

**SWAC AGENDA**

**Monday, June 30th, 2014**

**Lafayette Building - Room 203**

**1:00-3:30 PM**

**1. Project-based Learning (PBL)** – (40 minutes)

* A review of key elements of PBL and discussion of Toolin and Watson (2010) – “Students for Sustainable Energy”. *The Science Teacher.* (See link below).

 **Links and Resources:**

* [**http://www.uvm.edu/~noyce/images/2010\_AnneWatsonNSTAarticle.pdf**](http://www.uvm.edu/~noyce/images/2010_AnneWatsonNSTAarticle.pdf)
* <http://www.nsrfharmony.org/protocol/doc/text_based_seminar.pdf>
* Project Planner (revised to NGSS)
* Guided Reading and Discussion Protocol

**2. Preview some PBL Models from across the country –** (20 minutes)

* What is PBL? - Think-Pair-Share (Left)
* Student perspectives on PBL – Think-Pair-Share (Right)
* High Tech High –

**Links:**

[**http://bie.org/objects/cat/videos**](http://bie.org/objects/cat/videos)

**3. PBL Roundtable Discussions –** Teachers will work in triads to share one SWAC project (previously developed or in progress). Each teacher will have the opportunity to lead the roundtable. Procedures include the following:

**Part I – 10 minutes**

1. Briefly describe the highlights of your SWAC project. (Topic, timeframe, overview)

2. Discuss the a.) core SWAC ideas, b.) scientific practices/skills, and c.) cross-cutting concepts that frame your project (See link below for connections to NGSS standards).

3. Discuss some of the challenges you encountered in the project design or implementation (if you had the opportunity to teach this project previously).

4. Pose questions requesting feedback from your group members.

**Part II – 10 minutes**

1. Other group members provide focused feedback for about 10 minutes.

2. Assign a manager to keep the group focused and record notes for the presenter.

**Part III – 5 minutes**

1. Quick share-out of roundtable discussion outcomes to the large group

**5. SWAC Post Survey**

**Resources:**

[**http://www.uvm.edu/~noyce/images/2010\_AnneWatsonNSTAarticle.pdf**](http://www.uvm.edu/~noyce/images/2010_AnneWatsonNSTAarticle.pdf)

[**http://bie.org/objects/cat/videos**](http://bie.org/objects/cat/videos) **- What is PBL? - Think-Pair-Share (Left)**

**Student perspectives on PBL – Think-Pair-Share (Right)**

<https://www.teachingchannel.org/videos/climate-change-lesson-1>

[**http://www.hightechhigh.org/pbl/**](http://www.hightechhigh.org/pbl/)[**http://www.nextgenscience.org/hsess2-earth-systems**](http://www.nextgenscience.org/hsess2-earth-systems)

[**http://www.nextgenscience.org/hsess3-earth-human-activity**](http://www.nextgenscience.org/hsess3-earth-human-activity)

**Guided Reading and Discussion Questions for the *Students for Sustainable Energy* article**

***By posing and answering questions that are relevant to their own lives and communities, students ultimately produce tangible products that can have meaning far beyond the walls of the science classroom (Colley 2008).***

**Time:** 10-minute pre-read. 20-minute discussion. 10-minute share-out.

1. According to Colley (2008), an effective and fruitful project needs to include the following elements:

* a rich, complex driving question that is relevant to students’ lives,
* production of artifacts,
* student-centered learning,
* collaboration,
* accountability,
* use of technology,
* appropriate safety considerations,
* interdisciplinary and cross-disciplinary inquiry,
* extended time frame, and
* reliable performance-based assessment.

a. To what extent does the physics class embody these elements of project-based learning?

b. To what extent does your curriculum and teaching embody these elements?

2. The formation of project teams and the development of a driving question are initial steps that are critical to the success of the project. In the following, the authors describe how problem-posing leads to new knowledge, particularly when more than one group of students has the same or similar question.

*Project teams were then formed according to common interests that emerged during the brainstorming activity. Driving questions (Weizman, Schwartz, and Fortus 2008) were generated by each team and served to focus each project. As students engaged in problem-posing (e.g., “How much energy does this lightbulb use?” and “How can I make this fan generate electricity?”), they realized that learning new science concepts would be necessary to move forward in their projects. Whenever more than one group had a question regarding the same concept, we introduced all students to the concept through a brief lesson. In this vein, project-based science not only provided motivation for learning new material but also for revisiting old material. (p. 29)*

2a. How effective is this method of embedding “as needed” lessons into the project? Is this a practice that you utilize in your own teaching?

3. What are some advantages and challenges of the project-based classroom? Refer to the article and your own classroom to provide evidence for some of the advantages and challenges.

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**Ground Rules for Discussion (From: http://www.nsrfharmony.org/protocol/doc/text\_based\_seminar.pdf)**

1. Listen actively.

2. Build on what others say.

3. Don’t step on others’ talk. Silences and pauses are OK.

4. Let the conversation flow as much as possible without raising hands or using a speaker’s list.

5. Make the assumptions underlying your comments explicit to others.

6. Emphasize clarification, amplification, and implications of ideas.

7. Watch your own air time — both in terms of how often you speak, and in terms of how much you say when you speak.

8. Refer to the text; challenge others to go to the text.

[For a list of protocols, see National School Reform Faculty website: <http://www.nsrfharmony.org/protocols.html>]