

Project Title: Recycling Survey and map of locations

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Class: St. George CMap 2010

Project Description	Students will learn about recycling, how it can help the Earth, how much it can save and how and what to recycle. They will learn a song, "Recycle Rex" Surveys will be handed out at SEP time for the parents to fill out. Students will enter information about surveys in a simple excel program. Students will mark where the recycle binnies are in the St. George area with the GIS unit and we will create a map. We will assess how far apart the binnies are and after we enter the survey information, we will approach Washington county for new sites to store binnies if the interest warrants it.
Community Issue or Problem Selected -How project evolved?	Washington County has a recycling program. They have 14 sites around St. George where people can go and bring their trash to recycle. They use the money from recycling to benefit the county. They do not do pick-up at this time. It would be high cost and people have not been willing to pay for this in the past. There is a service called "BlueSky Recycling" that picks up for a price. I realized that I didn't have any idea where any of the recycling sites were so thought this would be a good project to promote awareness.
Community Partner(s)	Jenifer Harris, head of county recycling program wcsww4@hi-speed.us 435-673-2813. She will come and educate students on recycling.
Project Objectives	To promote awareness and interest, to get more people to recycle and to be aware of what they can do to help the Earth. To see how people feel about recycling, would they pay? Would they use the recycle bins if there were more of them?
Utah Core Standards/Objectives	Social Studies, obj. 3, Standard 1; <ul style="list-style-type: none">• Identify ways people use the physical environment (e.g. agriculture, recreation, energy, industry).• Compare changes in the availability and use of natural resources over time.• Describe ways to conserve and protect natural resources

	<p>(e.g. reduce, reuse, recycle).</p> <ul style="list-style-type: none"> • Compare perspectives of various communities toward the natural environment. • Make inferences about the positive and negative impacts of human-caused change to the physical environment.
Essential Question(s) -Spatial Issue	How can humans use resources without destroying the environment and how responsible are you in making a difference?
Assessments (rubrics, scoring guides)	<ol style="list-style-type: none"> 1. Short test on recycling poster 2. Do they know the song? 3. The survey will also be an assessment 4. Students will demonstrate proficiency in using GPS unit.
Project Products	Students will gather data from surveys. Students will create graphs of information from surveys They will create a map of binnie locations. If interest warrants it we will approach the county for more binnie locations or at least one closer to our school area.
Project Timeline (include a step by step Procedures)	<ol style="list-style-type: none"> 1-Write grant to procure GPS units. <ol style="list-style-type: none"> 1a, Hand out surveys at first SEP time. 1b. Collect surveys and enter information 1c. Make a graph with survey information 2-Purchase GPS units 3-Install GIS software on computers at school 4 – Introduce students to the project idea 5- Have Jenifer visit class and talk about recycling 6-Introduce recycle poster 7-Teach song 8-Teach benefits of recycling. 9. Assign students areas and deadlines to mark binnie. 10- Contact head of recycling for Washington county with results of survey 11- Arrange for a report of class experience in the newspaper.
Resources Needed	<p>ArcGIS 9.2 software St. George City GIS data (maps) 12 GIS Units</p>
Skills Required	Ability to mark coordinates in a GPS unit.

	<p>(I will download coordinates from GPS units to ArGIS) I will. It seems that it would be past 3rd grade level to do this, but I will experiment and see.</p> <p>Ability to create charts and graphs</p> <p>To be able to work together as a group.</p>
Project Team Member Roles	<p>Teacher(s): Debra Barton</p> <p>Students: Mrs. Barton's students</p> <p>Partner(s): Washington County Recycling</p>
Celebration/Presentation	<p>We will take film of our activity and have a party and watch the film. We will recycle our treat wrappers. ☺ We will some pictures also and put in the yearbook at the end of the year.</p>
Project Evaluation	
Project Bibliography	
Plans for Future CMAP Activities	<p>Students will follow up next year and re-promote recycling and how YOU can make a difference to help the Earth.</p>

Recycle Rex

Who knew it wasn't right, just to toss trash out of sight

But now I'm gonna keep it clean, I'm gonna start recycling

A little here, a little there will help the rivers and the air

Do it now, start today, close the loop; it's the only way.

It's such an easy thing to do, and it begins with me and you

We can make a difference

We can make old new

CHORUS

Recycle, reduce, reuse

And close the loop, we can close the loop

REPEAT

Plastic bottles, aluminum foil

Glass containers, and motor oil

Papers, cans, that old magazine

We got one land, let's keep it clean

So bug your neighbor, tell a friend

Circles never really end

Don't just toss it, keep it new





We can do it, so can you

Don't wait, it's something we must do

Right now the earth depends on you

You can make a difference.... you can make old new

CHORUS (Repeat twice)

	Commodity	Recyclable	Non recyclable	Notes
P A P E R		<p>Newspaper, office paper, junk mail, phone books, catalogues, magazines, paper board: cereal boxes, gray and white board boxes</p> <p>Shredded paper: please bag in a grocery sack</p>	<p>Corrugated cardboard, Paper towels, napkins, tissues Pizza Boxes</p>	<p>Please do not place contaminated paper in Binnies. Make sure paper is free from food, drink, oil, paint, or grease.</p>
P L A S T I C		<p>Plastics bottles and containers with a recycle logo (#1,#2,#3,#4,#5,#6,#7) Includes small, narrow, and wide mouth plastics Film plastic: grocery bags, covers for newspapers</p>	<p>Styrofoam</p>	<p>Please compact all bottles in order to save room in your bin</p> <p>Please rinse out Food/drink from containers</p> <p>Lids on containers are fine</p>
G L A S S		<p>Green, brown, clear, blue and red glass bottles</p>	<p>Vases, window pane, drinking glasses, auto windshields</p>	<p>Please remove metal lids and recycle them in the Binnie marked for metals</p> <p>Please rinse all beverage from bottles</p>
M E T A L S		<p>Tin, aluminum or steel cans (Example- any food or beverage can) Any other metals that fit through the openings on the Binnies</p> <p>Lids from glass bottles</p>	<p>Full or unopened cans</p>	<p>Please rinse all food and beverage from can</p> <p>Labels on cans are fine</p>

Recycling Facts

ALUMINUM

- Recycling one aluminum beverage can saves enough energy to run a 100-watt bulb for 20 hours, a computer for 3 hours or a tv for 2 hours.
- The aluminum beverage can returns to the grocer's shelf as a new, filled can in as little as 90 days after collection, remelting, rolling, manufacturing and distribution.
- An average of 113,204 aluminum cans are recycled every minute of every day.
- Recycling one ton of aluminum saves 37 barrels of oil.
- Recycling 125 aluminum cans saves enough energy to power one home for 1 day.
- It takes 4 tons of ore to produce one ton of aluminum.

GLASS

- It takes approximately 1 million years for a glass bottle to break down in a landfill.
- In the U.S. today, 34% of all glass containers are recycled.
- Most bottles and jars contain at least 25% recycled glass.
- Glass never wears out – it can be recycled forever.
- Recycling glass saves 25-32% of the energy used to make glass.
- Glass containers save 9 gallons of fuel (oil) for every ton of glass recycled.

PAPER

- Americans use over 67,000,000 tons of paper each year, or 600 pounds per person.
- It takes more than 500,000 trees to produce the newspapers Americans read each Sunday, yet only 30% of all newspapers are recycled.
- Recycling one ton of paper saves 17 trees, 3 cubic yards of landfill space, 2 barrels of oil, 7,000 gallons of water and 4,100 kilowatt hours of electricity – enough energy to power the average American home for 5 months.
- Producing recycled paper requires about 60% of the energy used to make paper from virgin wood pulp.
- Every day, Americans buy 62 million newspapers and throw out 44 million. That's the equivalent of dumping 500,000 trees into a landfill every week.
- If everyone in the U.S. recycled just 1/10th of their newsprint, we would save the estimated equivalent of about 25 million trees a year.
- In the manufacturing process of recycled paper
 - 74% less air pollution is generated
 - 35% less water pollution is generated
 - 58% less water is required
 - 64% less energy is required
- One ton of high-grade recyclable paper can substitute for approximately 3 tons of wood in making new paper products.
- Every year more than 900 million trees are cut down to provide raw materials for American paper and pulp mills.

PLASTIC

- Plastics require 100 to 400 years to break down in a landfill.
- Producing new plastic from recycled material uses only two-thirds of the energy required to manufacture it from raw materials.
- For every 7 trucks needed to deliver paper grocery bags to the store, only 1 is needed to carry the same number of plastic grocery bags.
- By using plastic in packaging, American product manufacturers save enough energy each year to power a city of 1 million homes for 3 _ years.
- As much as 40% of selected plastic parts from damaged or discarded cars are repaired and reused.
- Over 1.5 billion pounds of post-consumer plastic bottles were recycled during 1999, accounting for 22% (by weight) of all plastic bottles produced in the U.S.
- PET bottles (soda & water) and HDPE bottles (milk, laundry detergent) are the most commonly collected plastic materials in community recycling programs.
- 95% of all plastic bottles in the U.S. market are manufactured from PET or HDPE. 56% of recycled PET finds a market in the manufacture of fiber (carpet & clothing). 29% of HDPE recycled bottles go into making new bottles and 18% goes into the plastic pipe industry.
- Recycling 1 ton of plastic can save 1-2 thousand gallons of gas.
- Every year we make enough plastic film to shrink-wrap the state of Texas.

STEEL

- Recycling tin and steel cans saves between 60-74% of the energy used to produce them from raw materials.
- 1 ton of recycled steel saves the energy equivalent of 3.6 barrels of oil, and 1.49 tons of iron ore over the production of new steel.
- Steel cans were recycled at the rate of 58% in 2001.
- The amount of steel recovered through recycled packaging in 2001 (nearly 1.5 million tons) would yield enough steel to build 185,000 steel framed homes.
- In 2001, nearly 2 million tons of steel was recovered from recycled appliances.
- The steel from the more than 39 million appliances recycled last year yielded enough steel to build about 160 stadiums the size of the new Pittsburgh Steelers stadium.
- In 2001, there were 26 cars recycled every minute across the U.S.
- Each year steel recycling saves the energy equivalent to electrically power about 1/5th of the households in the U.S. (or about 18 million homes) for 1 year.
- Every ton of steel recycled saves 2,500 lbs. of iron ore, 1,400 lbs. of coal and 120 lbs. of limestone.
- Annually, enough energy is saved by recycling steel to supply Los Angeles with electricity for almost 10 years.
- You can make 20 cans out of recycled material with the same amount of energy it takes to make 1 new one.

BATTERIES

- Battery acid is recycled by converting it to sodium sulfate for laundry detergent, glass and textile manufacturing.

GENERAL

- The average person throws away 4 pounds of garbage PER DAY.
- Paper is the most common item found in our trash.
- Product packaging accounts for 1/3 of our trash.
- Solid waste disposal is the third largest municipal government expense after police protection and education.
- The nation's annual generation of municipal solid waste rose steadily from 88 million tons in 1960 to 232 million tons in 2002.
- Recycling all of your home's waste newsprint, cardboard, glass and metal can reduce carbon dioxide emissions by 850 lbs. a year