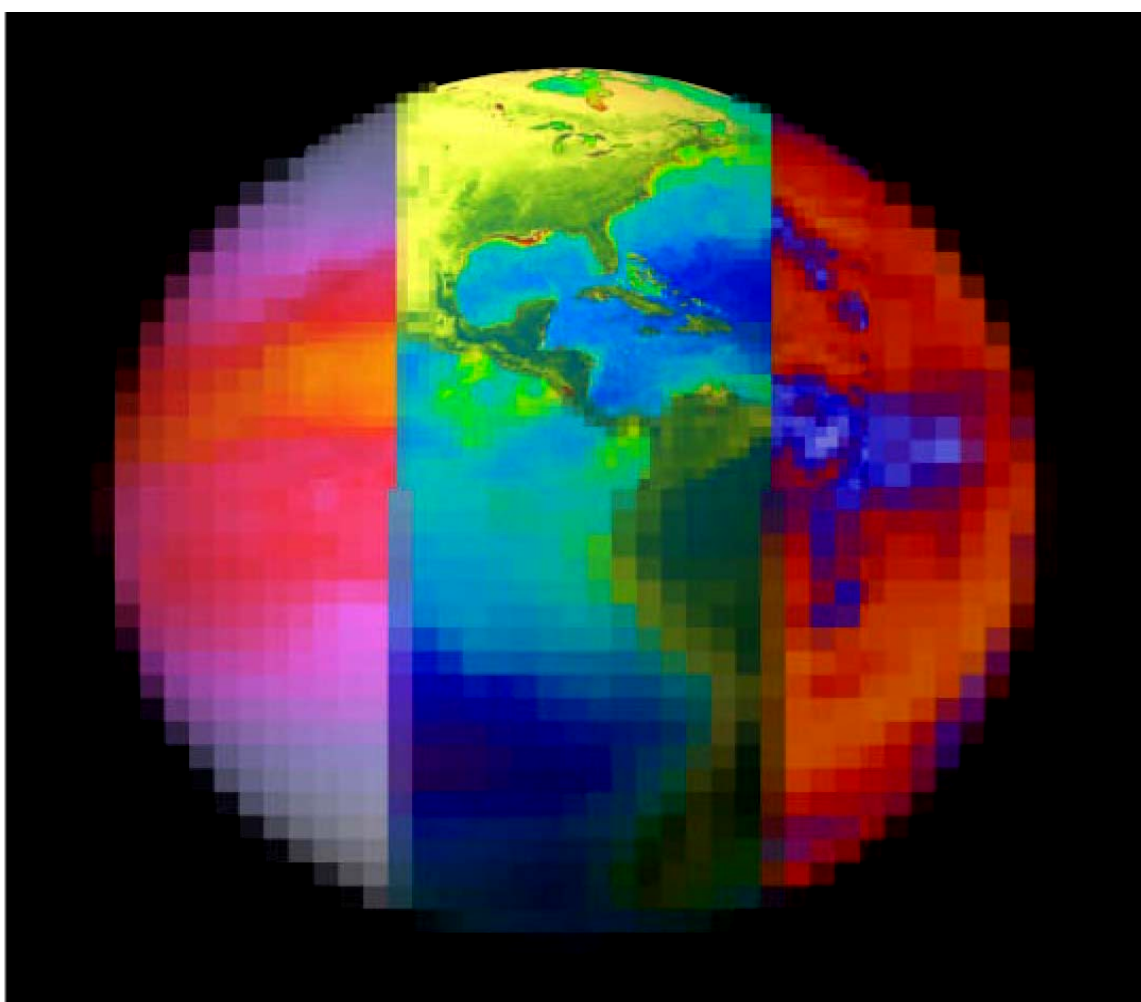




Sensing Our World

2007



UNIVERSITY OF NOTRE DAME
DEPARTMENT OF CHEMISTRY & BIOCHEMISTRY
DEPARTMENT OF PHYSICS
JOINT INSTITUTE FOR NUCLEAR ASTROPHYSICS
NUCLEAR STRUCTURE LABORATORY



SENSING OUR WORLD 2007

A week-long, all-day summer camp about physical science, materials, physics, and sensors for students aged 12 to 14.

July 16 – 20, 2007

Camp Activities

Students will learn about the scientific principles behind many sensors used in everyday life through hands-on activities. They'll learn how devices such as sound and motion detectors work, and they'll make electric circuits, build their own detectors and learn about polymers, cryogenics, and electrical generators.

Classes are held at the Notre Dame campus Monday through Friday, from 9:00 a.m. to 4:00 p.m. Activities include meeting with ND scientists to learn about their research and visits to several different research labs on campus.

We expect a large response to the summer camp. Applications are reviewed by the *Sensing our World 2007* selection committee, and twenty students will be admitted to the week's hands-on science exploration program. Selection notices will be mailed to students **June 15, 2007**. Financial aid and scholarships will be made available.

Sensing Our World Instructors

Camp instructors include faculty, staff, and graduate students from Physics, Chemistry, and Anthropology, Biology, and Engineering departments at ND, as well as a certified 9-12 teacher.

Kevin Johnston is the lead instructor of the camp. Mr. Johnston is a high school physical science teacher in the Baugo Community Schools, and holds degrees from Purdue and Indiana University-South Bend. He was co-instructor of this program last year, and brings to the program a wealth of classroom experience.

Camp Sponsors

Sensing Our World 2007 is sponsored by the Department of Chemistry & Biochemistry, the Joint Institute for Astrophysics (JINA), the Department of Physics, the Nuclear Structure Laboratory, and individual faculty researchers at the University of Notre Dame.

**APPLICATION DEADLINE
MONDAY - MAY 25, 2007**

DOWNLOAD APPLICATION MATERIALS:

SEND TOGETHER: [Application Form](#) [Parent/Legal Guardian Permission](#)

TO BE SENT SEPARATELY: [Teacher Recommendation Form](#)

The camp fee is **\$200.00**. *Financial assistance is available for those who qualify.* To request financial aid, please write a letter supporting the student's need for assistance and include it with the application. **DO NOT SEND PAYMENT WITH THE APPLICATION FORM.**



GOALS

According to the Third International Mathematics and Science Study (TIMSS) report, U.S. school children start out at the same level as their international peers in elementary grades. However, they fall behind in science and math by the time they reach the middle grades. When they reach high school, they score below the international average. In response to this finding, *Sensing our World* was designed to expose middle-school students to the exciting world of science, mathematics, and technology in an intensive hands-on environment.

The goal of the *Sensing our World* is to stimulate middle school students' interest in physical science using familiar objects that operate by important, basic physical principles.

STRUCTURE OF CAMP

The camp operates during five weekdays in summer from 9 a.m. to 4 p.m. with a one-hour lunch break. All students aged 12-14 are eligible to apply.

Selection is based upon the camp application submitted by the student describing the reasons for wanting to attend the camp in conjunction with a recommendation from a science teacher. Grade point average is not used as a criterion. Scholarships are available.

Twenty students will be selected to participate in the initial debut of *Sensing Our World* at ND. Classes will be led by an experienced certified K-12 Science teacher with ND faculty and graduate students providing specialized labs.

ACTIVITIES

The lessons of *Sensing our World* are designed to align with the Federal Education Standards for the middle school level student. Hands-on experiments and lecture demonstrations are employed. For example, in a prior session each student built a burglar alarm, using light sensitive CdS photodetectors, thereby introducing semiconductors, conductors and insulators, as well as simple circuits in the process. Students learned about smoke detectors that use a small quantity of radioactive materials.

EVALUATION

Each student will receive a camp manual containing explanations and supplementary background information about all labs projects, as well as resource materials.

A pre-test and post-test are administered for each session. The pre-test informs the instructors about each student's scientific background, which assists in tailoring the session content and level. The post-test gives a quantitative evaluation about the student's progress over the course of the week. A concluding open-ended questionnaire is used to assess the student's feelings about the camp.

The camp concludes with demonstrations of self-made sensors by the students to an audience consisting of parents, family, ND faculty and staff. Each student is presented a certificate in a short award ceremony.