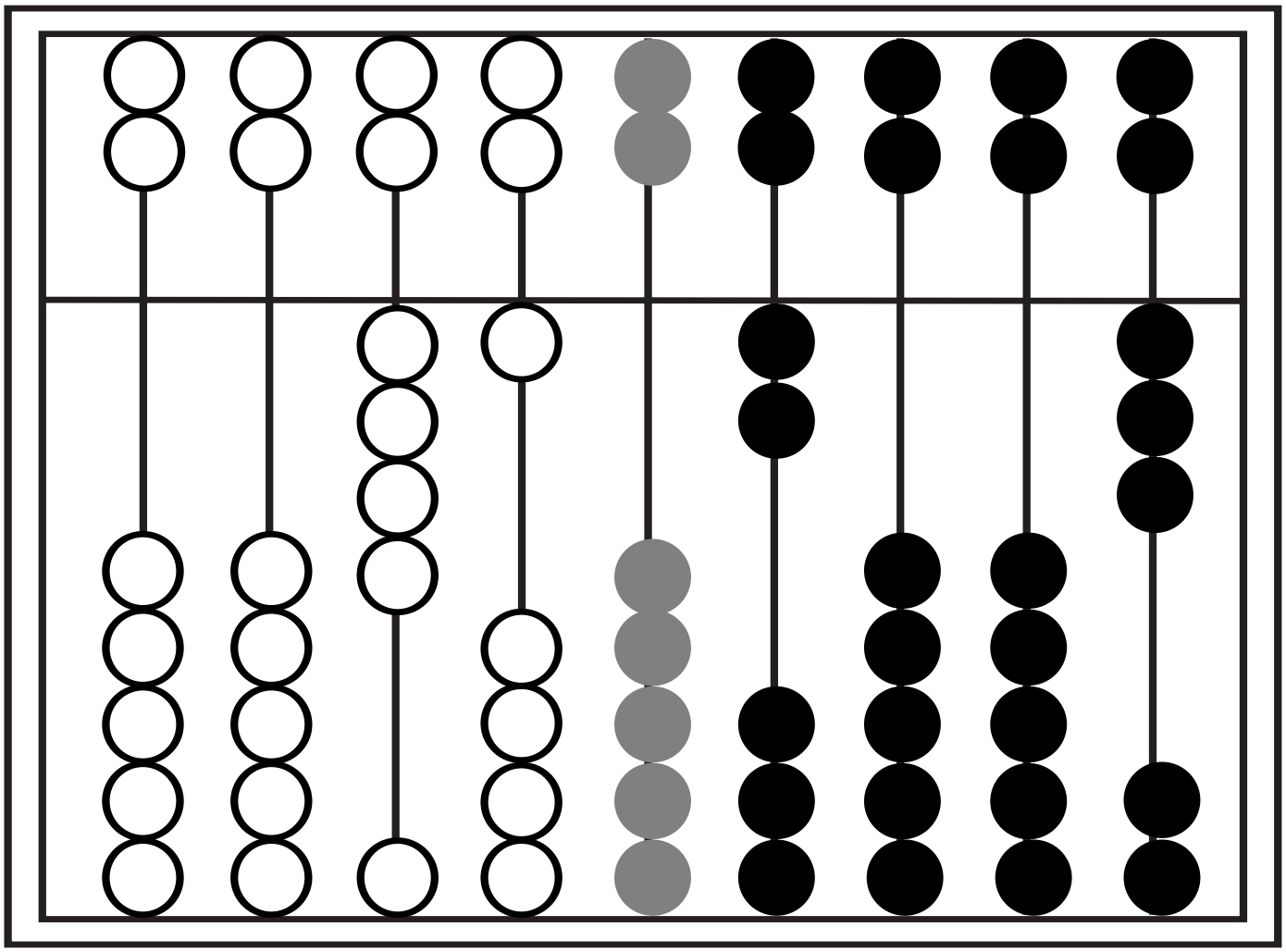
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ONTARIO ASSOCIATION FOR MATHEMATICS EDUCATORS

▲ From the Editor's Desk

On March 27, 2003 I attended the 'Early Math Strategy' workshop in Toronto. Chris Suurtamm and Ruth Dawson, co-chairs of the Early Math Expert Panel that is financially supported by the Ontario Ministry of Education, gave an overview of the report and provided leadership in discussions about the implications of this report. Each participant received a copy of the report plus a parent's guide 'helping your child learn math'. The Parent's Guide will be available for distribution this spring.

The goal of this project is to put strategies in place to improve mathematics among children from Junior Kindergarten to Grade 3 and to raise student achievement demonstrated on EQAO grade 3 testing. Early mathematics understanding through various teaching strategies impacts mathematical proficiency in the later years.

In early mathematics education mathematics teaching and learning should be enjoyed by all participants. If teachers display positive beliefs, value students' prior knowledge, and connect school mathematics, then students, their families, and their community will support mathematical learning with the positive result being an effective learning environment.

The expert panel believes that an effective early mathematics program includes a balance of guided, shared, and independent experiences with a variety of teaching and assessment strategies to meet the diverse needs of students in the early years. The use of manipulatives, availability of children's literature, and enhancement of learning by technology are encouraged in this program. Students' confidence in mathematics is built when they are engaged in meaningful problem solving and dialogue with reinforcement of new understandings and skills.

For this issue I have chosen activities that can be a part of family math or extra practice in the classroom. Each activity will have grade and strand identified with source provided in the teaching notes.

For the complete 'Early Math Strategy' report, go to the web site **www.edu.gov.on.ca**. For samples of student work at each of the four assessment levels check out *The Ontario Curriculum – Exemplars: Mathematics (one volume for each grade)* on the web site. Copies of these documents are also available by calling 1-800-668-9938.

To answer requests for web sites that students or parents can visit, I have visited the following and can highly recommend them.

Math literacy at **www.abc-canada.org/math_literacy/** answers the question 'What is numeracy'. Numeracy is being able to use and understand numbers in daily activities and being able to communicate with numbers. This web site will direct the visitor to many other helpful links as well as tips for making mathematics a part of routine. There is a 'cheat sheet' on site to help with conversions of weights and measures. It can be printed off for easy reference.

TVOntario has **www.eurekatutors.com/TVO** and gives specific times that tutorial help is available with teachers online.

The National Council of Teachers of Mathematics (NCTM) promotes **www.figurethis.org** that has a variety of on-line math challenges and resources to encourage families to engage in mathematics activities together.

Entertaining mathematics is featured at **www.funbrain.com**.

For people who are concerned about their math skills, **www.towes.com/measureup/testskills.asp?skill=numeracy** gives sample tests of workplace essential skills and the user can print the pages and keep score.

Please email me if you have other sites to suggest and I will add them to this list.

Frances Schatz

▲ Teaching Notes

Geometry and Spatial Sense
Ontario Curriculum: Grades 1-8 Mathematics

"By the end of Grade 1, students will:

- describe and classify three-dimensional figures and two-dimensional shapes using concrete materials and drawings
- build three-dimensional objects and models
- understand basic concepts in transformational geometry using concrete materials and drawings.

By the end of Grade 2, students will:

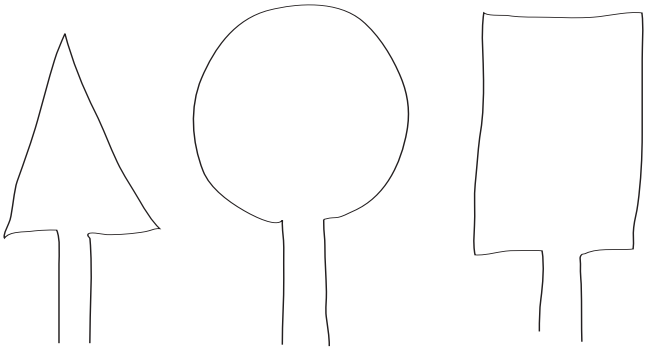
- investigate the attributes of three-dimensional figures and two dimensional shapes using concrete materials and drawings
- use language effectively to describe geometric concepts."

These are overall expectations for **Joys of Geometry**; a collection of activities for class, home, or neighbourhood.

Spatial sense is awareness of one's surroundings and the objects in them. Walks provide a great opportunity for children to observe and hear geometry. Geometry means "to measure the Earth". Geometry is concerned with measures such as area, distance, volume, and properties of shapes and lines.

For indoor or outdoor walks, the **Walk Notebook** can be a great way to save information. Children in K-2 need an adult to help them discuss what they see and write their geometry notes. We will look at geometry ideas in a building or room, and on our street or road. Take a nature walk through a park, garden, or down a community trail or farm lane. Visit a farmers' market, a fall fair, or a special festival in your area. On a shopping or holiday trip take some time to notice geometry. Develop your own "walk notebook" from the ideas presented here; you may even have some of your own to add. If it is possible add a camera to your toolkit; pictures will be a great addition to your notebook.

Pictures from magazines, calendars, advertising flyers, and postcards are colourful resources that show geometry in our real world in a way that is hard to see standing on the ground outdoors. For instance, trees are easier to view in a picture. Which shape best describes a tree?

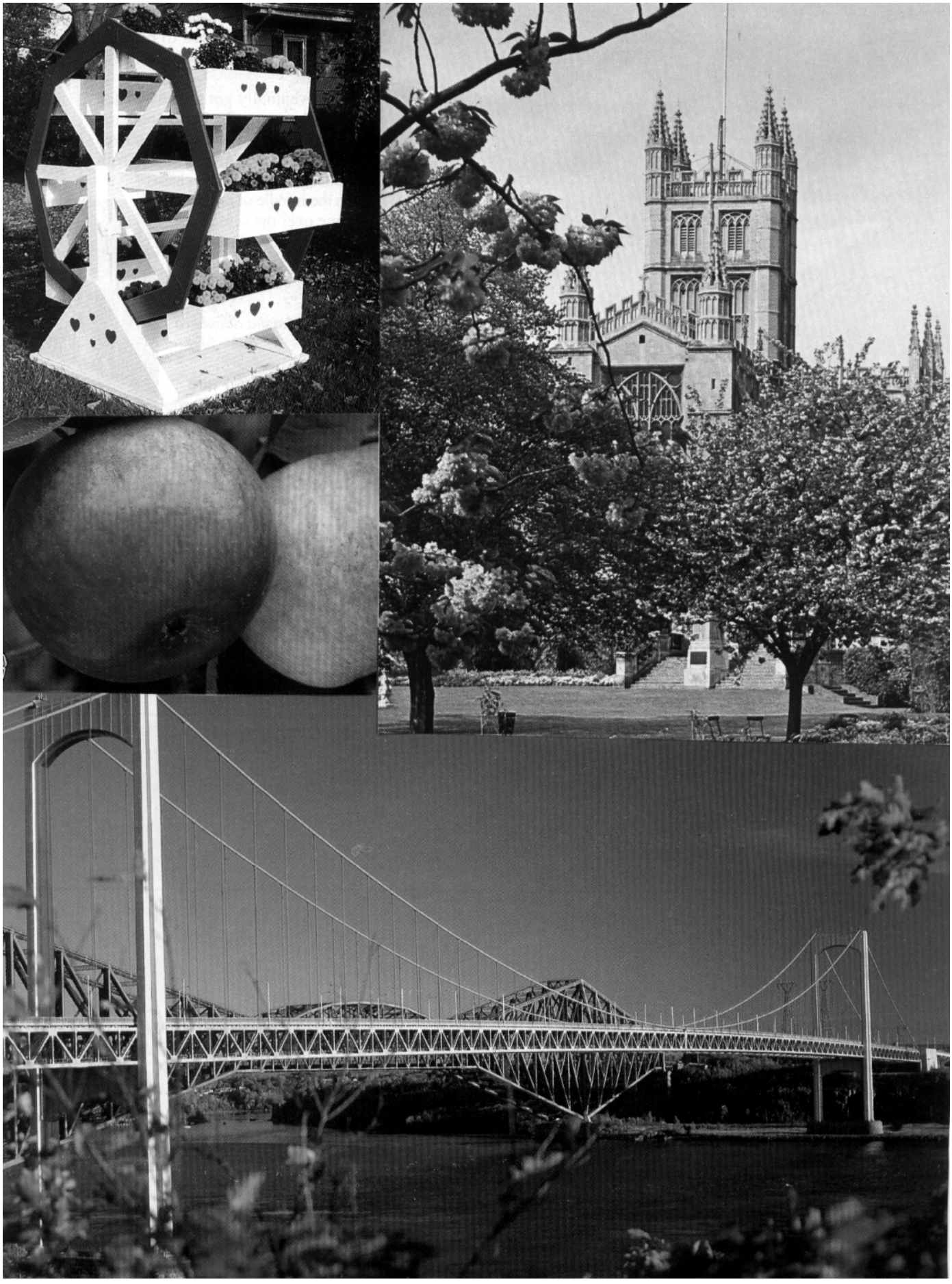


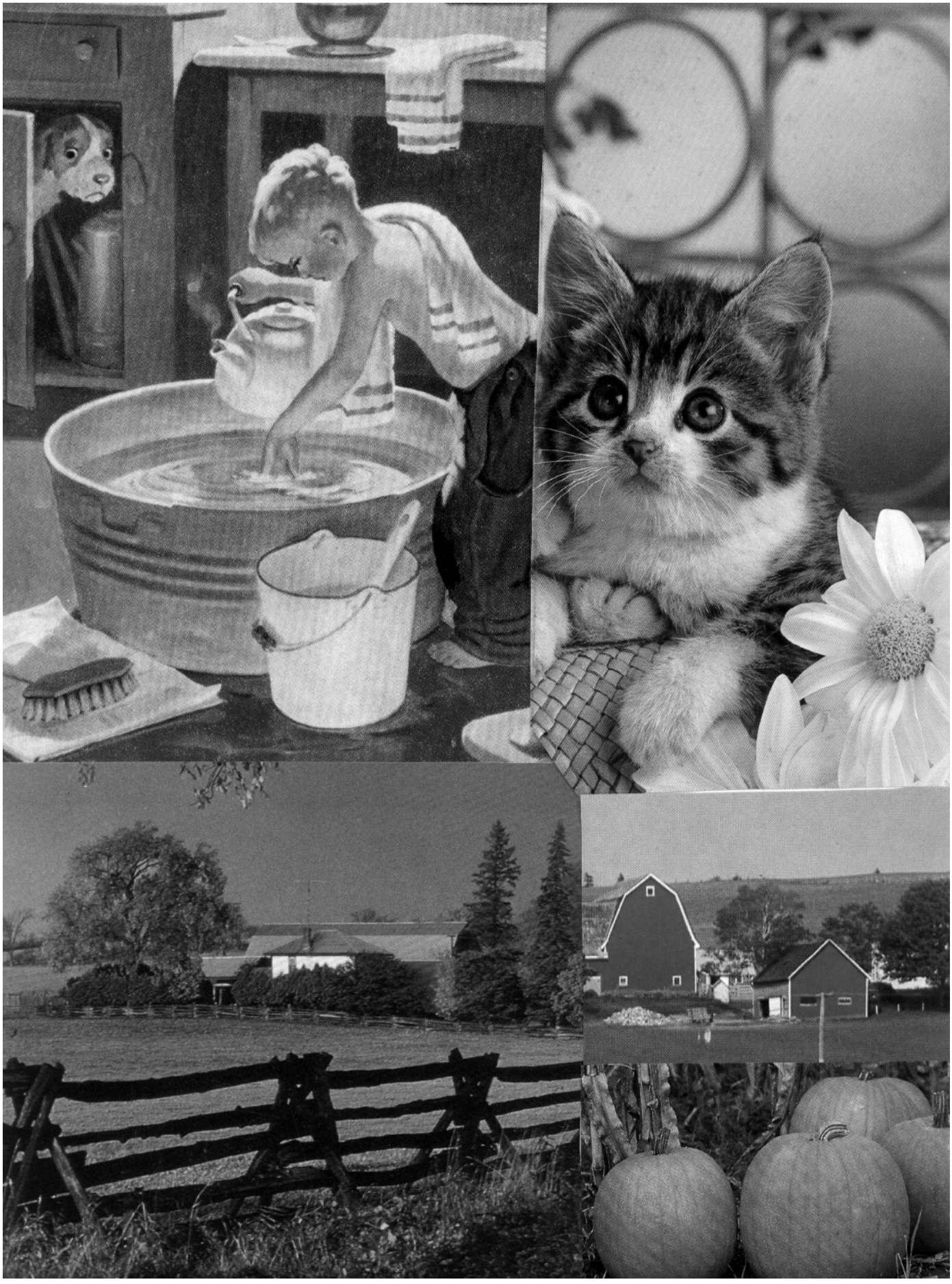
Triangle Circle Rectangle or Square

I encourage children to clip pictures that show mathematics before the household magazine gets put in the recycle bin. In fact, I have three boxes of pictures that I have clipped from various sources. In this journal the colour cannot be reproduced; however, you will see samples of these clips on pages 4 and 5. Note the various geometric shapes and figures in the the pictures.

Math in Daily Life gives families some ideas of mathematical exercises that can involve everyone. I have provided three possibilities. Please send this editor your ideas for this section.

Calendar Math provides parents with the opportunity to encourage children to engage in mathematical exercises. The Toronto District School Board publishes calendars. More information can be obtained by email: curriculumdocs.@tdsb.on.ca. This issue ends with some sample calendar math from previous years.





▲ Joys of Geometry

Walk Notebook

Indoors

Choose a room either at home or in your school. Walk around the room and look for, then write one example for each of the following:

Circle _____

Triangle _____

Rectangle _____

Square _____

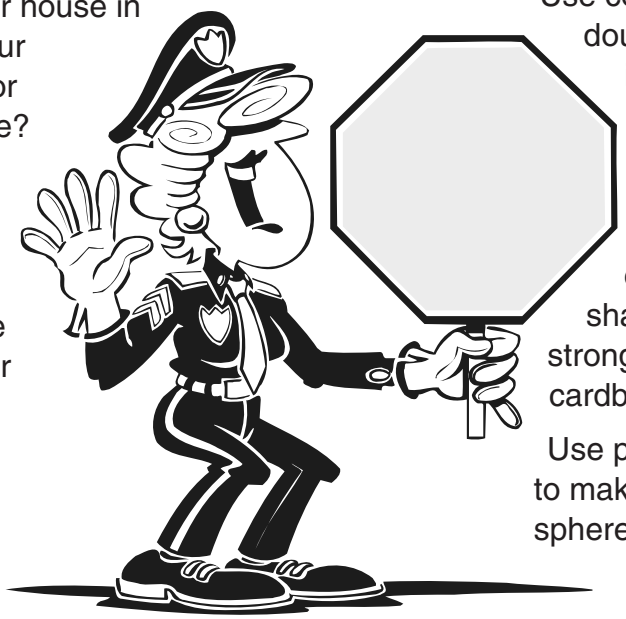
Describe the object you named for each shape (how big? Where is it in the room? Is it plain or does it have a pattern?)

Draw a floor plan of your house.

Down the Street

Draw the shapes of street signs. Describe each one (how many sides, words on the sign, size in comparison to another sign).

Where is your house in relation to your neighbour's or friend's house? (describe the direction with words such as beside, across, to the right or left, or between)





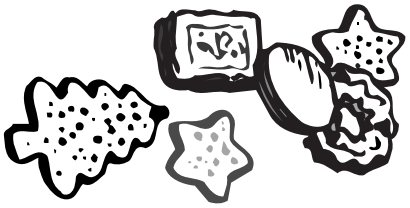
At the Mall or Market

Go on a "shape hunt". Look for and make a list of as many circles, squares, triangles, and rectangles as you can find.

Extend your "shape hunt" to include cubes, cones, spheres, and cylinders.

Which shapes roll? Don't roll?

In the Kitchen



Use cookie dough, roll it, then cut out circles, rectangles, triangles, and squares. Cookie cutters can be used or prepare cardboard shapes to place on the dough. Using a strong plastic spatula, trace/cut around the cardboard shape.

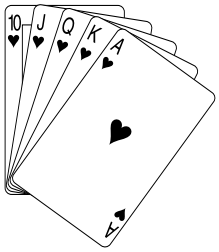
Use pastry dough (stiffer than cookie dough) to make shapes such as cubes, cones, spheres, and prisms.

Math in Daily Life

1. **Play to Win.** Card, dice, and board games provide opportunities to discuss numbers, patterns, geometric shapes, and probability. Here is a sample of possible discussion ideas.
   a) What makes the game attractive?
   b) What is the probability of rolling a 'sum of seven' to win the privilege of going to a particular site on the board?



   c) Which is more likely, a 'sum of seven' or a 'double six' in the roll of two dice?
   d) Is the probability of drawing a 'black card' the same as drawing a 'face card' from a deck of 52 playing cards? (Face card refers to Jack, Queen, King.)



   e) What shapes appear on the game board?

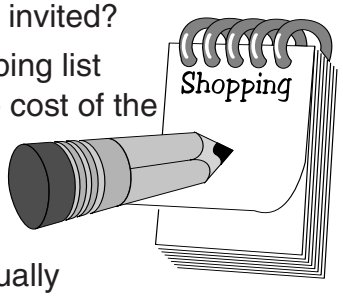
2. **Home Decorating.** A time and money budget is established for redecorating someone's bedroom.



   a) Make a list of items needed for the room.
   b) How much paint and wallpaper will be needed?
   c) Go shopping to determine what the items will cost.
   d) With the price list, what items will fit the budget?
   e) Estimate time for the project and who will do the work when.



3. **Planning a Party.**
   a) How many people will be invited?
   b) What will the menu be for the meal or snack time?
   c) From the recipes to be used, determine how you will change the proportions to accommodate the number of guests. For instance, your favourite potato salad recipe might say "serves 4-6". How will you change the numbers in the recipe to accommodate the number of people you have invited?
   d) Make up a shopping list and estimate the cost of the menu.

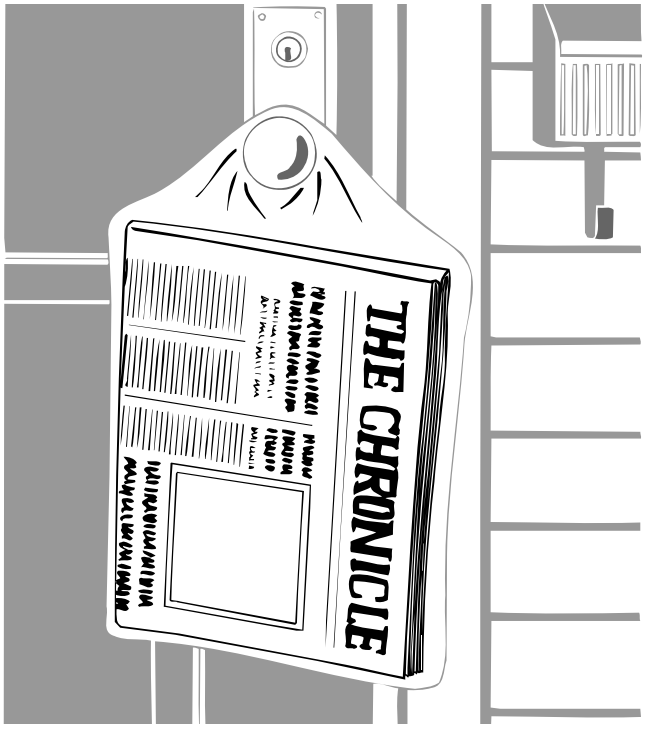


   e) After the shopping trip, how much is actually spent?
   f) Will geometry play a role in your party plans? Decorations, layout of the table, etc.

Calendar Math

Toronto District School Board June 2001

The theme for this month is 'Math in the Newspapers'. Take a look in your local or city paper for a particular day and try some of the following. Your answers will vary.



1. What is the lowest and highest temperatures for your locality today?
2. Pick a number between 1 and 100. Find how many times this number appears in today's paper.
3. Count the number of words per line in 10 lines of any article. What is the average number of words per line?
4. For the 10 lines in #3 do a tally of alphabet letters. What are the five most common letters?
5. Find pictures or logos in the paper with different geometric shapes. If it is a real object estimate its dimensions.
6. Choose a page in the paper. Describe the use of mathematics on this page.
7. What is the surface area of one page of your newspaper?

▲ June Calendar Caper

JUNE 2003

SUN	MON	TUES	WED	THURS	FRI	SAT
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					

There are seven days in a week; that means the calendar shows seven columns of numbers. Here is a SEVEN trick for any four numbers in a column.

Ask your friend to add together four numbers ("don't tell me your numbers") which come immediately beneath each other in a column and give the total.

Suppose the total is 58. You think: ½ of 58 is 29, 4 + 25 = 29 and thus the numbers added are 4, 11, 18, and 25.

Why does this work? The sequence is N, N + 7, N + 2(7), N + 3(7). The sum of these four numbers is 4N + 6(7) or 4N + 42. The sum is 58. 58 – 42 = 16. If 4N is 16, then N is 4 which is the first number of the pattern.

Suppose your friend says the sum is 74. Is the sum of 74 possible? If so, what are the four numbers in the column?

What is the least sum for any four numbers in a column?

What is the greatest sum for any four numbers in a column?

Answers: 74 is possible. The column is 8, 15, 22, 29. Least 46, Greatest 78.