LESSON PLANS and FACILITATOR'S NOTES

MODULE 2

MODULE 2 LESSON PLAN

NOTE: The Module 2 Facilitator's Notes following this lesson plan provides detailed instructions, a suggested script and additional resources.

Module: 2
Length of time: 2 hours (1 hour instruction 1 hour activity)

You and the Environment: Home, Center and Community

Materials and Resources Needed:

- Flip chart or board
- Markers
- Computer with CD-ROM and projector or TV w/ DVD Player
- *Lifecycle of a Cell Phone* poster/handout
- *Stanford University Quick Card* on the 4 R's
- Blank Personal Environmental Plan forms
- Poster board for class environmental pledge

Objectives:

1. Students will be able to define the 4 R's and how it relates to energy, water and chemicals.
2. Students will be able to identify practices which reduce impact on the environment.
3. Students will create a personal plan that specifically applies the 4 R's.

Procedures:

SEGMENT 1

1. Briefly review the last module and how it relates to today's lesson.
2. Get the attention of the students. Read a brief synopsis of *No Impact Man* or show the YouTube clip or Trailer. Caution: Review the trailer before showing to ensure appropriateness. Briefly discuss the review or trailer with the students. Ask questions like what would possess an individual to go to such lengths? Do you think this will have an impact on how others view environmental issues? (5 minutes)
3. Record student responses on chalk board, white board or flip chart to discuss. (2 minutes)
4. Briefly review today's lesson, including terminology.

SEGMENT 2

5. Ask students if they know what the 3 R's are. Continue by recording the 3 R's.
6. Show students pictures of American homes with excessive waste and clutter in their yards.
7. Review the 3 R's with the students. Reduce, Reuse, Recycle. (3 minutes)
8. Introduce a 4th R – Reject. (1 minute)
9. Ask students if they are currently doing any of the 4 R's. Do they Reduce, Reuse, Recycle or Reject the use of some products? (3 minutes)
10. Pass out the Stanford University Quick Card on the 4 R's.
11. Review the 4 R's Quick Card. (3 minutes)
12. Review the "*Lifecycle of a Cell Phone*" explaining how each step affects air, land and water. (5 minutes)

13. Ask students how they can apply the 4 R's to the cell phone example. (2 minutes)

SEGMENT 3

14. The 4 R's need to be applied to the individual, the center and the community. We discussed what we can do as an individual when we discussed the Quick Card, but what can we do to apply the 4R's to the center? Show the students the New American Dream's plan to reduce the environmental impact at schools to introduce the following group work. (1 minute)
15. Divide the class into 3 - 4 groups depending upon size and have them come up with ideas that the center can do to lower its impact on the environment. Students should come up with at least 5 ideas/suggestions. Are they recycling, cutting down on travel, eliminating waste, conserving energy, buying local, controlling temperatures either air conditioning or heat, are they going paperless, using alternative energies i.e., photovoltaic technology? You may want to do some research before hand to determine what the center is doing. Have students report out. (5 minutes)
16. Time pending, have students now come up with a list of items that specific industries (CTTs on center) can recycle on a regular basis. (5 minutes, if time available)
    - Aluminum Cans
    - Cardboard Boxes
    - Printer Cartridges
    - Paper/Magazine
    - Glass
    - Cell Phone
    - Batteries
    - Wood
    - Food Waste-Composting
17. Now as a class discuss what we can do as a community as it relates to the 4R's. Adopt a Highway, Community writing, recycling programs, eco friendly purchases, rejection of specific chemicals, etc. (5 minutes)

SEGMENT 4

18. Students are to complete their own personal environmental plan. This is a living document and can/will be updated throughout the remainder of the week. Students should address such topics as listed below. (15 minutes)
    a. Reduce
    b. Reuse
    c. Recycle
    d. Reject
    e. Waste
    f. Food/Nourishment
    g. Smoking
    h. Energy
    i. Water

j. Chemicals

19. Create a class pledge based on the student's personal plans. Ask each student to sign the class pledge board. (10 minutes)

Terminology:

- **Community** – A group of people living in a particular local area.
- **Impact** – Strong influence; to have an effect on.
- **Life Cycle Assessment** – Investigation and evaluation of the environmental impacts of a given product or service.
- **Kilowatt Meter** – A device that measures the amount of electrical energy supplied to or produced by a residence, business, or machine.
- **Recycle** – Cause to repeat a cycle, to use again after processing.
- **Reduce** – To narrow, limit or make smaller.
- **Reject** – To refuse use of a particular chemical, product, items that have a particularly negative impact on the environment.
- **Reuse** – To put to use again; use after original intention.
- **Waste** – Any material unused or and rejected as worthless or unwanted (trash) inappropriately, or inefficiently.

Required Discussion Topics:

1. *No Impact Man*
2. The 4 R's: Reduce, Reuse, Recycle and Reject.
3. How do the 4 R's apply to Individual, Center and Community?

Suggested Activities:

To be done for the second hour of this lesson; can also supplement the curriculum and be done during structured evening programming or on the weekends.

- **Movies** – No Impact Man
- **Trivia about recycling** – e.g., largest purchase in state is for ATM receipt paper and lottery tickets
- **Recycling Simulation** – Construct a bag of typical (clean) trash. Have students categorize which piece of trash would be recycled between: Paper, metal, plastic, glass and non-recyclables.
- **Team PowerPoint Presentations** – Teams to do power point presentation of their Eco-Plans.
- **Creation of Center Green team** – Create a center Environmental Green Team. Team can come up with their own center campaign to focus on a particular area to concentrate (e.g., recycling, reduction of energy use, reduction of center waste, etc.).
- **Center Green Vendor Fair** – Invite local vendors to come to the center to promote their particular products.
- **Scavenger Hunt** – Facilitate a scavenger hunt around the center to access center use of water, energy and center waste.
- **Environmental Hero Presentation** – Students research an Environmental Hero of their own and do a brief presentation. Students can choose an everyday hero, celebrity, or community that has made a difference with their actions.
- **Plant a tree** – Contact Arbor Day Foundation for trees to plant. Ensure they are appropriate for your area; Plant seeds to grow indoors during the winter months.

- **Herb Garden** – Plant an herb garden for culinary students to utilize.
- **Life Cycle Assessment** – Assess the life cycle of a given product. (i.e. cell phone)

Informal Assessment Options:

1. Word Search
2. Personal Plan

Academic Concepts:

- Reading
- Critical Thinking

Career Success Standards Correlation:

- Personal Growth and Development
- Workplace Relationships and Ethics
- Communications
- Information Management
- Independent Living Skills
- Multicultural Awareness
- Career and Personal Planning
- Interpersonal Skills

MODULE 2 FACILITATOR'S NOTES

Objectives
1. Introduce the concept that *individuals* can help improve our environment by showing *No Impact Man*. 2. Explain the 4 R's – Reuse, Reduce, Recycle, Reject – using personal examples and the *Standford Quick Card.* 3. Explain how the 4 R's relate to energy, water and chemicals using the *Life of a Cell Phone* example. 4. Discuss practices that can reduce the impact our center and community has on the environment by facilitating group work. 5. Apply the 4 R's by facilitating the implementation of personal environmental plans.
Suggested Script
Lesson Transition

ACTION	NARRATION
Review Module 1	Remember that our last class focused on the past, present and future of our environment and why it's so important to do our part to take care of it. Just one of the examples we talked about is Easter Island. Today we are going to dive deeper into what *you* can do on a daily basis to help improve our environment. Let's get started by looking at a short clip I think you'll find interesting.
Welcome	
Show *No Impact Man* clip or trailer.	As you can see, *No Impact Man* adopted a way of life that caused no net environmental impact. To do this, his family decreased doing the things that hurt the earth—like making trash or causing carbon dioxide emissions—and increased doing the things that help the earth—like cleaning up a highway or giving money to charity.
Lead class discussion about the segment. **Record student responses on white board.**	• What do you think about this guy and his no impact life? • What do you think made him do this? • Do you think he will have an impact on how others view the environment? • Do you think you could live a "no impact life?" Why or why not?
Overview	
Review the module's purpose.	Similar to *No Impact Man*, today we will look at how *you* can make a difference. Although you may not consider taking drastic changes like the *No Impact Man*, there are simple things you can do everyday – at home, in your dorm, on Center and in the community – to save energy and natural resources. We will take a look at all of these areas.
Review the module's terminology.	Before we begin, let's review the terminology we will encounter throughout this lesson: ***<Consult the terminology found at the end of Module 2 Lesson Plan.>*** • Community • Impact • Life Cycle Assessment • Recycle

	• Reduce • Reject • Reuse • Waste
The 4 R's and the Individual	
Explain the 4 R's. **Record the three R's on a whiteboard.**	How many of you have heard of the 3 R's? ***<based on hands shown, choose a student to name the 3 R's>*** The original three R's are: Reduce, Reuse, and Recycle.
Show pictures of American homes with excessive waste and/or photos by Chris Jordan (American Mass Consumption).	As you can see from these photos, homes across America are producing excessive waste by not incorporating the three R's. Let's learn more about what each of the "R's" mean. As we go through each, think about how these examples of excessive waste can be improved by applying the three R's. "Reduce" refers to decreasing the amount waste you produce. For example, you can reduce the amount of water you use by turning off the faucet when you brush your teeth; you can reduce the amount of energy you use by turning off your dorm lights when you leave the room, turn off power strips, unplug charged cell phones; you can reduce waste by buying products that don't have a lot of packaging. "Reuse" means just that – reusing something for another purpose. Every time a product is reused, it eliminates the need to manufacture a new product, which eliminates the generation of its associated wastes. For example, reuse paper grocery bags to make book covers; use reusable shopping bags; have a yard sale or donate items so someone else can reuse clothes that you don't want anymore; use a durable coffee cup instead of disposable ones. "Recycle" may seem similar to "reuse," but there is a major difference. Where reuse means simply reusing an item, recycling breaks down the used item into raw materials which are then used to make new items. For example, paper that is recycled is broken down to make more paper.
Add the fourth R to the whiteboard.	In addition to the original three R's, a fourth one called "reject" is starting to be used. The main concept behind "reject" is to choose not to use environmentally unfriendly products to begin with. For example, instead of using harsh chemical cleaners, you may choose to make your own out of lemon and vinegar. Now that you know more about the four R's, how many of you are already applying them to your daily life? ***<Based on hands shown, choose several students to share their applications with the class.>***
Show the Stanford Quick	That's a great start, but we can do better! Take a look at this Quick Card. It has very simple steps you can do on a daily basis in the "Getting Started" section. Take a few minutes to read this and think about what else you can do every day

Card.	and how your actions affect energy, water, and chemicals (like CO_2). ***<Point out that many electrical devices will still use 20-50% of their energy while they are turned "off." They are called Phantom or Vampire Loads, see resources.>***
Handout *Life Cycle of a Cell Phone* and/or show the poster.	To see what goes into manufacturing a product, how much waste is generated, and how it affects energy, water, and chemicals, let's take a look at the lifecycle of a cell phone. Making a cell phone, and any product for that matter, uses natural resources and energy which impacts the air, land and water. For example, one of the raw materials that goes into making a cell phone is crude oil, which is extracted from the earth to make plastic. This raw material then needs to be processed before manufacturers can use it to make the cell phone. In this example, crude oil is processed into a type of plastic which is then used to make the cover of a cell phone. This is only one small part of the puzzle. Other raw materials are used to create the phone and then other resources and energy are used to ship the materials and assemble the phone, as you can see here under numbers three and four. Then, of course, the finished product has to get to you – the consumer! Shipping the products by plane, truck or train requires fossil fuels for energy, which when burned, creates emissions that contribute to air pollution. The product packaging also needs to be considered. Think about the natural resources that are used, such as paper from trees, plastic from crude oil in the earth, aluminum and other materials.
Apply the four R's to the *Lifecycle of a Cell phone* – solicit student participation.	Looking at the lifecycle of a cell phone, you can see that a lot goes into the manufacturing of a product. So how can you apply the four R's to minimize the impact that a product's lifecycle has on the environment? ***<Solicit student participation; Reuse is a good example – donate cell phone, give to a friend.>*** Remember, the 4 R's are reduce, reuse, recycle, reject.
The 4 R's and the Community/Center	
	We've already talked about what each of you can do on your own to reduce your impact on the environment. Now let's look at what we can do as a group to apply the four R's on center and in our community. ***<Go to http://www.newdream.org/work/school.php>***
Show the *New American Dream website*.	The New American Dream is an organization who works with individuals, institutions and communities to conserve natural resources. As you can see from their website , they have great ideas we can apply to our center including: • Using safer cleaning products; • Using compact fluorescent light bulbs (CFLs); and • Recycling.
Refer to the EnergyStar FAQ page in Additional Resources for more information.	Speaking of CFLs, while they are much better for the environment, it's important to realize that they contain mercury, a toxic chemical, and must be disposed of properly. Instead of throwing them out in the trash, they should be recycled at places like Home Depot. Working in your group, think about ways we (including staff!) can lower our

Divide the class into groups and facilitate group work. **Regroup the class and record each group's suggestions on a flip chart to save for a later date.** **Record suggestions on a flip chart to save for a later date.**	impact on the environment. Get creative and come up with at least five suggestions. Choose one person as the recorder who will report your ideas to the class in about five minutes. ***<Upon regrouping, solicit student discussion.>*** ***<Time pending, expand on center discussion by soliciting students to develop a list of items that specific industries (CTTs on center) can recycle on a regular basis:*** • ***Aluminum Cans*** • ***Cardboard Boxes*** • ***Printer Cartridges*** • ***Paper*** • ***Glass*** • ***Magazines*** • ***Batteries*** • ***Wood*** • ***Food waste-Composting>*** Now, what can we do as a community? Remember the four R's! To get you started, here are a few examples: ***< Solicit class discussion.>*** • Adopt a Highway • Volunteer at a local recycling center • Buy food from a local grocer, locally grown foods (e.g., fruit/vegetables at a farmer's market)
Personal Environmental Plan	
Handout Personal environmental Plan worksheet.	We've had some great discussions on how to apply the four R's. Now let's put it into action! First we will take about 15 minutes for you to complete a personal environmental plan based on what you learned today. Then we will create our own class pledge and each of you will sign the class pledge board next to your name. Use this worksheet to outline what you plan to do in your daily lives to reduce your impact on the environment. Think back to the four R's and the *Quick Card* I handed out at the beginning of the lesson. Consider including: • Waste • Energy • Water • Chemicals • Food • Smoking You'll have 15 minutes to complete your personal plan. ***<Upon completion, continue.>*** Start implementing your personal plan now! This is an on-going process, so if you

	think of something else tomorrow, next week or next month, add to your list.
Conduct class pledge on poster board/flip chart. 	Now let's create our class pledge. To save paper, we will record our pledge on the class pledge board. Once we finalize our pledge, each of you will commit to it by writing your signature next to your name. ***<Solicit ideas for the class pledge and record using a whiteboard; a suggestion for the introduction is, "We agree to commit to and take responsibility for leading an environmentally friendly lifestyle by…">*** ***<Upon completion/agreement, record the final pledge on the class pledge board and ask each student to sign.>***
Solicit students to sign the pledge.	Remember, this is an on-going process, so *live* your plan and pledge and act as your own environmental ambassadors. See your roommate leaving lights on? Remind them nicely about your pledge.

One Hour Activity

Each module should be preceded with an activity, approximately one hour in length. This may be conducted after the lesson, during structured evening programming or on the weekends. Below is a list of activities and resources of which to choose:

- ***Movies –*** *No Impact Man*
  - *http://noimpactman.typepad.com/*
- ***Recycling Simulation –*** *Construct a bag of typical (clean) trash. Solicit students to categorize which piece of trash should have been recycled including paper, metal, plastic, glass. Place non-recyclables in another category.*

- ***Team PowerPoint Presentation*** *– In conjunction with the personal environmental plans completed at the end of the first part of the lesson, create teams to conduct presentations on their plans.*
  - *http://www.epa.gov/pick5*
- ***Creation of Center Green Team*** *– Create a center environmental Green Team to develop an environmental campaign focusing on particular areas such as recycle, reducing energy use, reducing waste. Perhaps include a center audit and solicit center staff assistance (e.g., use a kilowatt meter or infrared camera).*
  - *http://www.epa.gov/region1/green/index.html*
  - *http://www.dartmouth.edu/~sustain/dartmouth/dining.html*
  - *http://www.newdream.org/work/school.php*
  - *http://www.tsl.pomona.edu/new/index.php?option=com_content&view=article&id=250:pomona-asks-students-to-pledge-to-help-environment&catid=42:pomona&Itemid=88*
  - *http://www.wickedlocal.com/melrose/news/business/x1898860440/-Kill-A-Watt-and-save-a-penny-here-a-planet-there*
  - *http://www.cityofmelrose.org/departments/mec/Kill-A-Watt-spreadsheet.xls*
  - *http://www.cityofmelrose.org/departments/mec/Kill-A-Watt-meter.pdf*
- ***Greening the Dorms***
  - *http://www.energystar.gov/index.cfm?c=news.nr_dormroom&layout=print*
- ***Scavenger Hunt*** *– Create a center scavenger hunt that assesses use of water, energy and waste (similar to audit suggestion above, solicit center staff assistance and tools when available).*
  - *http://www.wickedlocal.com/melrose/news/business/x1898860440/-Kill-A-Watt-and-save-a-penny-here-a-planet-there*

- http://www.cityofmelrose.org/departments/mec/Kill-A-Watt-spreadsheet.xls
- http://www.cityofmelrose.org/departments/mec/Kill-A-Watt-meter.pdf

- ***Environmental Hero Report*** *– Solicit student research of his/her own environmental hero (community, personal, celebrity, etc.) to develop a brief presentation.*
  - http://www.barronprize.org/
  - http://www.amazon.com/...Environmental-Heroes
    - *Julia Butterfly Hill (Young Heroes) (Library Binding) by Rachel Lynette*
    - *One Makes the Difference: Inspiring Actions that Change our World (Paperback) by Julia Hill*
  - http://www.janegoodall.org/youth
  - http://www.newdream.org
- ***Plant a Tree, Seeds, and/or Herbs*** *– Contact Arbor Day Foundations for trees to plant. Ensure they are environmentally appropriate for your area; during winter months, plant seeds to grow indoors; plant an herb garden for culinary students.*
- ***Product Lifecycle Assessment*** *– Similar to Lifecycle of a Soccer Ball, examine a product's lifecycle by soliciting student assessment and critical thinking.*
  - http://www.epa.gov/osw/education/pdfs/finalposter.pdf
- ***Food audit activity***
  - http://www.tsl.pomona.edu/new/index.php?option=com_content&view=article&id=250:pomona-asks-students-to-pledge-to-help-environment&catid=42:pomona&Itemid=88#
  - www.takepart.com/.../the-omnivores-dilemma-for-kids-the-secrets-behind-what-you-eat

MODULE 2 ADDITIONAL RESOURCES:

SECTION	RESOURCE
WELCOME	http://noimpactman.typepad.com/
THE 4 R'S AND THE INDIVIDUAL	American Mass Consumption (Photos by Chris Jordan): • http://www.chrisjordan.com/ • http://matadorchange.com/intolerable-beauty-chris-jordan-photographs-american-mass-consumption/ • http://content.zdnet.com/2346-9595_22-66360.html • http://www.huffingtonpost.com/olivia-zaleski/world-of-waste-americas-m_b_100131.html Comparisons of Consumption (Photos by Peter Menzel): • Two Books by Peter Menzel, "Material World" and "Hungry Planet" provide a comparison of type and quantity of household furnishings and food used by families from around the world. The following links feature a few of these photos. • Food Consumption o http://www.africanloft.com/photo-essay-comparison-of-food-consumption/ • Household Possessions o http://www.treehugger.com/files/2009/02/stuff-how-much-do-you-really-need.php o http://i.treehugger.com/files/material%20world.jpg Stanford Quick Card: • http://sustainablechoices.stanford.edu/card/index.html Article on Phantom/Vampire energy leaks: • http://www.post-gazette.com/pg/05128/500530.stm Lifecycle of a Cell Phone: • http://www.epa.gov//epawaste/education/pdfs/life-cell.pdf Finding Recycling Centers and Learn how to Recycle • http://earth911.com/
THE 4 R'S AND THE CENTER/COMMUNITY	New American Dream: • http://www.newdream.org/work/school.php EnergyStar Info on CFLs including mercury content and disposal: • http://www.energystar.gov/ia/partners/promotions/change_light/downloads/Fact_Sheet_Mercury.pdf Natural Resources Defense Council: • Learn about how to contact your senators on local environmental concerns o http://www.nrdc.org/ U.S. Environmental Protection Agency (In Your Neighborhood): • Learn about what groups in your community are already doing, local data, etc. o http://www.epa.gov/highschool/neighborhood.htm

PERSONAL ENVIRONMENTAL PLAN	U.S. Environmental Protection Agency (Pick 5 for the Environment): • Commit to taking at least five actions to protect the environment and share your tips, videos, and stories online o http://www.epa.gov/pick5 Energy Star: • Review their "Change the World Pledge" o http://www.energystar.gov/index.cfm?fuseaction=globalwarming.showPledgeHome National Recycling Coalition: • Review their "America Recycles Day Pledge" o http://www.nrc-recycle.org/takethepledge.aspx