

The Optics Suitcase: An Educational Outreach Tool for Inspiring Careers in Light

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Developed by the Optical Society Rochester Section (OSA-RS), the Optics Suitcase is an innovative, interactive presentation package designed to introduce middle school students to the dynamic and exciting range of concepts within the study of light. The Optics Suitcase (see Fig. 1) is an educational outreach tool developed by Dr. Stephen D. Jacobs and the OSA-RS with the busy professional in mind. It is designed to make it easy to enter a middle school classroom and excite young people about careers in technology using experiments that can be customized to highlight the presenter's interests, job, and work environment.



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Figure 1
Photograph of the Optics Suitcase and its contents.

The Optics Suitcase contains reusable supplies and giveaway theme packets for in-class presentations that explore color in white light (see Table I). The goal is to help promote technology careers to middle school students. A detailed presentation guide is included with the suitcase to help give presenters techniques for engaging students during the presentation and making the demonstrations more interactive.

Three experiments explore the colors constituting white light in the form of diffraction (The Rainbow Peephole), polarization (Magic Stripes), and selective reflection (Magic Patch). These three experiments use giveaway theme packets that are designed to help reinforce the study of light concepts at home as students present the information they learned to their family and friends. The objective of the Optics Suitcase is to convey a sense of excitement about technology in a short period of time. To achieve this goal, the initial demonstrations serve as “ice breakers” and are intended to quickly capture the students’ attention. Next, three hands-on activities use the theme packets and illustrate the overall theme of “colors in white light.” They are presented at

a pace best suited (as determined by the presenter) to retain the students' interest; children often enjoy taking the theme packets home and sharing with others. The presenter can customize the template take-home flyer with a name, the date, and the location of the presentation to help reinforce the message with the students. A quick review of the presentation guide and an enthusiastic attitude will result in a fun, interactive, and educational outreach activity.

Table I: List of Optics Suitcase reusable and giveaway supplies.

Quantity	Item—Reusable Supplies
1	Durable suitcase with room for other items that can be added to customize presentation
1	Instruction guide on laminated sheets
1	USB-stick with supplemental Optics Suitcase materials
1	Hot Snapz heat pad
1	Set of Arbor Scientific “Happy and Unhappy” balls
1	Slinky
1	50-mm silicon wafer, one side polished to a “mirror” finish
1	Silica glass lens
1	5-in. × 5-in. pieces of high-quality sheet polarizer
1	Transparent plastic cups
1	Set of transparent plastic tableware: knife, fork, and spoon
1	6-in. × 6-in. sheet of temperature-sensitive microencapsulated liquid crystal
Quantity	Item—Giveaway Supplies (can be restocked)
50	Rainbow Peephole: Color by Diffraction
50	Magic Stripes: Color by Polarized Transmission
50	Magic Patch: Color by Selective Reflection
50	Periodic Table of Elements

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