

Jornada Schoolyard LTER: Promoting Ecological Literacy in the Changing K-12 Classroom

Stephanie Bestelmeyer, Ph.D.



Asombro Institute
FOR SCIENCE EDUCATION



Summer Vacation!





Kids' average almost **53 hours per week**
with electronic media exposure

Kaiser Family Foundation Report

Pokémon Rules?

8 year olds' mean
identification success:

Wildlife: 53%

Pokémon: 78%



The Pokémon logo, featuring the word "POKÉMON" in a bold, yellow, stylized font with a blue outline and a registered trademark symbol (®) at the end.

Balmford, Clegg, Coulson, and Taylor (2002, Science 295: 2367)

United States Education



Failed to meet basic level of science proficiency

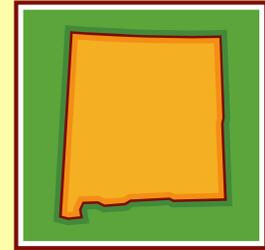
4th grade: 28%

8th grade: 37%

12th grade: 40%

(National Assessment of Educational Progress, NRC 2011)

NM Education



National Assessment of Educational Progress (science)

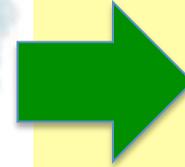
4th graders: significantly lower than 37 states

8th graders: significantly lower than 42 states

Why Care about Science Literacy?

National Research Council report (2011)

- Future voters need science literacy to make decisions on important issues
- Increasing number of jobs require STEM knowledge
- If US could significantly increase students' STEM skills, an estimated **\$100 trillion** would be added to US economy in next 80 years



**Low
science
literacy**

Focus on standardized
testing in language
arts and math

Reduced budgets

“Field” site



“Field” equipment



Typical science class



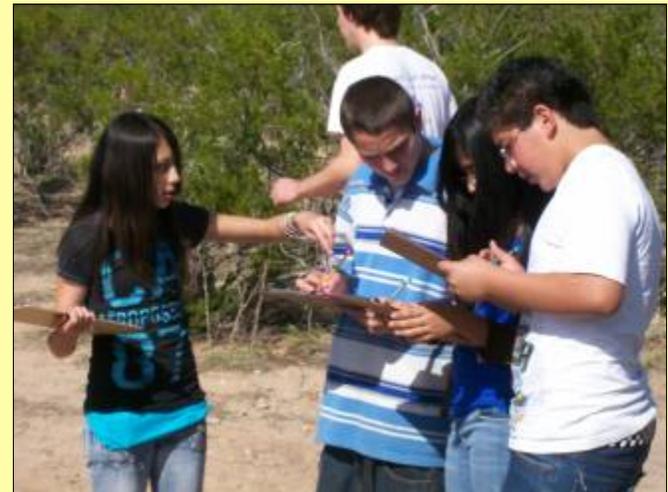
We know how to increase science literacy!

Schroeder et. al. 2007. A meta-analysis of national research: effects of teaching strategies on student achievement in science in the United States. *Journal of Research in Science Teaching* 44:1436-1460

Enhanced context strategies

- Relate learning to students' previous experiences or students' school environment
- Field trips and using the schoolyard for lessons

Inquiry-based teaching



Jornada Basin Schoolyard LTER

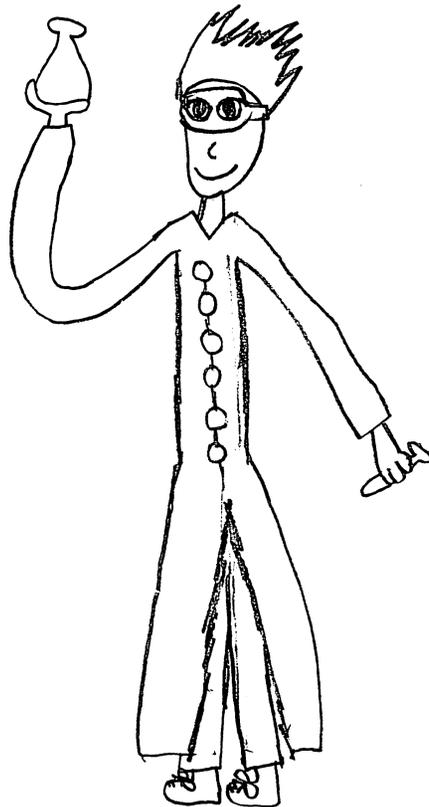
- Goal: Increase science literacy by fostering an understanding of the Chihuahuan Desert
- Long-term view of education
- Common program features
 - Inquiry-based
 - Aligned with standards
 - Ongoing support for teachers, including supplies
 - Locally relevant & tied to ongoing research

K-4th Grades

- Keep inherent science interest high
- Infuse more science into day
- Remove misperceptions of science and scientists



What does a scientist look like?
What does a scientist do?



...SCIENTIST

5th Grade

Near-peer teaching (Science Interns)



Middle School

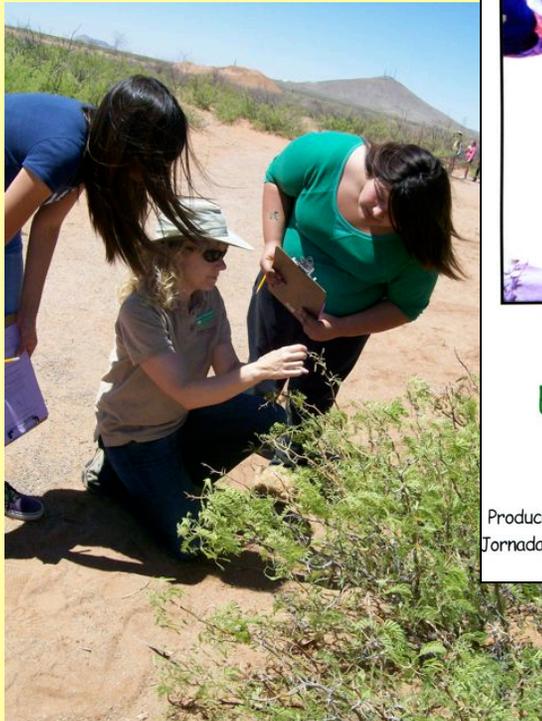
Long-term schoolyard studies (Stepping Out for Science Inquiry)

Schoolyard Desert Discovery



A Project to Unlock the
Excitement of Science Right
Outside Your Classroom

Produced by the Chihuahuan Desert Nature Park (www.cdn.org) and the
Jornada Basin LTER (<http://jornada-www.nmsu.edu>) with funding from the
National Science Foundation.



High School Desert Data Jam



The challenge:
Use creativity to design a “product” that conveys long-term data and the conclusions from that data to a non-scientist audience

How You Can Help

- Contribute 10 hours to assist with K-12 education and outreach
- Many options: field trips, class/schoolyard programs, public field tours, newsletter articles
- Please see “menu”



Simple Steps

1. Meet with Asombro staff
2. Write one-page plan
3. Plan approval by advisor and Asombro
4. Have FUN educating!
5. Submit 1-2 page report

Benefits to you

1. Experience communicating science to non-scientists
2. Resume-building experiences
3. Knowledge that you are inspiring children to become future scientists and/or scientifically literate citizens



“Typical” Science Class



“Science is everywhere.
Why didn’t anyone ever
tell me this before? I’m
going to go check out
nature in my back yard.
I bet there’s some good
stuff out there too.”

