

Recycle For Life: *Science Through Art*

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Program Outline and Overview

CURRICULUM AREAS: Science, Art, Math, Language Arts

GRADES: K-5

TITLE OF PROGRAM: Recycle for Life: Science through Art

HOW IT WORKS

Recycle for Life empowers children to make a difference by promoting environmental issues through art. This integrated curriculum allows students to draw conclusions and make comparisons from real-life data. The art projects provide them with exciting hands-on experiences that stimulate comprehensive and informative non-fiction writing. During this inquiry-based program, students discover the value of reducing waste and determine how to change wasteful behavior in school and at home.

For a period of eight weeks, students develop a campaign to promote recycling using various artistic media. Students first view a video entitled "Where Does the Garbage Go?" that initiates discussions about the need to recycle and the impact of waste on the environment. They share thoughts and ideas about recycling on the Recycle for Life wall. Then, the students create recycling campaign posters and hang them throughout the school. Next, students brainstorm various ways they can increase awareness of recycling. For example, they can conduct an audit to ensure that each classroom has the proper waste receptacles and signage, weigh the paper waste for two weeks, and chart the results, thus incorporating math into the program. They create word problems; collect, compare, graph, and analyze data; and draw conclusions.

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Through a series of art projects, students discover various ways that paper can be reused. They collect paper boxes, decorate them, and distribute these "scrap boxes" to classrooms, explaining how to reuse paper for scratch copies, notes, and drawings. Other recycled art projects include collage posters, Eric Carle collages, 3-D paper sculptures, and a fourteen-foot-long paper plate dragon. For each project, students write "how-to" instructions, thereby utilizing language arts. The final project is making paper from the scraps that have been collected. This culminating project encompasses all the elements of this interdisciplinary program: teaching peers about separating paper waste, weighing the paper waste, and reusing paper through art.

THE STUDENTS: All 625 students in grades K-5 participated in this program through their art curriculum. It can easily be adapted by classroom teachers by using small groups, including special education classes.

THE STAFF: Pamela Saturday has taught Fine Arts at MNS for the past seven years. She holds a BA and MFA in Fine Arts and for the past two years has acted as Art Coordinator for District 2 in Manhattan. This project was conceived and implemented with the help of Lisa Sheers, Art Room Assistant, and Sherry D'Angelo, Parent Volunteer.

WHAT YOU NEED: Most materials are recycled and can be found around the school or brought in from home. Additional supplies include scissors, glue, tempera and watercolor paints; and blenders, screens and tubs for paper-making. A computer with Internet access and/or the public library can provide reference material. Local sanitation departments can help with videos and instructional materials.

OVERALL VALUE: Combining the science of recycling with art is a fun, creative, hands-on program that also addresses real-world problem solving. Students gain self-esteem as they learn a life-long skill and share that learning with others in the larger community. This program meets New York State Standards for Science, Art, Math, and Language Arts, and addresses the needs for all learners. It provides a springboard to creativity, from which the possibilities of topics and projects are boundless.

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The Ready, Willing, and Able Poster Campaign

Curriculum Areas: Art, Language Arts, Math

Grades: 2-5

Recycled Materials Used:

magazines: especially nature magazines such as Ranger Rick and National Geographic, wrapping paper, paper scraps collected from scrap boxes

Supplies Needed:

construction paper, glue, scissors, markers or colored pencils

How it Works:

The object of this project is to make posters promoting waste reduction. We used the “Where Does the Garbage Go?” video to get ideas. The teacher discussed the need to get a clear and concise message across using bubble letters, pictures, words, etc. It was helpful to show the students examples of advertising campaigns.

Students used a variety of methods depending on grade level. The younger grades created their message using words or pictures done in marker or colored pencil, and then applied paper scraps to enhance the composition. The older children loved to pore over old magazines to find just the right letters and pictures to get their message across in a collage.

Overall Value: This project challenged students to find the best way to get the “Reduce and Reuse” message out to the entire school. The most effective posters were hung in the hallways, classrooms, stairwells, and the cafeteria.



3-D Architectural Scrap Sculpture

Curriculum Areas: Art, Math, Science

Grades: 1-3

Recycled Materials Used: calendars, magazines, construction paper scraps, corrugated cardboard scraps, paper towel rolls, cardboard bases (from shirt or sheet packaging)

Supplies Needed: glue, scissors, masking tape

How It Works: The teacher shows the students pictures of large modern architectural works of Cristo and Mark di Suvero, which leads to a discussion of scale, symmetry and spatial relationships. The students then cut recycled papers into long thin strips. They are shown how to construct zigzags, steps, circles, and spirals, and are encouraged to layer different elements on top of each other. They need to pay attention to the texture and proportion of the composition, while at the same time figuring out how the elements connect and hold each other up.

Overall Value: 3-D paper sculpture addresses the areas of art, math, and science. The students learn to visualize geometric proportions and construct balanced structures. They also engineer the sculpture so that it is structurally sound, and think

of themselves as architects. The underlying value, of course, is that this imaginative exercise is done with almost 100% reused materials.

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A Giant Trash-Eating Dragon

Curriculum Areas: Art, Math

Grades: K-3

Recycled Materials Used: clean paper plates, used paint cups, used poster board, paper towel rolls, large cardboard thread spools, cardboard egg carton

Supplies needed: tempera paint, paint brushes, two coffee filters, cord, embroidery needle, stapler, fishing line

How It Works: This project was a collaborative effort involving many different classes. First the students painted the recycled materials: paper plates, paint cups, paper towel rolls, and thread spools. They painted both sides of the paper plates, making brightly colored patterns around the edges. Next a small group of students began to cut out (with supervision) four sets of wings from the poster board, making two sets of large wings and two sets of smaller wings to fit on top of the larger ones. Finally a small group cut the egg carton into a head with teeth and painted it. They then painted the coffee filters and stuck one in each “nostril” to resemble fire.

As the teacher strung the plates and paint cups together using the cord and embroidery needle, the students were asked to count the plates and paint cups by twos and estimate the length of the dragon. We finished the construction process by stapling the head, wings, legs, and tail onto the body of the dragon. Finally, we (the adults) suspended the 14-foot dragon from the ceiling using fishing line.

Overall Value: The children learned to work together in the planning process, make their own individual contributions, and then come together to witness the construction of the final product. This 100% recycled dragon, suspended at the entrance to our art room, has become a real showstopper.



The Eric Carle Study: Reusing Copy Paper

Curriculum Areas: Art, Language Arts

Grades: 2-3

Recycled Materials Used: used copy paper

Supplies Needed: construction paper for mounting, glue, scissors, tempera paint, big paint brushes, Q tips, sticks

How It Works: The teacher begins by reading an Eric Carle story and leading the students to examine his illustrations and how they were made. They will find that he first made his own painted paper and then used that paper to make cutouts for a collage. The students are then given used copy paper to paint. They are encouraged to explore many different painting techniques and be as free as possible in designing their own colored paper. Next the students write a short piece that they will then illustrate. The colored paper is used communally for cutouts to be collaged onto their illustrations.

Overall Value: The Eric Carle study addresses the curriculum areas of art and language arts. By putting themselves in the “shoes” of one of their favorite authors,

the children make the connection between literature and art. They also reuse quite a lot of copy paper in the process!

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Paper Making: The Full Circle of Recycling Paper

Curriculum Areas: Science, Art, Math

Grades: 1-4

Recycled Materials Used: paper scraps (we used everything left over in the art room and from scrap boxes), dried flowers, snips of thread and yarn, old ribbons, tiny fabric scraps, old picture frames, screens, plastic deli food containers, lots of newspapers

Supplies needed: electric blender, Elmer's glue, glitter, brayer (rubber rolling pin), staple gun, large plastic bins, felt

How it Works: Preparation is very important for this project. First, screens are made using old picture frames that are slightly larger than the paper that you want to make. Remove the glass and cut out the screen to fit into the frames. Secure with staple gun. Next, tear a large quantity of scrap paper into small pieces and soak overnight in a tub of water. Do not use black construction paper.

To make the paper, fill the blender 1/3 full with water and add the scrap paper and 1 teaspoon of glue. Turn the blender on for a short period and then turn off and clear blades of any paper caught there. Repeat until paper forms a pulp-like mixture (the consistency of soupy oatmeal). Put 1-2 scoops of the "pulp" into the pan of water, and then drop decorations (flower petals, glitter, feathers, etc.) on top. Slide the screen into the water under the floating pulp. Shake the screen in the water to distribute the pulp evenly. Bring the screen up out of the water and let it drip. When most of the water has run off, flip the contents onto a large piece of felt placed on top of a lot of newspaper. Place another piece of felt on top of the paper and squeeze any excess water out with brayer. Let the paper dry overnight and change felt and newspaper as needed until paper is dry.

Overall Value: Children got a sense of measurement and estimation by experimenting with the quantities of water, glue, and paper scraps used to make the "paper". Most importantly, the project reinforced the recycling process by showing

the children how used paper can be collected and remade into a new and usable product. We used ours to make the cover of our “Art of Recycling” book.



A Second Life For Cardboard Boxes

Curriculum Areas: Art, Environmental Science

Grades: K-5

Recycled Materials Used: cardboard, boxes, paper and wrapping paper scraps

Supplies Needed: paint, paint brushes, glue, Exacto knife, colored masking tape, scissors

How It Works: Students collect used, clean medium-sized cardboard boxes from school and home. An adult supervisor cuts the boxes in half using an Exacto knife. Students decorate the boxes “freestyle” using paint and paper scraps. They make a “Scrap Paper” sign using scrap paper and glue it onto the side of a box. Finally, the edges of the box can be reinforced using colored masking tape.

Overall Value: This project reinforces the “Reuse Paper” message by having the students reuse materials to create a usable receptacle for paper scraps. Our

students also distributed the boxes to each classroom in the school and explained their use to the entire class. As a direct result of the students using the scrap paper for notes, free drawing, and rough drafts, we have reduced the amount of paper our school must buy.

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Other Activities

Create a “Recycle For Life” Community Journal

We created a large mural-size sheet of paper that hung in the art room. We saw every child once a week for 45 minutes. At the start of each class, the children shared their recycling efforts from the past week. They were very excited to share their information and write about recycling on the chart. We also used craypas to decorate our community journal.

Create Your Own Math Problems:

The classes in our school weighed their paper trash each day for four weeks. The first week they created paper garbage as usual and weighed it. The results were recorded on a large chart hanging in a common space in the hallway. Each class designed a “scrap paper box” and then placed semi-used paper in the box to be used again. (See lesson for Scrap Paper Boxes.) Paper was weighed again. Results were recorded. Our fifth graders were asked to take the information collected from the charts and design some math problems for the various grade levels.

<u>Grade</u>	<u>Problem</u>
K	How many classes in the whole school recycled and had information?
1	What is the total weight of recycled paper that your grade recycled?
2	What is the total weight of paper that your grade recycled?
3	Add the total number of floors and subtract the total of 3rd grade classes.
4 / 5	Add the totals of recycled paper on each floor. What fraction of that paper is from the 5th grade.

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A “How To” worksheet was used for each project. Here’s one example:

How To Make Paper

Student _____ Grade _____

Our Recipe _____

Supplies _____

Step#1 _____

Step#2 _____

Step#3 _____

Step#4 _____

What is special about the paper I made myself? _____

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Resources

Carle, Eric, (1991). *Dragons, Dragons, Dragons*. New York: Philomel Books, Division of Putnam and Grosset Group.

Gorgoni, Gianfranco, (1985). *Beyond the Canvas*. New York: Rizzoli International Publications, Inc. (Examples of work by Mark di Suvero, Christo)

"Where Does the Garbage Go?" 28-minute video. USA DUBBS, 212-289-6400

Internet Sites:

www.ericcarle.com

www.fi.edu.com (papermaking)

www.learn2.com (papermaking)

www.manhattannewschool.org (project pictures)

www.nyc.gov/sanitation

www.pioneerthinking.com/makingpaper.html (papermaking)

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Bibliography

Carle, Eric, (1991). *Dragons, Dragons, Dragons*. New York: Philomel Books, Division of Putnam and Grosset Group.

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