



Boycotts and Banners: Teaching Students to be Environmental and Civil Stewards

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This curriculum unit is recommended for:
Integrated Science Courses, 8th grade
Environmental Science, 9th -12th grade

Keywords: Stewardship, Science, Social Studies, Cross Curricular, Student Leadership, Essential Standards

Teaching Standards: See [Appendix 1](#) for teaching standards addressed in this unit.

Synopsis:

One of the greatest joys in teaching, in my opinion, is teaching your students things that actually matter to them. The realities of this life are difficult to convey to middle school students who are often self-driven. We live in a “me first” culture. However, the idea of stewardship, of dealing well with the things that have been afforded to you- no matter how small-is relevant for any culture. We have all inherited this world because we depend on the resources that are freely given to us. My students must understand that stewardship is not limited to the environment, but that it is also a sound that has always resonated through the development of the very country that they live in today. They must be able to connect with the responsibility that they have not only to protect the freedom to be treated or recognized as a human being but also have the responsibility to conserve energy and provide energy stability for themselves and others. While these lessons are meant to target proficiency in science content, they can also be used to teach students the connection to a real energy crisis and the rights they can exercise to avert it.

I plan to teach this unit during the coming year in to 139 students in Integrated Science 8.

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Adora Reid

Introduction

I can hear a choir singing. “We shall overcome! We shall overcome someday!” It’s a documentary on the civil rights movement. I change the channel. “Vote for Tom Tillis. The other gal plays dirty.” It’s just another political ad trying to think for me. I change the channel again. “In other news, teachers rally in Raleigh, NC to encourage Congress to uphold the new law which requires teachers to be paid what they deserve.” Next channel - “Although two-thirds of the world lives each day without energy; the demand for energy resources are getting higher.” I turn the television off. What do all of these things have in common? Stewardship? Duty? Responsibility? I know about boycotts, I’ve seen marches and banners. I understand the current issues at hand in the world, but when it comes to teaching students about the urgency and importance of increasing our energy supply, I’m at a loss. There must be a way to make it real and urgent while getting students to a place where the world is not making decisions about their future and they fell they have no input. When it comes to teaching science, it is very easy for students to get trapped in the deadly whirlpool of vocabulary overload. If we are to be critical, reflective, and honest, science is very vocabulary driven. The number one killer of student achievement in science is failure to apply the endless vocabulary and science concepts to real world situations. Students know about the sun. They can see it. They can tell you many things about how we waste energy, but they cannot explain what energy is and where it all comes from. They can’t see or touch all the energy types. This puts science teachers and students in a bind. In an interesting way, social studies has managed to overrun science with its ability to stimulate student interest simply because it is all about real life situations. It has the vigor of gaining student attention because it is tangible and real. Science, in most cases, is abstract. Social studies lack the wow factor that students can gain in science. What would we get if we coupled the “vigor” of social studies with the “wow” of science? Students who get it! Students whose attention is not bogged down by endless vocabulary words but whose minds are stimulated and activated to actually take responsibility for something that, at first, seemed so distant to them.

In this curriculum unit, it is my hope that students will obtain a greater understanding of what it means to be a good steward of the things that we must take care of if we want to see a healthy future for the coming generations. It is not fair for them to inherit our failure to act. Students should be able to use the strategies or ideas linked to creating

effective change in our state to the global context of energy reformation. How can we teach our students to impact the energy crisis? How can we introduce and facilitate a sense of urgency and the importance of developing technologies that drive energy for the future? I want students to “DO” so much more with science. I need students to understand that what they are learning now does affect them NOW. It would be a tragedy for the history books to tell of a generation that was so ill-informed about their rights that, to their detriment, they were not able to understand what they could do to change science history through civics history. This unit attempts to integrate 8th grade Science and 8th grade Social Studies topics in such a way that it teaches students the importance of being environmental and civil stewards. After the completion of this unit, students should know about energy resources, how those resources are being used and overused, and understand ways that they can participate in changing the energy future.

Rationale

I chose to teach this curriculum unit because I love to see students connect what they learn in class to their lives. Many times with science, the concepts are so over their heads. They have no idea of how to make it useful. When it comes to teaching them these topics, I get so many ideas that I want to try. Their curiosity and their youthfulness are inspiring and I just want to see them doing something. Doritos has that campaign where you see young people doing things in their community. It would be great to see a school of minority students take on a cause that would normally seem useless to them and have them to do great things with it.

Background

James Martin Middle School has been a part of the Charlotte-Mecklenburg School District in Charlotte, NC for 15 years. When the school opened in 1997, it was part of a greater plan to unify 4 schools within an educational community called Governor's Village. Each of the four schools feed into each other and are named after NC Governors, Nathaniel Alexander, John M. Morehead, Zebulon B. Vance, and James G. Martin, respectively. James Martin Middle is one of the largest middle schools in the district with over 1200 students enrolled in the 2010-2011 school year; the numbers continue to remain at this level. Martin Middle is also considered a Title One school and receives funding from the state. For the 2014-2015 school year under a pilot program, all students are eligible to receive free breakfast and lunch. In 2013-2014, Martin was chosen to undergo the district redesign plan, which increased class sizes and reduced the number of certified teachers in the school. It is considered a “Reach” school because the teachers on the reach teams are said to reach more students than in previous years.

I teach Integrated Science 8 to six classes of approximately 139 students on an A/B schedule. The students attend social studies on the following day after they attend science, therefore, I only see each child every other day. Students come from 7th grade

with a basic understanding of Molecular Biology, Weather and Atmosphere, Physics, and Genetics. These topics do not help them with 8th grade content until we discuss Microbiology. Most of their knowledge is from 6th grade or it is new content. Many of the students that I receive in my classroom are African American (around 68.7%), Hispanic (19%), White (4%) or other. Students generally come to me on different levels and this is what makes getting them to understand abstract science concepts gets challenging. There are many students that have an IEP or a 504 plan and that require modifications to their assignments. Therefore, handling a workload that seeks to get students more involved would help with those modifications that require more care and caution in planning. Some of my students can grasp the concepts quickly and repeat information without really gaining a deep understanding of the content.

Since this is an integrated unit, the science teacher must ensure that students see the connection between energy issues and the role of global and local citizens in ensuring safe, effective change in the way that energy issues are handled in the future.

Objectives

According to the district's *Strategic Plan 2014: Teaching Our Way To The Top* emphasizes the need to identify six areas of focus where we are taking specific, strategic actions. The six areas of focus are ***Effective Teaching and Leadership***, Performance Management, Increasing the Graduation Rate, Teaching and Learning through Technology, ***Environmental Stewardship*** and Parent and Community Connections. Please note that students are encouraged to become "environmental stewards." This integrated unit also falls under the guidelines for NC Educator Effectiveness Standards 3 and 4 in which *teachers demonstrate knowledge of the content they teach and teachers facilitate learning for their students*. Social studies and Science content is united in a way that has not been done before. The idea of stewardship is an overarching theme throughout both 8th grade courses and will ultimately end with the students acting on that responsibility within the classroom, school, or in their community.

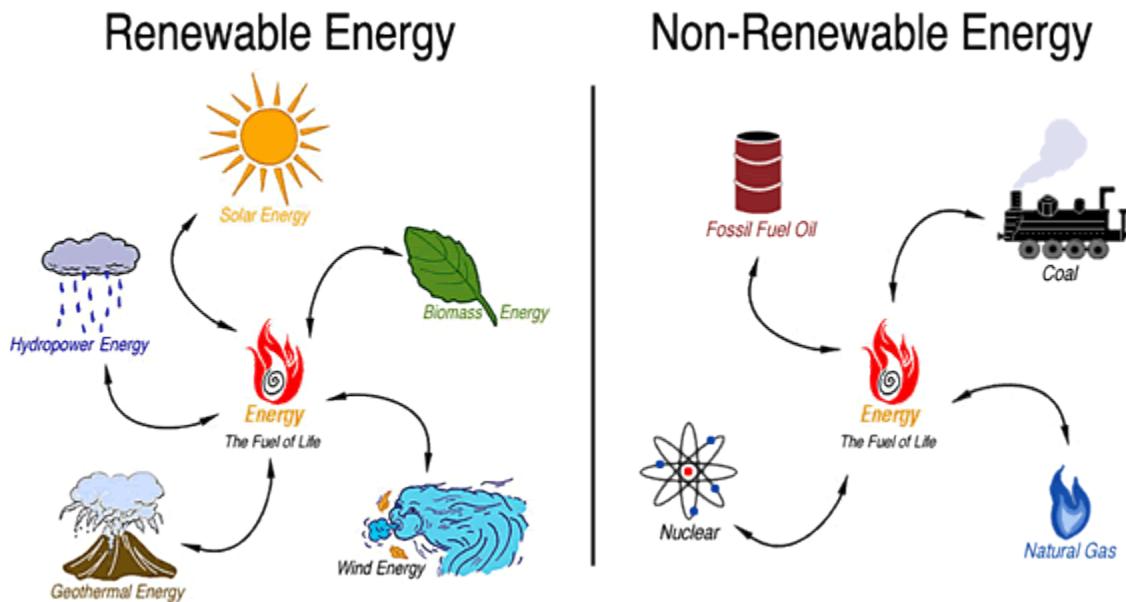
There will be many lessons that simply teach and engage the students through dialogue and that focus on education of the energy crisis and reformation of the stewardship of energy issues through projects. Each lesson can be crafted for collaboration by a science and a social science teacher, however, this requires intense planning and timing. Therefore, the science teacher must take on the responsibility of making the connections while staying close to the NC Essential Standards. Each lesson will be structured through the 5E model as listed below. This model is recommended through Discovery Education's Techbook which is used heavily by both science and social science teachers. For more information on the teaching standards, please see [Appendix 1](#) which is attached to this document.

Content Background

The 8th grade science unit on Energy focuses heavily on two main components: Energy Resources and Energy Transfer within an ecosystem. This curriculum unit will delve into Energy Resources.

Renewable vs. Non Renewable Resources

Scientists understand that all organisms on Earth, including humans, use energy derived from resources provided by the environment. Some of those resources include electricity, natural gas, coal, and oil. The earth supplies a variety of natural resources that living things use, change, and reuse. Some of these resources can be replaced and/or reused in nature; these are renewable resources. Water is a renewable resources but renewable resources can often be used faster than they are able to be replaced which could put them endanger of being nonrenewable. The diagram below makes a distinction between source that are replenish and those that are not.



(picture courtesy via google images, peakoil.com, oscareducation.blogspot.com)

Natural resources that cannot be replaced in nature are nonrenewable. Renewable resources are replaced through natural processes at a rate that is equal to or greater than the rate at which they are being used. Air, freshwater, soil, living things, and sunlight are renewable resources. Air can be cleaned and purified by plants during the process of photosynthesis as they remove carbon dioxide from the air and replace it with oxygen.

The water cycle allows Earth's water to be used over and over within the environment. Topsoil is formed to replace soil that has been carried away by wind and water (although new soil forms very slowly). Trees and other new plants grow to replace those that have been cut down or died. Animals are born to replace animals that have died. Sunlight, or solar energy, is considered a renewable resource because it will continue to be available for billions of years. It provides a source of energy for all processes on Earth.

Nonrenewable resources are exhaustible because they are being extracted and used at a much faster rate than the rate at which they were formed. Fossil fuels (coal, oil, and natural gas), diamonds, metals, and other minerals are nonrenewable. Fossil fuels exist in a fixed amount and can only be replaced by processes that take millions of years. Natural resources can be depleted or used to the point that they are in effect no longer available. Conservation measures are necessary for nonrenewable resources because they are known to be in a non-replenishing supply. If renewable resources are used at an increasing rate so that they cannot be naturally replaced fast enough, they too can be depleted.

Environmental Stewardship: Obtaining, Managing, and Using Resources

Stewardship is an ethic or moral issue that reflects the responsible, careful planning and management of resources and sometimes people. The idea of stewardship can apply to the environment, economics, health, society among other important areas of life. The overuse of renewable and nonrenewable resources is what brings us to this idea of an energy crisis. If resources are being overused, there will not be enough energy to supply the growing demand. It is our responsibility and the responsibility of our students to ensure that the way that we use the resources that we have is the best method for conservation for future generations. Environmental stewardship simply put involves: "taking care of our surroundings, including the atmosphere, our resources, and our community." We have to make sure that our kids know what they have the power to do. They have the power to change their surroundings, to take the government and major companies by storm through the judicial process just as many people did during the civil rights movements.

Societal Problems during Civil Rights Era

How did Americans work to change the social problems of the nation?

During the civil rights Era, some Americans sat down and watched the changes happen in the nation, while others made a movement happen. There was no standalone method that worked and there was no one man show. The success of the civil rights movement required lots of man power and effort. It took people getting together to make change happen. The major problem that needed to be solved which gave birth to the movement was the issue of segregation of public places and the killing of minorities in the southern

states. There were many people who believed that colored people were regular people and there were those who believed that colored people were not of equal standard. No matter which side of the debate people stood on; the one evident truth was that something needed to be done to bridge the divide.

There are many divisive issues in our world today maybe even more than in the 50s and 60s. If today is to also be fairly compared to thirty years ago, it would be true to say that people exercised their civil duties more then, than now. It is because of the boldness of that day and the knowledge that people knew they could somehow make a difference which led to many changes from which we benefit from today. As we jump into the methods that were used during the civil rights era, we will find that many of the strategies were just that, strategies. They were meant to execute a goal and prove a point while other civic duties actually pushed the envelope and made change happen. Students must feel empowered by being aware of these strategies, by using the strategies, and thinking critically about other ways to effect change on important issues whether local or global.

Civil Stewardship

What are some civil platforms that are available to Americans?

Demonstrations/Protests

A demonstration or street protest is action by a mass group or collection of groups of people in favor of political or other cause; it normally consists of walking in a mass march formation and either beginning with or meeting at a designated endpoint, or rally, to hear speakers. This can also include sit-ins, rallies, strikes, or marches.

Organizations that worked to bring issues to the public eye

There were many organizations that helped to bring societal issues to the public eye, including the news media outlets (CNN, MSNBC, ABC, CBS). Other groups such as the NAACP, SNCC also helped to bring light to injustices in the early 50s and 60s. Today, as it relates to the looming energy crisis, groups like the EPA (Environmental Protection Agency) and the USDOE (US Department of Energy) bring awareness to our responsibility to protect the environment.

Speeches

A speech is a written statement that rallies support for a specific cause or seeks to make people aware of certain issues. Speeches can be used for debates at the end of or at the conclusion of an event such as a demonstration or march.

Use of media (Facebook, Instagram, Youtube, Snapchat, Twitter)

Social media can be used as a newer platform to convey certain positions on topics or to rally support for a cause. It is mostly based on opinion. There are groups that can be

formed and people can follow the groups, petition, and spread awareness of major and minor issues occurring around the globe.

Activities

There are many other elements that will and can be improved and added to this unit by you, the teacher. The unit builds upon the 5E method which is a proven research strategy that works in many science and social science classrooms. It is dependent on how long the lesson is and the amount of time that must be invested on each standard. This is a challenging unit because so much has to be covered by the core teacher, but there is a connection between stewardship on both ends. The unit activities are designed to be taught on an AB day schedule in a 90 minute block, but it can be modified if the science teacher instructs the same students every day.

Engage

Each activity whether it is an individual warm-up, set of questions (Focus Review), team/collaborative group exercise, video clip will be designed to introduce students to the topic of that day. Engaging can happen within the first 2-3 days of the unit or can be incorporated every day. This will depend on the teacher and your preferences. It is recommended that students receive engagement every day to review the previous day's lesson topic (quick assessment) or to introduce a new topic.

Progress Checks

Progress Checks are a way to complete informal assessments on the students and to keep track of student progress (See Appendix 1 for Progress Check Answer Sheet and Explanation Sheet).

This portion may also be called “warm-ups” or “do now”. Regardless of the education jargon attached, students need to be assessed for prior knowledge or engaged to introduce or review new knowledge to be acquired. For best results, include an image, questions or a combination of both that relate to different issues whether it is includes civil rights or energy rights. Students should have questions for each image or four reflection questions to engage them at the beginning of class. Below you will find questions and image suggestions that will supplement and keep the lessons on track.

Progress Check 1: Use a picture of a child studying by candlelight.

1. Describe what is happening in this picture
2. Based on your observations, what essential resource does this child (children) need to complete their task?
3. Why do you think this child is studying by candlelight?
4. Is it fair for this family to live without electricity? Why or why not?

Progress Check 2: No picture needed (Content Focused)

1. What are renewable resources?
2. What are nonrenewable resources?
3. List 3 ways that you waste energy in your everyday life?
4. Explain how overusing non-renewable energy resources can lead to an energy crisis.

Progress Check 3: No picture needed (Content Focused)

1. Where does most of our electricity come from?
2. Explain why some places do not have electricity?
3. Explain why you think it is fair for some people to have electricity and others do not. Explain why you feel it is not fair.
4. What would you be willing to do to help solve our energy problems?

Progress Check 4: Use a picture from the civil rights movement (Colored/White Only Signs, people being attacked by dogs)

1. Describe what is happening in this picture
2. Based on your observations, do you think it is fair for people to be treated this way?
3. How does the unfair treatment of blacks in America relate to people who do not have the energy resources they need to survive?
4. Why is it important to protect the rights of people?

Progress Check 5: No picture needed (Content Focused)

1. What are some ways that we obtain energy that might violate people's rights?
2. Explain why you contribute to the energy crisis.
3. Describe some ways that we can conserve energy here at school.
4. What are some ways you can exercise your civic duties to help avoid energy issues in the future?

Explain

This is where the lesson can be more content focused.

Lesson 1: Introduction to Energy Resources and Stewardship (Use Progress Check #1)

What is Stewardship?

The teacher can follow-up with a video or article on the major attacks on oil pipelines in the Middle East or the fight to gain access to those pipelines and the wars that spark out of it.

Whose Responsibility is it to protect our nonrenewable resources?

Yemen Instability/Pipeline Attack

<https://www.youtube.com/watch?v=ulltdTifLhY>

Video Questions:

1. What happened to the pipeline?
2. Whose responsibility is it to protect non-renewable resources?
3. What happens when pipelines are attacked?
4. Explain the effect attacks have on the availability of resources for future use.

The teacher can explain the intense conflict between countries that need energy independence and the countries that want control over the current energy resources. (Emphasizing that political parties often disagree on solutions to energy conflicts and that energy is not just a local issue, but a global issue that affects human and civil rights, where countries and territories are invaded by other countries causing wars and unrest) The explain portion is where the science teacher must work diligently to drive home the key points in the science content to set the class up with information aligned to the NC Essential Standards or the standards for your content area (focus on bold points) so that in the explore and extend portion of the lesson students can grasp a connection and sense of application to both science and social science. We want to be reminded that although the focus of conflict can change, we still have a responsibility to protect our world and our resources (stewardship) while also treating our people fairly.

Activity

Use Questions #2 under the elaborate section below and the activity that accompanies it.

Lesson 2: Renewable vs. Non Renewable Resources (Use Progress Check #2)

Engage students in the meat of the content to meet the objectives for NC Essential Standards. This is where the students need to learn about the actual resources because they have to gain background knowledge on what the resources are, how we obtain them, maintain them, and why they are so important. This would also be a great time to discuss the energy crisis as well.

Renewable vs. Nonrenewable Resources: Video

<https://www.youtube.com/watch?v=pBTnVoEIb98>

Video Questions

1. What is renewable energy?
2. Name the different types.
3. What is nonrenewable energy?
4. Name the different types
5. Explain why we cannot depend in one type or resource and what might happen if we did.

Reading Passage

Students can read about what it means to be in an energy crisis.

Activity

Have students to take notes on the different types of resources and then create a kid friendly story book on the major types of resources, their importance, and the major conflicts surrounding them. Student will need as many resources as can be provided so that they have a strong science background that will set them up for success on the final project as well as upcoming extensions of the lesson.

Lesson 3: Environmental Stewardship (Use Progress Check #3)

Avista 101: Environmental Stewardship

<https://www.youtube.com/watch?v=hdWJ30sM3Kw>

Video Questions

1. Why is it important to take care of natural resources?
2. How does Avista take responsibility for others?
3. What do you think would happen if companies like Avista stopped caring about people and our natural resources?
4. Why do you think people fight over natural resources?

Activity

Students in science will be given case studies on current energy conflicts occurring around the world, Russia-Ukraine, Sudan and South Sudan, Egypt and Russia, and the US and Iran to name a few. With each case study, students will look into the reasons why energy is such a tough political issue and delve into how these conflicts can divide people and cause threats and actual wars. (Link to Civil Right in America)

Lesson 4: Civic Stewardship (Use Progress Check #4)

The teacher can engage the students with a chilling video of what happened during the civil rights movement in America. After the students have watched the short video, the teacher can explain through a mini lesson the reasons why there was unrest and why some of the riots occurred (Emphasizing that political parties were resistant to change and any changes sparked major conflicts and disagreements specifically on issues of human and civil rights which caused war and unrest in the US and NC).

Activity

Use question #1 in elaborate section and activity.

Students will compare and contrast slave labor against energy dependence and link to battles and wars that occurred during reconstruction and the civil war, and look into the reasons why slave labor was such a tough political issue and again delve into how these conflicts divide people and caused battles and actual war. The teacher will re-introduce and re-emphasize the term STEWARDSHIP so that students can understand that the only way that change was able to occur in either issue is if informed people rise up and take on their responsibilities to protect our future.

Lesson 5: Applying Stewardship in our lives (Use Progress Check #5)

Begin Unit Portfolio Project (See Evaluate Section below)

Explore

This is the most important part of the unit because this is where the content connections must be met. Students must be able to actively participate and demonstrate that they have been empowered with enough information to connect both content areas. You, the teacher have to be sure that activities and readings reinforce the hidden element in the Social Studies content and Science content.

Elaborate

Here are some potential questions that you should use to elaborate on the influence of energy on the future of our world.

How does the impact of slave labor relate to the impact of energy dependence or independence on a country's economy?

Teacher Notes

Countries often depend on systems to keep money, resources, et cetera coming through the country and if those resources are not there, it would be difficult for the country to make money. Therefore, if slave labor was taken away because African Americans were

freed that meant less money for the slave owners and less opportunities for the whites. In terms of energy, whoever controls the energy resources, controls the money and the countries that depend on those resources. The loss of those resources can have a detrimental impact on the economies of countries that depend on those systems. This is why there was conflict over slaves becoming free and this is why there is conflict over energy resources. (See Appendix 1 for diagram sheet)

Activity

Students can complete a compare and contrast diagram outlining the similarities and differences between slave labor and energy dependence.

How can a civil or human rights issue become a political issue?

When people are being treated unfairly, it becomes the role of the citizens and its government to protect those individuals. But in some cases, governments are corrupt, citizens are stripped of their rights, and the laws cannot change. This is just as much a humanitarian issue as it is a political issue. Laws don't change themselves active citizens and functional governments will, to solve problems, change laws.

Activity

Divide students into groups and give each student a role to play in the group.

1. The active citizens
2. The apathetic citizens
3. The ill-informed citizens
4. The blind-eyed citizen

Have each student approach the question above by role-playing through the perspective of each type of citizen. The students will rotate roles until each student has approached the situation from each perspective.

Scenarios

S1- You are being interviewed by a local news station. They just told you that some kids in a third world country do not have electricity. They study by candlelight every night. They ask you what do you plan to do about it? What should your reaction be?

S2- You are a teacher at a local high school. You just read in the school magazine that your job the school wastes more energy in pounds than food that is cooked to feed the students all year. The students want to form a group to end waste of energy at the school. How do you react?

Reflection Questions

- a. Evaluate the roles that you were able to play. Why do you think people react in this way to important issues?
- b. Rate your group members using the chart given. Have students rate on a scale from one to five: 1- most convincing, 5- least convincing

	<i>Student 1</i>	<i>Student 2</i>	<i>Student 3</i>	<i>Student 4</i>
<i>Active</i>				
<i>Ill-informed</i>				
<i>Apathetic</i>				
<i>Blind-Eyed</i>				

Additional Open Ended Questions

These additional open ended questions can be added to the two questions above as an extension to the diagram and the group role playing activity.

1. *What are some ways that we can relate conflicts over energy resources to conflicts over forced labor resources?*

Teacher Notes:

No slave labor, no money. You are either in control of the resources or crippled without it. No energy resources, no money. You are either in control of the resources or dependent on it.

2. *When does it become a citizen's responsibility to take action and exercise their duty to protect resources, people, etc?*
3. *What are some lessons that came out of the conflict during the Civil War and Reconstruction or the civil rights movement that can be applied to our current energy crisis?*

Evaluate

Students should be assessed only on the portions of the lessons that related directly to the state science standards. Teacher can separately assess throughout the unit to insure that each students were able to grasp the extended content but through an additional writing task that challenges them to connect what they learned in Science during the weeks that

the unit was in progress. Each student will be expected to understand the role of being a good steward and how it applies to environmental issues in their science class, as well as, voting, human and civil right issues learned in their social studies class.

Assessment Portfolio Projects

Students will have the option to pick 3 out of the 4 components of the project and create a portfolio with all this information in it as it relates to the unit.

School Blackout Day

Students can create a plan to organize a school blackout day by encouraging faculty, staff, and students to wear all black and to encourage the school to participate in turning out the lights in areas where classes are not being used as a way to conserve energy. The school can even take a few minutes in the middle of the day to blackout the school in honor of energy conservation. Students can also write up a proposal to implement a “NO IDLING” campaign which stops bus and car idling on school parking lots in an effort to “blackout” harmful and wasteful energy practices like pollution, burning of fossil fuels, and student exposure to harmful toxins.

Letter to Principal or School Board

Students must write a 2 page letter to the principal or the school board as an informative and persuasive attempt to encourage conservation of energy to preserve natural resources. The letter must include a statement of at least 2-3 observed problems with school energy use as well as suggested solutions to those problems. Students must type the letter and present letter to teacher for approval. The students must also provide proof that the letter was sent to the school board or to the principal for credit.

Energy Resources Brochure

Students must create a brochure about renewable and non-renewable resources discussed in class. The brochures must be good enough to be distributed to faculty and staff. The brochure must include:

- a. A detailed description of each energy resources how it is obtained, maintained, and how we can conserve them
- b. Images that represent each energy resource
- c. The most common places each energy type is found
- d. Countries around the world that do not have access to electricity
- e. Tips for a greener future

Appendix 1: Implementing Teaching Standards

NC Essential Standards in Social Studies and Science

The two different sets of standards, below, will be used together in the unit. Since the NC Essential standards in science are a required part of the Integrated Science 8 curriculum they will be the primary focus of the curriculum unit and students will receive information, be evaluated on and assessed on their knowledge of renewable and non-renewable resources, as well as, the ways that we get, used, and manage our energy resources. This is preparation for our EOG in the spring. To supplement the students extended assignment of learning from the past to prepare for the future, the NC Essential Standards in Social Studies will serve as an add on to the required science content. Students will refocus prior knowledge or apply newly acquired knowledge to civil and environmental issues in class and discuss conflicts and methods of resolution to our current energy problems.

Science NC Essential Standard 8.P.2 (Main portion of curriculum)

Explain the environmental implications associated with the various methods of obtaining, managing, and using energy resources.

8.P.2.1 Explain the environmental consequences of the various methods of obtaining, transforming and distributing energy.

8.P.2.2 Explain the implications of the depletion of renewable and nonrenewable energy resources and the importance of conservation.

Social Studies NC Essential Standards 8.C and 8.G.2 (supplemental information)

Understand the role that citizen participation plays in societal change.

8. C &G.2.1 Evaluate the effectiveness of various approaches used to effect change in North Carolina and the United States (e.g. picketing, boycotts, sit-ins, voting, marches, holding elected office and lobbying).

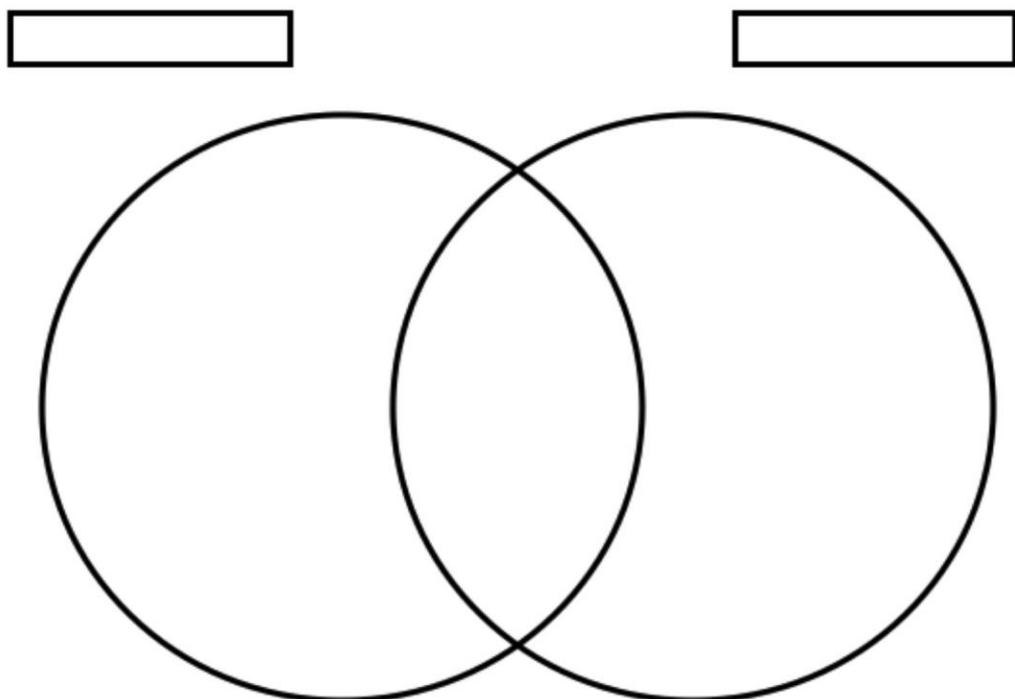
8. C &G.2.2 Analyze issues pursued through active citizen campaigns for change (e.g. voting rights and access to education, housing and employment).

8. C &G.2.3 Explain the impact of human and civil rights issues throughout North Carolina and United States history.

Teacher Resources

1. Progress Check Answer Sheet (For Warmups, Do Nows)
2. Student Role Playing Activity Guide
3. Venn diagram Worksheet

Use this Venn diagram to compare the two items given by the teacher. Use the bigger rings for differences and smaller loop for similarities.



Progress Check: Module _____

A) _____

Points _____
Complete
Partial
None
Make-Up

- 1) _____
- 2) _____
- 3) _____
- 4) _____

B) _____

Points _____
Complete
Partial
None
Make-Up

- 1) _____
- 2) _____
- 3) _____
- 4) _____

C) _____

Points _____
Complete
Partial
None
Make-Up

- 1) _____
- 2) _____
- 3) _____
- 4) _____

D) _____

Points _____	1) _____
Complete	-
Partial	2) _____
None	-
Make-Up	3) _____
	-
	4) _____
	-

E) _____

Points _____	1) _____
Complete	-
Partial	2) _____
None	-
Make-Up	3) _____
	-
	4) _____
	-

F) _____

Points _____	1) _____
Complete	2) _____
Partial	3) _____
None	4) _____
Make-Up	

Whose Problem is it anyway?

In this activity, students will role play how different people would react to serious situations related to our energy issues. Each student should have the chance to approach certain issues from different perspectives and then discuss the question: when does a civil or human rights issue become apolitical issue?

Divide students into groups and give each student a role to play in the group.

5. The active citizens
6. The apathetic citizens
7. The ill-informed citizens
8. The blind-eyed citizen

Have each student approach the scenarios below by role-playing through the perspective of each type of citizen. The students will rotate roles until each student has approached the situation from each perspective.

Scenarios:

S1- You are being interviewed by a local news station. They just told you that some kids in a third world country do not have electricity. They study by candlelight every night. They ask you what do you plan to do about it? What should your reaction be?

S2- You are a teacher at a local high school. You just read in the school magazine that your job the school wastes more energy in pounds than food that is cooked to feed the students all year. The students want to form a group to end waste of energy at the school. How do you react?

S3- A new energy company just moved into the area. After an intense investigation, the local news channel discovers that the new power company is bringing a coal-fire plant to the area. This plant will pollute the air and dump millions of pounds of coal ash in the local lakes, rivers, and streams. Your friend, who works for the news station, is calling on the community to for help. How will you react?

S4- The energy company sent you a notice that they were cutting you electric service for a few days in an effort to change your service from coal to solar power. You will only get power when the sun is up and your monthly bill may increase as well. What will you do?

Reflection Questions:

- c. Evaluate the roles that you were able to play. Why do you think people react in different ways to important issues?
- d. Rate your group members using the chart given. Have students rate on a scale from one to five: 1- most convincing, 5- least convincing

Group Response Chart (Can be used as a group grading rubric)

	<i>Student 1</i>	<i>Student 2</i>	<i>Student 3</i>	<i>Student 4</i>
<i>Active</i>				
<i>Ill-informed</i>				
<i>Apathetic</i>				
<i>Blind- Eyed</i>				

Annotated Bibliography

Crane, Hewitt D., and Edwin Max Kinderman. *A Cubic Mile of Oil Realities and Options for Averting the Looming Global Energy Crisis*. Oxford: Oxford University Press, 2010.

Cubic Mile of Oil is a unique work written by scientist to give the everyday citizen insight in to the global energy crisis and the solutions that can be implemented to avoid one in the first place. This book will give you detailed number on all energy resources from Nuclear to Coal, Solar, Wind, to name a few in the hopes of giving the reader an glimpse in to the magnitude of what we use, how we use it, and what it will take for the United States and other countries to slow down on the fossil fuels.

Friedman, Thomas L. *Hot, Flat, and Crowded: Why We Need a Green Revolution-- and How It Can Renew America*. New York: Farrar, Straus and Giroux, 2008.

Hot, Flat, and Crowded by Thomas Friedman is detailed account of the path charted by Americans toward the most challenging global, environmental issues in history. While Friedman highlights that American cannot tackle the problem alone, he does use America as a backdrop to launch the corrective path that the world needs to take to solve our most challenging global problems. This book is a great way to put our current and future position in perspective and gives us a fresh look in to the technological, environmental, economic, and moral issues we face as the planet choked full of the same resources but three times the people and needs. This is a great book for historical and relevant information about sustainability and stewardship.

Petronis, Lexi, and Jill Buck. *47 Things You Can Do for the Environment*. San Francisco, CA: Zest Books, 2012.

47 things is a great little key to targeting methods of teen involvement in preserving the environment. This book has a host of real life examples of things that anyone can do, especially teens, to keep the environment in the best shape. This book, while it is very practical, also gives students a step by step "How to do it" portion which walks them through the "how-to" for an excuse free approach. 47 things is great for a class read or for a short resources for students who need that extra push on a project.

Savedge, Jenn. *The Green Teen: The Eco-friendly Teen's Guide to Saving the Planet*. Gabriola Island, BC: New Society Publishers, 2009.

This book is a fun guide that is typically for the young teen reader. The Green Teen is built in a way that empowers young people to take responsibility for the planet and gives them ideas on the way they can help the environment simply by their actions. By advising teens to be active participants in the green movement, this book would be a great classroom resource for any science teacher seeking to give students higher level projects that get them involved in the community and a greater global cause.

Image Link

<http://oscareducation.blogspot.com/2013/03/renewable-and-non-renewable-resources.html>