

Ed Committee Minutes – 11/4/07 9AM
Attendance: Deborah, Aimee, Michelle, Pat, Erinn

1. Pat discussed history of the committee and the fact that to maintain cohesiveness more than one person is required to move forward with education. Curriculum on diversity and economic importance of bats has been written by Deborah. Any curriculum considered must first be forwarded to Erinn to be approved by the board before being loaded onto the web site for teacher use.

Aimme shared her perspectives and curriculum based on 7-8 life science standards and the integration of math and English standards into science curriculum. Michelle suggested that in addition to WBWG curriculum other resources/reference sites be identified and made available to teachers – such as the NASA curriculum on echolocation Aimee also has a 30-45 minute PowerPoint presentation that would be a useful tool for teachers. The sources of the photos used will need to be identified to obtain permission to use them for educational purposes.

2. It was proposed that WBWG be represented at the National Science Teachers Association regional conference in Portland, Oregon – November 2008. The dean of Golden West College has offered to find funds to support the efforts and possibly sponsor a GWC student to attend and assist the WBWG. Some of the costs incurred may also be covered by the college. The application proposal was discussed as this has a deadline of January 15, 2008. The goal is to submit the proposal before the Christmas holiday.

The presentation must fit within one of the proposed strands and it was recommended that we apply under the Power of Green strand as a sharing session of 60 minutes. The members agreed that it would be best to offer repeated sessions during the 4 day conference.

3. Discussion on the need to recruit scientists, what role they may want to play in education endeavors and who to recruit.

Pat pointed out that both avenues of thought regarding the development of educational materials were useful and be considered (formal educational settings and informal settings such as outdoor educational programs). Michelle suggested materials be formatted for home schooled students could be included as well as materials in an accessible format for kids.

4. Aimee will contact BCI and Bats Northwest regarding possible collaboration at the NSTA conference and identify who would be willing to sit on the committee. Aimee will also contact Pat Morton about the possibility of field testing some of the curriculum at NASBR prior to NSTA. Deborah suggested that the committee collect samples of student work to be shared/displayed at the NSTA conference.

(Pat stated she can back that person up as the liaison between WBWG and collaborating partners.)

In addition to being a partner with WBWG during the presentation

BCI may want to apply as a vendor and have their materials/product available for distribution or sale.

Michelle as acting Secretary for WBWG will ask membership for a list of willing representatives to perform some role of education for regions/state/provinces (and level of participation they can offer). Pat spoke to Cory about the possibility of submitting a paragraph in the next newsletter looking for volunteers to do bat education.

Pat suggested the committee write an Action Plan and prioritize tasks. This may be useful as a recruitment tool.

Next meeting is scheduled for Sunday, December 2nd at 9am. The same numbers will be used tel 866-733-1339 and the code is 4960345.

Aimee's curriculum notes
Overall general impression

Specifics

Suggested use

Future use

Aimee

Things you should know about NSTA to present to BCI for November 20-22
exhibitor information is avail on these pages

www.nsta.org/exhibitsadv/

and to get specific forms-contact info

*www.nsta.org/exhibitsadv/2008portland.aspx

Table will need to be manned from Thursday 11am-5pm
Friday from 9-5
Saturday from 12-5pm when conference closes.

Prices, forms and contact information has links from this page *

I've cut and pasted for you some of the blurbs from their web site to help you present this
to BCI – (as to the benefits and WHY they would want to partner with us ☺)

*“NSTA's current membership includes science teachers, science supervisors,
administrators, scientists, **business and industry representatives**, and others
involved in and committed to science education.*

*The access NSTA can provide to science educators and our **56,000+** Active
Members is unparalleled in the science education market.”*

Bottom line – This is THE organization that guides science education in this country.
Thousands of people will attend and many groups will be highly visible (exhibit hall). I
believe it would really benefit BCI to participate as an exhibitor and help sponsor
WBWG's presentation. These are HUGE events and very competitive.

Everyone

Could everyone try to look at this web page and the application form before the next meeting? Ideally I am hoping you can look things over before December 2nd and if you have any thoughts or things to add let me know.

www.nsta.org/conferences/sessions.aspx

Your input would be most helpful...I would like to have this 'application' flushed out before our next meeting (I am going to run this past a friend who has been an active leader in NSTA for many years – to hedge our bets for acceptance!). The goal is to finalize the application and send it off following our meeting December 2nd.

Michelle – could you make sure the board is aware of our plans to participate in the conference and approves? I figure that way there will not be any delays as this is usually a highly competitive forum to present at.

I have drafted as much as I could as an attachment to this email.

I have also identified the National Science Standards that would likely apply to curriculum involving bats. These standards are what each state uses to base theirs on. Typically, they are the minimum and some states may go beyond these. For our purposes with a committee in its infancy – I think National is enough to work with. If anyone is interested the standards are listed on the National Science Education Standards (in conjunction with National Academies Press) at www.nap.edu/readingroom/books/nses (refer to chapter 6)

If someone has any time and could identify or locate a copy of the Canadian science standards – that would be super. I did a few searches and did not find a specific National site.

I cannot say it enough – thank you for your help!

Deborah Crough

School FAX 714-513-2911 attn: D. Crough, Rm. 48

Ps. Feel free to send me anything you *may run across* that you think may be helpful now or in the future.....I know you are all so busy – but in the off chance you find some nugget that may be useful...keep in mind that we eventually want to apply for funding so cast a big net and pull in resources beyond curriculum (implementation, networking, technology, professional development etc.).

Proposal could look something like this:

Strand One

The Power of Green: Educating for a Sustainable World

Green science helps us identify issues and develop solutions for environmental sustainability. Topics include energy use, natural resource management, architecture, transportation, waste management, and manufacturing. This strand will help participants increase their understanding of scientific inquiry, related social challenges, interactions within the ecosystem, and various aspects of science and technology.

Goals

To provide workshops and presentations focusing on:

- Providing students with a foundation on which to base decisions they will face as citizens and stewards
- Strengthening and updating knowledge and understanding of green science through field studies and laboratory- and technology-based investigations
- Examining critical issues and research in the field
- Identifying local, regional, national, and global resources (both formal and informal) for the study of green science

Criteria

Proposals will be evaluated on the extent that they:

- Align with one or more strand goals
- Align with the national science standards (NSES and Benchmarks)
- Are based on current and available research and issues in science
- Involve participants through activities and/or discussion
- Provide interaction between participants and experts in the field
- Show evidence of the integration of appropriate technology

Address a chosen national standard – how does this address that standard?

Proposal

150-200 word abstract summary

National Standards

SCIENCE AS INQUIRY STANDARDS

In the vision presented by the *Standards*, inquiry is a step beyond "science as a process," in which students learn skills, such as observation, inference, and experimentation. The new vision includes the "processes of science" and requires that students combine processes and scientific knowledge as they use scientific reasoning and critical thinking to develop their understanding of science. Engaging students in inquiry helps students develop

- Understanding of scientific concepts.
- An appreciation of "how we know" what we know in science.

- Understanding of the nature of science.
- Skills necessary to become independent inquirers about the natural world.
- The dispositions to use the skills, abilities, and attitudes associated with science.

Science as inquiry is basic to science education and a controlling principle in the ultimate organization and selection of students' activities. The standards on inquiry highlight the ability to conduct inquiry and develop understanding about scientific inquiry. Students at all grade levels and in every domain of science should have the opportunity to use scientific inquiry and develop the ability to think and act in ways associated with inquiry, including asking questions, planning and conducting investigations, using appropriate tools and techniques to gather data, thinking critically and logically about relationships between evidence and explanations, constructing and analyzing alternative explanations, and communicating scientific arguments. Table 6.1 shows the standards for inquiry. The science as inquiry standards are described in terms of activities resulting in student development of certain abilities and in terms of student understanding of inquiry.

SCIENCE IN PERSONAL AND SOCIAL PERSPECTIVES STANDARDS

An important purpose of science education is to give students a means to understand and act on personal and social issues. The science in personal and social perspectives standards help students develop decision-making skills. Understandings associated with the concepts in Table 6.6 give students a foundation on which to base decisions they will face as citizens.

TABLE 6.6. SCIENCE IN PERSONAL AND SOCIAL PERSPECTIVES		
LEVELS K-4	LEVELS 5-8	LEVELS 9-12
Personal health	Personal health	Personal and community health
Characteristics and changes in populations	Populations, resources, and environments	Population growth
Types of resources	Natural hazards	Natural resources
Changes in environments	Risks and benefits	Environmental quality
Science and technology in local challenges	Science and technology in society	Natural and human-induced hazards
		Science and technology in local, national, and global challenges

LESS EMPHASIS ON

Knowing scientific facts
concepts and developing
and information

Studying subject matter disciplines
disciplines in the context

MORE EMPHASIS ON

Understanding scientific
abilities of inquiry

Learning subject matter

(physical, life, earth sciences) for
in personal and
their own sake
history

of inquiry, technology, science
social perspectives, and
and nature of science

Separating science knowledge
science content
and science process

Integrating all aspects of

Covering many science topics
science concepts

Studying a few fundamental

Implementing inquiry as
instructional
a set of processes
ideas to be learned

Implementing inquiry as
strategies, abilities, and

CHANGING EMPHASES TO PROMOTE INQUIRY

LESS EMPHASIS ON

MORE EMPHASIS

Activities that demonstrate
analyze science
and verify science content

Activities that investigate and
questions

Investigations confined to
periods of time
one class period

Investigations over extended

Process skills out of context

Process skills in context

Emphasis on individual process skills
such as observation or inference
procedural

Using multiple process skills--
manipulation, cognitive,

Getting an answer
for developing or

Using evidence and strategies
revising an explanation

Science as exploration and experiment
explanation

Science as argument and

Providing answers to questions
explanations
about science content

Communicating science

Individuals and groups of students
analyzing and
analyzing and synthesizing data
defending conclusions
without defending a conclusion

Groups of students often
synthesizing data after

Doing few investigations in order to order to develop leave time to cover large of inquiry and amounts of content	Doing more investigations in understanding, ability, values knowledge of science content
Concluding inquiries with the result experiments to scientific of the experiment	Applying the results of arguments and explanations
Management of materials and equipment information	Management of ideas and
Private communication of student ideas ideas and conclusions to teacher	Public communication of student and work to classmates

life science standards 9-12

interdependence of organisms...

science as inquiry

- Understanding of scientific concepts.
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- Understanding of the nature of science.
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Science as inquiry is basic to science education and a controlling principle in the ultimate organization and selection of students' activities. The standards on inquiry highlight the ability to conduct inquiry and develop understanding about scientific inquiry. Students at all grade levels and in every domain of science should have the opportunity to use scientific inquiry and develop the ability to think and act in ways associated with inquiry, including asking questions, planning and conducting investigations, using appropriate tools and techniques to gather data, thinking critically and logically about relationships between evidence and explanations, constructing and analyzing alternative explanations, and communicating scientific arguments. Table 6.1 shows the standards for inquiry. The science as inquiry standards are described in terms of activities resulting in student development of certain abilities and in terms of student understanding of inquiry.