Introduction: We believe that educating young people on recycling and the tremendous benefits of participating in environmentally friendly practices is very important for today’s youth. Understanding the various ways to conserve energy, reuse materials, and decrease pollution are all very important elements of maintaining a healthy and safe environment, and schools must educate students on the benefits and importance of recycling. The five activities that the students will perform throughout the week promote higher order levels of thinking, encourage cooperative learning, and encourage students’ writing.

Context: We will direct our curriculum towards Hartford fourth graders. Our project will occur Monday through Friday for an hour and twenty minutes each day. While the lesson will be taught in a classroom setting, students will be asked to apply these concepts in their home lives. This particular unit follows an interdisciplinary approach, drawing from the disciplines of math, science, and Language Arts, and adheres to the Connecticut Curriculum frameworks.

Objectives: The objectives for this unity revolve around students gaining a deeper understanding of recycling and its benefits on the environment and learning how to apply this knowledge to their daily lives. Additionally, this unit incorporates students’ creativity and social action.
Objective 1: Students will gain a deeper understanding of recycling and its positive effect on the environment.

This objective is supported by the Connecticut Standard 3.4a-6 that states, "Students should be able to distinguish among reducing, reusing, recycling and replacing as conservation techniques" (Science Curriculum Standards). This objective aims to teach students how the process of recycling works and how it impacts the environment and their own lives. This way, students will make a connection between the lesson plan and their everyday lives.

Objective 2: Students will develop effective communication skills.

This objective incorporates several Connecticut Standards, including 3.1, 3.2, 4.2, and 4.3. Connecticut Standard 3.1 says, “Students use descriptive, narrative, expository, persuasive, and poetic modes” (Language Arts Standard). Connecticut Standard 3.2 states, “Students prepare, publish, and/or present work appropriate to audience, purpose and task” (Language Arts Standard). Connecticut Standard 4.2 says, “Students speak and write using standard language structures and diction appropriate to audience and task” (Language Arts Standards). Finally, the last Language Arts standard relating to this objective is 4.3 which states, “Students use standard English for composing and revising written text.” Additionally, besides honing students' written communication skills, the lesson plan will help students improve their verbal communication skills. Various parts of the lesson plan will give students an opportunity to effectively communicate with peers and adults.

Objective 3: Students will approximate solutions to problems involving computation through the use of efficient methods.
This objective is supported by the Connecticut Standard 2.2.b for Grade 3 according to the state’s framework. Although the lesson plan serves a fourth grade class, reviewing materials from the previous year will create a stronger foundation on which students can continue building math skills.

**Objective 4: Students will apply narrative and persuasive modes.**

The lesson plan aims to teach students how to communicate effectively, through writing as well as talking, and many of the activities will incorporate the application of narrative and persuasive modes.

**Activities:** We will plan an activity for each day of the week that facilitates comprehension of the material and allows students to demonstrate an understanding of the subject matter. Each of the activities will actively engage the students in a fun and meaningful way, and utilize many different types of resources and materials.

**Activity 1 (Day 1):**

The curriculum plan will begin with the question “What is Recycling?” Students will then provide answers about everything that they know about recycling. This part of the lesson plan will last approximately ten minutes. Directly following this discussion, students will be broken up into groups of 4 taking race, achievement level, and socioeconomic status into account (there will be a great deal of diversity within all groups). For twenty minutes these groups will collectively compile a list of items that they believe are recyclable. The teacher will then present a fairly brief overview (20 minutes) of recycling using the various groups’ lists to see questions or misunderstandings that students may have about recycling. Finally, the last 30
minutes of the lesson plan will be dedicated to an interactive reading activity. The book, *Why Should I Recycle*, is a very kid-friendly text so it will allow students a great opportunity to improve their reading skills while simultaneously learning about the benefits of recycling. This activity incorporates many of our objectives, especially developing effective communication skills (reading and discussing) and gaining a deeper understanding of recycling.

**Activity 2 (Day 2):**

The second day will begin with a short YouTube video clip from the Manchester, Connecticut Recycling Center to further reiterate the importance of recycling and some of the ways that individuals can apply these techniques to their everyday lives. The clip is very informative and caters to a young audience so it is perfect for a fourth grade classroom. The video discusses United States trash contributions, what items can be recycled and what those items could possibly be turned into, and various benefits of recycling such as the amount of energy saved by recycling a soda can. It also provides a step-by-step explanation of the process of single stream recycling at the Manchester Recycling Center, which is the recycling center that processes Hartford’s recycling. After viewing the clip, students will break up into groups and develop questions (based on the information from the video clip and the students’ curiosities, experiences, or personal connections) for the custodial staff who will speak to the class about the school’s recycling practices. After the groups have spent about twenty minutes brainstorming questions, member(s) of the custodial staff will facilitate a forum on the school’s recycling procedures. Students will ask questions and be encouraged to make connections between the school’s
recycling practices and home recycling practices. The forum will allow all students to contribute to the discussion rather than having them sit idly by while an adult lectures in front of them. Because the students must participate to the discussion, the entire classroom will be engaged in the learning process. After the forty minute forum, the custodial staff will leave and the class will spend ten minutes reflecting on the discussion, recognizing aspects of the conversation that were interesting or insightful, or what the custodians taught them about the school’s recycling. This activity also fulfills the communication objectives and broadens students’ understanding of recycling.

**Activity 3 (Day 3):**

Wednesday’s class will shift gears a bit and begin with the teacher spending fifteen minutes presenting statistical data dealing with recycling. The teacher will then spend thirty minutes reintroducing problem solving using multiplication and division (a Connecticut standard from third grade) so that the students can complete a related math worksheet. For the last thirty-five minutes students will work on a math assignment that incorporates the statistical data that the teacher introduced earlier in the day. This day focuses on students’ individual classroom techniques, as there are no group activities and relates to our math objective on approximating solutions to problems.

**Activity 4 (Day 4):**

On the fourth day, the lesson will focus on the Language Arts. First, students will share with the class what persuasive techniques impact them. That is, students will dedicate fifteen minutes to discussing which factors or methods help sway them to
feel one way or another when they have to choose sides of an argument. After this, the teacher will present effective techniques to utilize when writing a persuasive paper or participating in a debate or argument. Ideally, the teacher would emphasize the importance of citing evidence and using concrete facts and statistics to support claims. Following the teacher’s explanation of persuading an audience, the students will be asked to begin writing a persuasive letter to the principal of the school explaining why recycling is so important and what the school can do to be more earth friendly. The students will utilize information and knowledge obtained from activities earlier in the week to write the letter. The students will draw from teacher lectures, video clips, readings, and especially the discussion with the custodial staff in order to convey a particular point to the school’s principal. Again, this activity will allow students to develop effective communication skills and utilize narrative and persuasive modes.

**Activity 5 (Day 5):**

On the final day of the lesson plan, students will spend the first forty minutes peer editing a classmates’ paper. The pairs will consist of higher achieving students working with lower achieving students. This will give students the opportunity to receive alternative insight and perspective from a classmate that they may have not chosen to work with. Also, both students will be responsible to individually critique their peers’ paper and offer suggestions or ask questions so they will be forced to activate higher learning skills. Following the peer editing session, students will have thirty minutes to individually modify their letters and apply any changes necessary to improve the final draft. The idea is that students will provide helpful suggestions
that students can apply during the individual editing process. Upon completion of the final drafts of the letters, the class will come together and reflect on the recycling lesson plan, sharing what they learned, what they liked/disliked, how they can apply recycling practices to their own lives, etc.

**Evaluation:**

To evaluate the students on this curriculum unit, we want to use a cumulative evaluation rubric that takes all aspects of the week's activities into consideration. Overall participation throughout the week will be measured during the evaluation. The students will be evaluated on their participation during class discussions, group activities, and the end of the week letter. When assessing a student’s participation during class discussion, the teachers will base the grade on the students’ contributions to discussion – paying attention to speaker, answering and presenting questions, working well in a group, and making connections (ultimately, the teacher is looking to observe that students are engaged in the lesson plan and absorbing the material and information presented). Evaluating students’ participation will help motivate students to truly contribute to the various discussions and result in a very rich learning environment. When evaluating the students’ argument, the rubric will refer mostly to the final letter although the teacher can also take into consideration any comments or ideas a student shared with the class during the unit. Students making unsubstantiated claims that stray from the topic (either during class or in the letter) could receive critical comments on the evaluation. When assessing a student’s analytical skills, the teacher would be measuring how effectively a student analyzed and critiqued their own paper as well as their classmates’. When
evaluating communication, there is a broader set of criterion because the teacher must consider written and verbal communication. The point of emphasis in the communication category relates to how well a student conveyed his/her point – Was the comment mature and easy to understand? Was the comment thought provoking and related to the topic? Finally, the teacher will evaluate the students’ understanding of the topic based on all of the various assignments throughout the week’s unit. Please refer to the attached rubric for more detailed guidelines regarding the evaluation criterion. We believe this particular evaluation method takes all of the unit’s activities into account and helps students understand what kind of work warrants praise and criticism. If students are to follow the guidelines, they will think critically, creatively, and persuasively – three very important characteristics in education.

**Conclusion**

Our curriculum, which is centered on recycling and its importance, will provide students with a greater understanding of a topic which is becoming ever pertinent in today’s world. Students will achieve this through activities which are designed to incorporate and refine skills that are traditionally applied to fourth grade learning. By gaining a deeper understanding of recycling, students will be able to analyze their own practices in order to make changes based on what they have learned.
Resources

1. Math worksheet
2. Recycling statistics handout
4. Single Stream Recycling, Manchester, CT - How It Works (video)
<table>
<thead>
<tr>
<th>Rubric</th>
<th>Strong</th>
<th>Average</th>
<th>Needs Improvement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Participation (How involved was the student in the week’s activities?)</td>
<td>• Paid attention to speaker</td>
<td>• Paid attention most of the time</td>
<td>• Paid little to no attention</td>
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<tr>
<td></td>
<td>• Asked questions</td>
<td>• Asked some questions</td>
<td>• Asked no questions</td>
</tr>
<tr>
<td></td>
<td>• Made real life connections</td>
<td>• Tried to make connections</td>
<td>• Did not attempt to make connections</td>
</tr>
<tr>
<td></td>
<td>• Worked well in groups (stayed on task, contributed to conversation)</td>
<td>• Worked well in groups most of the time, but sometimes became distracted</td>
<td>• Worked poorly in groups (distracted other members, etc.)</td>
</tr>
<tr>
<td>Argument (How well did the student present an argument on the importance of recycling using information from class sessions?)</td>
<td>• Clearly stated argument</td>
<td>• Somewhat unclear argument</td>
<td>• Student fails to make an argument</td>
</tr>
<tr>
<td></td>
<td>• Provided evidence supporting claims</td>
<td>• Provides some evidence supporting argument, but could have gone further</td>
<td>• Provides little to no evidence</td>
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<tr>
<td></td>
<td>• Used materials and knowledge from the entire week to bolster paper</td>
<td>• Referred to some of the materials and knowledge taught during the week</td>
<td>• Hardly refers to any of the knowledge or material taught during the course of the week</td>
</tr>
<tr>
<td>Analytical Skills (Did the student effectively critique their letter and their classmates?)</td>
<td>• Student provides valuable insight on letter</td>
<td>• Student provides some insight on letter but could have done more</td>
<td>• Student provides little to no insight on the letter</td>
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<td></td>
<td>• Student shows a willingness to edit the letter</td>
<td>• Student makes minor changes to letter</td>
<td>• Student makes no attempt to edit the letter</td>
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<tr>
<td></td>
<td>• Student demonstrates an ability to apply recycling knowledge to their paper and their classmates</td>
<td>• Student demonstrates some recycling knowledge</td>
<td>• Student fails to show any comprehension of recycling information</td>
</tr>
<tr>
<td>Communication (Did the student convey their point effectively?)</td>
<td>• Very few grammatical mistakes in letter; letter is organized</td>
<td>• Several grammatical mistakes in letter; disorganized</td>
<td>• Many grammatical mistakes in letter; no organization</td>
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<tr>
<td></td>
<td>• Student conveys ideas well</td>
<td>• Student has some good ideas</td>
<td>• Student struggles to show ideas</td>
</tr>
<tr>
<td></td>
<td>• Student communicated effectively with classmates and teacher/custodians</td>
<td>• Student communicated well with classmates and teacher/custodian</td>
<td>• Students’ limited communication with peers and teacher/custodian needs work</td>
</tr>
<tr>
<td>Understanding (Does the student show an increased level of understanding of recycling?)</td>
<td>• Student shows a deep understanding of the unit in all activities</td>
<td>• Student shows an understanding of most of the unit but may show some confusion in individual or group activities</td>
<td>• Student shows very little understanding of the curriculum unit</td>
</tr>
</tbody>
</table>

Recycling Counts!
• Recycling one aluminum can saves enough energy to run a TV for three hours -- or the equivalent of a half a gallon of gasoline!

• If all our newspaper was recycled, we could save about 250,000,000 trees each year!

• Approximately 1 billion trees worth of paper are thrown away every year in the U.S.!

• Plastic bags and other plastic garbage thrown into the ocean kill as many as 1,000,000 sea creatures every year!

• Every month, we throw out enough glass bottles and jars to fill up a giant skyscraper!

• On average, it costs $30 per ton to recycle trash, $50 to send it to the landfill, and $65 to $75 to incinerate it!

• Rainforests are being cut down at the rate of 100 acres per minute!

• On average, each one of us produces 4.4 pounds of solid waste each day. This adds up to almost a ton of trash per person, per year!

• If every household replaced its most often-used incandescent light bulbs with CFLs, electricity use for lighting could be cut in half!

NAME____________________________________ DATE______________

Recycling By the Numbers
1. How long would a TV be able to run for, if you were to recycle 4 aluminum cans?

2. If 900 acres of rainforest were cut down, how many minutes would have passed?

3. How much money would be saved if trash was recycled instead of sent to a landfill?

4. If each one of us produces 4.4 pounds of solid waste a day, how much waste would we produce in 2 days?

5. If we used 200 watts of electricity when using incandescent light bulbs, how many watts of electricity would be used if we switched to CFLs?

Bibliography

http://www.trincoll.edu/depts/educ/resources/bloom.htm


