Physics for Elementary Teachers (PET) is a new one-semester curriculum (75 contact hours) designed to achieve the following four goals:

**Physics content**
To help students develop a deep understanding of a set of physics ideas that can be used to explain interesting phenomena. These ideas are similar to the ideas that elementary students learn.

**Nature of science**
To help students practice the scientific process and understand how knowledge is developed within a scientific community: that doing science involves using evidence and creative thinking; that knowledge is established through collaboration and consensus; and that science knowledge can change over time.

**Elementary Students’ ideas**
To help students analyze and appreciate the thinking of elementary students while they engage in scientific inquiry, and to make connections between children’s learning and their own learning of physics.

**Learning about Learning:**
To help students become more aware of how their own physics ideas change and develop over time, and how the structure of the learning environment and curriculum facilitate these changes.

**The PET curriculum** is designed around the common theme of interactions. Students learn to describe interactions in terms of either energy or forces. The course content consists of seven cycles of learning:

- **Cycle 1:** Interactions and Motion
- **Cycle 2:** Interactions and Forces
- **Cycle 3:** Interactions and Fields
- **Cycle 4:** Model for Magnetism
- **Cycle 5:** Electric Circuit and Electromagnetic Interactions
- **Cycle 6:** Light, heat conduction and Infrared Interactions
- **Cycle 7:** Interactions and Conservation

http://petproject.sdsu.edu

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Each Cycle is intended to help students develop a specific set of physics ideas. Activities are designed to elicit and challenge students’ prior knowledge and to provide evidence to help students decide, if appropriate, to change their ideas. As students participate in small group and whole class discussions focusing on both the results and interpretations of experiments, they make their own ideas explicit and have the opportunity to consider alternative ideas. The “authority” role is shifted from the teacher to the students by having whole class discussions where groups present ideas supported by observational evidence, and where the class comes to consensus. The teacher plays a supportive role, sometimes helping to clarify ideas.

In addition to using simple apparatus and MBL motion sensors to conduct hands-on experiments, students also use specially designed computer simulations. The simulations support both in-class activities and web-based homework assignments.

Several homework and in-class activities focus on Elementary Students’ Ideas (ESI). These provide PET students with the opportunity to apply their evolving physics knowledge in the context of the elementary classroom. Students do this by analyzing video segments of elementary students as they work through physics activities that are similar in nature to activities contained within the PET Curriculum. In some ESI activities, PET students also analyze elementary students’ diagrams of physical phenomena.

A comprehensive web-based PET Teacher Guide provides detailed information and sample videos to help teachers implement the curriculum in the classroom.

You can find out more about PET by visiting the website at:
http://petproject.sdsu.edu

Or, you may wish to attend an introductory workshop. There will be a four-hour workshop at the 2005 AAPT Summer Meeting in Salt Lake City, UT and a two-hour tutorial at the 2006 AAPT Winter Meeting in Anchorage, AK.

For further information, contact Judith Leggett
jleggett@sciences.sdsu.edu.