

Recycling Unit Plan

ECED 416 Assignment #2



If many little people, in many little places, do many little things, they can change the face of the Earth. - African proverb

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30 September, 2013

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Rationale

Teaching sustainability in schools beginning from kindergarten is one of critical goals of environmental education in our present decade. My unit goal is to develop an awareness around waste management, energy conservation and school ground greening through the practice of recycling in a full-day kindergarten setting. Recycling is an ideal topic in a full-day classroom because it allows students ample time to learn, experience and reflect upon new ideas, knowledge and practices around urban sustainability.

The inquiry-project approach allows students to explore recycling through hands-on projects by making connections with what they know and acquire, as well creating various representations of their ideas and solutions to make an impact in the classroom and the school. This can potentially be extended to a year-long project where student are able to work with parents at home and community partners to recycle (eg. making a compost for the school or community garden from lunch scraps, fundraising for a cause from recyclable items that is meaningful for the class, etc).

At the beginning of the unit, I will open a discussion in class on recycling using the following guided questions. I will refer back to them consistently through various kinds of class activities with students and connect them in a meaningful way in small-group learning projects and the greater learning journey as a class.

1. What are each of the three R's (Reduce, Reuse, Recycle) and what do they look like in practice?
2. Why are the three R's essential to our lives? How do they impact our current environment?
3. How can we adjust our habits to help the Earth?
4. How do we communicate the importance of the three R's in our schools, homes and the community?

Students will have opportunities to reflect and express their ideas in individual journals, interviews and class discussions. They will also gain experiences working in a small group setting. According to the students' interests and individual needs, they will be placed into small groups with slightly different focuses on recycling to explore and learn about the topic. Because the goal is to get students working in small-group projects, I will make notes of their ideas and help them to develop project starters after the class discussion and learning center experiences.

Here are two graphic organizers that depict an overview and possible learning paths of this recycling unit:

PROBLEM-SOLVING APPROACH: WHAT & WHY?

The Problem

WASTE & POLLUTION

Q: How might I help to make people and the Earth healthy?

Possible Solutions (Rethink!)

REDUCE

REUSE

RECYCLE

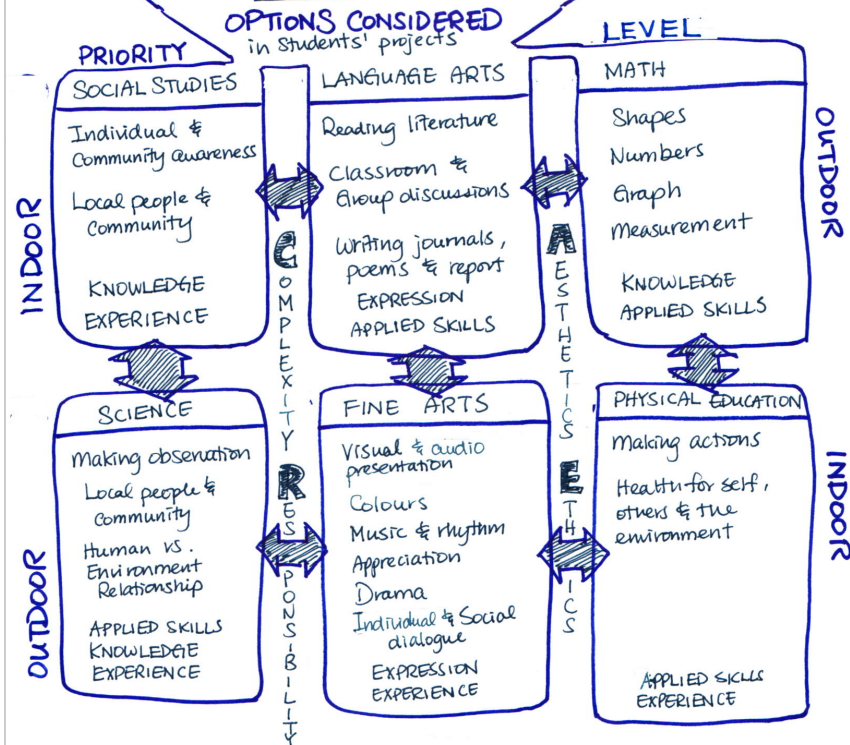
Q: What is recycling?

- Turn old into new
- Turn waste into renewable energy
- Keep a healthy balance for the future

Q: How to do 3R's?

INDOOR

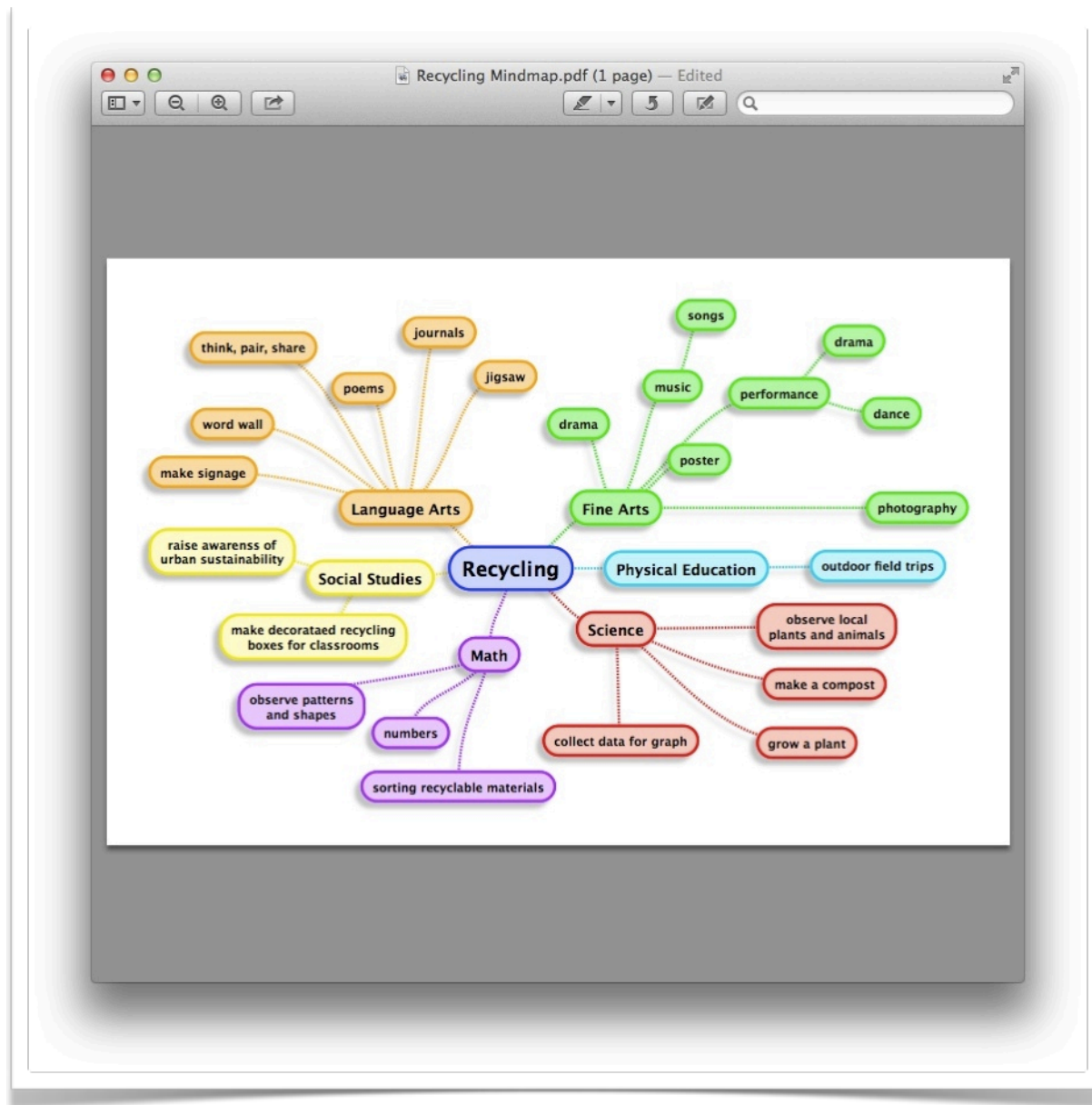
OUTDOOR



Graphic Organizers #1 & 2

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Project Ideas	Description
#1 Science and Math Project	SWBAT: develop a plan to reduce, reuse and recycle materials in the classroom. Science and Math -- observe how to make recyclable paper, plastics, aluminum into good use; sort them into appropriate bins; use creativity for reusing them into something meaningful
#2 Social Studies Project	SWBAT: engage in hands-on projects to help creating a healthy environment Social Studies -- make cards out of recycled paper to give as gifts or sold for fundraising causes, make stand-up tree crafts, make a recycling poster, decorate cardboard boxes for gathering items for reusing and recycling and also give them to other classes; make a compost from lunch scraps (optional)
#3 Language Arts and Fine Arts Project	SWBAT: interact and communicate the importance of reusing and recycling with each other in class. Language and fine arts -- read literature on caring for plants and animals, write about their appreciation of clean air, water and earth, as well sing songs or recite poems that they write for other classes.

Assessment and Evaluation

In terms of pre-assessment, I will conduct an in-class KWL to gather students' knowledge and learn about their recycling habits at home. Here are some questions:

- What does it mean to recycle?
- What happens to something you put in the recycle bin?
- Do you recycle at home?
- What sorts of things do you put in the recycling bin?
- What does it mean to 'go green'?

I will assess students using individual interviews and documentation to work with students on a daily basis to ensure that their engagement on the topic and their interactions with peers are on the right track in the small-group projects.

I will jot anecdotal notes to understand their development of play and work representation (eg. keeping a literacy and numeracy log), as well their critical thinking abilities, communication skills and social awareness in the immediate environment that they reside in. I will also take pictures of students' works to put on the class website to communicate with parents.

Here is a rubric that I will use to evaluate students' competency on the topic:

	No Attempt (0 point)	Poor (1 point)	Fair (2 points)	Good (3 points)
Completed	Project was not attempted.	Project was completed with very little effort.	Project was only half finished.	Project was complete.
Used recycled items	Project was not attempted.	Project contained mainly new items.	Project contained a mixture of recycled and new items.	Project used recycled items only.
Usefulness of project	Project was not attempted.	Project is of little use.	Project would be somewhat useful in everyday life.	Project would be useful in everyday life.
Planning	Project was not attempted.	Project had little to no effort in thought and planning.	Project had some thought and planning.	Project was thought out and planned.
Presentation of Project	Presentation of project was not attempted	Little to no effort was placed in presentation of the project.	Presentation of project was somewhat clear and spoken.	Presentation of project was clear and well-spoken.

10-Day Unit Class Planner

Day	Classroom Activities	Science	Math	Language Arts	Social Studies	Music Visual Arts	PE
1	Introduction and Brainstorming	Garbage vs. Recycling on Venn Diagram	Number Counting	Storytelling	Garbage vs. Recycling at home and in school	Listening to Earth Day song	Learning the Recycle Dance
2	Learning centers	Observing various types of paper with magnifying lens	Looking for the symbol from recyclable products	Writing and drawing ideas in journals	Identifying which plastics are recycled in their community	Making a signage for recyclable items	Practicing the Recycle Dance
3	Green day	Learning about different recyclable materials: paper, aluminum and glass	Sorting different numbers of recyclable plastics into different colour bins	Reading poems and making a word wall	Making planters out of recycled paper	Turning waste paper into recycled paper	Going for a walk to the recyclable bins in school
4	Aboriginal perspective	Learning that recycling is a way to preserve a healthy lifecycle	Number Counting	Storytelling	Planting seeds into planters	Drawing the symbols of Mother Earth	Going for a nature walk

Day	Classroom Activities	Science	Math	Language Arts	Social Studies	Music Visual Arts	PE
5	Projects	Turning our classroom 'things' into recyclable materials in small groups	Sorting different recyclable materials into appropriate recycling bins	Listening to descriptions and concluding that most paper is made from trees	Discussing about buying products from recycled materials continues a cycle that conserves natural energy	Making recycled paper journal books	Bringing recycling paper and plastics from classroom to the school recycling bins
6	Projects	Applying knowledge about the importance of conserving natural resources	Noting the different numbers on the recycling symbol meaning different materials	Using familiar tunes to write lyrics about reusing and recycling materials	Discussing how 'closing the loop' benefits the environment and people	Making a craft out from recycled paper	Bringing recycling paper and plastics from classroom to the school recycling bins
7	Projects	Using lunch scraps to make a compost	Making triangular-shaped vs. rectangular-shaped of compost box liners	Communicating to others about the importance of recycling	Communicating to other classes about the importance of recycling	Making musical instruments out of discarded items and use them in the performance of songs written in class	Taking care of plants in school garden
8	Projects	Wrap-up	Wrap-up	Wrap-up	Wrap-up	Wrap-up	Wrap-up

30 September, 2013

Patricia Ma-Chan

Day	Classroom Activities	Science	Math	Language Arts	Social Studies	Music Visual Arts	PE
9	Fieldtrip by Metro Vancouver	Making observations	Making observation	Reading poems and writing a journal	Reading poems and writing a journal	Taking photos	Walking in the nature
10	Celebration	Finishing up journals	Finishing up journals	Making a catchy recycling poster for the school	Making a catchy recycling poster for the school	Performing the Recycle Song and Dance in the school assembly	Performing the Recycle Song and Dance in the school assembly

Possible Project Stream Starters:

Scenerio #1: Science and Math Project

Students watch a presentation of waste and pollution that affects the polar bears in the Arctic North. They hear about the decreasing number of bears due to the rising temperature of the Arctic weather. They wonder about what they can do locally to help.

Scenerio #2: Social Studies Project

Students see the recycling bins in the school building. They see recycling trucks coming by to pick up paper, plastics and other recyclable materials from these bins. They wonder where the items would go.

Scenerio #3: Language Arts and Fine Arts Project

Students visit the school or community garden to do some drawing and listen to the poems that describe the season. They see the yard waste bin that makes compost. They wonder how recycling can be done indoor in school by making their own boxes and decorating them.

Teaching strategies:

Classroom teaching for literacy and numeracy

- Definition of garbage vs. recycling (eg. categorization in a compare-and-contrast chart, Venn diagram, concept map or SWBAT chart)
- Think, pair and share
- Word wall
- KWL chart
- Counting and sorting recyclable items

Small group teaching

- Reflective problem-solving - define the problem, analyze it, establish criteria, propose solutions and take actions

Optional

Jigsaw - students leave their 'home' groups and meet in 'expert' groups, brainstorm ways to discuss materials and present their understandings to other members, then return their home groups to other home group.

Cooperative Learning Group - recorder, time-keeper, reader and organizer

Field trip - students can explore the nature by expert outdoor guide in a park by instructors from Metro Vancouver, eg. activities involve sensory warm-ups (five senses), meet a tree, listen to different birds' singing.

Curriculum Alignment: BC Prescribed Learning Outcomes

IRP	Teaching Concepts on Recycling	PLOs
Science	<ul style="list-style-type: none"> - Describe ways to rethink, refuse, reduce, reuse & recycle - Describe features of their immediate environment - Compare local plants and common animals - Describe features of local plants and animals 	<ul style="list-style-type: none"> - use five senses to make observations - share with others info obtained by observing
Math	<ul style="list-style-type: none"> - Use all process- or content- oriented PLOs: number, patterns and relations, shape and space, as well statistics and probability 	Patterns: B1 Measurement: C1 2D/3D: C2-3 Number: A1-5
Social Studies	<ul style="list-style-type: none"> - Demonstrate an awareness of the concept of change - Identify groups and places that are part of their lives - Identify characteristics of different local environments - Demonstrate responsible behaviour in caring for their immediate environment 	A1-3, B1-3, C1-2, D1-3, E1-2

IRP	Teaching Concepts on Recycling	PLOs
Language Arts	- Use process-oriented PLOs to conceptualize environment-caring and foster appreciation the interrelationship between humans and the environment: developing oral language (speaking and listening) abilities, reading and viewing abilities, as well writing and representing abilities	A1-12, B1-8, C1-7
Physical Education	- Participate daily (eg. 5 times a week) in moderate to vigorous physical activities - identify physical activities they enjoy doing - use their bodies to create shapes (eg. by bending, curling, pulling, pushing, stretching, swinging and/or twisting)	A1-4, B1-2, C1-3
Health and Career	- Identify opportunities to make choices - Identify practices that contribute to health, including healthy eating, regular physical activity, emotional health practices and disease prevention practices	A1-2, B1-2, C1-4/8-10
Fine Arts	Dance: create movements that represent patterns, characters and other aspects of their world	A1-2, B1-3, C1, D1-2
	Drama: create movement in response to the expressive elements of music and sound	A1-3, B1-3, C1, D1-2

IRP	Teaching Concepts on Recycling	PLOs
	Music: identify elements of expression that evoke thoughts, images and feelings	A1-3, B1-5, C1, D1-2
	Visual arts: identify a variety of image sources, their own and others; use feelings, observation, memory, and imagination as sources for images; make 2-D and 3-D images (using a variety of design strategies, exploring a variety of media to communicate experiences and moods/ tell a story that engages more than one of the senses); demonstrate an awareness that images come from a variety of contexts; create images in response to objects and other images they have experienced; demonstrate an awareness of safety and environmental considerations in the use of materials, tools, equipment and processes.	A1-4, B1-2, C1, D1

I will focus on the PLOs that are coloured in blue because they are relevant to the topic of recycling and are more experienced-focus that allows students to reflect and produce open-ended ideas.

Modified Work Plans

For students with various types of special needs, I will plan for the following modification:

Type of Special Needs	Modification (or Accommodation)
Problems following through on independent or group work	Teacher will provide visual signs for work and break time for those who need extra space for transitioning between tasks. Students will have other multi-modal opportunities to engage back on tasks, eg. listening to music, reading, drawing, role-play learning center to interact with others for generating new ideas
Reading challenges	Teacher will present materials in an audio-visual format. Pictures and audio books are options. Students will have a choice to write and draw their ideas on their journals - both answers would be acceptable. Teachers will also have informal interviews with them to assess their understanding and provide follow-ups.
Writing challenges	Teachers will provide opportunities to allow various kinds of fine motor skill practices throughout the day. Students will have a choice on either drawing ideas in their journals or dictating them using a recorder.

One Typical Day

*Child-centered learning *40 - 70 mins outdoor everyday

Time	Schedule
8:50 - 9:10	Morning Circle and Class Meeting
9:10-9:40	Calendar and Project Class Discussion [Language Arts]
9:40-10:10	Learning Centers and Small Group Work [Math/ Music]
10:10-10:20	Snack
10:20-10:40	* Recess
10:40-11:20	Learning Centers and Small Group Work [Science/ Visual Arts]
11:20-11:40	Project Recap Discussion and Story Time/ Gym
11:40-12:00	Start Lunch
12:10-12:48	Lunch and Clean-up (allow time for sorting recyclable items and food scraps)
1:00-1:40	Library and Writing Journals
1:40-2:00	* Outdoor Small Group Work [Social Studies]
2:00-2:30	Gym/ *Outside Nature Walk (allow time to explore local plants and animals)
2:30-3:00	Snack and Backpacks

References

Teaching Resources

David Suzuki Foundation <http://www.davidsuzuki.org>

EcoKids <http://www.ecokids.ca>

Enchanted Learning <http://www.enchantedlearning.com/crafts/earthday/>

GrassRoots Recycling <http://www.grrn.org/page/optimize-recycling>

Jenna L. Garnett's Teaching Portfolio <http://jlgarnett.weebly.com>

Living for Sustainable Future <http://www.lsf-lst.ca>

Metro Vancouver - Recycling

<http://www.metrovancouver.org/services/solidwaste/Resources/Pages/default.aspx>

Outdoor Fieldtrip (Nature Explorers for Pre-K to K)

<http://www.metrovancouver.org/region/teachers/fieldtrips/RegionalParksFieldtrips/Pages/default.aspx>

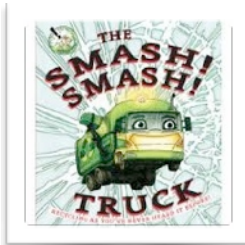
Recycle Dance (by RecycleMore) http://www.youtube.com/watch?v=y_j6twdagFs

Recycle Song (by Jack Johnson) <http://www.youtube.com/watch?v=d1mFymbRmv>

Book Resources



Our Earth: How Kids are Saving the Planet (Wilson, Janet)



The Smash! Smash! Truck (Professor Potts)



What Does it Mean to Be Green? (DiOrio, Rana and Blaire, Chris)

Reduce, Reuse, Recycle

(Sung to: *Eensy Weensy Spider*)

D *A7* *D*
Reduce, Reuse, Recycle ~ words that we all know.
D *A7* *D*
We have to save our planet so we can live and grow.
D *A7* *D*
We might be only children but we will try, you'll see
D *A7* *D*
And we can save this planet ~ it starts with you and me!



Recycle

(Sung to: *Twinkle, Twinkle*)

C *F* *C*
We RECYCLE what we use,
G7 *C* *G7* *C*
Separate things and you should too!
C *F* *C* *G7*
Glass and paper, plastic, tin,
C *G7* *C* *G7*
Go in your RECYCLING BIN!
C *F* *C*
We must start now, we can't wait,
G7 *C* *G7* *C*
Quick, or it will be too late!

**Enviro
Facts**

This is how long it takes garbage to break down:

plastics take 500 years
aluminum cans take 500 years
organic materials take 6 months
cotton, rags, and paper take 6 months

Courtesy of Songs 4 Teachers® www.songs4teachers.com
More Songs 4 Teachers® and Praise 4 God ~Just 4 Kids® coming soon

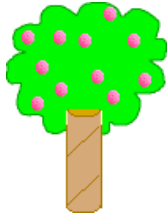
Learning Center: Learning Songs

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Making a recycled paper craft:

In this simple project, cardboard from a cereal box and a toilet paper tube are turned into a cute free-standing tree that is great to use as an Earth Day decoration.



Reading a Poem:

Our Earth

The Earth is ours to enjoy
For every little girl and boy.
Be we must always be aware,
That all its beauty we must share.
With all the children yet to come,
Who want to laugh and play and run
Around the trees and in the fields.

So we must keep our planet free
From messy trash and debris
With air that's clean and fresh and clear
For all to breathe from year to year.
We must never ever abuse
Our sweet Earth that's ours to use.

Writing a recycling acrostic poem:



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