

Mathmagical Escape Room



You have been captured by the great Mathmagician Rumpelstiltskin!! He wants all your secret knowledge, which of course you will never divulge!! He locks you in a small room in his castle, saying he has more pressing business, but that he will return. You look around, what a mess! The room is full of all sorts of stuff: a pile of musty blankets, a broken abacus, a shelf of empty blue jars, a gigantic red lantern, a table covered in puzzles, a box of newspapers from 1975, a bunch of brooms and mops. You try the door, and it speaks!! In order to escape the door requires that you give it the mathmagical password. How would you know the password!?! Wait, the door said mathmagical, hmmm...perhaps those puzzles could have something to do with this....

House of Mirrors

(taken directly from Math Pickle)

A House of Mirrors can be a dangerous place to live. Bump a wall and the whole house can fall around you - sharp shards everything. That's why there are rules for anyone planning on building a House of Mirrors.

Rule 1: Equal numbers of each colour

Rule 2: All the colours must be different shapes

Rule 3: All the colours must have mirror symmetry

Rule 4: All the colours must have different lines of symmetry

Instructions

Using square tiles build a House of Mirrors that is 4x4 using 4 different colours - you will need 16 square tiles, 4 of each colour. Or if your group would like a challenge, you can create a larger House of Mirrors using more colours (e.g. a 5x5 using 5 different colours or a 6x6 using 4 different colours). You must find a different House of Mirrors than other groups. Once your House of Mirrors is complete and approved by the teacher, colour it in into the chart below and hand it in. You may not need to use all of the squares - depending on the size of your house.

Example

3x3 House of Mirrors with three colours

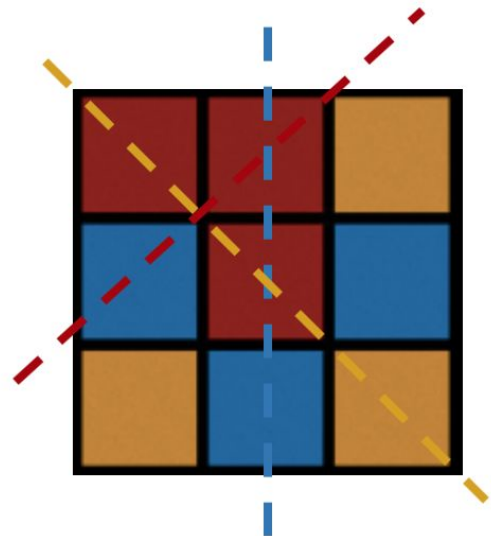
Rule 1: Equal numbers of each colour ✓

- There are three of each colour

Rule 2: All the colours must be different shapes ✓

Rule 3: All the colours must have mirror symmetry ✓

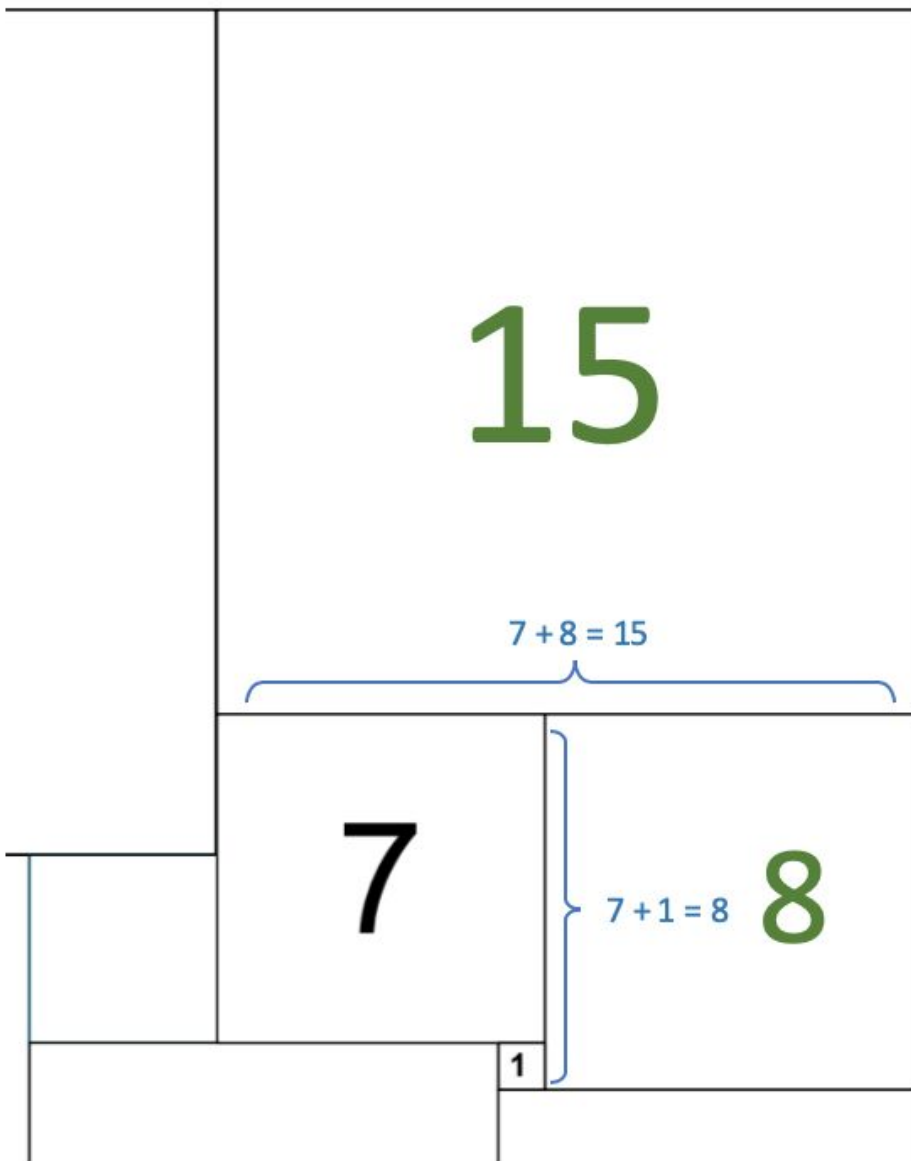
Rule 4: All the colours must have different lines of symmetry ✓



Squaring the Squares

Find the side lengths of all squares in the rectangle so that the edge length of each square is the same as equivalent lengths made up of other squares' edge lengths. Use your knowledge of addition, subtraction, and perimeter to help you (measurement tools will not help you).

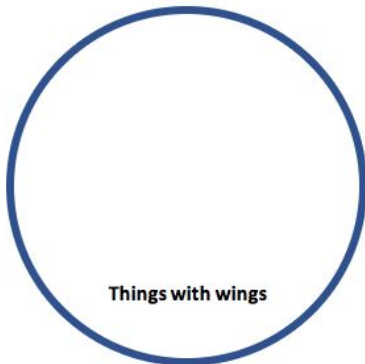
Example



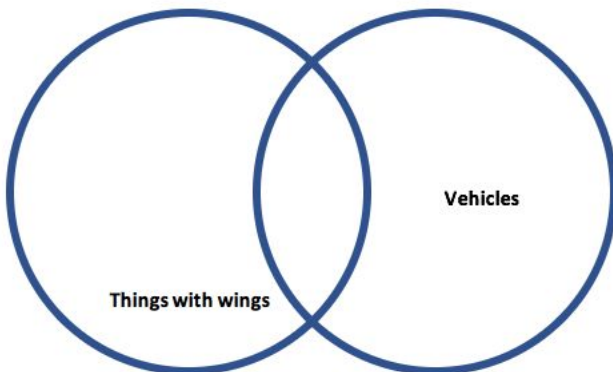
Venn Puzzler

Match each list of three descriptors to the corresponding venn diagram so that the diagram explains the relationship between the three descriptors. Each list of descriptors fits only one diagram (a one-to-one correspondence).

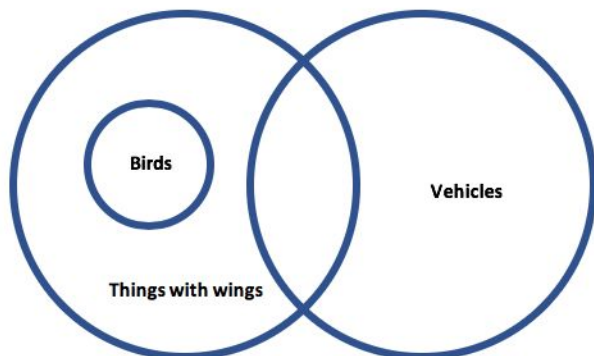
Example: Wings, Vehicles, Birds



There are things with WINGS
~ such as birds and airplanes



Some VEHICLES have WINGS
~ such as airplanes, but not cars or bicycles



All BIRDS have WINGS
No BIRDS are VEHICLES