

These are a few of Kay's favorite tasks...

Presented as part of the Kay Gilliland Equity Strand
TODOS First Annual Conference
June 28, 2014



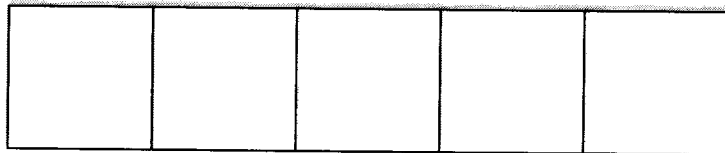
With great love and many thanks to Kay, my friend and my mentor!

Linda Gojak
Immediate Past President,
NCTM
lgojak@sbcglobal.net

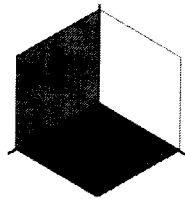
Make a cube

Take 3 strips of paper. Be sure each is a different color.

Divide each strip into 5 equal parts. Fold on the lines.



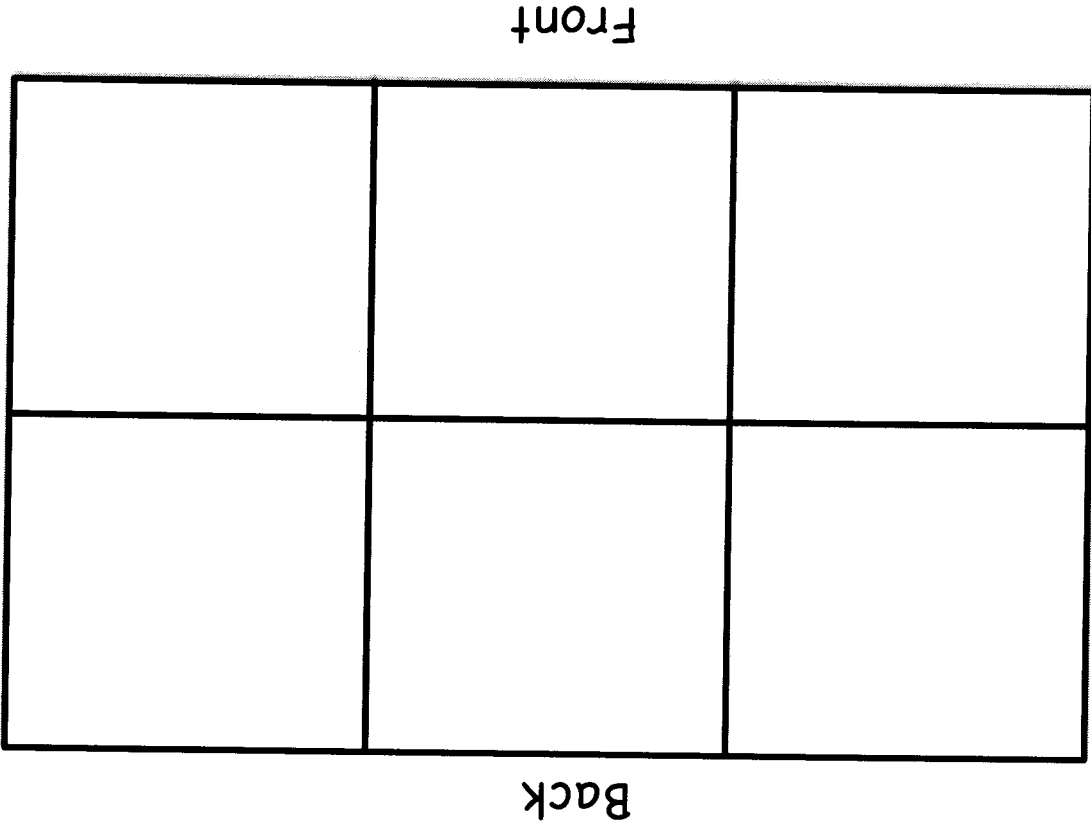
Find a way to make a cube using the 3 strips. Opposite faces should be the same color. There should be 2 faces of each color.



(A good test for your solution is to toss your cube to a friend across the room. If it remains intact, you are correct!)

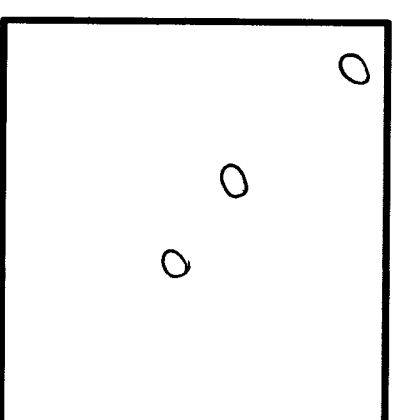
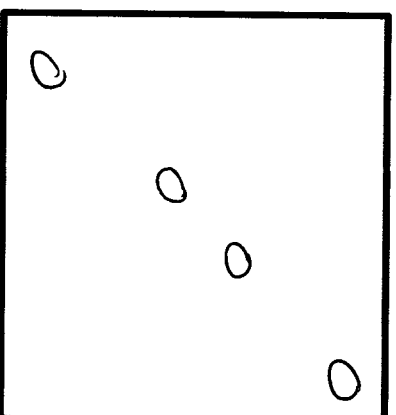
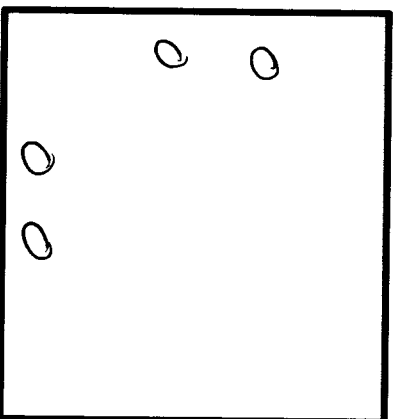
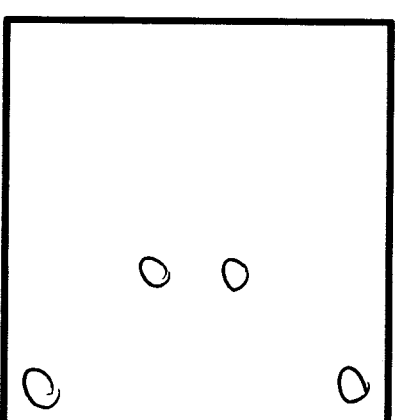
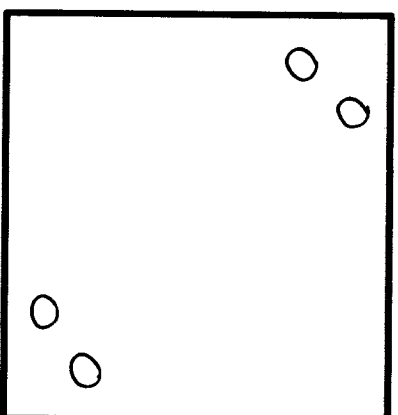
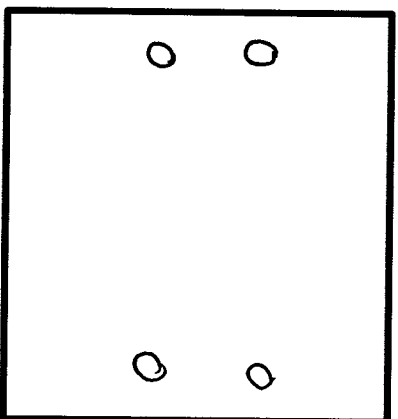
Color Sort

Arrange the six colors on the grid below so that:
the orange is in front of the green;
the blue is between the green and the yellow;
the orange is adjacent to the pink and to the
green;
the red has both the pink and the orange to
its right.



Fold and Punch

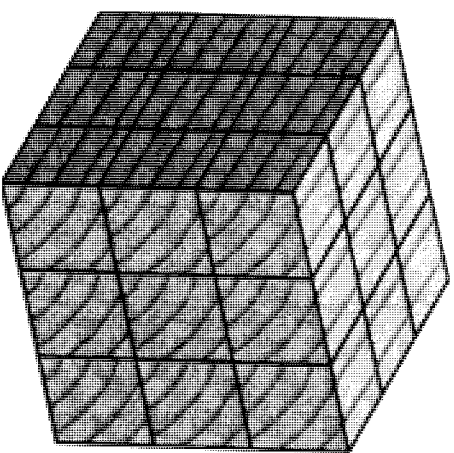
Take a square. Fold it and make one punch so that you will have one of the following patterns when you unfold it. Can you find all six patterns?

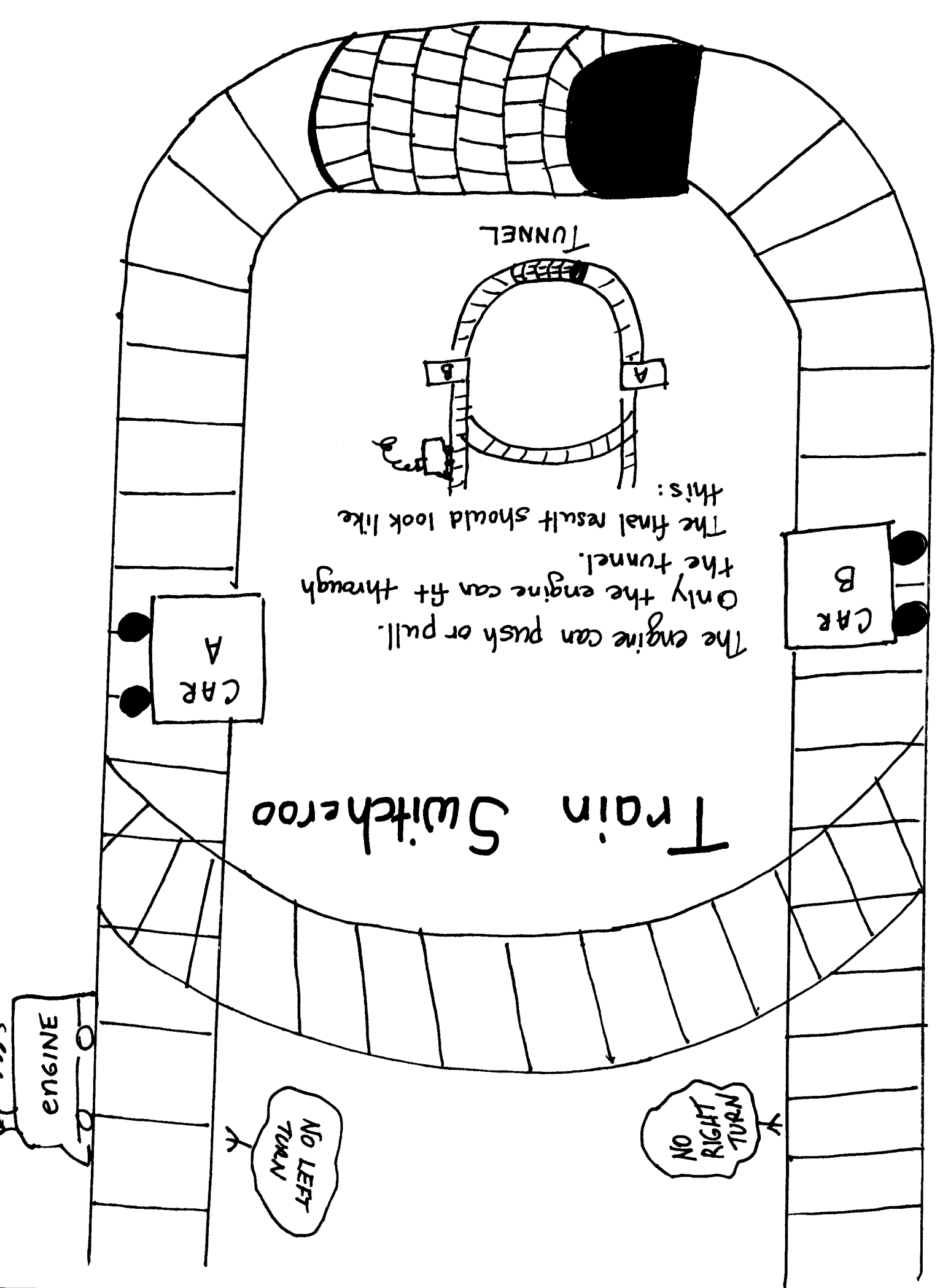


Three to the Third

Take 27 cubes. You will need 9 each of 3 colors.

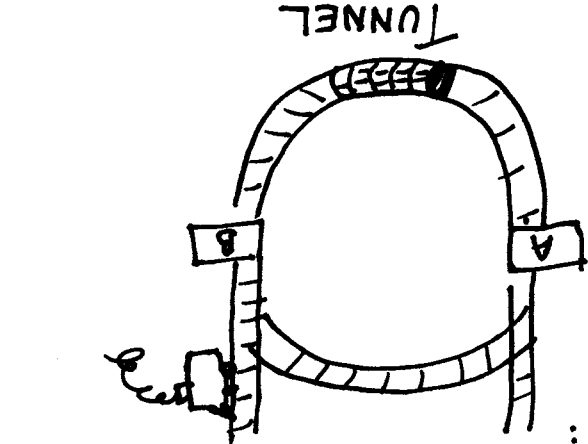
Arrange them into a large cube so that no row has a repeated color and no column has a repeated color.





Train Switcheroo

The engine can push or pull.
 Only the engine can fit through
 the tunnel.
 The final result should look like
 this:



ENGINE

CAR A

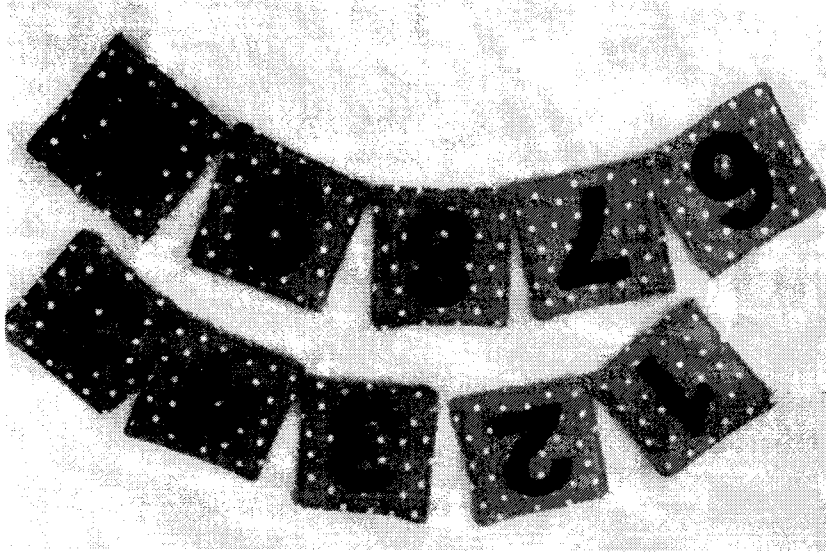
CAR B

NO LEFT
TURN

NO RIGHT
TURN

TUNNEL

A B



Count to 10

The cards in a deck are numbered 1 to 10.

Arrange the cards so that when you turn them

over

- The first card turned over is 1
 - The second card is put under the pile.
 - The third card turned over is a 2.
 - The fourth card is put under the pile.
 - The next card turned over is 3...and so on
 - The last card turned over should be a 10.
- Start with the pile of cards face down.

Multiplication Madness

Use each of the digits 0-9 to make all four multiplication examples true.

$$\begin{array}{r} \square \square \\ \hline \square 2 \times \\ \square 2 \end{array}$$

$$\begin{array}{r} \square \square 2 \\ \hline 9 \times \\ 6 2 \end{array}$$

$$\begin{array}{r} \square 1 \square \\ \hline \square 3 \times \\ \square \square \end{array}$$

$$\begin{array}{r} \square 9 4 \\ \hline 5 \times \\ \square \square \end{array}$$

Seventeen People

There are seventeen students in the class.

Thirteen have brown hair.

Twelve are female.

Eleven are wearing watches.

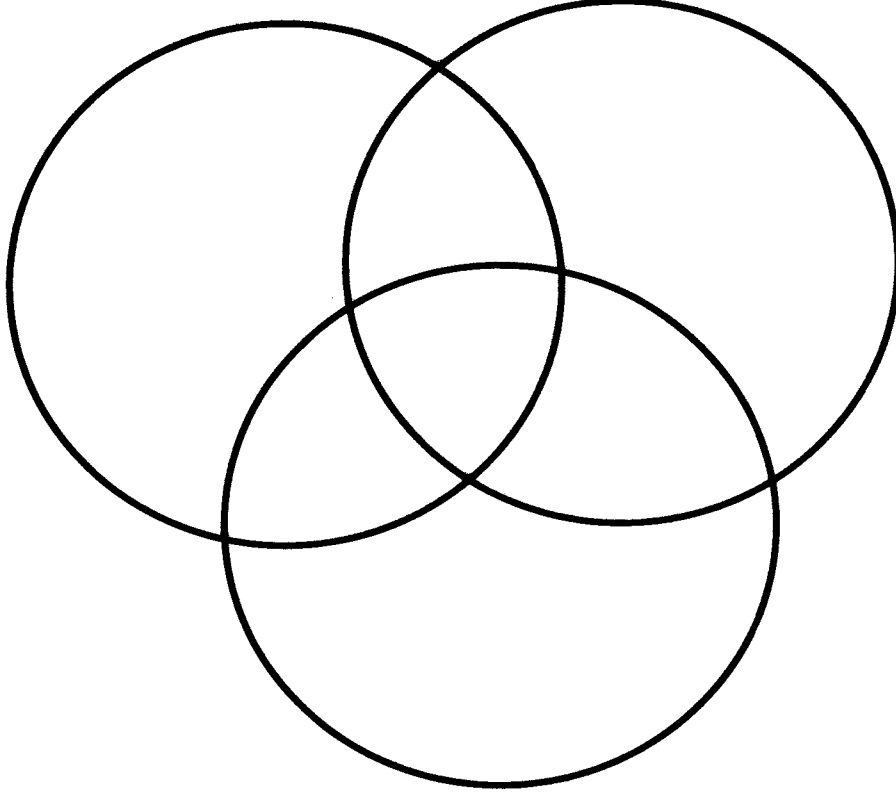
Nine have brown hair and are females.

Eight have brown hair and wear watches.

Seven are female and wear watches.

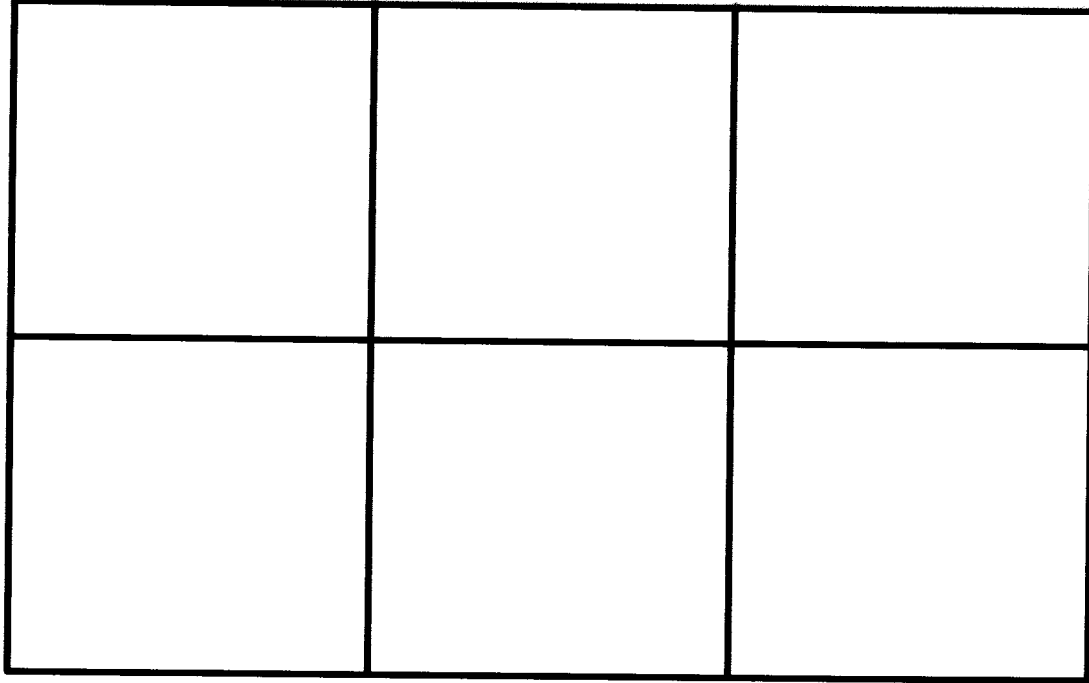
Five are brown haired females wearing watches.

How many have brown hair, are not female and are not wearing watches?



Color Sort

Arrange the six colors on the grid below so that:
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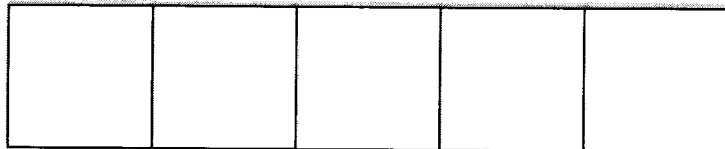
Front

Back

Make a cube

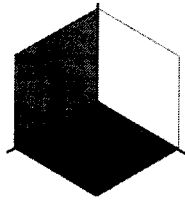
Take 3 strips of paper. Be sure each is a different color.

Divide each strip into 5 equal parts. Fold on the lines.

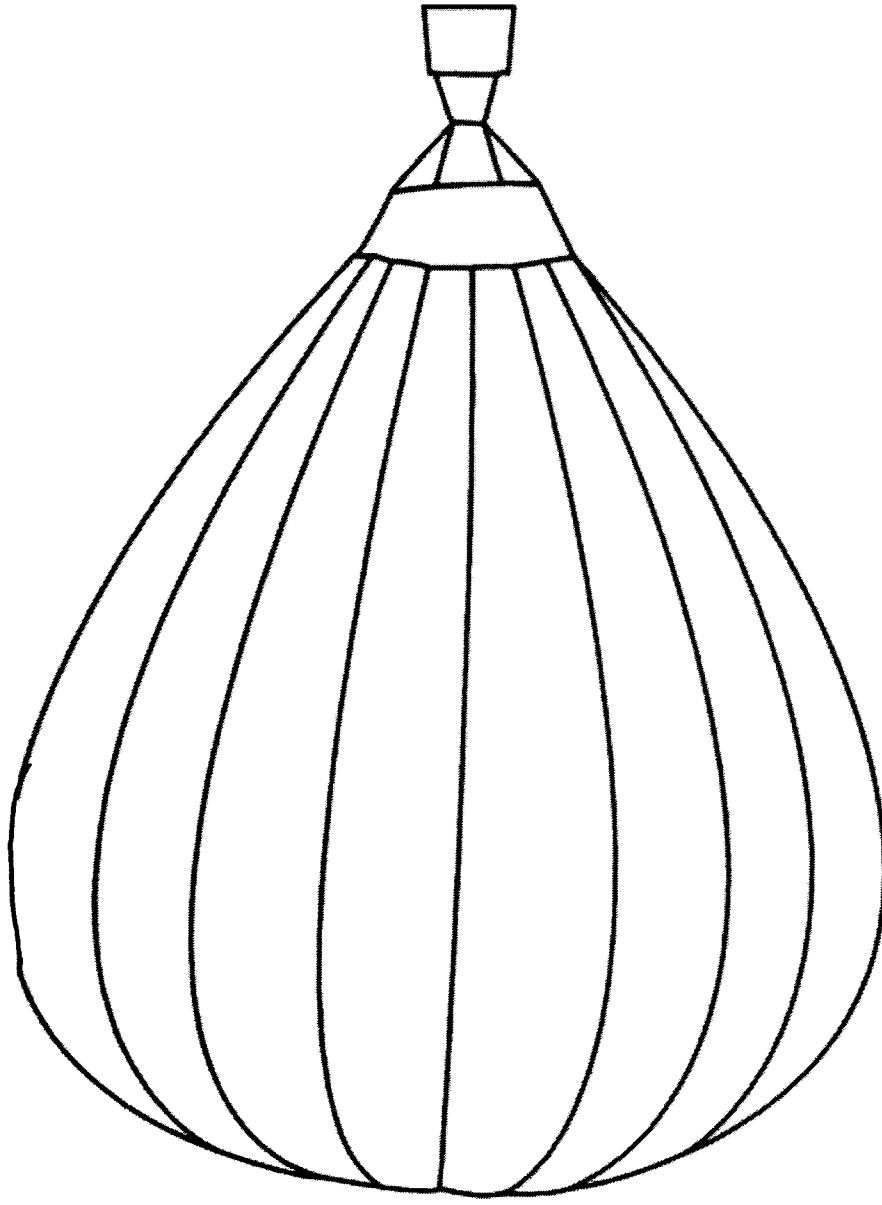


Find a way to make a cube using the 3 strips.

Opposite faces should be the same color. There should be 2 faces of each color.



(A good test for your solution is to toss your cube to a friend across the room. If it remains intact, you are correct!)

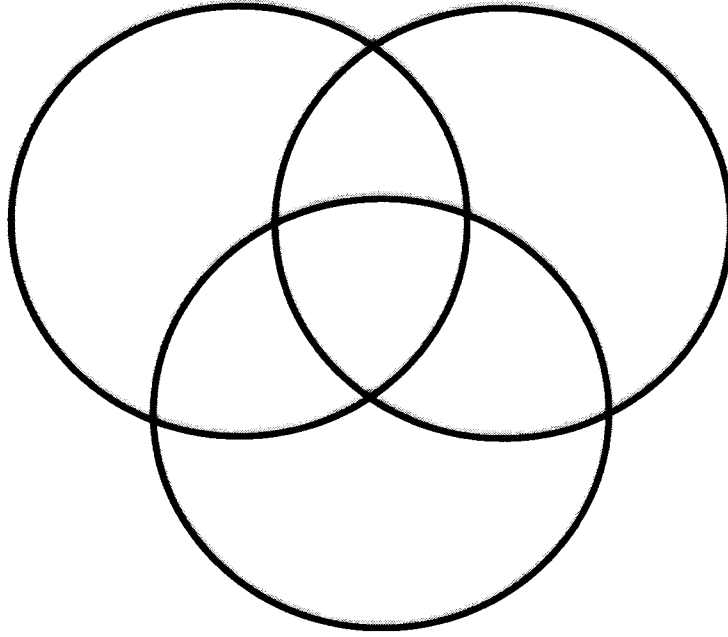


Balloon Ride

The hot air balloon ride is coming to town, There are 10 ropes holding the balloon to the ground. (Place ten toothpicks to show the ropes.)
Two people take turns cutting the ropes (by removing toothpicks). Each person may "cut" either one or two ropes at a time.
The person who "cuts" the last rope gets a free ride!
Can you figure out how to get a free ride everytime?

Art Contest

There are 38 entries in an art contest.
1 in 12 entries the artist used paints.
In 20 entries the artist used felt pens.
In 15 collage was used.
In 7 both pens and paint were used.
Four used paints, pens and collage.
Six used paints and collage.
Ten used pen and collage.
How many entries did not use paint or pen?
How many used pen and not collage?



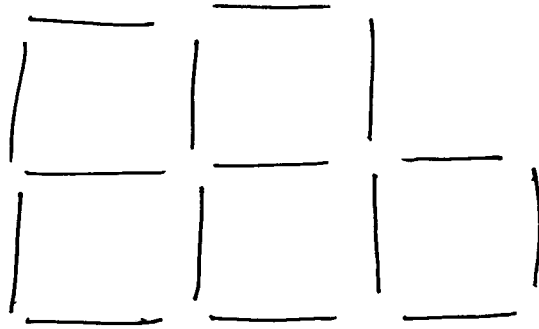
Use the digits 1 to 9 to create two 3-digit addends and a 3-digit sum that is the greatest sum possible.

Digit Delight

<input type="text"/>	<input type="text"/>	<input type="text"/>	
<hr/>			
<input type="text"/>	<input type="text"/>	<input type="text"/>	+
<input type="text"/>	<input type="text"/>	<input type="text"/>	

Toothpick puzzles

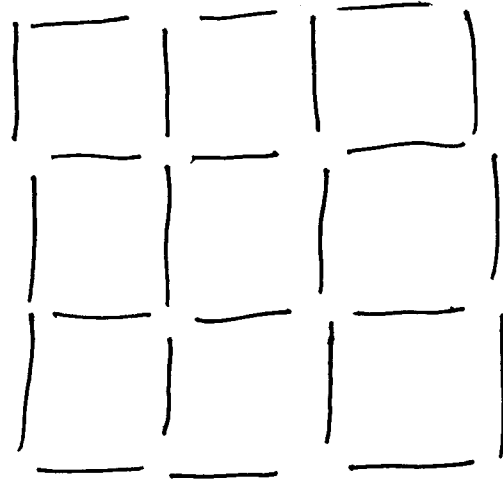
Arrange 15 toothpicks to make this shape:



- a) Remove 3 toothpicks to leave 3 squares.
- b) Remove 4 toothpicks to leave 3 squares.
- c) Remove 5 toothpicks to leave 3 squares.
- d) Remove 4 toothpicks to leave 2 squares.
- e) Remove 3 toothpicks to leave 4 squares.

More Toothpick Puzzles

Arrange 24 toothpicks to look like this:



- a) Remove 4 toothpicks to leave 5 squares.
- b) Remove 8 toothpicks to leave 4 squares.
- c) Remove 8 toothpicks to leave 2 squares.
- d) Remove 8 toothpicks to leave 3 squares.
- e) Remove 6 toothpicks to leave 3 squares.