it look very bright.
- OK, now switch to a half moon (called either a first quarter moon or a third quarter moon). To see this, turn so that the Sun (the lamp) is directly to your left.
- Again, hold the ball out in front of you. The side of the ball that faces the lamp is still fully lit, but from your angle you can see that only half the ball is lit. The side of the ball that is away from the lamp is dark, just a photograph of the half moon.
- Look carefully at the lighted (left) side of the ball. Is it as bright as when you did the full moon simulation? Why not?

What's happening?

The lighted part of the ball at half moon is not as bright because most of the light is still reflecting back towards the lamp. The difference is that you are not between the lamp and the ball so that reflected light is not coming **directly** towards you.

Extension:

For experiments like this see: Robert Krampf <http://thehappyscientist.com>

This experiment is based on our “Astronomy and Sky Science” Learning Kit. Our teaching kits are loaned out FREE to provide classroom teachers and parents of home schooled children an opportunity to explore Science in interesting ways. Please consider volunteering to speak to a class about any one of our Science learning kits described on our website.



On January 30th, Praxis will be hosting Operation Minerva, a conference for grade 9 girls, that promotes Science, Technology, Engineering and Mathematical (STEM) based careers where students job shadow and attend workshops. Please see our website for more details. If you are a business or organization who wishes to support this conference, please contact us.

Lorne Cooper, Regional Executive Director

PRAXIS, “Making Science Fun”. Contact Praxis at praxis@praxismh.ca, www.praxismh.ca, Tweet or follow us @PraxisMedHat, or friend us on Facebook. Address: c/o 200 7th Street S.W., Medicine Hat, AB, T1A 4K1 Phone: 403-527-5365, Fax: 403-527-6570.