Dear Students and Parents,

We hope you enjoyed your recent day of mathematics exploration and investigation with Pacific Science Center’s Mathfinder van. The Science On Wheels program, which began operating in 1974, is an interactive outreach program that travels to schools across the state of Washington.

The Mathfinder van provides students with hands-on mathematics experiences. Students participate in a lively assembly, explore an interactive exhibit area and receive a 45-minute hands-on lesson. Our goal is to foster an interest in science, technology and mathematics.

We encourage you to talk about our visit and spend some time investigating more math topics together. The activities on this page are designed for you to do with your family and friends. They require few materials and are easy to do.

~Science On Wheels Teachers

**Paper Picado**

Explore cutting out different shapes from a folded piece of paper to see what new shapes you create. Then find the symmetry of your picado, a decoration used in some Latino communities.

**Procedure:**

- Cut a piece of paper into a rectangle about 8 x 11 inches. Fold in half in any direction.
- Fold in half again (any direction).
- Fold in half one more time (any direction). That's three folds total.
- Cut shapes along the edges and folds. You might cut shapes like triangles, half circles, diamonds or try combining shapes.
- Unfold your paper and see what new shapes you have created.
- Can you test to see if your picado is symmetrical? (When you fold it in half, one side will look just like the other if it is symmetrical.)
- Can you figure out what shape to cut if you want your finished product to have a star in it? How about a moon or heart? Try it!
- Hang your picados around your home.

**Materials**

- scissors
- tissue paper, recycled gift wrap or wax paper
How often do you get to play outside when you get home from school? Make a graph to find out!

Procedure:
- Using your calendar, record the days when you get to play outside. Use one symbol, such as a flower, to mark the days when you do go outside and a different symbol for days when you don’t.
- At the end of the month, count up how many days you played outside and how many days you didn’t. Color in the squares that show how often you played outside.
  (For example, if you played outside 15 days, color in 15 squares.)

|     | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 |
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- Do you think you’d get different results in January than in July? Why?

How Many Times?

How many times can you fold a piece of paper?

Procedure:
- Take a regular piece of notebook paper and fold it in half.
  Fold it in half again.
  Keep folding in half until you can’t fold it anymore.
  How many times could you fold it?
- Does the number of possible folds change when you use larger or smaller pieces of paper?
  What happens when you use a sheet of newspaper?
  Aluminum foil? Tissue paper?

Materials
- 8.5” x 11” piece of paper
- various other pieces of paper or foil, for comparison

Resources

Exploratorium Magazine, Vol. 19, No. 3, Fall 1995
Exploratorium Science Snacks, www.exploratorium.org
Family Math Sampler, EZUALS Program, Lawrence Hall of Science
Family Math, by Jean Kerr Stenmark, Virginia Thompson and Ruth Cossey
Fractals, The Patterns of Chaos by John Briggs, 1992

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