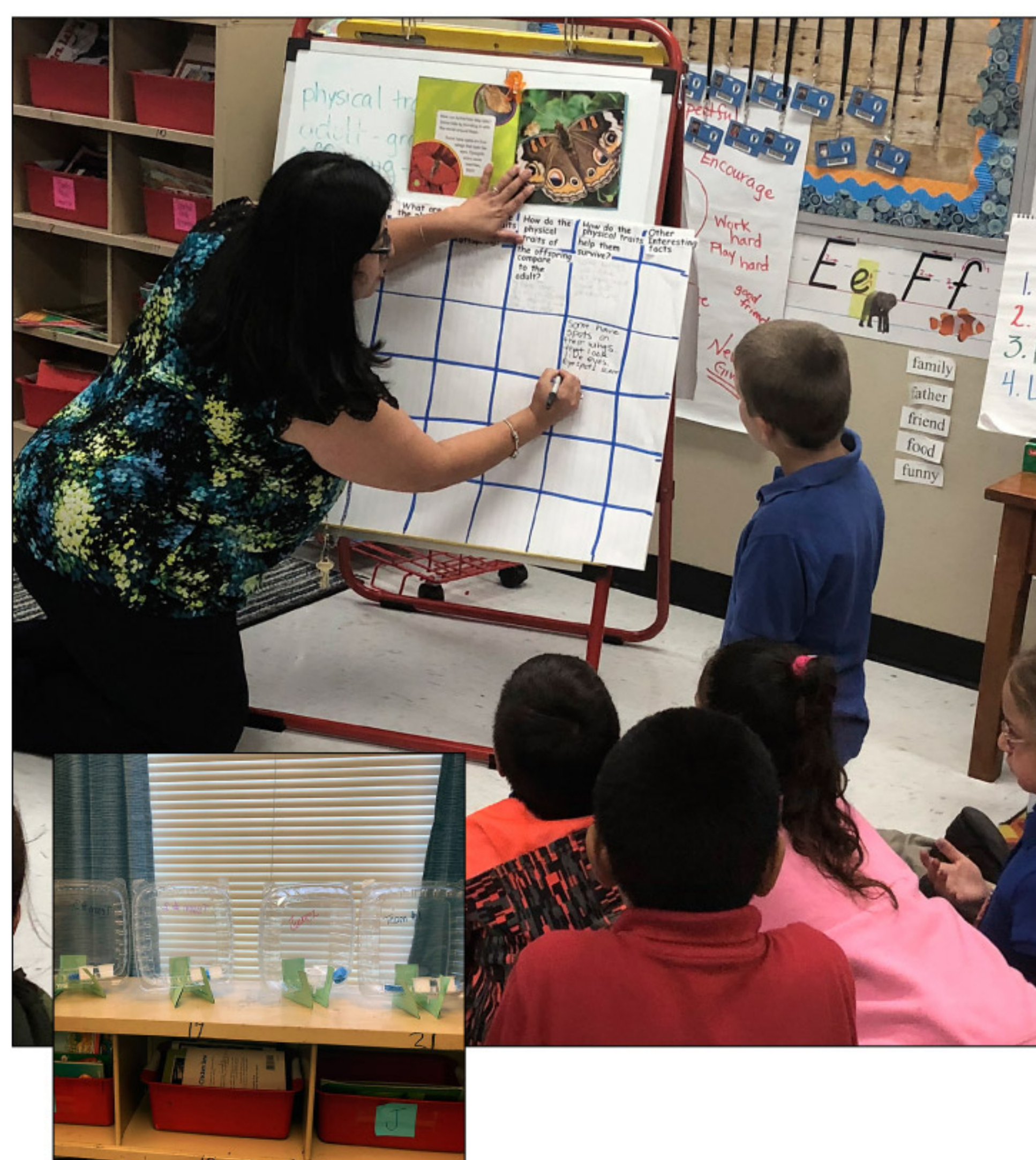


K-3 STEM FOUNDATIONS: LIFE SCIENCE

LIFE CYCLES + HEREDITY

The first unit focuses on Life Cycles and Heredity and is being piloted by 20 second grade teachers with their students (N=400) in Houston and San Antonio. It is designed to provide up to three weeks of coordinated science and English language arts instruction.



UNIT FEATURES

- Discovery and hands-on activities on the insect life cycle, using *Vanessa cardui* (painted lady) butterfly larvae.
- Inquiry-based activity on inheritance of wing color in butterflies (card-sort activity).
- Procedures for recording observation in science journals.
- English/Language Arts mini lessons.
- Student investigation and exploration of expository texts.

Outcomes from the pilot will inform revisions to the module, which will be evaluated through a large comparison group study in Houston and San Antonio (N=50 teachers, approximately 1,000 students).

Project resources will be available on BioEd Online (www.bioedonline.org).

Baylor College of Medicine

SCIENCE AND HEALTH+ LITERACY

Baylor College of Medicine, Houston, Texas

Project Team: Nancy Moreno, (PI), Gregory Vogt, Alana Newell, James Denk, Travis Kelleher and Martha Young, Baylor College of Medicine. Misty Sailors (site PI), Sarah Aguirre and Janine Garcia, The University of Texas at San Antonio. Linda Zientek, Sam Houston State University.

Scientists and educators at Baylor College of Medicine are developing, and disseminating new teaching resources that integrate science and health content, scientific practices and cross-cutting concepts (such as patterns, cause and effect, and structure and function)—with reading/language arts. All resources are field-tested using a rigorous comparison group design with random assignment of groups to treatments. Each unit is revised after field-testing and made available with supporting resources on the website, BioEd Online (www.bioedonline.org).

BioEd Online SM
Science Teacher Resources from Baylor College of Medicine Now Including K8 Science®

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Lessons and More / Resource Collections / **K-3 STEM Foundations — Life Science**

K-3 STEM Foundations — Life Science

We are developing a new series of teaching materials for grades K-3 focused on life science themes and disciplinary literacy skills. The “making connections” approach is being adapted to young students to draw on prior knowledge and experience to make sense of what they are reading and experiencing (Draper, D. 2010. *Comprehension Strategies: Making Connections*).

TEXT-TO-SELF
SCIENCE-TO-SELF

What does this remind me of in my life? What is this similar to or different from other activities or familiar items in my life?

TEXT-TO-TEXT
SCIENCE-TO-SCIENCE

How are these ideas similar to other ideas in science? How are they different? Have I read or observed something like this before?

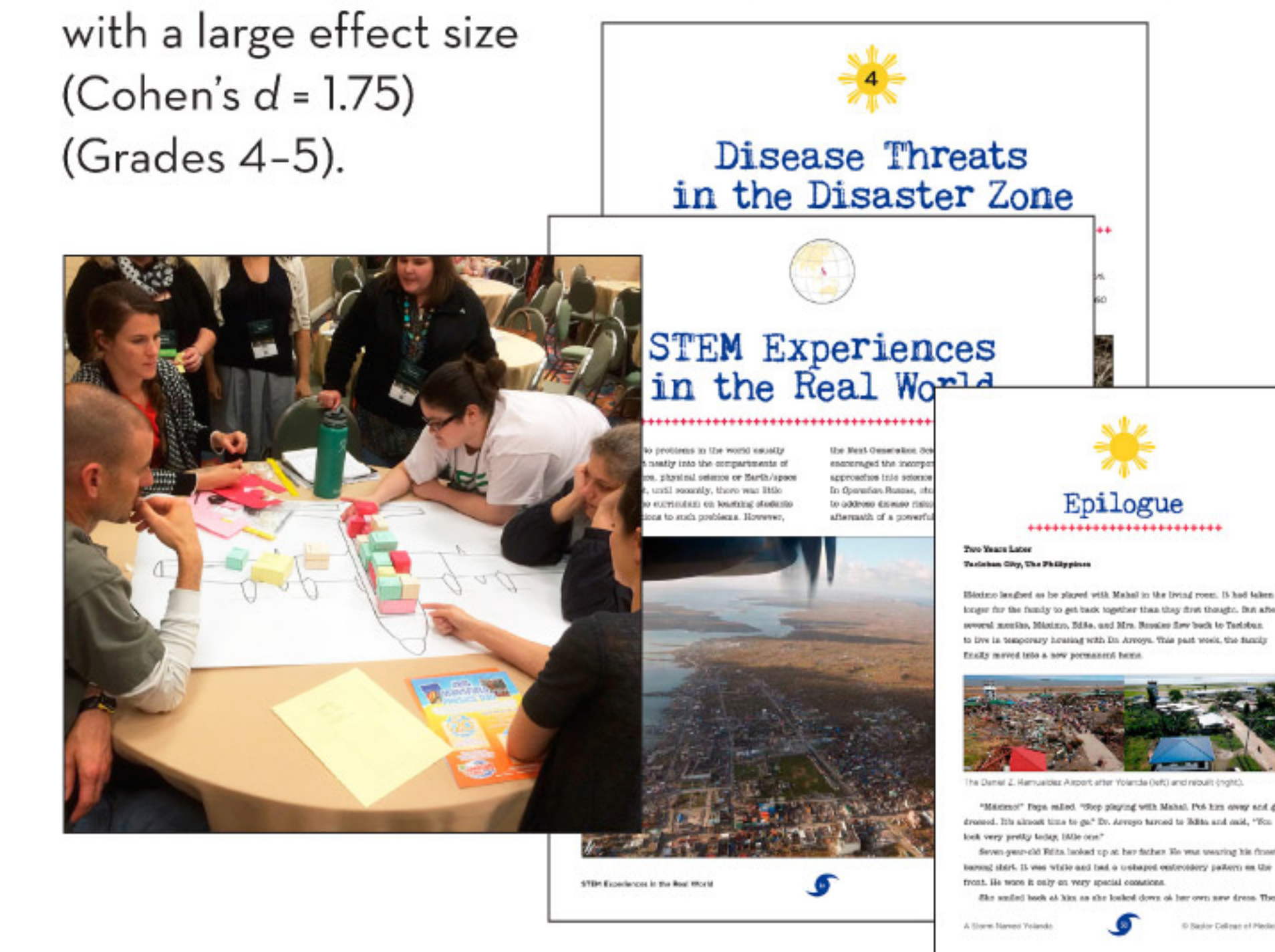
TEXT-TO-WORLD
SCIENCE-TO-WORLD

How do these concepts remind me of the real world? Have I seen or read about something related (media, and historical current events, etc.)?

THE SCIENCE OF INFECTIOUS DISEASE AND THE IMMUNE SYSTEM

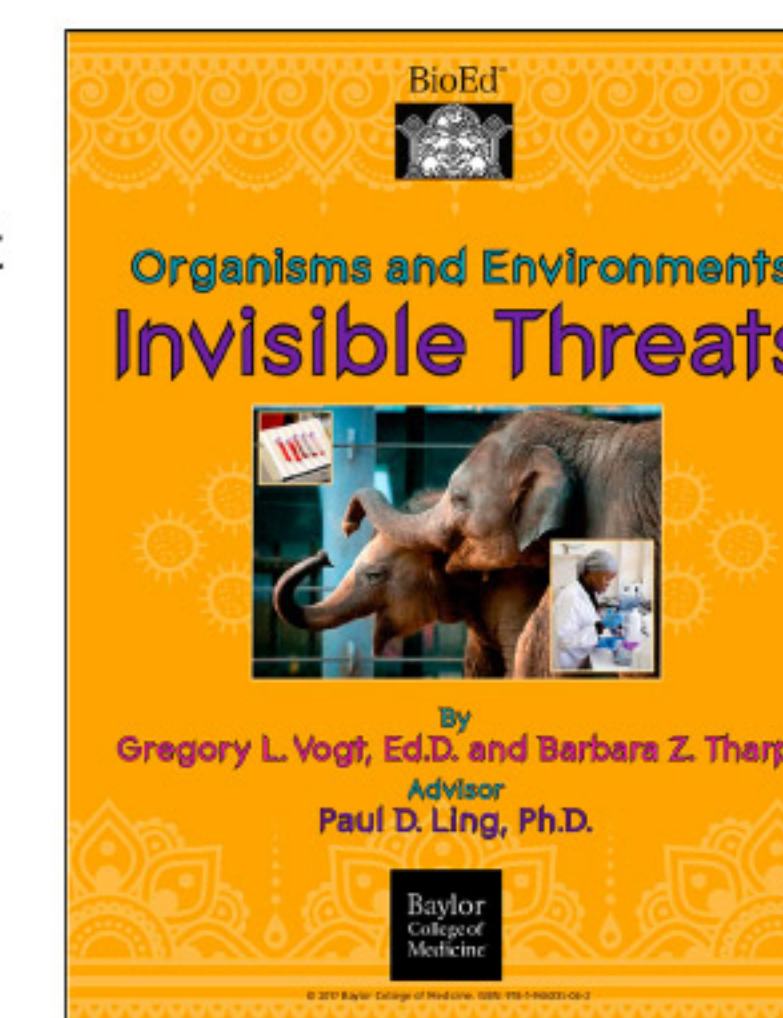
OPERATION RESCUE

Second Edition! Students work as teams to plan and execute a simulated medical mission to the Republic of the Philippines in the wake of Typhoon Yolanda/Haiyan. After planning a payload, each team competes to plot the most efficient flight plan using Google Earth. Knowledge gains by implementation students in the field test (N=656) were statistically significant, with a large effect size (Cohen's $d = 1.75$) (Grades 4-5).



INVISIBLE THREATS: ORGANISMS AND ENVIRONMENTS

Students explore threats from emerging deadly viruses and other diseases, and learn about the importance of vaccines in preventing infection. Baylor's research team working on elephant endotheliotropic herpesvirus (EEHV) is highlighted in the companion reader for students. (Grades 4-5)



ALLERGY BUSTERS

Using survey techniques, graphing and hands-on simulations, students learn about the immune system, allergies and allergens. The unit is accompanied by two short stories, *Where's Noah?* and *Cockroach School and the Bigfoot Monsters*. (Grades 2-3).

Groups	Pre-test Mean	Pre-test SD	Post-test Mean	Post-test SD	t	df	Cohen's d
Comparison	11.80	3.32	11.49	4.84	1.59	364	
Implementation	11.38	3.92	14.08	6.04	8.59*	307	0.52

Outcomes from the field test of Allergy Busters were very positive. The comparison and implementation group students did not differ in content knowledge on the pretest. Only the implementation group students had statistically significant gains on the posttest, with a moderate effect size (Cohen's $d = 0.52$).