

Permaculture

Lesson Title: Permaculture	Grade: 9	Subject: Science	Time: 4-12 class hours	Unit: Life Science, Physical Science,	Topic: Food Security	Cross-Curricular Components: Social Studies, Math, Health
URL: http://www.pbs.org/kcet/globaltribe/classroom/globaltribe_classroom_mex_permaculture.pdf						
Lesson Description: Students will develop a working definition of permaculture. As part of a small team, they will devise plans to turn aspects of their school into a permaculture environment.	Curriculum Outcomes: <ul style="list-style-type: none"> ● Outcome: RE9.1 Examine the process of and influences on the transfer of genetic information and the impact of that understanding on society past and present. [CP, DM] (f, g, h) ● Outcome: CE9.2 Analyze the relationships that exist among voltage, current, and resistance in series and parallel circuits. [SI] (b, e, f, g, h) ● Outcome: CE9.3 Assess operating principles, costs, and efficiencies of devices that produce or use electrical energy. [SI, TPS] (a, b, c, d, e, f, g, h) ● Outcome: CE9.4 Critique impacts of past, current, and possible future methods of small and large scale electrical energy production and distribution in Saskatchewan. [DM, TK] (b, c, e, f, g) ● Also satisfies some curriculum areas for Grade 10-12; see above URL for further information. 					
Materials: - AV/video capabilities - Research resources for students (brochures, books, computers)	Assessment: <ul style="list-style-type: none"> - Evaluation of their presentation, charts, etc. - Teacher observation. - Class participation in discussion - Ask students to assess each other's work and the entire notion of turning the school into a permaculture environment. Some questions to ask: Did you understand the other sub planning group's information? Was it presented clearly? Did it seem thorough? What more would you need to know about each topic/resource in order to make an informed decision about how to change your school? Based on what you've learned, do you think it would be possible to turn your school into a permaculture environment? What parts could be most easily accomplished? What would be the most difficult to accomplish? Responses should reflect an understanding of the concept of permaculture. 					

Procedure

Before:

1. Make a list of what students know about Mexico. Then make a list of what they want to know about Mexico.
2. Share some basic statistics about Mexico City with the students: 1,000 babies are born a day; approximately 1/6th of the population live in extreme poverty, going without basic necessities such as indoor plumbing; city services, including garbage pickup, are sporadic. Given these facts, ask the students what they think it would be like to be a teenager growing up in Mexico City? What problems might they face? Especially consider problems caused by overpopulation, poverty, and environmental degradation.
3. Ask the students what they know about deforestation. If they're unfamiliar with the term, you might briefly tell them that it is when many trees are removed from a large area. What are some of the reasons for deforestation (e.g., trees are needed to make paper)?
4. Tell the students that endangered animals are being killed because many people enjoy eating it. Is there anything they eat that other people might find wrong or bad? Have they ever considered not eating a certain food because of environmental or ethical reasons? Who should make the decision about what people can and cannot eat?

During:

Watch a video about the Tierra Viva (<http://www.youtube.com/watch?v=yLPP088so4E>).

1. Ask your students to write about the young people of Tierra Viva. How do they feel about the Mexican teens' situation and about their response to it? As a class, share and discuss the ideas generated by the writing.
2. Ask the students for a definition of "permaculture" based on what they saw in GlobalTribe. Write responses on the board. Then direct them to: <http://www.permacultureactivist.net/intro/PcIntro.htm>. (Or, copy the definitions found on the page for students.) Ask students to underline specific examples that help them to understand the concept of permaculture. As a class, add to the definition written on the board until students feel satisfied that they have a useful working definition.
3. Working together, the class will create a plan to turn your school into a permaculture environment. Using the definition AND considering different components of the school and what makes it run, the students should decide on a list of sub planning groups (food, energy, water, and supplies are all possible subgroups). Students should then divide themselves into the sub planning groups.
4. Each group will assess the current status of their issue/resource, and then research alternatives. For example, the energy group will want to assess how much energy it takes to run the school, considering heat and air conditioning, lighting, and electricity for computers and other machines. They'll also want to know what kind of energy is currently being used. They should consider who in the school can help them find answers to their questions, such as custodians and the person in charge of paying utility bills. It's up to you and your students as to how in depth to take this research. Over the course of two class periods, students can probably come up with a minimal answer; but a week or even two of time (much of it being out-of-class time) would allow for a more detailed collection of data. Sub planning groups should also research alternatives to the way your school is currently providing certain resources. Could the school use solar or wind power? Are there different light bulbs that could be used? Ask the groups to create a chart of what the school is doing now, options, and pros and cons to each option. If possible, also include information on the amount of money that could be saved.

After:

Have a Permaculture Summit. Each sub planning group will present its information to the class in an easy-to-understand format. Tell them to consider their classmates as part of a committee that can work together to transform the school. In order to make decisions, the rest of the class needs to understand the issues researched by your group, so you must find a clear, easy-to-understand format in which to share your findings. Including examples or case studies of other schools may be helpful in illustrating your points.

Extending:

1. Work with math teachers to create equations to best evaluate the school's current resource intake and ways in which to improve that intake. Work with science teachers to understand the resources and the ramifications of their use (e.g., carbon dioxide production by buildings, how solar power works, etc.).
2. Using some of the green school manuals below, take your research to the next level. As a class, come up with a plan for how to implement some of your ideas. Who will you need to convince? How will you organize yourselves to accomplish this?
3. In the same spirit as Tierra Viva, find a local group your class can participate with to help implement some small permaculture project. Try to implement healthful, economically feasible, and environmentally friendly solutions.

This document was created with Win2PDF available at <http://www.win2pdf.com>.
The unregistered version of Win2PDF is for evaluation or non-commercial use only.
This page will not be added after purchasing Win2PDF.