OVERVIEW
The goal of Physiology Understanding Week (PhUn Week) is to increase student interest in and understanding of physiology in their lives, and to introduce them to physiology as a possible career. Each November, APS members are encouraged to visit their local school(s), explain what physiology is and what a physiologist does, and lead students in interactive learning activities. Program information is at the www.phunweek.org website.

PARTICIPATION
The PhUn Week theme highlights the physiology of exercise, health, fitness, and nutrition, but each event site was customized to the APS member’s research interests and the needs of the teacher. Table 1 summarizes the numbers of events, students, teachers, and scientists involved in PhUn Week 2010 across the U.S., Puerto Rico, and Canada (Figure 1). Table 2 lists the promotional material and resources made available to the participants.

Table 1. PhUn Week 2010 target goals and actual participation.

<table>
<thead>
<tr>
<th></th>
<th>Target Goal</th>
<th>Actual</th>
<th>% Goal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Events</td>
<td>80</td>
<td>63</td>
<td>79%</td>
</tr>
<tr>
<td>Students</td>
<td>10,000</td>
<td>8,900</td>
<td>89%</td>
</tr>
<tr>
<td>Teachers</td>
<td>160</td>
<td>210</td>
<td>131%</td>
</tr>
<tr>
<td>Scientists</td>
<td>330</td>
<td>240</td>
<td>73%</td>
</tr>
</tbody>
</table>

Table 2. Resources and promotional material for participants.

<table>
<thead>
<tr>
<th>Resource/</th>
<th>Students</th>
<th>Teachers</th>
<th>Scientists</th>
<th>Leaders</th>
</tr>
</thead>
<tbody>
<tr>
<td>memorabilia</td>
<td>• drawstring sportpacks</td>
<td>• APS K-12 Programs Booklet</td>
<td>• PhUn Week 2010 t-shirts</td>
<td>• PhUn Week 2010 t-shirts</td>
</tr>
<tr>
<td></td>
<td>• squeezy anatomical hearts</td>
<td>• PhUn Week 2010 t-shirts</td>
<td></td>
<td>• PhUn Week luggage tag</td>
</tr>
<tr>
<td></td>
<td>• physiology career brochures</td>
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</tbody>
</table>
PROGRESS

The PhUn Week program has established itself in five years as the APS’ major outreach event to precollege classrooms in a concerted effort each November. APS members have established and fostered relationships with teachers in their local communities. Longer-term tracking and evaluation will allow more formal studies on sustaining these relationships, as well as on the impact and effectiveness of this program that reaches into the earliest pipeline of future physiologists. Figure 2 presents the data on the numbers of events, physiologists, teachers, and students over the last five years.

Figure 2. Total number of events, physiologists, and teachers (left panel), and students (right panel) by year, 2005-2010.

VIDEO CLIPS of PhUn Week Events posted onto YouTube

University of Alabama at Birmingham

*UAB students bring PhUn to area elementary school*

[http://www.youtube.com/watch?v=i3-PjqI52E0](http://www.youtube.com/watch?v=i3-PjqI52E0)

Produced by the University of Alabama at Birmingham Office of Media Relations. Led by APS member Edlira Clark. The PhUn Week activities included a visit to Deer Valley Elementary to conduct experiments with more than 150 first-grade students. With a related news story: [http://main.uab.edu/Sites/MediaRelations/articles/81880/](http://main.uab.edu/Sites/MediaRelations/articles/81880/).

Weymouth Schools, Weymouth, MA

[http://www.youtube.com/watch?v=xO3FUzEZIFg](http://www.youtube.com/watch?v=xO3FUzEZIFg)

Presentation to the local school board by Diana Cost (2009 Frontiers Research Teacher), high school and middle school students who volunteered for their PhUn Day Event in partnership with APS members from the U.S. Army Research Institute of Environmental Medicine, Natick, MA (led by Trainee Advisory Committee member Bryan Helwig).
NEW ONLINE MATERIALS DEVELOPED

An interactive webpage of simple animations and simulations for elementary school students has been developed by a subcommittee of the APS Career Opportunities in Physiology Committee. The K-2 online interactive activities demonstrate basic physiological concepts. The activities focus on exercise and health as applied to animals and humans. Audio files are available for children to follow along with the words being read.

The initial activity is focused on exercise and the heart. Students are asked to make a prediction about what happens to the heart at rest, when walking, when running, and after running. They then get to test their prediction by having a character of a dog, Sam, do those activities online. They have questions to answer about what that means, with narration by an APS member.

Another activity is one that children and parents can do at home drinking liquid through either a coffee stirrer or a straw, and then entering data online to make the comparison. As more children enter data, the aggregated results are automatically shown. This activity explores the effect of radius on the ease of flow that models the concept of blood flow in healthy and unhealthy blood vessels.

Postcards that complement the “Heart Healthy” Phizzy the Physiologist Bear activity were distributed at the 2010 USA Science & Engineering Festival. The “take-home” postcards with instructions for the experiment will continue to be distributed through elementary level PhUn Week events either before or after the scientist visits, through the Archive of Teaching Resources, and through teacher workshops. In addition, a Phizzy stuffed bear, coloring booklet and sticker were developed for distribution at APS exhibits, web store and PhUn Week 2011.

Additional online experiments are being developed on respiration rate changes during exercise, the effect of regular exercise on heart health, and an interactive snack picker where students can pick food and drink, and a physiologist will explain what is good and bad about the selections.

EB 2011 PHUN WEEK SESSION

The PhUn Week Training Session at EB 2011 is on Sunday, April 10, 7:00 am – 8:30 am at the Washington Convention Center, West Salon I. The session format is a poster session with 16 presenters on topics that include: working with a teacher, recruiting and training of a volunteer team, special community events, and hands-on activities across primary, elementary, middle and high school levels. The continental breakfast session is co-sponsored by the APS and ADInstruments, Inc., with a financial donation ($1,600) in support for the PhUn Week outreach program. APS Education Committee member Michael Ryan is the organizer of the training session.
APPENDIX A

A listing of APS member coordinators and teacher coordinators for PhUn Week 2010.

PS: Primary School, ES: Elementary School, MS: Middle School, HS: High School.

Edlira Bashari Clark (University of Alabama at Birmingham, Birmingham, AL) with Linda Cronican (PS)
Stephen Biscotte at Cave Spring High School, Roanake, VA (HS)
Steven Bloomer (Penn State Abington, Abington, PA) with Rebecca Pizzino (HS)
Erika Boesen (Medical College of Georgia, Augusta, GA) with Julie Poppel (ES)
Aaron Bunker (Morningside College, Sioux City, IA) with Sara Bunker (MS)
Lauri Byerley (Louisiana State University Health Science Center, New Orleans, LA) with Cheryl Williams (HS) and Janiece Mistich (ES)
Helena Carvalho (Virginia Tech Carilion School of Medicine and Research Institute) at the Kids Tech Fair (ES)
Parimal Chowdhury (University of Arkansas for Medical Sciences, Little Rock, AR) with Melissa Donham (HS)
Joseph Covi (University of Wisconsin, Stevens Point, WI) with a middle school
Jacqueline Crissey (University of Missouri–Columbia, Columbia, MO) with Brenda McCommis (PS/ES)
Robby Demes (USARIEM, Chardon, OH) with Edward Mullaly (PS)
Lara Deruisseau (Le Moyne College, Syracuse, NY) at a pre-school (PS)
Travis Doggett (LSUHSC, New Orleans, LA) with Chris Loewe (ES/MS)
John Edwards (New York Medical College, Valhalla, NY) with Samuel Washington (PS/HS)
Nelson Escobales and Jose Colon Garcia (University of Puerto Rico - Medical Sciences Campus, San Juan, PR) with Noel Cuevas-Fuentes (HS)
Jeff C. Falcone (University of Louisville, KY) with Fred Klausing and Margaret Shain (PS/MS)
Janet Fisher (University of South Carolina School of Medicine, Columbia, SC) with Helena Wilson (HS)
Jason Gardner (LSU Health Science Center, New Orleans, LA) with Michele Pennington (MS)
Barbara Goodman (University of South Dakota, Vermillion, SD) with Sally Stoll (MS)
D. Neil Granger (LSU Health Sciences Center, Shreveport, LA) with Robert Manriquez (ES)
Joey Granger (University of Mississippi Medical Center, Jackson, MS) with Heather Simmonds (PS)
Andrea Gwosdow (Gwosdow Associates Science Consultants, Arlington, MA) with Alissa Daniels at the Boston Children's Museum (PS/ES/MS)
Patricia Halpin (UNH Manchester, Sunapee, NH) with Heather Cantagallo (ES)
Lisa M. Harrison-Bernard (LSUHSC, New Orleans, LA) with Ashley Bivona (ES)
Rebecca Hartley (Seattle University, Seattle, WA) with Judy Barrere (MS)
Lynn Hartzler (Wright State University, Dayton, OH) with Norma Russell (PS/MS)
Debra Hasan at Newton County Schools, Covington, GA (MS)
My Helms (Emory University School of Medicine) at a middle school
Bryan Helwig (US Army Research Institute of Environmental Medicine, Natick, MA) with Diana Cost (MS/HS)
David Holtzelaw and Sarah Clayton (University of Nebraska Medical Center, Omaha, NE) with Nicole Schwab (MS), Shelly Avery (MS/HS), Jean Whitten (HS), and Betty Smith (PS/ES/MS)
Jessica Ibarra (University of Texas Health Science Center San Antonio, TX) with Oralia Serros (PS/ES), Cynthia Ritz (HS), JoAnn Guerrero (MS), Anne Joy (MS), and Teresa Castro (ES)
Kelvin Jones (University of Alberta, Edmonton, Alberta, Canada) with Shawn Magee (HS)
Derek Kingsley (Indiana University School of Medicine, Terre Haute, IN) with Becky Bear (HS)
Jonathan Lowery (Harvard School of Dental Medicine) with Mrs. Kilgore in Jasper, AL (HS)
Steve Miller (Indiana University School of Medicine, Indianapolis, IN) with Norman Leonard (HS)
L. Gabriel Navar (Tulane University School of Medicine, New Orleans, LA) with Charlene Byrd (MS)
Michael Ryan (University of Mississippi Medical Center, Jackson, MS) with Angie Awad (MS) and Denise King (ES)
Jennifer Sasser (University of Florida, Ocala, FL) with Michelle Wetz (PS) and Vicki Ambrose (MS)
Christine Schnackenberg (GlaxoSmithKline, Malvern, PA) with Matthew Wise (ES) and Julie Lojek (PS)
Harold Shlevin (Georgia Institute of Technology, Atlanta, GA) with Christine Hippeli (MS)
Tonya Smith at St. Andrews Middle School, Columbia, SC (MS)
David Spierer (Long Island University, Brooklin, NY) with Christa McDonald (PS)
Jennifer Sullivan (Medical College of Georgia, Evans, GA) with Kimberly Phillips (PS)
Nicholas Tsoukias (Florida International University, Miami, FL) with Suzanne Banas (MS)
Edith Walker (LSUHSC, New Orleans, LA) with Misty Nicholson (PS)
Norman Weisbrodt (University of Texas Medical School at Houston, Sugar Land, TX) with Diane Small (MS)
Christopher Westerkamp (Ferris State University, Big Rapids, MI) with Andrea Cooley (ES)
Annie Whitaker (LSUHSC, New Orleans, LA) with Jenny Summers (ES)
J. Michael Wyss (McWane Science Center, Birmingham, AL) with Edlira Bashari Clark (PS/ES/MS)
Bill Yates (University of Pittsburgh School of Medicine, Pittsburgh, PA) with Monica Erwin (HS)
Mary Zimmerman (Ferris State University, Big Rapids, MI) with Jennifer Piggot (ES)