What Did We Do in 2010?

1. Created and added a PPT presentation for our Patterns in Time lesson, along with pre/post quiz for PiT. Added Inquiry segment for analyzing pattern, and a new Accumulation of Traits diagram.

2. Corrected and updated a number of lessons - mostly minor issues, but always trying to make the site as accurate, up-to-date and easy to use as I can. Several items were pointed out by ENSI-using teachers.

3. Added improved Darwin’s phylogenetic tree (suitable for projection); typos corrected, groups labeled.

4. Posted my review of Shubin’s Your Inner Fish, along with links to slide to use with that book.

5. Posted my review of The Bible, Rocks and Time by geologists Young & Stearley (that points out the many major inconsistencies between evidence that the biblical accounts would have produced, and what geologists actually see).

6. Added link to the Population Genetics Fishbowl online-interactive tutorial using Hardy-Weinberg principle. This was accompanied by a few other ways to teach Hardy-Weinberg. (See my Quick Speciation page.)

7. Added access to John Banister-Marx’s video showing how to make a Magic Hooey Stick work.

8. Added Molecular Clues to Evolution page with article reviews from an evolution-rich issue of the NSTA’s The Science Teacher of November, 2003, with links to related lessons.

9. Added Additional Teaching Suggestions page for using our lessons to teach the Nature of Science. What IS the Nature of Science?

What is the Nature of Science - Presenting These Lessons for Maximum Effect

10. Added revised Evolution Survey pre-test, added key with brief explanations for why each answer is as it is. This survey has become very popular - more and more teachers are teaching evolution earlier, and pre-testing their students to let them know what their misconceptions are. I know this because teachers need to request the key/explanations from me directly (it’s not on the website - too many students were finding the keys, so we are removing some from the site - accessible only by emailing the webmaster). I’ve been getting several request for the Evo Survey key ever since.

11. Added Quick Speciation activity - a quick and easy simulation activity to do where students vividly experience how speciation happens.

12. Added my review of Massimo Pigliucci’s Nonsense on Stilts (2010) at Science teachers are charged with helping kids to think critically, be objective, and be skeptical of tempting ideas. Unfortunately, science textbooks are not very helpful for doing this. It won’t happen magically by reciting or even practicing "The Scientific Method." So what are we to do? This book does provide some helpful insights and suggestions. One of the author's purposes is to help citizens become better able to make informed decisions about complex issues involving scientific claims. "We have a moral duty to distinguish sense from nonsense," he writes. This book comes pretty close to being that handy, readable treatment of how to distinguish pseudoscience and non-science from near-science and "established" science. The author discusses how to use one of several “Baloney Detectors” to help teach critical thinking. He also offers a useful "brief history of science.” In short, lots of helpful ideas to use in the classroom.

13. Added my review of Lewis Held’s Quirks of Human Anatomy - An Evo-Devo Look at Human Anatomy (2009). This is the only book I have ever read that features many more questions than it answers! For anyone who thinks that science has solved nearly all the great problems, or the college student looking for challenging questions to research - this is the book to read. Likewise, for anyone who believes that we are the perfected product of an intelligent designer - this will set you straight. For example, the
Some are stupid, some are silly, and many are actually dangerous or disabling. These "make-do" contrivances that make up our bodies are clearly the result of opportunistic tinkering, changing the functions of existing structures (preadaptations, or exaptations). Here I link to our lesson: Blocks & Screws - Contrivances. The author does, however nicely explain the answers we do have to some of those questions, mostly from the evo-devo field.

14. Added announcement “DinoFeathers”: (with photos and diagrams) article about compelling evidence for the emergence of feathers in middle Jurassic dinosaurs.

15. Added “Magic Think Tube” to the Magic Hooey Stick lesson (link provided not working, so will add the pdf). This is similar to the one pictured and described in Teaching About Evolution and the Nature of Science (NAS, 1998), but it works, and a clever strategy is provided for effectively using it.

16. Added article by Joe Walsh about the interactive activity to demonstrate Ring Species and how they illustrate speciation, relating ring species (speciation in space) to phylogenies (speciation in time).

17. Added Chromosomal Speciation: discussion of how chromosomal changes get passed on to future generations. Much of this with ENSI Co-Director Craig E. Nelson’s input.

18. Added review of the ABT issue for February - devoted to several excellent articles on evolution.

19. Added “Useful Tools and Information for Teaching Evolution & the Nature of Science.”

20. Added review of Phylogenies & Tree Thinking by Baum and Offner (ABT, 2008).

21. Added a sample Classification Unit that effectively links the topic to evolution.

ENSIWEB HITS
Activity on ENSIweb (number of times its home page was accessed) continued the fluctuations in the final months of 2009 and throughout 2010 of around 3,000 hits per month, but then, for some reason (peaking ahead to March of 2011), we registered an unbelievable nearly 14,000 hits for February (13,936)! Was it a glitch somewhere? Or did we actually get that many hits? I have noticed a considerable increase in requests for the key and discussion points for our Evolution Survey, so, perhaps more teachers are introducing evolution earlier in the year, and/or more teachers are recognizing the value of assessing their students on this topic before going into it. Let’s see what upcoming months will show us.

CURRENT PROJECTS:
1. Laetoli Trackway being used to teach Africans about their ancestry. In September of 2010, I received a request from Prof. Terry Hutter for another copy of our 2x version of the Topo Trackway from Laetoli. He explained that he has used the trackway for several years in his hands-on presentations of African origins to a wide range of people over much of South Africa, living especially in rural areas. These groups range from
elementary through secondary, tertiary and adult groups, to rural indigenous poor groups throughout South Africa, and to private schools there. Dr. Hutter has kindly sent me some of the pictures he’s taken of students using the trackway, and they will be posted soon on the ENSI site for interested teachers to show their classes.

2. New Digital Trackway: An ENSI-using teacher asked me recently if we had a digital version of our Topo Trackway. We didn’t but I wondered why we couldn’t. So I took my best copy of the originally published trackway and took it to the FedEx shop (formerly Kinko’s) where they scanned it into a 600 dpi file for me. Later, I reduced the size to 300 dpi (just about as sharp as the 600 dpi file is, but much more transportable). I also cropped off a couple of pairs of prints from one end, and another pair from the other. I moved the caption and scale closer to the tracks, and ended up with a beautiful digital trackway that’s only 2.3 MB, so it’s easily attached to email responses to future requests for the trackway. Teachers can just take the file (in a memory stick) to their copy facility and get an excellent 5x version (full scale) directly, at much less cost. I also will also send a file that prints out a 10 inch version that can be inserted directly into a PPT presentation.

3. Bacteria lab for natural selection - analyzing the evidence. When a pure strain of bacteria is plated out around an antibiotic disc, a clear area of no-growth may appear around the disc. Then, in that area, a few isolated colonies may appear. Overlays will be used to explain what happens, so teachers can walk their students through this inquiry. Best if students can actually do the wet lab, but not necessary for understanding what it shows, and enables students to see natural selection happening in real time.

Many other potential projects are in the hopper for 2011. Now if I can just find a way to clone myself, maybe I can get them all done!

APPEAL FOR NEW, CREATIVE, TESTED AND EFFECTIVE ENSI LESSONS:
If you develop a new interactive lesson for teaching key elements of the nature of science and evolution (as reflected in current ENSI lessons), a lesson that is novel, engaging, effective and you think would work for other teachers, please share by telling us about it. Contact the webmaster at flammer4@gmail.com. If our directors agree that it would be appropriate to add to the ENSI collection, with credit to you as author, we will work out the details together, and post it on the site. We are also interested in effective uses of interactive demos, classroom activities, PowerPoint presentations, TV programs and the application of articles for classroom use, perhaps with viewing or reading guides to focus, clarify and structure accurate understanding of key concepts.

I Wish you all a most productive, successful and healthy 2011
Larry Flammer
ENSI webmaster