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## Curriculum Map Makeover Example: 4<sup>th</sup> Grade

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How do curriculum and instruction change as a result of using a sustainability approach? How does the content become richer, and level of inquiry deepen? This document shows what happens when a teacher applies sustainability concepts and approaches to create a unit “makeover.” Prepared by the teacher, this report summarizes the “before” and “after” unit in terms of guiding questions, instructional strategies, assessment, and other factors that impact student achievement.

### *Background*

The unit makeover was an outcome of the 2006 Summer Sustainability Institute sponsored by the Children’s Environmental Literacy Foundation, with facilitation provided by Creative Change Educational Solutions. During the intensive week-long institute, teachers gained content knowledge, resources, and strategies to rethink their approach to curriculum and instruction using the lens of sustainability. Planning time and one-on-one mentoring at the institute enable teachers to walk away with a unit “makeover” like this one that was implemented during the school year.

After the week-long institute the teachers were provided on-going support and communication. Teachers sent their in-progress lesson plans to CELF and Creative Change and received feedback and mentoring via phone and e-mail. This document is an outcome of this process.

**\*Note: Written feedback and suggestions from Creative Change and CELF are in blue font.**

## Guiding Question: Where Do I Live?

**Student Understandings: (the underlined parts are the ‘Big Ideas’ - the enduring statements of fact that you want students to walk away with.**

- Students will know that a system is comprised of interdependent elements. Students will be able to identify themselves as a part of many systems
- Students will recognize that people have an impact on systems (environment, culture, etc.)/systems have an impact on people. This one is excellent!
- (Native Americans used natural resources in ways that maintained a balanced system)
- Students will recognize that places change over time
- Students will recognize that diversity of habitat is important
- Students will recognize that how we meet our needs has changed over time
- Students will understand how people's wants and needs shape their decisions which shape their future world. (I thought there might be opportunity to include some scenario planning/futures thinking as a positive outcome from this curriculum.)

When	Subject	Content	Activity	Outcome/Assessment
Sept	Pre-Assess	Systems	<b>Writing Piece</b> – Where Do I Live?	
Sept	Char Ed	Personal resp	<b>Library Bulletin Board – I am a Citizen of the World</b>	<i>Students will be able to identify themselves as a part of many systems</i>
Sept			<b>Where do I live?</b> Artifacts/Representation of who I am/where I live – to be made into mobile, poster, etc. and children take pictures to create PowerPoint to share with partner school	<i>Students will be able to identify themselves as a part of many systems</i> Describe a system you belong to through: Inspiration/Kidspiration, paragraph, drawing with a description. <u>Great activity.</u> <u>To emphasize an understanding of systems, students could include the human and non-human element in their communities, and write about how the elements interact.</u>
Sept	SS	Community	<b>Silent Squares – Introduction to systems thinking</b>	<i>Students will be able to identify themselves as a part of a system</i>
Sept	Tech/Math	Graphing	<b>Graph information from <i>If the World Were a Village</i></b> 1. Introduce book using Nationalities as a model 2. Students create graphs of other areas: Languages / Ages /Food (Animals) / Air and Water (DI) / Electricity (DI) / Village in the Past (Line Graph)* / Village in the Future (Line Graph)* / Money and Possessions (Discussion) / 3. Students have a copy of the page of text (assigned) and enter data into table view of Graph Club (Use split screen – table view/graph) 4. Add labels and titles/student name 5. Add icons once data has been reviewed 6. Print in color and post in classroom	Gwen, the section to the left is well-planned and admire the level of details you have in terms of using the technology and labeling the students’ work. It’s obvious you’ve thought through how this would work. I take it the outcomes/assessment here have to do with the accuracy of students’ graphs and their ability to represent information in numerous ways.  <u>As this unit develops, it would be great to see some other parts with this level of detail.</u>
Sept	SS	Mapping	<b>Walk the property</b>	<i>Students will recognize that diversity of habitat is important</i> <u>IS it important to state HOW? What exactly will they be looking for? Will they discuss alternate scenarios where certain elements of their school’s habitat are different? E.g., if something was missing or compromised in some way?</u>

When	Subject	Content	Activity	Outcome/Assessment
Sept	ELA	Writing	<b>Journal observations/Generate and post questions/Writing activity</b>	<i>Students will recognize that diversity of habitat is important</i>
Sep	SS	NYS Geography	<b>Heads Up NY</b>	
Sep	SS	Hudson River/ Katonah Reservoir	<b>BOCES Program</b>	<i>Students will recognize that people have an impact on systems (environment, culture, etc.)/systems have an impact on people</i>
Oct	SS	Mapping	<b>Map the wetlands</b> (with naturalist) Discussion: changes, unique qualities of different habitats. <i>This is great. I love the emphasis on changes. To link it with the concept of 'impacts,' students could also think about how humans actions impact the wetland, and what they can do to help protect it.</i>	<i>Students will recognize that places change over time</i>
		Sun moon earth		
Oct/Nov	ELA	Non – Fiction	<b>Read/compare various non-fiction books on water/Answer questions from first visit to wetlands</b>	
Oct/Nov	SS	Native Americans	<b>Homeostatic systems</b> /circle activity demonstrating balance <i>Who Came Down That Road?</i>  <i>A River Ran Wild</i> by Lynn Cherry is a great picture book for this subject. It explores how different populations affected a river over time.	<i>Native Americans used natural resources in ways that maintained a balanced system</i> Draw a picture of something Native Americans did that allowed them to meet their needs without completely depleting the resources, then write a description. Good. Another element here might be to examine ways Native Americans met their needs for food and shelter, and compare that to the Colonists, or US culture today. For example, students can look at how Native Americans ate local food, and compare that with where the students' own foods come from. Same with shelter: Native Americans used local materials, and students' homes likely contain materials from all over. After making these comparisons, students can generate benefits and drawbacks of each system. Important questions include, "How have things changed? What have we gained? What have we lost?" ( <i>A River Ran Wild</i> would be a great resource for this.) This makes the learning more complex and avoids the either-or thinking that leads to romanticizing Native Americans while condemning modern lifestyles. Another important aspect here is worldviews and culture: How did Native Americans view the natural world and their place in it? How did this affect their interactions with it? How is this different from the 'modern' worldview that sees humans as separate from and above nature? To end the unit, students can generate "lessons learned" (such as the value of local foods, etc.) and take steps to advance this.
	Sci	Properties of Matter	The water cycle, weather, and changes in the wetland could be used here to help demonstrate properties of matter. Precipitation and water in wetland are examples of liquids; fog/evaporation (and the release of oxygen by wetland plants) are examples of gases; ice is an example of a solid.	
Jan	Sci		<b>Visit wetlands</b>	<i>Students will recognize that places change over time</i>
Jan	SS	Explorers/Colonial NY	<i>Here, students could create maps/a timeline/dioramas of how the local community looked during Colonial times. Students can also compare/contrast how needs were met then and now. This goes with the ideas for the Native American section above.</i>	<i>Students will recognize that how we meet our needs has changed over time</i>

When	Subject	Content	Activity	Outcome/Assessment
Feb/Mar	Sci	Measurement	<b>Wastewater experiment</b> - Keep track of water left in cups	<i>Students will recognize that people have an impact on systems (environment, culture, etc.)/systems have an impact on people</i>
Feb/Mar	ELA	Poetry		
Mar	Sci	Water Cycle Review	<b>Computer lab</b> – on-line demonstrations (What happens to run-off when soil is replaced with hard surfaces?)	<i>Students will recognize that diversity of habitat is important</i>
Mar	Sci/Art	Plant Systems	<b>Visit wetlands with naturalist</b> /art project with art teacher	<i>Students will recognize that places change over time</i>
Apr	SS	American Revolution	<b>Biography Project</b>	<i>Students will recognize that people have an impact on systems (environment, culture, etc.)/systems have an impact on people</i>
Apr/May	SS	Historical Fiction		
May	SS	Industrial Revolution		<i>Students will recognize that people have an impact on systems (environment, culture, etc.)/systems have an impact on people</i> How about targeting a “future oriented” learning outcome like, Students are able to Imagine/Envision the “Next Industrial Revolution”, e.g. the GREEN Revolution? It would be nice to get some “Futures Thinking” into the scope and sequence.
Jun	SS	Immigration	<b>Webquest</b>	<i>Students will recognize that people have an impact on systems (environment, culture, etc.)/systems have an impact on people</i>
Jun	Assessment	Systems	<b>Writing Piece</b> – Where Do I Live? Compare to fall writing	<i>Students will be able to identify themselves as a part of many systems</i> Maybe this is another place to address needs and wants and how they affect the ecosystems studied above. An outcome could be that students understand how people's wants and needs shape their decisions which shape their future world