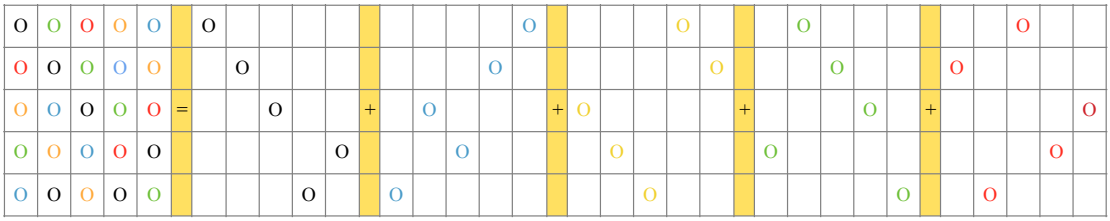
Solatino, a puzzle for young and old.

Contents
60 transparant square cards with dotted patterns in the colours red(r), yellow (y), green (g), blue (b), and black (z).

Aim
Construct with the 60 cards as much as possible, but at least 10, Latin squares.
A Latin square consists of 5 cards, laid upon each other in such a way that (see below):

- the dots do not coincide;
- each row and column contains the 5 colours.



Hints and other information.
You can tackle the aim in two ways:

- trial and error. It is always possible to make some squares. With some exercise and luck you will be able to construct a sequence of 6 or 7 squares. With more exercise you will achieve 9 or 10 squares in a row without decomposing an already made one. Making a 10th square, or more, nearly always needs decomposing one or more already made squares in order to gain a more advantageous mix of cards. *Important to know is that when you have succeeded in constructing a complete row of 12 squares, but not in correct colours (e.g. two red cards in a square, and not blue), it is always possible to make the row perfect just with permuting colours in a number of squares.* With this trial and error way of puzzling a well experienced puzzler needs at least one hour to complete a perfect row of 12 squares;
- find the mathematical background of the puzzle, and use it. Patterns and colours fit in such a way that, starting with one arbitrary square, it is possible to deduce and collect 11 fitting squares *without a mistake*. This way, it needs quite a lot of brain-work, you can construct a complete row of 12 squares within 15 minutes.

The 60 cards consist of 23 structurally different patterns. 4 of them show a double symmetry, and occur singular. 10 of them show one symmetry axis, and occur twofold. And 9 of them have no symmetry, and occur fourfold. A pattern occurs either in one, in two, or in four colours
Apart from the variety of colors 192 structurally different squares (= combinations of patterns) are possible. Some squares can be laid in just two colour variants, others can be laid in 4, 6, 8, 12 of 24 colour variants. The example above can be laid in 4 colour variants (just try!). In total the 192 structurally different squares give 1688 differently colored variations. If a colour sequence of red – blue – black – green – yellow for the third row is maintained, there are 1344 colour combinations

Have fun, and succes!