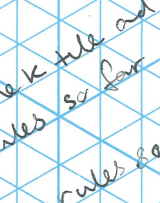
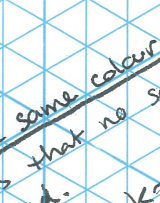
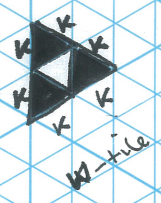
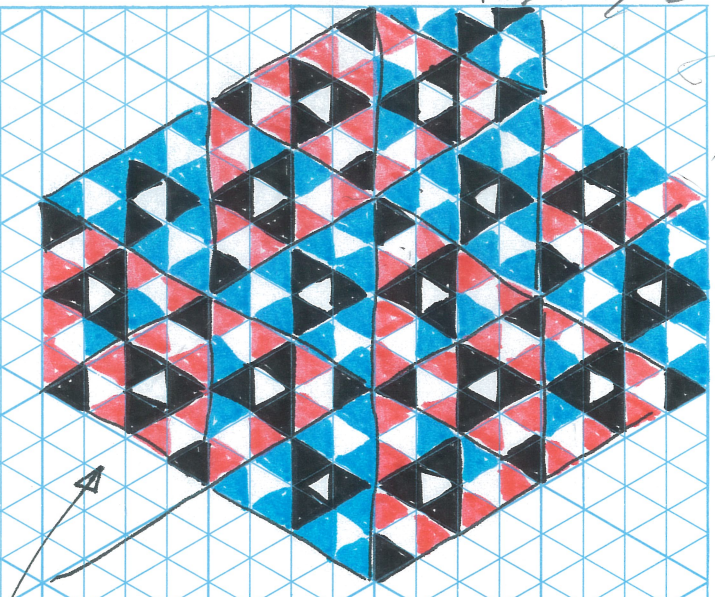


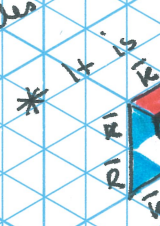
Aperiodic set of  
Prototiles found 16 August  
2005



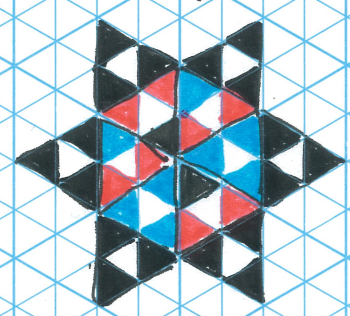
K matches to  $\bar{K}$  and also the same colour must be on either side of a black corner.  
R matches to  $\bar{R}$ . It follows that no same colours about. Tiles must match vertex to vertex.  
W-tile may be surrounded by 3 K-tiles or one K-tile and 2 R-tiles or 2 R-tiles and one B-tile  
or 3 B-tiles only by the matching rules so far given.  
No tile may about itself, by the matching rules so far given.  
R-tile and B-tile only can about along RR-RR\*, K-tile can about R-tiles or B-tiles along its KR sides.  
having W stand for white, K for black, R for Red and B for blue, the only ways to surround a W-tile is by the 4  
configurations 'depicted' on the tile faces. This follows from the matching rules so far given.  
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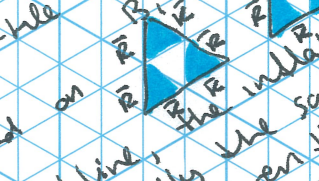
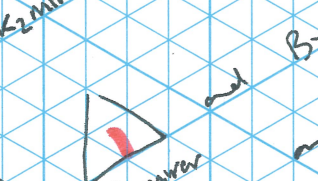
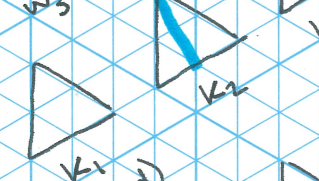
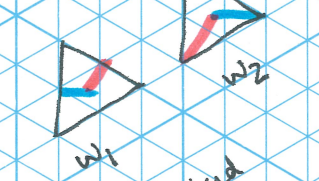
It also follows that all the tiles must be used and that 'hexagons' composed of 2 K-tiles, 2 R-tiles and 2 B-tiles must  
be made and there will have 6 white tiles attached to the sides of the hexagon. Therefore a hexagonal grid of  
W-tiles will always be produced.\*



\* It is possible for R-tile and B-tile to about in 2 ways unless an arrow, say, must be matched along this side; Diagram  
without the arrow, K for black, R for Red and B for blue, the only ways to surround a W-tile is by the 4  
configurations 'depicted' on the tile faces. This follows from the matching rules so far given.



The four ways of surrounding a W-tile are the four prototiles of the given set.  
Each tile has a depiction of its inflation scheme on its face.  
It is possible to produce a tiling with the four prototiles of the given set.  
This tiling is periodic. All inflations of this tiling are of course, also periodic - an infinity of  
periodic things is possible. The particular depends on the inflated B-tile consisting of 3  
one of the other mirror sense. Enforcing the preferred arrangement (2 of one mirror sense and  
at all inflations produces a non-periodic scale invariant tiling (with one possible fault-line).  
The method of enforcing the B-tile inflation chosen, also prevents a 3-fold rotational symmetry,  
just one each of the bilateral B-tile and R-tile. Another 'layer' of markings are superposed on the already  
given large tile has 'lines' of the opposite sense for 'clockwise' and 'anti-clockwise' lines, i.e., the  
red line denote 'clockwise line' and a blue line denote 'anti-clockwise line'. The 'lines' must continue  
straight across tiles and vertices. and  $\odot\odot\odot\odot$  is denoted as lines of little rotating arrows.  
The 4 W-tiles are marked  $w_1, w_2, w_3, w_4$ .



This tiling can also be considered a two hexagonal tile with 4 triangular key tiles.