The Square Route

A Mathematical Journey

June 2011

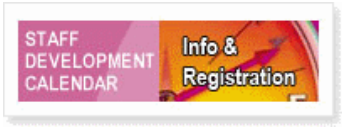
BOARD OF EDUCATION BURNABY SCHOOL DISTRICT 41

Learning Communities

Starting next year, there are some exciting professional developments around assessment and differentiation in the elementary classroom.

The Elementary mathematics committee is proud to present learning teams that will give teachers the opportunities to network and delve into their own questions around good mathematics instruction.

For more information, go to the staff development calendar from the district's homepage.



For Secondary teachers, check out the school cross-curricular learning teams. This opportunity is for groups of teachers from each school to work collaboratively around inquiry questions of their choice.

Blogs and Twitter

Are you on Twitter? Do you use a blog in your classroom? Let me know and I can send out the informational links!

Let me know at brynm.williams@sd41.bc.ca!

Contact Us

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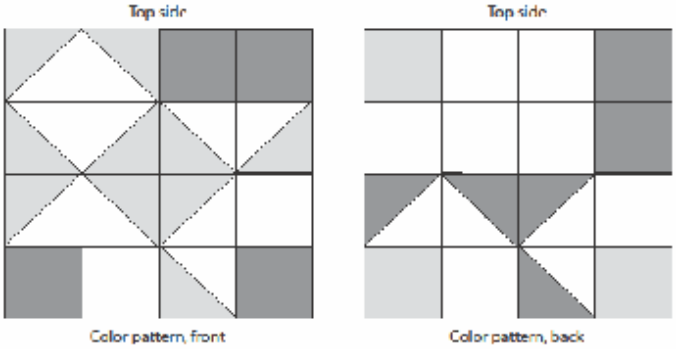
brynm.williams@sd41.bc.ca

Problem of the Month:
Part one: 0, 5, 7, 10, 12, 15, 22
Part two: maximum score possible: 150

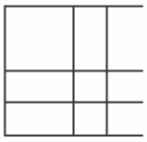
Mathematics Games

Colored Squares

designed by Erik Demaine and Martin Demaine, 2005



Setup: Start with a piece of paper that is white on both sides. Crease to make a 4 × 4 grid of creases as shown on the right. Color in the pattern shown above for each side using two different shades or colors. Be careful when you turn over the puzzle that you keep the side marked "top side" on top. Also be sure to use ink that does not bleed to the other side.



Goals: Puzzle 1 is to fold the 4 × 4 square to a 2 × 2 square that is entirely light gray on both sides. Puzzle 2 is to fold a 2 × 2 square that is entirely dark gray on both sides. You will use all of the available light or dark gray in each of these puzzles.

Puzzle 3 is to fold a 2 × 2 square that is entirely light gray on one side and entirely white on the other side. Puzzle 4, the hardest, is to fold a 2 × 2 square that is entirely dark gray on one side and entirely white on the other side.

In all puzzles, you may fold anywhere, but you may not cut or tear.

BCAMT Fall Conference

On the October 21st PSA day, Burnaby is proud to host the annual BCAMT Fall conference. The planning committee is working hard to make this one extra special for all teachers of mathematics from kindergarten through to grade twelve and above.
Please consider submitting a proposal to present to showcase the great work that Burnaby teachers are doing collaboratively, individually and cross-curricular.
If you do not wish to present, make sure you attend. You can submit your detached duty forms either in June or at the beginning of September.

Go to www.bcamt.ca for more information.

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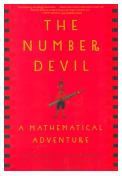
Problem of the Month

Alia has a bucket of coins. Each coin has a zero on one side and an integer greater than 0 on the other side. She randomly draws three coins, tosses them and calculates a score by adding the three numbers that appear.

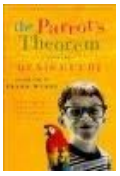
Part one:
On Monday, Alia draws coins with a 7, a 5 and a 10. When she tosses them, they show 7; 0 and 10 for a score of 17. What other scores could she obtain by tossing these same three coins?

Part two:
On Tuesday, Alia draws three coins and tosses them three times, obtaining scores of 60; 110 and 130. On each of these tosses, exactly one of the coins shows a 0. Determine the maximum possible score that can be obtained by tossing these three coins.

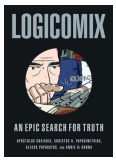
Summer Reading



The Number Devil,
By Hans Magnus Enzensberger



The Parrot's Theorem
By *Denis Guedj*



Logicomix
By Apostolos Doxiadis,

Visit the district's Mathematics Blog at

http://blogs.sd41.bc.ca/math

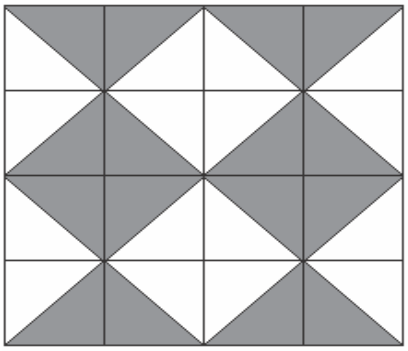
and add your voice to the discussions!

Mathematics Games

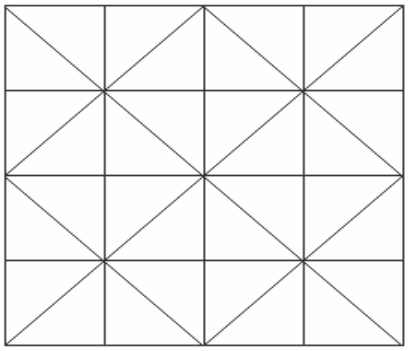
Black and White Squares

designed by Erik Demaine, Martin Demaine, and Erika Johnson, 2005

This puzzle is designed for younger folders and is a good warm up for the Colored Squares puzzle on the next page.



Color pattern (front)
The back is entirely white.



Crease pattern

Setup: Start with a piece of paper that is white on both sides. Precrease according to the crease pattern in the top-right. Fold the creases in both directions to make it easier for young folders to solve the puzzle. Color in the pattern in the top-left on the top side only; leave the bottom side blank.

Goal: The goal is to fold the 4 × 4 square to a 2 × 2 square that is entirely black on both sides (as shown on the right). All the black will be showing when the puzzle is solved. You will only need the creases shown in the top-right. No cutting or tearing.

Goal, front

Goal, back

Trickier puzzle:

A trickier puzzle is to fold the 4 × 4 square to a 2 × 2 square that is entirely black on one side, and entirely white on the other side. Remember that the back of the puzzle is white. You will need more creases than the crease pattern in the top-right.

Have a great, relaxing, mathematical summer!