1. A Nice Quote
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“A mathematician, like a painter or poet, is a maker of patterns. If his patterns are more permanent than theirs, it is because they are made with ideas.” — G. Hardy (from A Mathematician’s Apology, London 1941).
A First Look at Some Quilts
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A First Look at Some Quilts
“Mathematize” the Quilt Block

Start with a 4 by 4 square grid
“Mathematize” the Quilt Block

Fill each square one of six ways
“Mathematize” the Quilt Block

For example:
Make Your Own Quilt Block
Categorizing Quilt Blocks By Symmetries

Reflection Symmetries: Diagonal One
Reflection Symmetries: Diagonal Two
Categorizing Quilt Blocks By Symmetries

Reflection Symmetries: Across One
Categorizing Quilt Blocks By Symmetries

Reflection Symmetries: Across Two
Categorizing Quilt Blocks By Symmetries

Turn Symmetries: 90 Degree

Original

90 Degree Rotation
Categorizing Quilt Blocks By Symmetries

Turn Symmetries: 180 Degree

Original

180 Degree Rotation
Categorizing Quilt Blocks By Symmetries

Turn Symmetries: 270 Degree

Original 270 Degree Rotation
Categorizing Quilt Blocks By Symmetries

Symmetry Group
2 Diagonal Reflection Symmetries
180 Degree Rotational Symmetry

TYPE: D,D,180
Categorize the 28 quilt block card sets according to their symmetry groups.
Categorizing Activity

Categorize your quilt block according to its symmetries. Does it belong to one of the previously discovered symmetry groups?
Advanced Questions for Independent Study

Are there any other 4 by 4 quilt block symmetry groups that we have not “discovered”? 
If a quilt block has two lines of symmetry, does it always have 180 degree rotational symmetry?
How many 4 by 4 quilt blocks exist that possess all the possible rotational and reflective symmetries (i.e. D,D,A,A,90,180,270)?
A Last Look at Some Quilts
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