

17. How can the lesson be improved?

Have containers ready to store cleaning solution for later use

18. What do you need in order to teach this lesson plan as part of your curriculum?

PLA cups

18. How would you teach this lesson differently?

19. How did the lesson plan impact your students?

It made them think about the cleaning products they use at home

20. What lesson can you replace by using this lesson (if applicable)?

Please provide the name of the lesson and what scientific concept(s) are taught in the lesson

21. What information is missing from the background and teacher sheet sections?

The preparation of the solutions, do not use an erlenmeyer flask. The concentration "settled" out and we got varying results at time went on.

22. Any additional comments you may have are welcome below.

Raks was a very enthusiastic presenter. The directions and lesson plans are very clearly written.

Lesson Plan Evaluation Form

1. Date Beyond Benign visited your classroom: 12/16/08 and 12/18/08
2. Name of presenter(s): Raksmev Derival
3. Lesson plan performed: Biodiesel - synthesis and analysis
4. Teacher name: Katerina Sherman
5. School name: Maimonides School
6. Class name: Environmental Science
(chemistry, biology, environmental science, etc.)
7. Grade level(s): 12 8. Total # of students: 19

Please place an **X** next to the box that best describes the lesson.

9. The information in the lesson was thorough and complete
 Agree Neutral Disagree
10. It is clear how green chemistry principles are applicable in the lesson
 Agree Neutral Disagree
11. The lesson showed how green chemistry provides a solution to an environmental/health problem
 Agree Neutral Disagree
12. Using the lesson plan in your curriculum will reduce the use of hazardous materials
 Agree Neutral Disagree
13. The lesson was inquiry-based (allowed students to do the thinking instead of teaching at them)
 Agree Neutral Disagree
14. The lesson connects to the curriculum
 Agree Neutral Disagree
15. You would use this lesson as part of your teaching curriculum
 Agree Neutral Disagree
16. How did you reduce or eliminate the use of hazardous materials by using this lesson? (if applicable)

Please fill out the next page

17. How can the lesson be improved?

I have only asked Raks to do biodiesel experiment. For the lack of time we did not have a chance to work on analysis of the fuel or other parts of that unit. I am hoping to incorporate the entire 3 lab sequence in my curriculum next year.

18. What do you need in order to teach this lesson plan as part of your curriculum?

18. How would you teach this lesson differently?

See my answer to #17

19. How did the lesson plan impact your students?

My students were surprised how easy it is to produce biodiesel. Through the interactions with Raks and BeyondBenign they were introduced again and again to the importance of thinking "outside of a box"

20. What lesson can you replace by using this lesson (if applicable)?

21. What information is missing from the background and teacher sheet sections?

The experiment and the background info were generally well developed. A few procedures need to be ironed out. I would love to have a couple of extentions for the activities.

22. Any additional comments you may have are welcome below.

Lesson Plan Evaluation Form

1. Date Beyond Benign visited your classroom: _____
2. Name of presenter(s): _____
3. Lesson plan performed: Categorizing Your Trash
4. Teacher name: Julie Krieger
5. School name: Quincy High School
6. Class name: ELL Environmental Science
(chemistry, biology, environmental science, etc.)
7. Grade level(s): 9 through 12
8. Total # of students: 22

Please place an **X** next to the box that best describes the lesson.

9. The information in the lesson was thorough and complete
 Agree Neutral Disagree
10. It is clear how green chemistry principles are applicable in the lesson
 Agree Neutral Disagree
11. The lesson showed how green chemistry provides a solution to an environmental/health problem
 Agree Neutral Disagree
12. Using the lesson plan in your curriculum will reduce the use of hazardous materials
 Agree Neutral Disagree
13. The lesson was inquiry-based (allowed students to do the thinking instead of teaching at them)
 Agree Neutral Disagree
14. The lesson connects to the curriculum
 Agree Neutral Disagree
15. You would use this lesson as part of your teaching curriculum
 Agree Neutral Disagree
16. How did you reduce or eliminate the use of hazardous materials by using this lesson? (if applicable)

Students learned which materials are biodegradable vs. nonbiodegradable thus informing their personal decisions regarding food choices, packaging choices, and disposal choices.

17. How can the lesson be improved?

Perhaps the creation of more supporting worksheet based practice in the form of vocabulary practice and general reinforcement questions regarding the material.

18. What do you need in order to teach this lesson plan as part of your curriculum?

More supporting practice (since my students are English language learners, they need lots of reinforcement and practice of basic vocabulary).

18. How would you teach this lesson differently?

Include more vocabulary reinforcement.

19. How did the lesson plan impact your students?

I believe that they think twice regarding what foods they choose and how they dispose of their waste.

20. What lesson can you replace by using this lesson (if applicable)?

N/A

21. What information is missing from the background and teacher sheet sections?

Perhaps a little bit more background information on different kinds of waste disposal (i.e. incineration, sanitary landfills, open dumps, etc.).

22. Any additional comments you may have are welcome below.

The "Story of Stuff" movie was great. The students seemed to really like it, despite the fact that the host talks very quickly. It is a great introduction and explanation regarding where all of their things are made and where they go once they dispose of them. I used it as a segway between the trash lesson and composting lesson.

Lesson Plan Evaluation Form

1. Date Beyond Benign visited your classroom: _____
2. Name of presenter(s): _____
3. Lesson plan performed: Composting
4. Teacher name: Julie Krieger
5. School name: Quincy High School
6. Class name: ELL Environmental Science
(chemistry, biology, environmental science, etc.)
7. Grade level(s): 9 through 12 8. Total # of students: 22

Please place an **X** next to the box that best describes the lesson.

9. The information in the lesson was thorough and complete
 Agree Neutral Disagree
10. It is clear how green chemistry principles are applicable in the lesson
 Agree Neutral Disagree
11. The lesson showed how green chemistry provides a solution to an environmental/health problem
 Agree Neutral Disagree
12. Using the lesson plan in your curriculum will reduce the use of hazardous materials
 Agree Neutral Disagree
13. The lesson was inquiry-based (allowed students to do the thinking instead of teaching at them)
 Agree Neutral Disagree
14. The lesson connects to the curriculum
 Agree Neutral Disagree
15. You would use this lesson as part of your teaching curriculum
 Agree Neutral Disagree
16. How did you reduce or eliminate the use of hazardous materials by using this lesson? (if applicable)

Students learned which materials are biodegradable vs. nonbiodegradable thus informing their personal decisions regarding food choices, packaging choices, and disposal choices. They also were able to understand how raw materials can be recycled and used to grow brand new materials.

17. How can the lesson be improved?

Perhaps the creation of more supporting worksheet based practice.

18. What do you need in order to teach this lesson plan as part of your curriculum?

Again, more supporting practice (since my students are English language learners, they need lots of reinforcement and practice of basic vocabulary).

18. How would you teach this lesson differently?

Include more vocabulary reinforcement.

19. How did the lesson plan impact your students?

I believe that they think twice regarding what foods they choose and how they dispose of their waste. They also seemed interested in practicing composting at home since many have vegetable gardens.

20. What lesson can you replace by using this lesson (if applicable)?

N/A

21. What information is missing from the background and teacher sheet sections?

Perhaps a little bit more background information on different kinds of waste disposal rather than just composting. Also, perhaps a deeper introduction to current agricultural practices and uses of chemical fertilizers.

22. Any additional comments you may have are welcome below.

Lesson Plan Evaluation Form

1. Date Beyond Benign visited your classroom: April 2009
2. Name of presenter(s): Ben / John Pyers.
3. Lesson plan performed: "Solar Panel" Blackberry juice.
4. Teacher name: Peggy LeBrosse
5. School name: Milford High School, NH
6. Class name: Chemistry
(chemistry, biology, environmental science, etc.)
7. Grade level(s): 11 8. Total # of students: 22

Please place an X next to the box that best describes the lesson.

9. The information in the lesson was thorough and complete
 Agree Neutral Disagree
10. It is clear how green chemistry principles are applicable in the lesson
 Agree Neutral Disagree
11. The lesson showed how green chemistry provides a solution to an environmental/health problem
 Agree Neutral Disagree
12. Using the lesson plan in your curriculum will reduce the use of hazardous materials
 Agree Neutral Disagree
13. The lesson was inquiry-based (allowed students to do the thinking instead of teaching at them)
 Agree Neutral Disagree
14. The lesson connects to the curriculum Matter - energy Law and EMR and Photoelectric effect.
 Agree Neutral Disagree
15. You would use this lesson as part of your teaching curriculum
 Agree Neutral Disagree
16. How did you reduce or eliminate the use of hazardous materials by using this lesson? (if applicable)

NA

17. How can the lesson be improved?

It was well done - especially collection of data re: Vdts produced by class. The competition was fun!!

18. What do you need in order to teach this lesson plan as part of your curriculum?

Just do it. It fits in naturally - probably why the kids really got this, they had the prior knowledge.

18. How would you teach this lesson differently?

Would not change a thing.

19. How did the lesson plan impact your students?

They were talking about it and on final course eval. wrote how this was memorable and "the best".

20. What lesson can you replace by using this lesson (if applicable)?

Please provide the name of the lesson and what scientific concept(s) are taught in the lesson

It fits in fine w/ EMS, photoelectric effect, and matter energy conservation.

21. What information is missing from the background and teacher sheet sections?

Please consider things like calculations for solution preparation, background information on a current environmental/health problem, how green chemistry addresses those problems, what education standards are met/not met

Just fine!!

22. Any additional comments you may have are welcome below.

wonderful!!

Thank you for your help

Lesson Plan Evaluation Form

1. Date Beyond Benign visited your classroom: April 2009
2. Name of presenter(s): John-Pyers + Ben
3. Lesson plan performed: Rev PhotoResist
4. Teacher name: Peggy LaBrosse
5. School name: Milford High School, NH
6. Class name: Chemistry
(chemistry, biology, environmental science, etc.)
7. Grade level(s): 11
8. Total # of students: 22

Please place an X next to the box that best describes the lesson.

9. The information in the lesson was thorough and complete
 Agree Neutral Disagree
10. It is clear how green chemistry principles are applicable in the lesson
 Agree Neutral Disagree
11. The lesson showed how green chemistry provides a solution to an environmental/health problem
 Agree Neutral Disagree
12. Using the lesson plan in your curriculum will reduce the use of hazardous materials
 Agree Neutral Disagree
13. The lesson was inquiry-based (allowed students to do the thinking instead of teaching at them)
 Agree Neutral Disagree
14. The lesson connects to the curriculum Mine-NO
 Agree Neutral Disagree
15. You would use this lesson as part of your teaching curriculum
 Agree Neutral Disagree
16. How did you reduce or eliminate the use of hazardous materials by using this lesson? (if applicable)

I will not do photo-resist in curriculum.

17. How can the lesson be improved?

The showing of perhaps a traditional set of materials and explanation of the application of photo-resist.

18. What do you need in order to teach this lesson plan as part of your curriculum?

The application of photoresist.

18. How would you teach this lesson differently?

Bound it showing more connections of photo-resist process - Conversation - checking for student understanding.

19. How did the lesson plan impact your students?

The had fun making their templates.
The Art was fun!

20. What lesson can you replace by using this lesson (if applicable)?

Please provide the name of the lesson and what scientific concept(s) are taught in the lesson

Photoresist - None

21. What information is missing from the background and teacher sheet sections?

Please consider things like calculations for solution preparation, background information on a current environmental/health problem, how green chemistry addresses those problems, what education standards are met/not met

Background info. uses and explanations of photoresist.

22. Any additional comments you may have are welcome below.

Good enthusiasm, energy, respect.
What students most remember -
the classroom culture ~~set~~ was excellent.

Thank you for your help

Lesson Plan Evaluation Form

1. Date Beyond Benign visited your classroom: 5/15/2009
2. Name of presenter(s): Raks and Kate
3. Lesson plan performed: PLA dissolved in NaOH and neutralized
4. Teacher name: Sheila King
5. School name: Newburyport High School
6. Class name: chemistry
(chemistry, biology, environmental science, etc.)
7. Grade level(s): 11 8. Total # of students: 40

Please place an **X** next to the box that best describes the lesson.

9. The information in the lesson was thorough and complete
 Agree Neutral Disagree
10. It is clear how green chemistry principles are applicable in the lesson
 Agree Neutral Disagree
11. The lesson showed how green chemistry provides a solution to an environmental/health problem
 Agree Neutral Disagree
12. Using the lesson plan in your curriculum will reduce the use of hazardous materials
 Agree Neutral Disagree
13. The lesson was inquiry-based (allowed students to do the thinking instead of teaching at them)
 Agree Neutral Disagree
14. The lesson connects to the curriculum
 Agree Neutral Disagree
15. You would use this lesson as part of your teaching curriculum
 Agree Neutral Disagree
16. How did you reduce or eliminate the use of hazardous materials by using this lesson? (if applicable)

You showed how toxic and persistent plastics in the environment can be reduced or eliminated. The end product of the lab was neutral and harmless.

17. How can the lesson be improved?

Could the plastic cup be dissolved with a weaker solution of base?

18. What do you need in order to teach this lesson plan as part of your curriculum?

The cups

18. How would you teach this lesson differently?

The hardest thing we are asked to do is to give students time to engage in inquiry based labs. Maybe we could try to replicate the time/conditions it would take to dissolve the cup? Maybe pieces of a "regular" petroleum based cup and a PLA cup sit in different solutions for a week or more until they dissolved (or not).

19. How did the lesson plan impact your students?

They enjoyed having visitors who were so passionate about chemistry and who took the time to make up a lab for them that related to a real world problem

20. What lesson can you replace by using this lesson (if applicable)?

n.a.

21. What information is missing from the background and teacher sheet sections?

n.a.

22. Any additional comments you may have are welcome below.

Thanks so much for your time. The students and I got a lot out of it.

Lesson Plan Evaluation Form

1. Date Beyond Benign visited your classroom: 5/21?/09 (on 5/18?)
2. Name of presenter(s): Raks Derival
3. Lesson plan performed: Blackberry juice batteries!
4. Teacher name: Liz Scoble
5. School name: Esperanza Academy
6. Class name: 5th Grade After school
(chemistry, biology, environmental science, etc.)
7. Grade level(s): 5 8.. Total # of students: 15-18

Please place an X next to the box that best describes the lesson.

9. The information in the lesson was thorough and complete
 Agree Neutral Disagree
10. It is clear how green chemistry principles are applicable in the lesson
 Agree Neutral Disagree
11. The lesson showed how green chemistry provides a solution to an environmental/health problem
 Agree Neutral Disagree
12. Using the lesson plan in your curriculum will reduce the use of hazardous materials
 Agree Neutral Disagree
13. The lesson was inquiry-based (allowed students to do the thinking instead of teaching at them)
 Agree Neutral Disagree
14. The lesson connects to the curriculum
 Agree Neutral Disagree
15. You would use this lesson as part of your teaching curriculum
 Agree Neutral Disagree

16. How did you reduce or eliminate the use of hazardous materials by using this lesson? (if applicable)

Raks collected all reusable items and also any waste. She made it clear which was which and exactly what the disposition of each item was.

Please fill out the next page

17. How can the lesson be improved?

No improvements necessary

18. What do you need in order to teach this lesson plan as part of your curriculum?

n/a

18. How would you teach this lesson differently?

Would not change

19. How did the lesson plan impact your students?

I don't think they had ever seen or conceived of anything like it. All the concepts, materials, actions, + results were totally new.

20. What lesson can you replace by using this lesson (if applicable)?

Please provide the name of the lesson and what scientific concept(s) are taught in the lesson

n/a

21. What information is missing from the background and teacher sheet sections?

Please consider things like calculations for solution preparation, background information on a current environmental/health problem, how green chemistry addresses those problems, what education standards are met/not met

22. Any additional comments you may have are welcome below.

What was amazing was how well the activity was structured and sequenced so that all the kids got ~~thru~~ thru it in an efficient and organized way. With this group, this is almost

> impossible > J

Thank you for your help

Lesson Plan Evaluation Form

1. Date Beyond Benign visited your classroom: 5/27/2009
2. Name of presenter(s): Raks Derival
3. Lesson plan performed: solar cell construction
4. Teacher name: Sue Baylies
5. School name: Atkinson Elementary
6. Class name: solar energy
(chemistry, biology, environmental science, etc.)
7. Grade level(s): 5 8. Total # of students: 24

Please place an **X** next to the box that best describes the lesson.

9. The information in the lesson was thorough and complete
 Agree Neutral Disagree
10. It is clear how green chemistry principles are applicable in the lesson
 Agree Neutral Disagree
11. The lesson showed how green chemistry provides a solution to an environmental/health problem
 Agree Neutral Disagree
12. Using the lesson plan in your curriculum will reduce the use of hazardous materials
 Agree Neutral Disagree
13. The lesson was inquiry-based (allowed students to do the thinking instead of teaching at them)
 Agree Neutral Disagree
14. The lesson connects to the curriculum
 Agree Neutral Disagree
15. You would use this lesson as part of your teaching curriculum
 Agree Neutral Disagree
16. How did you reduce or eliminate the use of hazardous materials by using this lesson? (if applicable)

I wouldn't / don't have the materials / knowledge to do this lesson on my own at this time.

17. How can the lesson be improved?

The lesson was great! Raks is extremely knowledgeable and related well to the students.

18. What do you need in order to teach this lesson plan as part of your curriculum?

Written directions that would help me know what to do and the steps to do it. Plus I would need the materials I couldn't buy in a grocery store!

18. How would you teach this lesson differently?

Things were presented very clearly. Using of the board helped to present more complicated words and the drawings clarified directions.

19. How did the lesson plan impact your students?

They have a strong understanding of how solar cells work and can be built green.

20. What lesson can you replace by using this lesson (if applicable)?

This is an enrichment lesson for my current curriculum.

21. What information is missing from the background and teacher sheet sections?

I didn't get sheets

22. Any additional comments you may have are welcome below.

I really like having experts come to the classroom to present this lesson.

Lesson Plan Evaluation Form

1. Date Beyond Benign visited your classroom: 5/27/2009
2. Name of presenter(s): Kate
3. Lesson plan performed: solar cell construction
4. Teacher name: Sue Baylies
5. School name: Atkinson Elementary
6. Class name: solar energy
(chemistry, biology, environmental science, etc.)
7. Grade level(s): 5
8. Total # of students: 24

Please place an **X** next to the box that best describes the lesson.

9. The information in the lesson was thorough and complete
 Agree Neutral Disagree
10. It is clear how green chemistry principles are applicable in the lesson
 Agree Neutral Disagree
11. The lesson showed how green chemistry provides a solution to an environmental/health problem
 Agree Neutral Disagree
12. Using the lesson plan in your curriculum will reduce the use of hazardous materials
 Agree Neutral Disagree
13. The lesson was inquiry-based (allowed students to do the thinking instead of teaching at them)
 Agree Neutral Disagree
14. The lesson connects to the curriculum
 Agree Neutral Disagree
15. You would use this lesson as part of your teaching curriculum
 Agree Neutral Disagree
16. How did you reduce or eliminate the use of hazardous materials by using this lesson? (if applicable)
I wouldn't / don't have the materials / knowledge to do this lesson on my own at this time.

Please fill out the next page

17. How can the lesson be improved?

The lesson was great! Kate is very knowledgeable and related well to the students. Her directions were clear and easy to follow.

18. What do you need in order to teach this lesson plan as part of your curriculum?

Written directions that would help me know what to do and the steps to do it. Plus I would need the materials I couldn't buy in a grocery store!

18. How would you teach this lesson differently?

Things were presented very clearly. Using of the board helped to present more complicated words and the drawings clarified directions.

19. How did the lesson plan impact your students?

They have a strong understanding of how solar cells work and can be built green.

20. What lesson can you replace by using this lesson (if applicable)?

This is an enrichment lesson for my current curriculum.

21. What information is missing from the background and teacher sheet sections?

I didn't get sheets

22. Any additional comments you may have are welcome below.

I really like having experts come to the classroom to present this lesson.

Outreach Evaluation Form

1. Date Beyond Benign visited your classroom: 6/12/2009
2. Name of presenter(s): Kate Anderson and John Pyers
3. Activity performed: Solar Cells
4. Teacher name: Connie Quackenbush
5. School name: W.S. Parker Middle School
6. Class name: Earth Science
(chemistry, biology, environmental science, etc.)
7. Grade level(s): 8th 8. Total # of students: 108

Please place an **X** next to the box that best describes the visit.

9. The materials were well presented
 Agree Neutral Disagree
10. The presentation was interesting
 Agree Neutral Disagree
11. The presenter(s) were engaging
 Agree Neutral Disagree
12. The activity was fun
 Agree Neutral Disagree
13. The presentation relates to what the students are currently learning about
 Agree Neutral Disagree
14. You would recommend a Beyond Benign outreach visit to another teacher
 Agree Neutral Disagree
15. You would invite Beyond Benign back for another classroom visit
 Agree Neutral Disagree
16. How can the presentation be improved?

Make the prematerials and presentation appropriate for middle school understanding and reading levels. Give kids a chance to interact more with each other and the presenter. Use wait time to allow students to process higher level topics. Start the presentation with an intriguing question. Thanks for everything

Please fill out the next page

17. What do you need in order to teach green chemistry as part of your curriculum?

Currently we do not do too much so it is hard to say.

18. How did Beyond Benign's visit impact your students?

They thought it was so cool that they could use blackberries to make a solar cell. I know that they will look for things in their lives to reduce impact on Earth's environment.

19. How did Beyond Benign's visit impact your teaching materials?

Not at all.

20. Any additional comments you may have are welcome below.

Thanks, I hope to see you next year.

Thank you for your help

Lesson Plan Evaluation Form

1. Date Beyond Benign visited your classroom: 6/12/2009
2. Name of presenter(s): John Pyers and Kate Anderson
3. Lesson plan performed: Solar Cells
4. Teacher name: Connie Quackenbush
5. School name: W.S. Parker Middle School
6. Class name: Earth Science
(chemistry, biology, environmental science, etc.)
7. Grade level(s): 8th 8.. Total # of students: 108

Please place an **X** next to the box that best describes the lesson.

9. The information in the lesson was thorough and complete
 Agree Neutral Disagree
10. It is clear how green chemistry principles are applicable in the lesson
 Agree Neutral Disagree
11. The lesson showed how green chemistry provides a solution to an environmental/health problem
 Agree Neutral Disagree
12. Using the lesson plan in your curriculum will reduce the use of hazardous materials
 Agree Neutral Disagree
13. The lesson was inquiry-based (allowed students to do the thinking instead of teaching at them)
 Agree Neutral Disagree
14. The lesson connects to the curriculum
 Agree Neutral Disagree
15. You would use this lesson as part of your teaching curriculum
 Agree Neutral Disagree
16. How did you reduce or eliminate the use of hazardous materials by using this lesson? (if applicable)

I wouldn't because I don't do things like this currently.

17. How can the lesson be improved?

See other evaluation.

18. What do you need in order to teach this lesson plan as part of your curriculum?

Funds and materials.

18. How would you teach this lesson differently?

See other evaluation. Also have props and middle school language.

19. How did the lesson plan impact your students?

See othe evaluation.

20. What lesson can you replace by using this lesson (if applicable)?

Please provide the name of the lesson and what scientific concept(s) are taught in the lesson. I would have to add this.

21. What information is missing from the background and teacher sheet sections?

Please consider things like calculations for solution preparation, background information on a current environmental/health problem, how green chemistry addresses those problems, what education standards are met/not met The background amterial was minimal and the reading was at too high of a level.

22. Any additional comments you may have are welcome below.

Green Chemistry at Quincy High School

By Julie Krieger

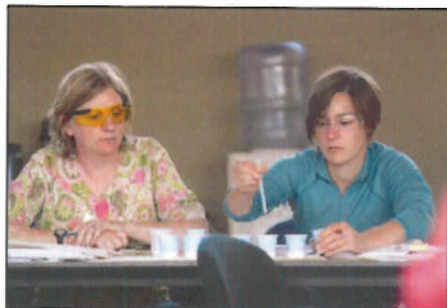
As a novice teacher, I feel that I was given an extremely amazing opportunity to begin my teaching career assisting with Beyond Benign's Green Chemistry program at Quincy High School. In fact, this opportunity was one of the deciding factors in my choosing to teach at Quincy High versus another institution. Growing up in two of the greenest states in the nation (Oregon and Washington), I was immediately intrigued by the concept of teaching green chemistry principles to future eager young chemists as well as learning some of the principles to apply within my own classroom.

From the beginning of the program, I was impressed by the amount of time that was obviously put into each of the phenomenal pilot lesson plans and most specifically, the crayon manufacturing activity. I am a firm believer in the integration of disciplines within one lesson and the crayon manufacturing experiences truly encompasses interdisciplinary learning. Not only are all of the principles of green chemistry expressed throughout the lesson, but other content areas such as economics, environmental science, mathematics, and business applications are incorporated in one very fun and engaging green activity.

I also had a wonderful experience learning how to develop different labs using the principles of green chemistry. Learning from Dr. T how to develop step by step lab exercises effectively was an invaluable part of my summer experience. However, what I found the most beneficial from this summer was simply learning the 12 principles of green chemistry. Using the 12 principles, I can now effectively design new activities within my own classroom to be more green as well as pass on the principles to my students through my lesson plans. I have also used the provided lesson plans as jump off points and scaffolds to build activities that fit my own biology and environmental science for English language learners curriculum. I feel that I now have an arsenal of ideas that I can adapt within my own classroom as well as redefine my own lessons and activities through a greener lens. The only things that I would change about the activities is perhaps adapting them into a simpler form (for my English language learners and standard classes) that stresses vocabulary practice and graphical learning skills (pictures and tables are wonderful) as well as finding a way to incorporate them more within biology classrooms and state standards.

The teacher workshop in June I found to be a great success. It was wonderful to see so many teachers eager to learn about green chemistry and pass on their knowledge to their own students. What I think would have been wonderful to add to the workshop (even though we were quite pressed for time) would have been a chance for all of the teachers to sit down together and do some collaboration regarding some of the green lessons that they have already piloted within their own classrooms. While I was running the PLA lab, a few teachers came up to me and shared with me some of the things that they were already doing within their own classrooms that I found quite fascinating and would have loved to learn more about. Perhaps some time scheduled in which we make a list together of activities that teachers already have been piloting and analyze them for their green benefits? Or just make a list of some great activities?

Overall, I believe that the green chemistry experience at Quincy High was a great success. It most definitely has made me revisit some of my activities and truly think about ways that I can make them less toxic and more green. Also, it has inspired me to create and investigate new activities that I can integrate into my curriculum. I have been thinking about adding a "green chemistry" or "green environmental science" unit into my environmental science class curriculum which I would like to develop over the course of this year. In terms of reducing the amount of toxics I use, this program has definitely made me more aware of what is toxic within my classroom and has given me ways to bypass and substitute safety for toxicity in many of my activities.



"Beyond Benign's high tech curriculum was a fantastic breath of fresh air that can be easily adapted to any high school chemistry program."

– Julie Krieger, Quincy HS teacher, Quincy, MA



"I was able to have a better understanding towards what being sustainable means and how using safer and environmentally friendly products can help society become greener and healthier."

– Genesy's Lai, Quincy HS student, Quincy, MA



beyondbenign

a warner babcock foundation

Presents a workshop for middle and high school teachers on

The Green Chemistry Guide

A Tool for Teaching Green Chemistry in the Classroom

Friday, June 26, 2009

10:00am – 4:00pm

Beyond Benign Headquarters

100 Research Drive, Wilmington, MA 01887

Who is Beyond Benign?

Beyond Benign is a non-profit organization that promotes sustainable science in order to create an environmentally, socially and economically prosperous world.

We carry out our mission in three key areas:

K-12 Curriculum and Training, Community Outreach and Communications, and Workforce Development.

- Learn how to teach your students about the innovative field of green chemistry and its solutions to some of today's environmental challenges
- Infuse green chemistry into your science curriculum through inquiry based lessons
- Incorporate cutting-edge green chemistry technology into your lab exercises
- Receive a copy of the Green Chemistry Guide to use with your students
- Engage in hands-on learning of the lessons presented in the guide
- Develop a relationship with Beyond Benign staff to use as a resource year-round
- Massachusetts teachers may earn 10 PDP's upon completion of workshop coursework

What is Green Chemistry?

Green chemistry is a pro-active approach to pollution prevention. It targets pollution at the design stage, before it even begins. If chemists are taught to develop products and materials in a manner that does not use hazardous substances, then much waste, hazards and cost can be avoided. Green Chemistry is designing chemical products and processes that reduce or eliminate the use and/or the generation of hazardous substances.

"The goal is that in the years to come, the term Green Chemistry becomes obsolete... Green Chemistry will just be the only way we do chemistry."

– Dr. John Warner,
Co-founder of Green
Chemistry and President of
The Warner Babcock Institute
of Green Chemistry



Lunch and materials are provided at no cost. No registration fee required.

To register, please email Kate Anderson at kate_anderson@beyondbenign.org or call (978) 229-5456



In collaboration with Quincy High School, Quincy, MA

www.beyondbenign.org

THE FACE OF THIS DOCUMENT HAS A COLORED BACKGROUND ON WHITE PAPER.

George T. Taylor & Son, Inc.
152 Broad Brook Road
Broad Brook, CT 06016
(860) 623-3308

RECEIVED

2009 DEC 29 P 1:20

Salisbury Bank
5 Dover Village Plaza, Suite 1
Dover Plains NY 12522

51-261/111

No. 002646

CHECK DATE

12/17/2009

CHECK AMOUNT

*****18,813.00*

PAY *EIGHTEEN THOUSAND EIGHT HUNDRED THIRTEEN AND XX / 100

OFFICE OF REGIONAL HEARING CLERK

WL266131C-10-04

TO THE ORDER OF: Environmental Protection Agency-CWA-01-2009-002
PO Box 979077
Saint Louis, MO 63197-9000



Jennifer McCarthy
AUTHORIZED SIGNATURE

SECURITY FEATURES INCLUDED. DETAILS ON BACK.

⑈002646⑈ ⑆011102612⑆ 2020071606⑈

total penalty of \$70,000 plus interest which shall be due in accordance with the payment schedule described in paragraph 11.

13. Respondent shall make payment by cashier's or certified check, or check issued in the normal course of business operations, payable to "Environmental Protection Agency," and referencing the title and docket number of the action ("In the Matter George T. Taylor & Son Inc., CWA-01-2009-0002") and "Oil Spill Liability Trust Fund - 311." The payment shall be mailed to:

U.S. Environmental Protection Agency
Fines and Penalties
Cincinnati Finance Center
PO Box 979077
St. Louis, MO 63197-9000

14. Respondent shall simultaneously submit a copy of the check referenced in paragraph 11 above to the following:

Regional Hearing Clerk
U.S. Environmental Protection Agency, Region 1
One Congress Street, Suite 1100 (RCA)
Boston, Massachusetts 02114-2023

and

Jeffrey Kopf
Senior Enforcement Counsel
Office of Environmental Stewardship
U.S. Environmental Protection Agency, Region 1
One Congress Street, Suite 1100 (SEL)
Boston, Massachusetts 02114-2023

15. Pursuant to Section 311(b)(6)(H) of the CWA, 33 U.S.C. § 1321(b)(6)(H), failure by the Respondent to pay the penalty amounts relating to the CWA violations assessed by this CAFO in full by the date required shall subject the Respondent to a civil action to collect the assessed