

# A SCHMAHL SCIENCE WORKSHOP

## Hands-on Science Workshop Series

Family Learning Community Homeschool  
At San Jose History Park, 1650 Senter Rd., San Jose  
(at Senter and Phelan)

Physics makes you use your imagination and helps you to understand how and why things work. The course is designed to show the importance of Physics in our everyday lives. Many things we depend on, such as transport, power and modern technology are based on the laws of Physics. By studying Physics you will learn to investigate scientific questions and develop skill in making decisions based on information and reasoning.

Grades: 6 - 9

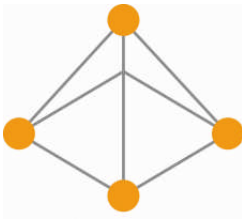
Fall 2007 - Wednesday 12 - 1:30 PM

January 9, 16, 23, 30; February 6, 13, 20, 27; March 5, 12, 19; April 2

Fee: \$234

**You Light Up My Life: A Heavy-duty Look at Light!** Light is all around us and informs us about the universe we live in. It is the primary way we gather information; by seeing & observing with light. But what is Light itself and how does it behave? How do we use light in everyday lives as well as in Art, Science, Entertainment, Work & Play? How has human investigation into and knowledge of Light developed over the centuries? How has understanding and taming/controlling Light changed the world? What will we use light for in the Future? Topics covered will include:

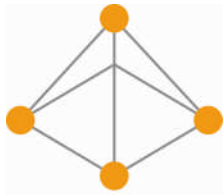
- **1. Light & the Electromagnetic Spectrum** We start with what light IS, what it's a part of and how it moves. Introduction to Light's behavior & nature; how it interacts with other things.
- **2. Absorption & Heat: Why is the Sky Blue?** What happens to light as it travels through things? What happens to sunlight in the earth's atmosphere? When it hits objects of different colors? See the world like a nocturnal predator (in infrared light).
- **3. Dispersion: Why are Sunsets Red?** What happens to light that is scattered and bouncing every which way? Why are some things transparent, while others are opaque or in between? Learn about polarization and see how Polarized Sunglasses cut glare.
- **4. Reflection & Mirrors:** We'll reflect on what happens when light bounces off an object. How can we predict what the image will look like, which direction it will go and how it might change. We'll play with different kinds of mirrors and do some amazing tricks with them!



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- **5. Refraction: Lenses & Prisms** Learn about bending Light and breaking it up. Shoot light through Jello! Work with an Optical Bench to measure the characteristics of many different kinds of lenses.
- **6. Rainbows & Spectroscopy** Diffraction & Refraction allow us to see the light in new ways! How do Rainbows form? Learn about unique spectrograms and how scientists use them to explore everything from what's at a crime scene to the composition of a star thousands of light-years away. Use spectrometers to measure light waves, emission & absorption bars.
- **7. Color: Addition & Subtraction** What IS color? How do you make colors? What is the difference between paint or ink and the colors on your TV/PC screen? Are White & Black really colors?
- **8. Sight of Light** How do our eyes work? Do all animal eyes work the same? Can plants see? How did vision evolve?
- **9. Improving our Vision** Learn how Glasses, Contact Lenses, Magnifying Glasses, Microscopes & Telescopes all work.
- **10. Capturing Light: Film & Digital Photography** Learn how we capture light images using lenses, chemicals & Jell-O! History of photography from Middle Ages to present.
- **11. Lasers & Holography:** What is a LASER? What can it do? Why is it considered one of the most important inventions of the 20<sup>th</sup> Century? Learn about how holographic images are made.
- **12. Digital Light** Learn how we use lasers to communicate, compute & entertain. Learn how the Internet and telephone systems are based on fiber-optic "light pipelines" criss-crossing the world; how CDs & DVDs work. See how future devices may all be based on light pulses lasting trillionths of a second!



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Presents to  
**Family Learning Community Homeschool**  
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Child's Name \_\_\_\_\_ Grade 2007-08 \_\_\_\_\_

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Child's Name \_\_\_\_\_ Grade 2007-08 \_\_\_\_\_

Parent Name \_\_\_\_\_ email \_\_\_\_\_  
(registration confirmation sent by email)

Address \_\_\_\_\_

City \_\_\_\_\_ Zip \_\_\_\_\_

Home Phone \_\_\_\_\_ Emergency Phone \_\_\_\_\_

Any Medical issues for child (ren) \_\_\_\_\_

Please indicate names of children that will attend each workshop. **If you are using Ocean Grove Charter School to cover the cost of this workshop, please add a \$5.00 per child fee for processing.**

Workshop Series	Students' Names	# of Students	Amount Due
<b>You Light Up My Life Series            (Grade 6-9)</b> \$234 student (12 meetings)			
<b>Fee for Ocean Grove Charter students            (\$5.00 per student per session)</b>	<b># of sessions x # of student X \$5.00</b>		
<b>Total due</b>			

Payment is due with registration. Please only send check or money order made out to A Schmah Science Workshop. No refunds. No substitutions. Mail registration to: A Schmah Science Workshop, 171 Branham Lane, Ste. 10, PMB 223, San Jose, CA 95136

- Please check if you wish to be added to our mailing list for future workshops \_\_\_\_\_
- Please check if we may send information to you via email \_\_\_\_\_
- SSW may take pictures during the Workshops to be used for publicity for SSW. Names of children and locations where pictures were taken will not be published.

For questions please contact Belinda Lowe-Schmah at 408-281-7595 or [bel@schmahscience.org](mailto:bel@schmahscience.org)  
 Please visit our website at [www.schmahscience.org](http://www.schmahscience.org)