

2010-2011 McKnight Middle School Sustainable Design Packet 2: Community Project Proposal



Name_____ Period_____ Teacher_____

As part of your sustainable design project, you have already completed these steps:

- ✓ You chose a SYSTEM that you want to investigate.
- ✓ You chose a COMMUNITY that you want to help.
- ✓ You chose a GROUP to help you with these tasks.
- ✓ You figured out if your system is currently sustainable.
- ✓ You researched how to make your system **MORE SUSTAINABLE**.
- ✓ You found out what other people are doing to make a system like yours more sustainable.

If you have not already completed the above steps (from the first sustainability packet), then you are not ready to move onto this next step.

Next Step- Based on your research, choose a community project that will make your system more sustainable. Make sure that your project:

- ✓ Is located at school, at home, or somewhere your group can walk to.
- ✓ Can be accomplished this year.
- ✓ Actually **HELPS** the community.
- ✓ Helps make your system more sustainable (by using at least three sustainable design principles).

NOTE: This is different from your science experiment, which we will start in January.

Review Questions (from the last green packet):

1. What is your focus question?

2. What are the three most important sustainable design principles for your focus question and how have other people used these principles?

3. What design projects have other people done to help their system become more sustainable?

Common Principles of Sustainable Design

There are some common principles associated with sustainably designed products and processes. These include:

Use of low-impact materials: Chooses non-toxic, sustainable, or recycled materials, which require little energy to process. Takes into consideration how the materials (visible and invisible) originate in and return to the ecosphere (atmosphere, lithosphere, biosphere, and hydrosphere).

Energy efficiency: Implements manufacturing processes that use less energy and produces products which require less energy to manufacture and operate. Ideally, makes use of renewable energy sources.

Quality and durability: Understands that longer-lasting and better-functioning products will have to be replaced less frequently, thereby reducing the impacts of producing replacements and disposing of worn-out products. Another option is flexible designs that have a core component, such as an automobile chassis, that remains durable, but other components that can be replaced and upgraded over time as better versions become available, such as the engine and transmission.

Cradle-to-cradle life cycle design for reuse and recycling: Designs products, processes, and systems for performance in the commercial “afterlife” of the product. This includes choosing materials with a cradle-to-cradle approach, so that the materials themselves create clean water, clean air, or can be composted to enrich the soil. This also includes design to facilitate the eventual separation of “technical nutrients” for the industrial process of manufacturing from “organic nutrients” that will biodegrade and enrich natural systems.

Biomimicry: Designs products, services, and industrial systems to mimic biological designs and cycles found in nature. Natural systems, large and small, are models of interactive functionality that maximizes effectiveness and efficiency.

Service substitution: Promotes the sharing of products or services among groups of people. For example, encouraging people to change from private automobile ownership to joining a car-sharing service. Such a system promotes minimal resource use per unit of consumption (e.g., per car trip driven).

Local renewable resources: Chooses materials from nearby (local or bioregional), sustainably managed, renewable sources. Ideally, when their usefulness has been exhausted, biodegradable resources can be returned to nature as biological nutrients, or alternatively, returned to manufacturing as technical nutrients.

Carbon footprint: Reduces an individual’s carbon footprint by choosing products and services that have been sustainably designed, sustainably produced, and have the ability to be recycled or reused.

Environmental health: Aims to reduce or eliminate human health risks from environmental factors (such as pollution, heavy metals, etc.) that can be ingested, inhaled, or absorbed through the skin.

Environmental justice: Aims to provide all people with access to a healthy environment and equal access to decision-making processes. The development and enforcement of environmental laws, regulations, and policies should fairly involve all people and should protect groups of people from being disproportionately affected by environmental health hazards.

Human needs and quality of life: Considers how a design can promote human needs and quality of life in terms of subsistence, protection, affection, understanding, participation, leisure, creation, and identity.

Design for change: Considers what policy changes, behavioral changes, and technology changes will enable a design to occur, and what changes will exert the greatest leverage for overall sustainability.

4. Narrow down three design projects that other people have done or that you want to try. Investigate the pros and cons of each of your proposed design solutions. You may need to do some research or talk to community experts in order to fully evaluate the impacts of each project. Be sure to consider impacts (both positive and negative) to the environment, economy, and society. List the pros and cons in the table.

Proposed Community Project	Pros	Cons

5. After considering the pros and cons and doing any necessary research, choose the design solution you will develop a plan for and/or implement. Write it on the line below:

Chosen Community Project: _____

YOUR PROJECT PROPOSAL:

1. Please briefly describe the community project that your group would like to do:

2. In the chart below, describe in detail how this project will use at least three sustainable design principles. (*Design Principals are on the previous page*).

Sustainable Design Principal	How does your project use this principal?

Considering Stakeholders

Consider how your project might affect different groups of people. These are the **stakeholders** who have an interest in the outcome of your project, because they will be impacted positively or negatively.

3. Identify at least four stakeholders for your project (such as “elementary school students who use the playground,” or “people who visit the food bank each week.”) Try to include people who might be most concerned with the three different aspects of sustainability: environment, economy, and society. Then, develop a list of positive and negative impacts these stakeholders might experience as an outcome of your project. Record your thoughts in the table below:

Stakeholders	Positive Impacts	Negative Impacts

4. How does your project help maintain a healthy environment, vibrant economy and equitable society? (Please fill in the chart below):

Sustainability "Big Ideas"	How does your project help the community reach this sustainability big idea?
Healthy Environment	
Vibrant Economy	
Equitable Society	

Planning the details of the project:

5. List the supplies you need for this project and state where you will get them. Think about used and recycled materials! Some materials such as recycling stickers and new recycling bins are available at school.

Supply	Where can you get it?

6. Are there any expenses (costs) for your project? Note: Projects should cost little or no money. If it does cost money, you will need to think about how to pay for it. Grants? Fundraisers? There may be a small grant budget for this. If you plan to build something, but then no grant money comes this year, you will get credit for your design and planning.

7. List the steps that you need to do for this project: (use additional pages if needed)

1	
2	
3	
4	
5	
6	
7	
8	
9	
10	

8. About how many hours/days do you think this project will take? _____

9. Where and when will your group meet to work on the project?

10. What support and/or permission do you need from teachers or district administrators? For example:

- ✓ Do you need permission to build something at school?
- ✓ Do you need support for doing something at Science Night?
- ✓ Do you need permission or support to show a video to the entire school?
- ✓ Do you need permission from teachers to talk in their classes about your topic?

11. What do you see as your biggest challenge in completing this project?

Community Project Grading Rubric

Requirement	Description of how to get full credit	Points
Focus	Your project was focused on your focus question	10
Design Principals	Your project clearly demonstrates at least three sustainable design principles	15
Environment, Economy and Society	Your project clearly tries to make the environment healthy, the economy vibrant, and society more equitable	15
Group work and time management	You worked together with your group, turned in assignments on time and your teacher didn't have to remind you to be on task	15
Impact	Your project actually did help people and the environment. It impacted your community	20
Overall Effort	Even if your project didn't go exactly as planned, you clearly put in a lot of effort.	25
TOTAL		100

Parent Only Section

Parents, please read the above proposal (when it is finished) and sign below. Please come to McKnight's FAMILY SCIENCE NIGHT on May 4th to see sustainability displays.

I am aware of my son/daughter's sustainability community project proposal. I will support my son/daughter in the completion of this project. I will look at this packet when my son/daughter has a question. If I have any questions or concerns, I will call or email Ms. Jonas 425-204-3639 or Carlie.Jonas@rentonschools.us.

X _____
(Parent or Guardian Signature)

We need help with the following:

X _____
(Parent or Guardian Signature)

Our biggest challenges and/or concerns are:

X _____
(Parent or Guardian Signature)