Teaching Science as Inquiry (TSI)

Teaching Science as Inquiry offers two- or three-day professional development courses that focus on helping teachers obtain an overview and understanding of inquiry as a pedagogical approach. Our experienced instructors will meet your teachers in your district or school.

Topics available:
- Simple Machines (elementary school)
- Astronomy (elementary and middle school)
- Why Things Sink & Float (middle school)
- Aquatic Science (middle and high school)
- Matter, Energy, and the Environment (middle and high school)

Each concise yet comprehensive course can accommodate up to 30 teachers. To find out more about our programs, contact us at 1-800-799-8111 or crdg@hawaii.edu.

Hawai'i Nature Study Program

Second Edition (coming soon)

The Hawai'i Nature Study Program is an environmental education program that comprises out-of-door, action-oriented, problem-solving observations and investigations about the natural environment of Hawai'i. The program seeks to promote a sense of awareness, knowledge, understanding and valuing of Hawai'i's environment. The Hawai'i Nature Study Program may be used as an integrated course in environmental education within a standard science curriculum or to enrich various classroom experiences. Great flexibility is provided in that each topic is presented at three bands or levels of difficulty. Teachers are encouraged to select topics and band levels appropriate to their grade or situation.

Originally written by Sister Edna Louise Demanche & Dr. Marlene Nachbar Hapai, the new edition is revised and updated by Dr. Hapai. The Hawai'i Nature Study Program comprises 5 books:

- **Program Manual**
  An overview of the series explaining its philosophy, goals, and strategies; suggestions for teaching hands-on inquiry science.

- **Plants**
  An introduction to the plant world: investigating seed germination and growth; discovering the life cycles and behaviors of plants.

- **Insects**
  An introduction to the insect world: investigating the life cycles of common household and backyard insects; studying insect habits, including feeding, social interactions, and predator-prey behavior.

- **Reef and Shore**
  An introduction to the seashore world: activities for studying marine organisms indoors and out; observing plants and animals of shore, reef, and tide pools; studying life needs, life cycles, and interactions.

- **Small Animals of the School Neighborhood**
  An introduction to familiar small animals: capturing, caging, and caring for small animals found in and around school and home; studying life cycles, life needs, food preferences.

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Web: www.hawaii.edu/crdg

Revised: 2015.11.03
The Exploring Our Fluid Earth curriculum is grounded in the inquiry approach to learning and examines the marine and freshwater systems of the earth by studying the influence of water on the planet. Exploring Our Fluid Earth is geared to students at the middle and high school level and based on the nationally recognized Fluid Earth/Living Ocean aquatic science curriculum. The curriculum is available online and resources include an interactive teacher community.

Exploring Our Fluid Earth comprises six modules. The four content modules focus on physics, chemistry, biology, and ecology and provide a unique opportunity for subject area teachers to teach course concepts in the context of the aquatic environment. The two pedagogical modules focus on the practices of science and alignment to the Ocean Literacy Principles and Next Generation Science Standards (NGSS). The student materials include text, question sets, activities, and special features. These are complimentary and can be accessed at exploringourfluidearth.org.

### SUPPLEMENTARY MARINE SCIENCE MATERIALS

- **Water Resource Management Student Textbook**
  - Designed to help students acquire the underlying knowledge and skills that will enable them to deal effectively with a variety of resource management issues, this unit focuses on the study of water quantity and quality in their local community and region.

- **Teacher’s Guide**

- **Fish and the Environment: A System**

- **Coastal Zones of the Pacific: A Descriptive Atlas**

### FAST 3 CHANGE OVER TIME

**Student Lab/Text Book**
- Edna L. Demanche, Will Kyselka, Francis M. Patterson III, Ronald B. Hwang
- ISBN-10: 0-937049-20-7

This decision-making game demonstrates the linkages among economics, politics, environmental quality, and coastal development. The class explores the human impact on environments by forming special interest groups and making decisions about energy and land. Includes teacher’s packet, instruction book, game boards, group folders, handouts, and worksheets.

**REFERENCE BOOKLETS**

- **Components of Biomass**

- **Organism Maintenance**

**Visual Aid Masters**
- Masters include data tables, worksheets, diagrams, and reproducible game pieces.

**FAST 3 SETS**

**FAST 3 MATERIALS ARE ALSO AVAILABLE IN THE FOLLOWING SETS**

- **FAST 3 Teacher Set**
  - Includes one each of the following: Student Lab/Text Book (F301), two FAST 3 reference booklets (F302, F303), Teacher’s Guide (F305), Stars in Mind (F310), FAST Instructional Guide (F113).

- **FAST 3 Classroom Set**
  - Includes 10 Student Lab/Text Books (F301), 15 Organism Maintenance (F303), 15 Components of Biomass (F302), and one each Twelve Sky Maps (F309), and Ostrich Bay: Environmental Simulation Game (F310).

**PROFESSIONAL DEVELOPMENT**

The following courses for teachers are offered:
- **Exploring Our Fluid Earth**
  - The teacher community is an interactive feature where users can share resources and connect with colleagues. The teacher community is also complimentary, but is only available to users over 18 years of age. Join today at exploringourfluidearth.org.
  - The teacher guides provide users with activity guides, tips, and video examples of activities. Payment is one-time only (no subscription fees).
  - Access to the teacher guide is currently offered at an introductory discount price of $35.00.

**MATERIALS**

- **Twelve Sky Maps**
  - Ray Lanteman, Will Kyselka
  - ISBN-10: 0-937049-07-7

- **Ostrich Bay Environmental Simulation Game**
  - Ronald L. Mitchell, Francis M. Patterson III, Gregory L. Rhodes, Ronald W. Turner

**Teacher’s Guide**
- This guides explains the logic underlying the sequence of investigations included in the curriculum.

**Student Textbook**
- Published by Pacific Books-Hawaii

**Equipment Sets**
- Boxed kits contain classroom sets (15 or more) of special equipment needed for some FAST experiments. Some items require assembly.

**Equipment Building Kits**

- **Kit 1 (FAST 1)**
  - curbs, divers, fountains, plastic boxes, lead shot, buoyancy straws, syringes, vials, rulers, cube-o-grams

- **Kit 2 (FAST 2)**
  - filters, light boxes, mirror boats, prisms, screens, shields, bulbs and sockets

To order FAST Equipment Sets, contact
- S&S Scientific Supply, Inc.
- 320 Highland Drive
- Elizabeth, PA 15037
- Phone: (724) 872-9383
- Fax: (724) 872-9383

**Change over Time**

- 450pp., ill., 1996, hard
  - ISBN-10: 0-937049-72-7

**Celestial Objects**

- 56pp., ill., 1981, soft
  - ISBN-10: 0-937049-07-7

**Stars in Mind**

- 119pp., ill., 1996, loose-leaf
  - ISBN-10: 0-937049-07-7

**Twelve Sky Maps**

- 41pp., ill., 1986, soft
  - ISBN-10: 0-937049-07-7

**Organism Maintenance**

- 29pp., ill., 1986, soft
  - ISBN-10: 0-937049-07-7

**Components of Biomass**

- 40pp., ill., 1986, soft
  - ISBN-10: 0-937049-07-7

**Teacher’s Guide**

  - ISBN-10: 0-937049-10-7

**Student Lab/Text Book**

- 41pp., ill., 1986, soft
  - ISBN-10: 0-937049-07-7

**Twelve Sky Maps**

- 56pp., ill., 1986, soft
  - ISBN-10: 0-937049-07-7

**Organism Maintenance**

- 29pp., ill., 1986, soft
  - ISBN-10: 0-937049-07-7

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**Teacher’s Guide**

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**Reference Booklets**

- Components of Biomass

- Organism Maintenance

**FAST 3 Sets**

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- **FAST 3 Classroom Set**
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- **PROFESSIONAL DEVELOPMENT**
  - The following courses for teachers are offered: FAST 1, The Local Environment; FAST 2, Matter and Energy in the Biosphere; FAST 3, Change over Time.

- **MATERIALS**
  - **Twelve Sky Maps**
    - Ray Lanteman, Will Kyselka
    - ISBN-10: 0-937049-07-7

- **Ostrich Bay Environmental Simulation Game**
  - Ronald L. Mitchell, Francis M. Patterson III, Gregory L. Rhodes, Ronald W. Turner
  - ISBN-10: 0-937049-10-7

- **Teacher’s Guide**
  - ISBN-10: 0-937049-10-7
FAST Instructional Guide
Donald B. Young and Francis M. Pottenger III
This overview of all three FAST courses, includes goals and objectives, course content, strategies for managing space and time, and detailed descriptions of materials used by students and teachers.

FAST 1 THE LOCAL ENVIRONMENT
Student Lab/Text Book
Francis M. Pottenger III and Donald B. Young
Laboratory and field investigations of the components of the environment and their interrelationships engage students in discovery. The physical science strand introduces the properties of matter and changes in its state, and the relationships between temperature and heat. The ecology strand fosters awareness of interaction and interdependence in the environment. The relational study strand applies physical and ecological principles to the study of environmental issues.

FAST 2 MATTER AND ENERGY IN THE BIOSPHERE
Student Lab/Text Book
Francis M. Pottenger III, Donald B. Young, E. Barbara Klemm
By exploring the transfer of matter and energy through ecosystems, students discover that all living organisms are part of a complex, interdependent biosphere. In the physical science strand they investigate light, compounds in search of evidence for an atomic theory, and the kinetic molecular theory of matter. In the ecology strand they investigate photosynthesis, respiration, and decomposition. In the relational study strand they make decisions about issues that require analyzing global energy problems such as shortages of food or fossil fuels.

FAST 3 THE BIOSPHERE
Student Lab/Text Book
Francis M. Pottenger III, Donald B. Young, E. Barbara Klemm
In the physical science strand they investigate light, compounds in search of evidence for an atomic theory, and the kinetic molecular theory of matter. In the ecology strand they investigate photosynthesis, respiration, and decomposition. In the relational study strand they make decisions about issues that require analyzing global energy problems such as shortages of food or fossil fuels.

FAST 4 THE GLOBAL ENVIRONMENT
Student Lab/Text Book
Francis M. Pottenger III, Donald B. Young, E. Barbara Klemm
In the physical science strand they investigate light, compounds in search of evidence for an atomic theory, and the kinetic molecular theory of matter. In the ecology strand they investigate photosynthesis, respiration, and decomposition. In the relational study strand they make decisions about issues that require analyzing global energy problems such as shortages of food or fossil fuels.

Visual Aid Master
Masters include data tables, observation forms, worksheets, diagrams, and reproducible game pieces.

Elements and Compounds

Field Productivity

Chromatography