

PROGRAM 9

Paper

◆ GET READY TO WATCH

As a class, start a list of all the things one can do with paper. Post the list in the classroom so it can be added to. Title the list “100 Things to Do with Paper,” and challenge the students to think of that many.

◆ TALK ABOUT

Have students bring in items and packaging made from paper. Organize a bulletin board and/or tabletop display of these items. Discuss the range of textures and thicknesses of paper products.

Have the class organize a “Paper Savers” campaign. Invite students to think of ways they can get more use from paper in the classroom. For example, they might set up a box for construction paper scraps; designate a spot for used paper—paper that still has one good side; cut used paper into notepad size; and the like. Brainstorm a list of tips for managing paper and post it in the classroom. Allow students to do all the work with this activity, i.e., designating spaces, labeling, etc.

◆ CURRICULUM INTEGRATION ACTIVITIES

Science

Learn about the properties of paper. Make available some different kinds of paper, such as construction paper, tissue, paper towel, index cards, and copy machine paper, and invite students to experiment with the papers in relation to other materials. For example, pose questions such as the following for them to investigate each of the different types of paper:

- Will paper float in air?
- Will paper float in water?
- Does folding it in different ways change how it floats?
- Can paper support objects? Make a paper “bridge” between two books and place a coin on the bridge. Does the bridge hold the coin? Will it hold more than one coin? Does folding the paper in any way make a better bridge for holding coins?
- Will paper hold water?
- Will paper stand on edge?
- Does folding it in different ways help it stand on edge?
- Will paper stick on other objects? Rub some paper on a rug or sweater and try again.

Students will think of other questions to explore. Encourage them to make hypotheses about what the paper can do and then experiment to test their predictions. Allow time for them to explain their experiments and discuss conclusions.

◆ Program Description

Celia and Bud show that paper has so many uses in a variety of forms that we take it for granted. In a visit to a paper mill, viewers see how paper is made from trees. A papermaker shows Celia how to make paper from other materials, such as old sweaters, jeans, rope, and feathers. Viewers learn the importance of recycling paper and see how their old paper is made into new paper. A young scientist demonstrates how to make paper using a few simple ingredients.





◆ Crinkleroot's Corner

Here are some amazing statistics about paper and recycling, according to *Going Green* by John Elkington and others (Puffin Books, 1990). In the United States, we cut down more than 4 billion trees a year to make paper and cardboard for ordinary household and business uses. It takes at least 25 years for a tree to grow tall enough to be made into paper. Using recycled paper for one print run of the Sunday *New York Times* saves 75,000 trees and, if every American recycled just one-tenth of their newspapers, we would save about 25 million trees a year.



Language Arts

Explore the art of paper collage. Several writers and illustrators of children's books use collage as their artistic medium, including well-known authors such as Ezra Jack Keats, Leo Lionni, and Eric Carle. Obtain copies of their books and invite students to study the illustrations, noticing the variety of ways these artists use paper in their illustrations. Author/illustrator Denise Fleming takes collage art a step further by making her own papers and incorporating the images into the paper, rather than creating pictures by assembling different types of paper. (See the bibliography below for a listing of her books.) Revisit the segment of the program in which Celia and her friend make paper from materials other than trees, and note how they embed designs into the paper.

Math

Have students keep a tally of their paper usage for one day at school. This would include every time they used paper in some activity, read a book, used paper towels, took lunch from a paper bag, played a game that had cards or a cardboard gameboard, etc. At the end of the day, share the tallies and compile the total to see just how much the use of paper figures into a typical school day.

Social Studies

Introduce students to recycling. Many paper products are now made from recycled paper, including such items as grocery sacks, business reply envelopes, and fast food packaging. Show students the symbol for recycling and ask them where they have seen it. Enlist the aid of parents in helping their children search for items that have been made from recycled paper. Send home the reproducible sheet "Here's what we found made from recycled paper" at the back of this chapter. Have students return the sheets to school and discuss the variety of items they found.

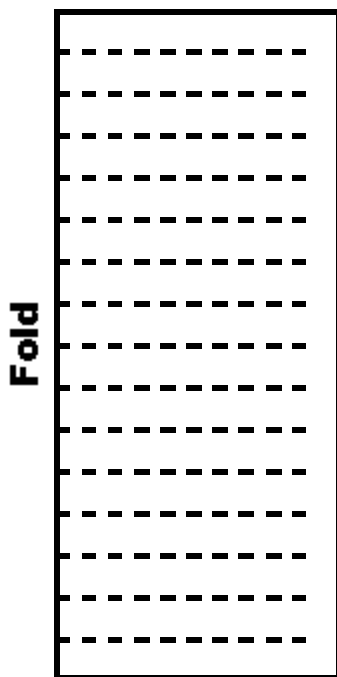
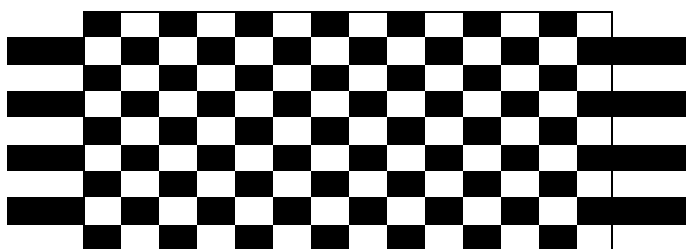
Brainstorm the steps involved in making paper from trees. Begin with cutting trees and end with paper already cut. Have students transfer these steps to a mural that shows this process. It may be necessary to revisit this portion of the program to ensure accurate recollections. Discuss the occupations associated with making paper. Include some of these people in the mural.

Art

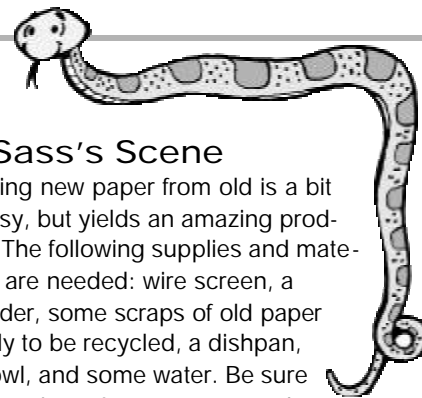
Involve students in a variety of activities to create with paper. Possibilities include:

1. Make collages. Collages are pictures made by pasting down scraps of paper and other items. Assemble a collection of papers, including tissue paper, wallpaper, wrapping paper, newspaper, magazines, crepe paper, sandpaper, commercial packaging, greeting cards, postcards, junk mail, different thicknesses of cardboard, egg cartons, cardboard rolls, construction paper, grocery sacks, and others. Explore ways of adding variety to paper by crumpling it, accordion-folding it, wrapping it around a pencil to curl it, etc. Have students plan their picture first and then choose the types and colors of papers they want to make it. They might cut the pieces of paper they want to use or make torn paper collages. Pictures made from torn paper have fuzzier edges, making the collage a little softer looking. Tearing a shape, however, takes patience and may not be easy for small fingers.

2. Make paper weaves. Have students make a placemat that can be laminated and used when eating snacks. Pre-cut colored construction paper in strips that are 1" wide. Choose a background color of 9" x 12" construction paper for the placemat. Direct the students to fold this piece of paper in half lengthwise, and use a ruler to make a mark at every inch along the fold. Instruct them to lay the ruler exactly along the open edge of the paper and draw a line the length of the ruler. (With most school rulers, this line will be approximately one inch from the edge of the paper.) Before they lift the ruler, direct them to mark every inch just as they did along the fold. Have them connect the marks along the fold to the marks along the line they drew. These are the cutting lines, starting from the fold to the line they drew which is the thickness of the ruler. Open the background paper flat and weave the pre-cut strips of paper through it. Push the strips next to each other so the woven strips are tight. When the background paper is full, glue the ends of the strips to hold them in place. Have a variety of strip colors available so that students can create their own designs.



3. Do origami projects. There are many resource books in libraries and bookstores that contain patterns using simple to very complex paper folding. Directions for making an easy origami cat may be found at the back of this chapter.



◆ Sass's Scene

Making new paper from old is a bit messy, but yields an amazing product! The following supplies and materials are needed: wire screen, a blender, some scraps of old paper ready to be recycled, a dishpan, a bowl, and some water. Be sure to have lots of newspapers and old dish towels or rags (smooth cloth) handy for absorbing water. Bend any sharp edges of the screen over and flatten them. (Another possibility is to staple the screen to a wooden frame.) Tear the scraps of paper into small pieces and soak them in a bowl of warm water. After the paper is soaked, put it in a blender with equal amounts of water and blend until the paper is mushy. (It is best to fill the blender only half full with each mixture.) This mushy paper is pulp. Pour the pulp into the dishpan and add a gallon of warm water, yielding a thin, watery mixture of paper pulp. Tilt the screen slightly down toward the water and dip it into the pan smoothly. Make sure the screen is level under the water, and then lift it slowly. There should be a layer of pulp on the screen. Let excess water drip off. Flip the screen over onto a smooth towel or rag, and blot the back of the screen with another rag to remove even more water. Carefully peel the screen from the new sheet of paper. Let the paper air dry. The paper could also be ironed dry and flat, but remove it from the cloth before it gets dry so it doesn't stick.



4. Make three-dimensional paper sculptures. Collect all sorts of recyclable cardboard and paper boxes, tubes, and containers. Have students design and construct an animal, person, robot, or make-believe creature using the materials. Display all the creations and provide opportunities for students to tell about them.

5. Other paper projects: paper chains, snowflakes, masks, puppets, pop-up books, jigsaw puzzles, board games, paper cuttings, papier-mâché, pinwheels, and paper airplanes.

◆ **CRINKLEROOT SAYS,
“DO YOU WANT TO KNOW MORE?”**

Check out the local library or bookstore for these books about making and using paper:

Curtis, Neil & Greenland, Peter. *How Paper Is Made*. Lerner, 1992.

Davis, Wendy. *From Tree to Paper*. Sundance Publishing, 1995.

Devonshire, Hilary. *Collage*.

Photos by Chris Fairclough. Franklin Watts, 1988.

Dixon, Annabelle. *Paper*. Photos by Ed Barber. Garrett, 1991.

Fleming, Denise. *Count!* Henry Holt, 1992.

Fleming, Denise. *In the Tall, Tall Grass*. Henry Holt, 1991.

Fleming, Denise. *Lunch*. Henry Holt, 1992.

Fleming, Denise. *In the Small, Small Pond*. Henry Holt, 1993.

Fleming, Denise. *Barnyard Banter*. Henry Holt, 1994.

Fleming, Denise. *Where Once There Was a Wood*. Henry Holt, 1996.

Fletcher, Helen Jill & Groves, Seli. *How on Earth Do We Recycle Paper?* Illus. by Art Seiden. Millbrook Press, 1992.

Lohf, Sabine. *Things I Can Make with Paper*. Chronicle Books, 1989.

Lynn, Sara & James, Diane. *Play with Paper*. Carolrhoda, 1993.

Nerlove, Miriam. *If All the World Were Paper*. Albert Whitman, 1991.

O'Reilly, Susie. *Papermaking*. Photos by Zul Mukhida. Thomsen Learning, 1993.

Perrins, Lesley. *How Paper Is Made*. Facts on File, 1985.

Rumford, James. *The Cloudmakers*. Houghton Mifflin, 1996.

Small, David. *Paper John*. Farrar, Straus & Giroux, 1985.

Additional Resources

Recycled Paper. Recipe for making paper.

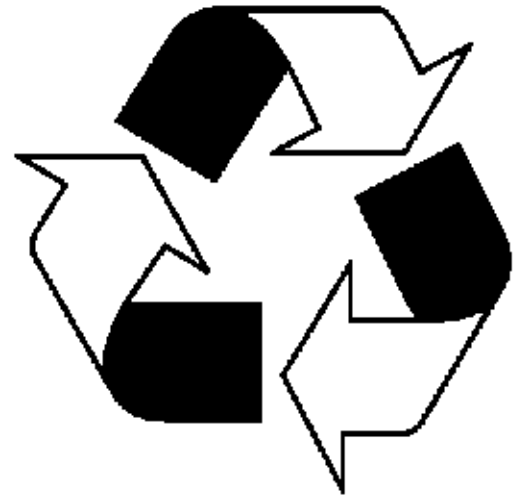
Internet site:

<http://www.beakman.com/paper/paper.html>

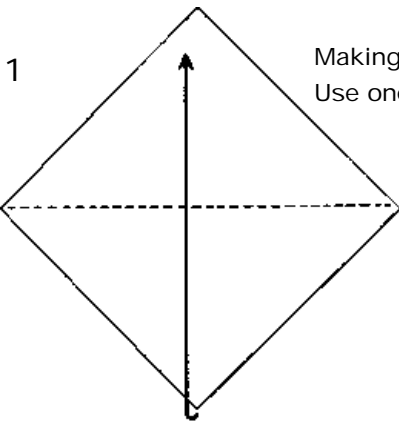


REPRODUCIBLE #04

Here's what we
found made from
recycled paper!



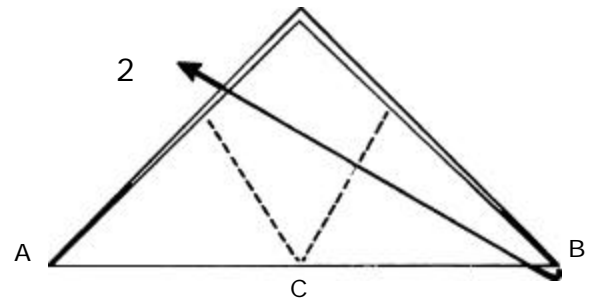
Origami Cat



1

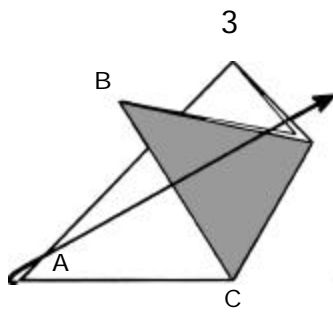
Making the face:
Use one piece of 6" x 6" paper.

Fold the paper into a triangle.



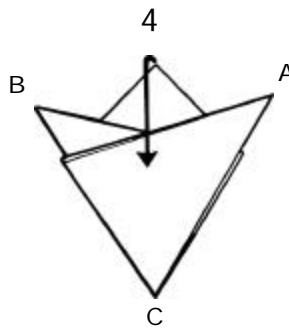
2

Mark point C halfway between A and B. Fold point B to the left with the fold at the C mark.



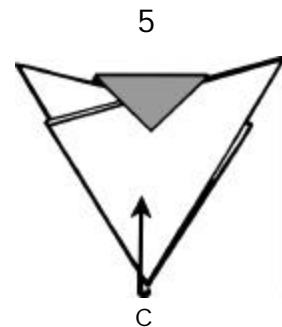
3

Fold point A to the right.



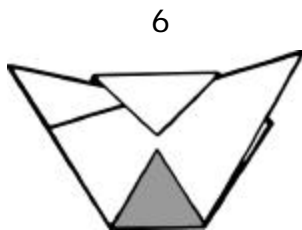
4

Fold the top down.



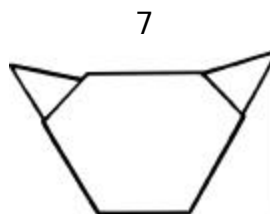
5

Fold point C up.

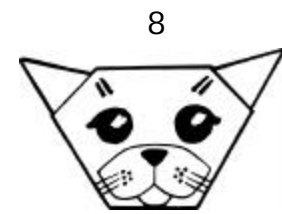


6

Turn it over.



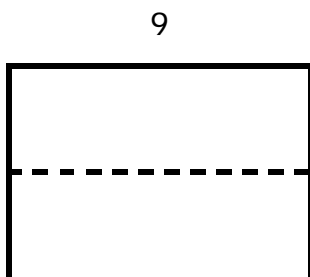
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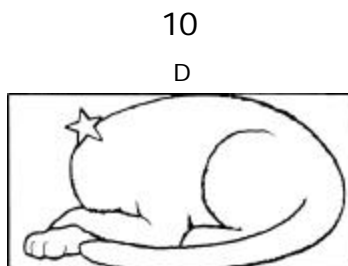
Make a face with crayons.

Making the body:
Use one piece of 9" x 12" construction paper.



9

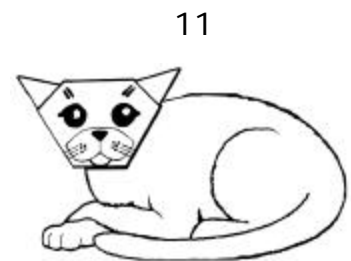
Fold the paper in half.



10

D

Draw the body and tail. Cut them out, leaving the fold intact at point D. Glue the face on the ★.



11