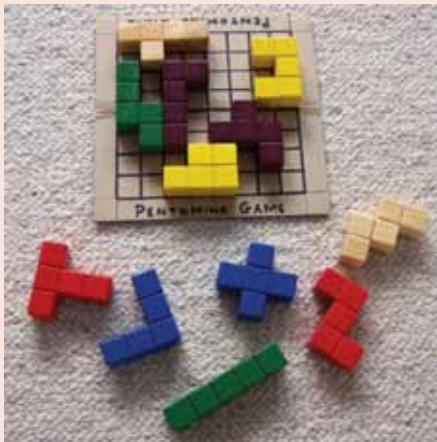


Level 1

A pentomino is five joined squares. In Golomb's game, players take turns placing an unused pentomino in an empty place on the board. Which unused pieces can be used in the next? Which can't? How many ways can the red T be placed? If the blue + piece is placed next, which unused pieces can then be played?



Level 2

Blokus Trigon has a hexagonal board and 4 colored sets of polyiamonds from mono- to hex-iamonds (how many?). My 2-player version has a 5-unit sided board. Taking turns, players put one of their pieces so it touches one of their own pieces only by one corner (or more), not by edges. Moving next, what could Yellow use? Or, going next, what could Red use? Then Yellow?



Level 3

27 identical cubes make 7 pieces: a "bent" 3-cube piece, and 6 "bent" 4-cube pieces. How? Amazingly they make a $3 \times 3 \times 3$ cube – and other 3D shapes!

The $3 \times 3 \times 3$ Soma cube (Google it) is nearly made by 5 red pieces (from a Blokus 3D game). Which pairs can complete the cube: yellow, blue, or green? Why? How? Why not?



Level 4

Upwords is like Scrabble, with stacking. E.g. Player A made GRIST (meaning?): then Player B made GHOST – putting H on R, and O on I. What could A do next? Or B? A word of unstacked tiles scores 2 for each letter. A word with any stacked tiles scores 1 for each tile 1. E.g. unstacked GRIST is 8 – GHOST is 7. What move for A scores most? For B?

