Can Sound Bites and Science Coexist?

Improving Science Literacy for Mainstream America

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“In the coming decades, the public will more frequently be called upon to understand complex environmental issues, assess risk, evaluate proposed environmental plans, and understand how individual decisions affect the environment at local and global scales.”

-- National Science Foundation, 2003
Which over-the-counter drug do doctors recommend that people take to help prevent heart attacks?

A. Antacids
B. Cortisone
C. Aspirin

91%

According to most astronomers, which of the following is no longer considered a planet?

A. Neptune
B. Pluto
C. Saturn
D. Mercury

60%
Which of the following may cause a tsunami?

A. A very warm ocean current  
B. A large school of fish  
C. A melting glacier  
D. An earthquake under the ocean

77%

The global positioning system, or GPS, relies on which of these to work?

A. Satellites  
B. Stars  
C. Magnets  
D. Lasers

82%
What gas do most scientists believe causes temperatures in the atmosphere to rise?

A. Hydrogen
B. Helium
C. Carbon Dioxide
D. Radon

How are stem cells different from other cells?

A. They can develop into many different types of cells
B. They are found only in bone marrow
C. They are found only in plants
What have scientists recently discovered on Mars?

A. Platinum
B. Plants
C. Mold
D. Water

The continents on which we live have been moving their location for millions of years and will continue to move in the future:

A. True
B. False

All radioactivity is man-made:

A. True
B. False
Lasers work by focusing sound waves
A. True
B. False 47%

Antibiotics will kill viruses as well as bacteria:
A. True
B. False 54%

Electrons are smaller than atoms:
A. True
B. False 46%
Congratulations!

You scored better than 90% of the public

*Source: Pew Research Center Survey, July 2009*
What Does This Mean?

- Americans are most informed about science that affects their health, or has been widely publicized.
- Less familiar with more complex science.
- **Mass media is number one source of science info for both children and adults.**
And that’s not all....

- 45 million Americans think the ocean is a source of fresh water
- 120 million think disposable diapers are the biggest problem in landfills (actually about 1%)
- 41% believe dinosaurs and people existed at the same time
- 47% do not know how long it takes for the earth to revolve around the sun
What About The Media?

- Only 35 of 95 newspapers that published special science sections in the 1980s still do so today.
- 1 out of every 300 minutes of coverage on cable news programming is devoted to science and technology (one-third of 1%).
- In late 2008, CNN cut its entire science, space and technology news team.
- Only 10% of editors responding to the survey consider science/technology reporting “very essential” to the quality of their news product.

*Instead, trend is now for hyperlocal news – context, perspective and follow-up missing.*

*Source: Survey by the Shorenstein Center for the Project for Excellence in Journalism, 2008*
What about the journalists themselves?

- One survey of journalists in Canada showed that only 20% had obtained a college degree in science

*Is a science degree necessary?*
Environmental Literacy: The Bad News

- There is little difference in knowledge about environmental issues between the average American and those in positions of influence, such as elected officials or CEOs.

- Children increasingly disengaged from nature.

- Only 1% to 2% of American adults are considered "environmentally literate."

Source: National Environmental Education and Training Foundation, 2005
Nature-Deficit Disorder

• The average American child 8-18 spends 6 hrs/day with electronic media

• Visits to national parks have decreased by over 20% since 1988

*Why? Busy schedules, safety fears, less access to open space, more structure, lure of the Internet*

*Source: Richard Louv, “Last Child in the Woods”*
Percent of children 0-6 years old who, on a typical day . . .

- 83% Use any screen media
- 73% Watch TV
- 73% Watch videos or DVDs
- 18% Use a computer
- 9% Play video games
Environmental Literacy: The Good News

- Public holds scientists in high regard
  70% said scientists contribute “a lot” to society’s well being (Behind only members of the military and teachers)

- 84% said scientists have a mostly positive effect on society

- Nearly 2/3 of all K-12 teachers in the U.S. include environmental education in their classroom studies
Environmental Literacy: The Good News

- EE mandated in Florida’s Sunshine State Standards
- No Child Left Inside movement seeks to reconnect children to nature
Components of Environmental Literacy

Capacity for personal and collective action and civic participation

Problem solving and critical thinking skills

Attitudes of appreciation and concern for the environment

Knowledge and understanding of human and natural systems and processes

General awareness of the relationship between the environment and human life

Source: Campaign for Environmental Literacy, 2007
Opportunities and Challenges

• Within this decade, more than 5 billion people will be connected thru cell phones and the Internet

Unprecented Access to Information vs. Saturation/Competition for Attention
What Can We Do?

- Involve citizen-scientists in your research
  i.e. Project Budburst, Feeder Watch, Stream Water Watch

Seahorse Survey in Tampa Bay

Dr. Heather Masonjones, Univ. of Tampa
What Can We Do?

- Share your research results with a broader audience
  Community Groups, Media, Students

Steve Geiger, FWRI

Kathy Guindon, FWRI
What Can We Do?

- Explain how your work can help address a real issue
- Make connections between your results and broader ecosystem processes
What Can We Do?

- Interact more with Decision-Makers
  
  Policy makers need to see the big picture
  
  Data needs to be accessible and easily interpreted
What Can We Do?

• Use the “Toys” at Your Disposal
  
  Make science fun and understandable thru GIS, animation, video games, cartoons, hands-on learning

ROV Workshop at Estuary Academy
What Can We Do?

Show You Care, Share Your Passion for Science!