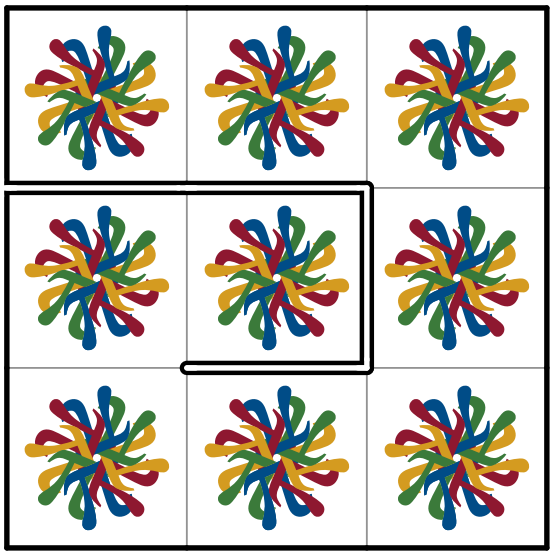
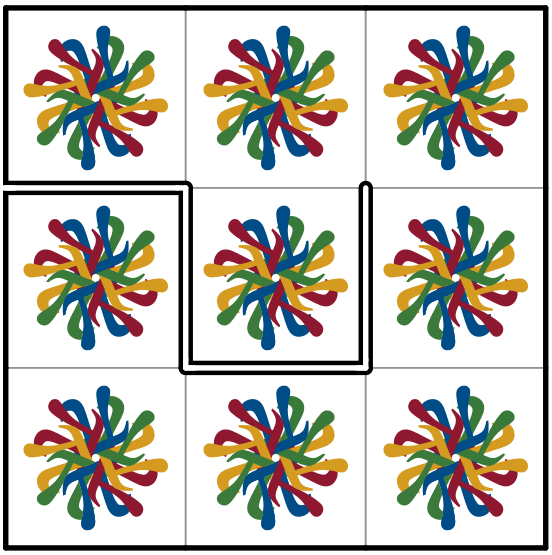
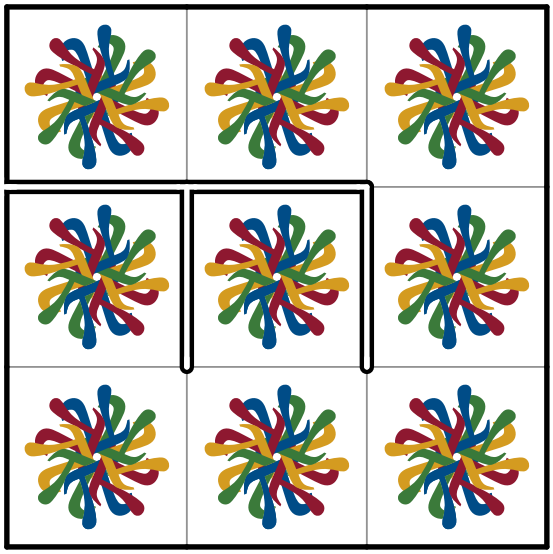
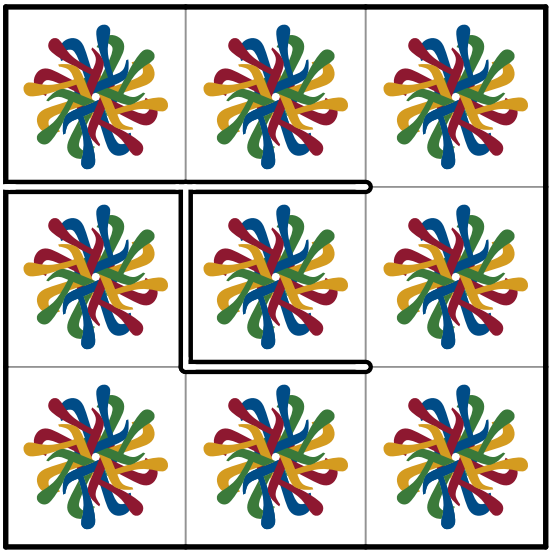
3×3 Cube Folding I

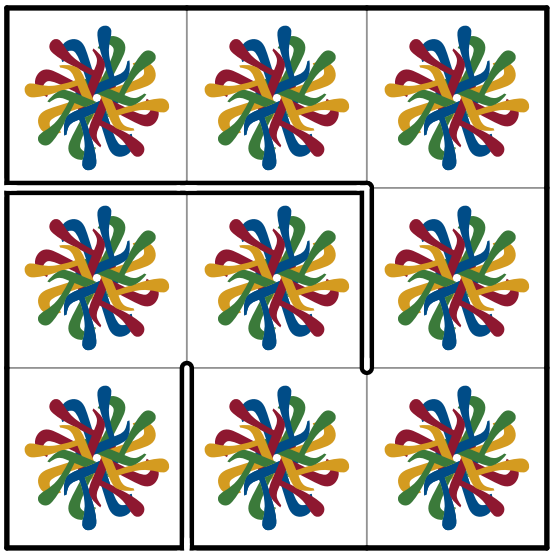
Fold each slit net into a cube using only grid lines.
Which can fold into a cube with six logos showing?

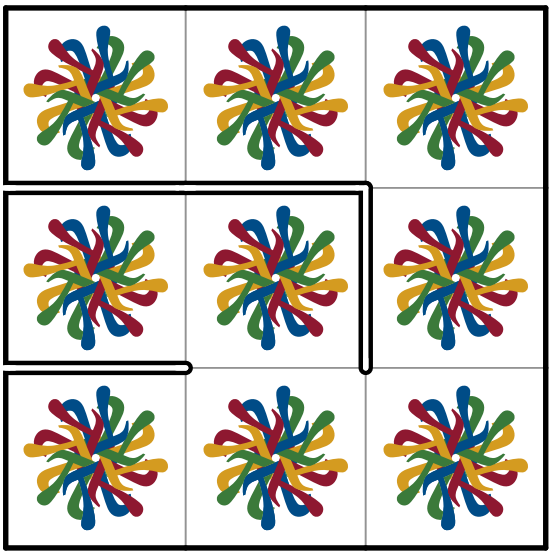








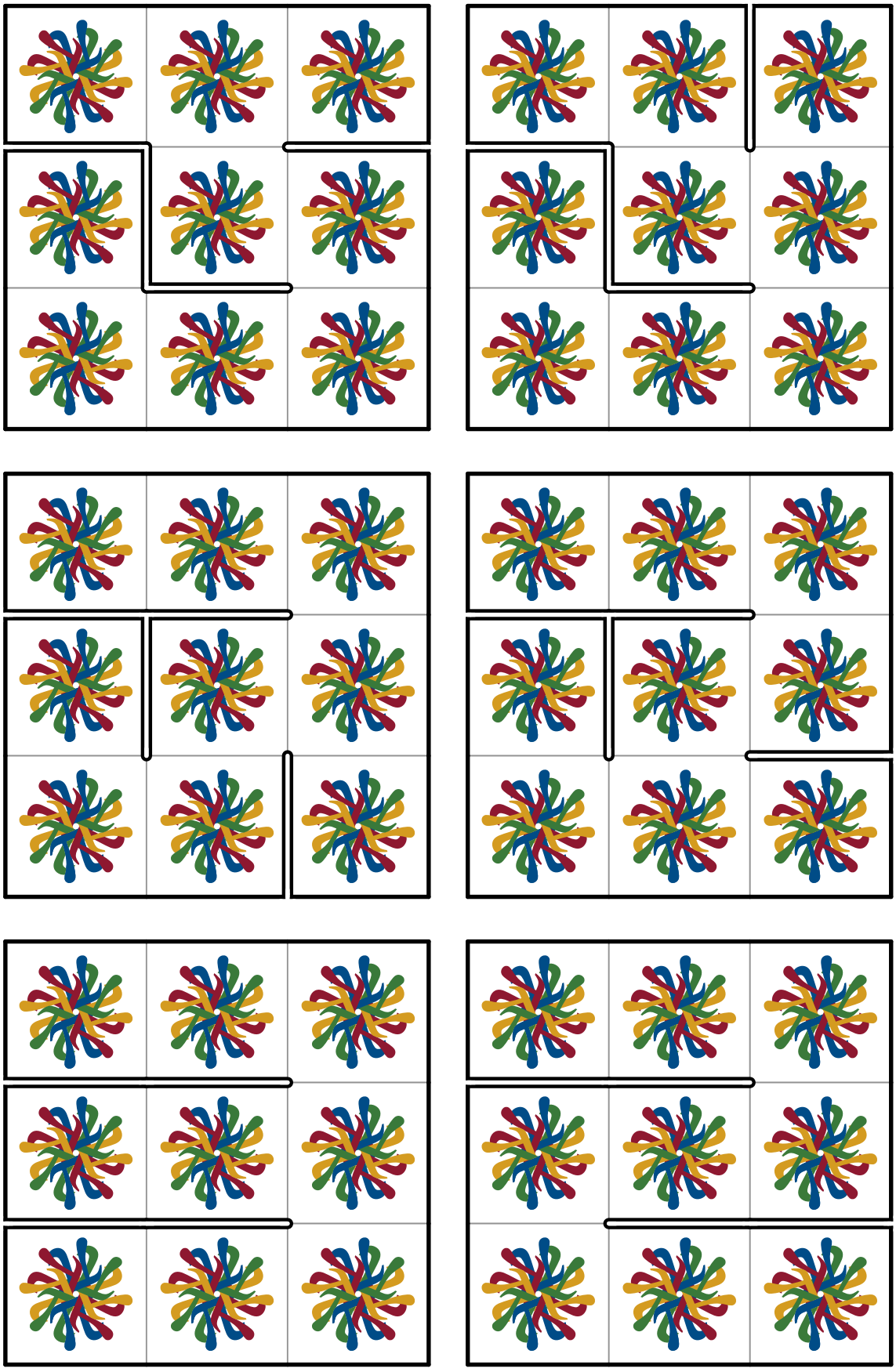




prepared for MoMath by Erik & Martin Demaine, 2019

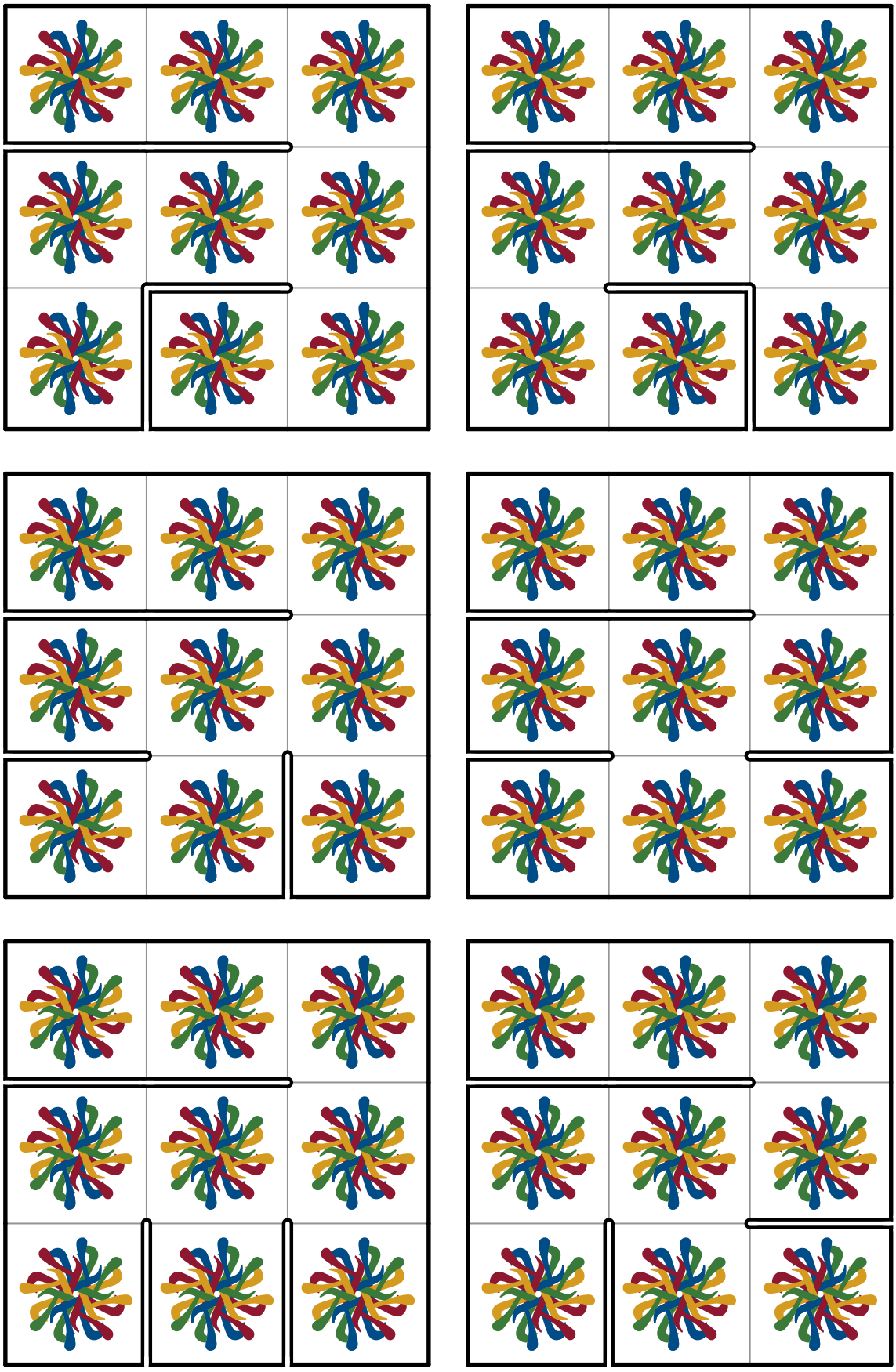
3×3 Cube Folding II

Fold each slit net into a cube using only grid lines.
Which can fold into a cube with six logos showing?



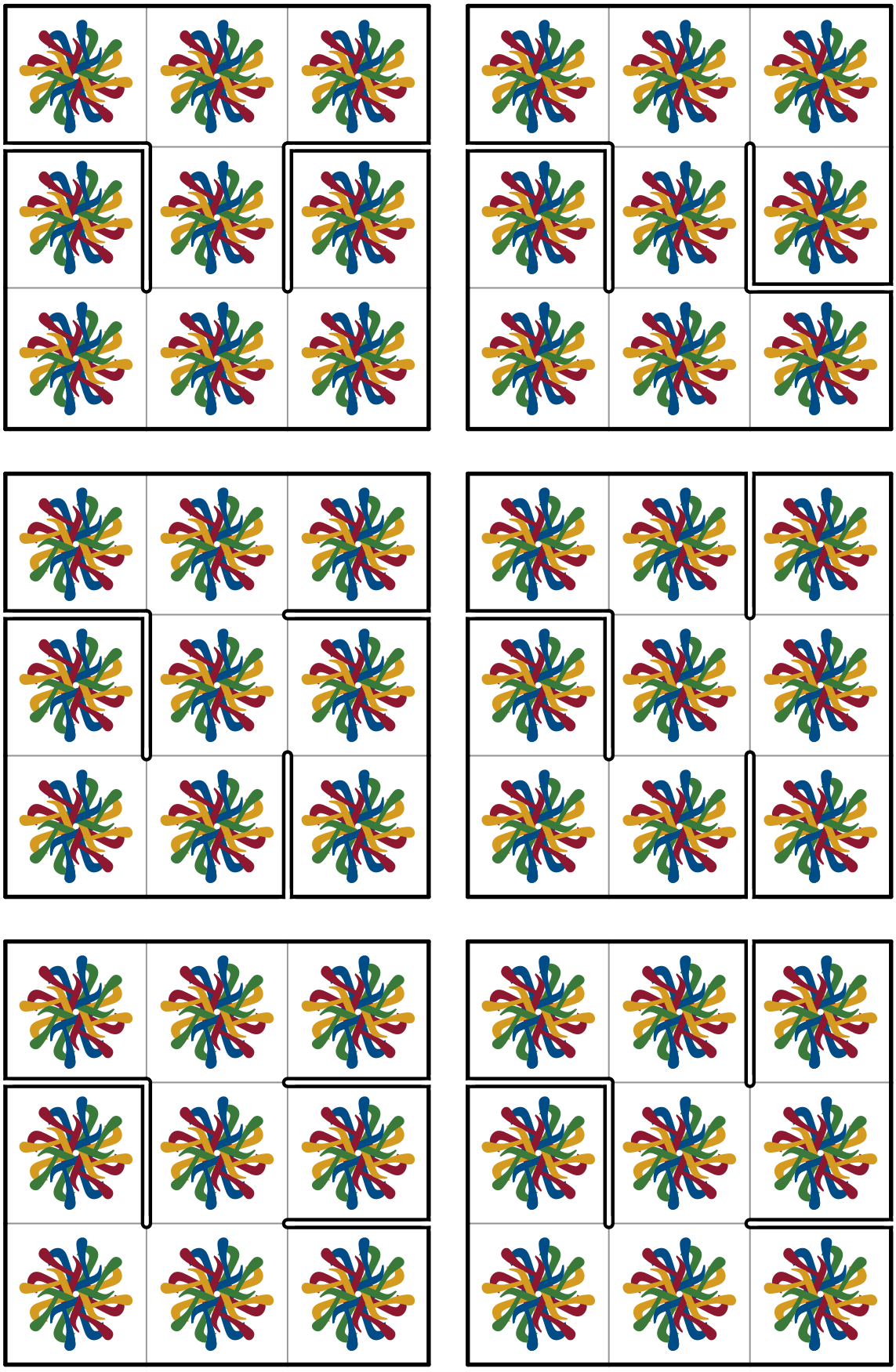
3 × 3 Cube Folding III

Fold each slit net into a cube using only grid lines.
Which can fold into a cube with six logos showing?



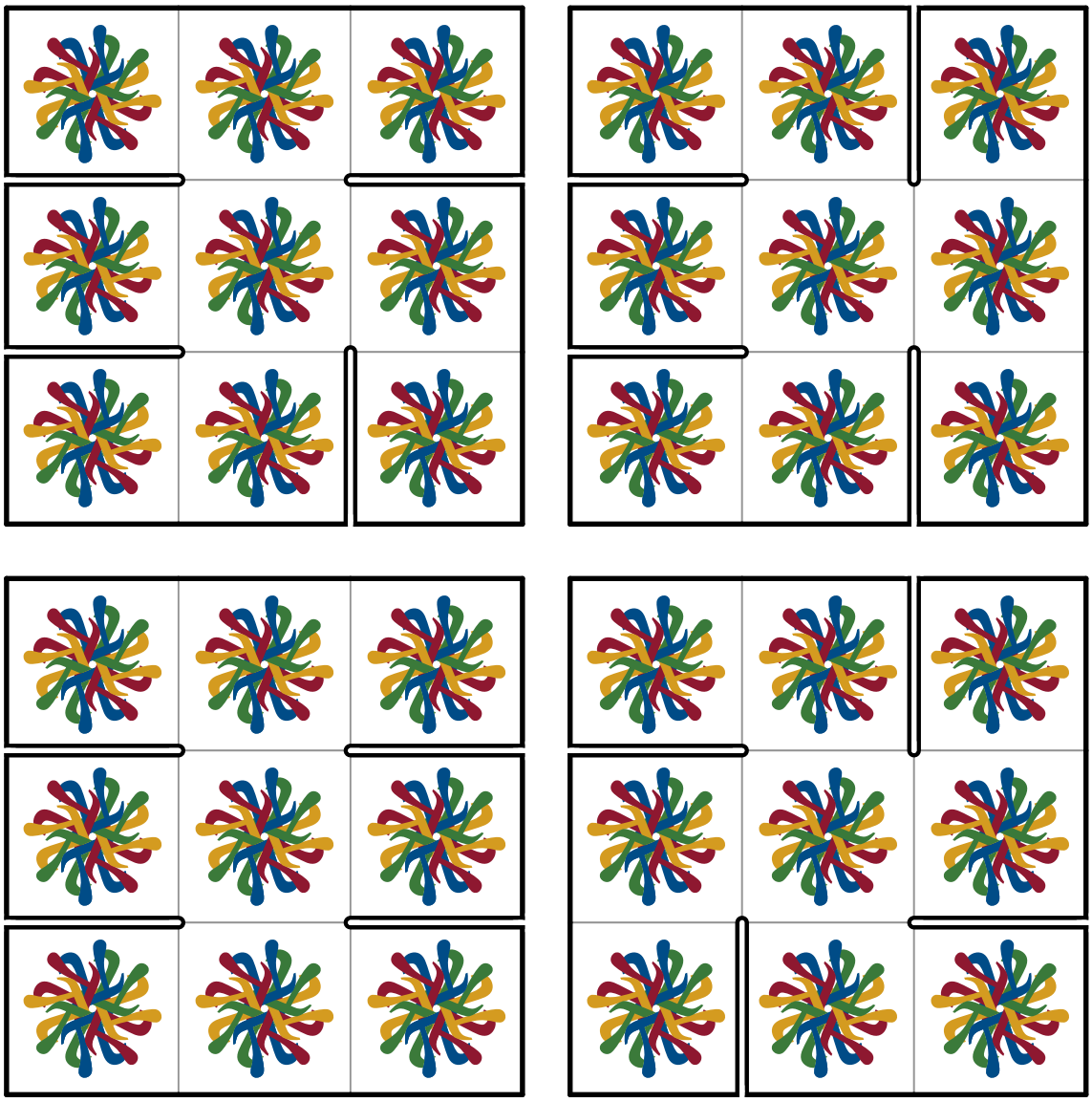
3×3 Impossible Cube Folding I

These nets *cannot* be folded along grid lines into a cube. What if you allow additional folds?
(At least one does, but no one knows about the others!)



3×3 Impossible Cube Folding II

These nets *cannot* be folded along grid lines into a cube. What if you allow additional folds? (At least one does, but no one knows about the others!)



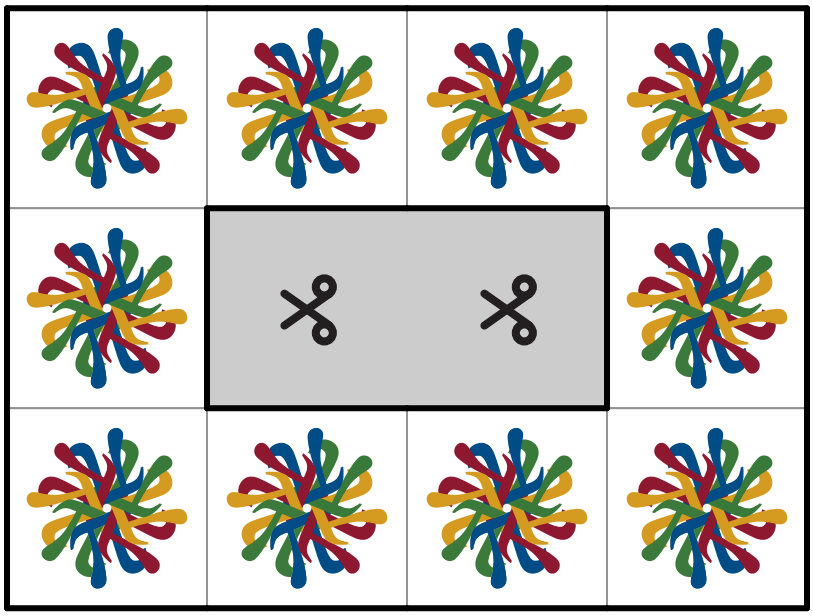
These 3×3 cube puzzles come from the following sources:

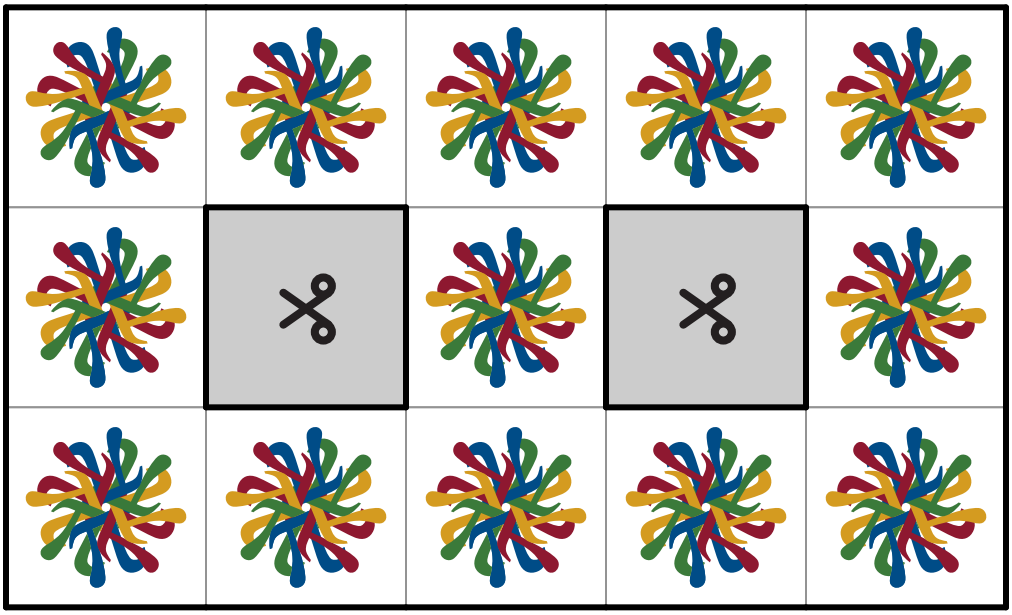
1. Martin Gardner, "Paper cutting", in *New Mathematical Diversions, Revised*, Mathematical Association of America, 1995.
2. Jill Bigley Dunham and Gwyneth R. Whieldon, "Enumeration of solutions to Gardner's paper cutting and folding problem", in *The Mathematics of Various Entertaining Subjects*, volume 2, 2018.
3. Oswin Aichholzer, Michael Biro, Erik D. Demaine, Martin L. Demaine, David Eppstein, Sándor P. Fekete, Adam Hesterberg, Irina Kostitsyna, and Christiane Schmidt, "Folding polyominoes into (poly)cubes", *International Journal of Computational Geometry and Applications*, 28(3):197–226, 2018. http://erikdemaine.org/papers/PolyformFolding_IJCGA/

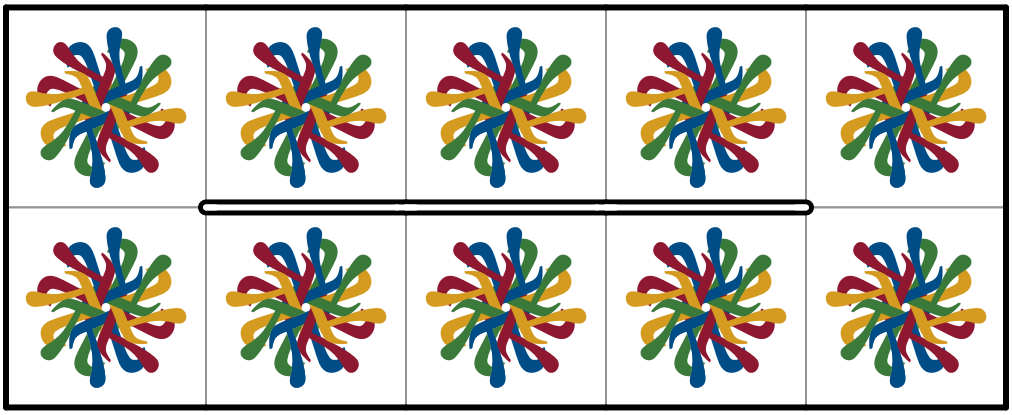
Holey Cube Folding

Each of these nets folds into a cube using only grid lines.

These three puzzles were designed by Nikolai Beluhov in 2014.



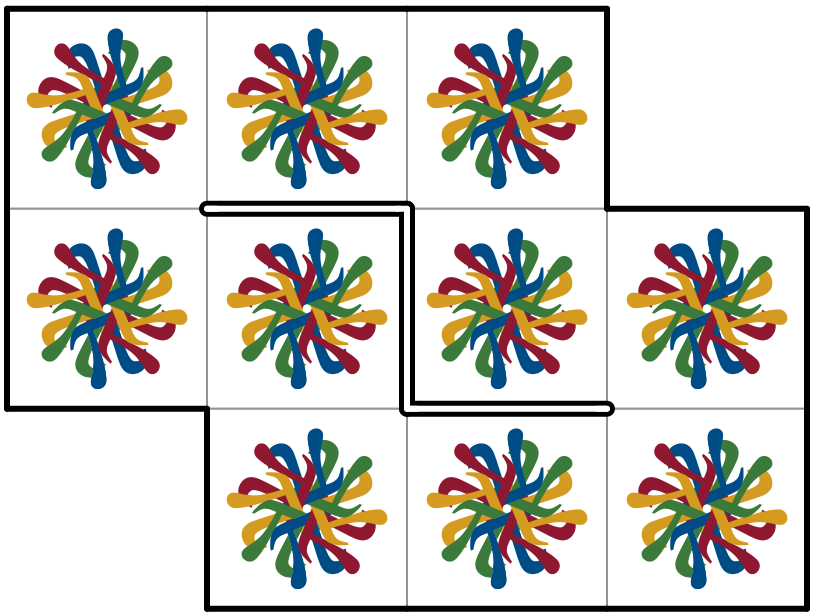


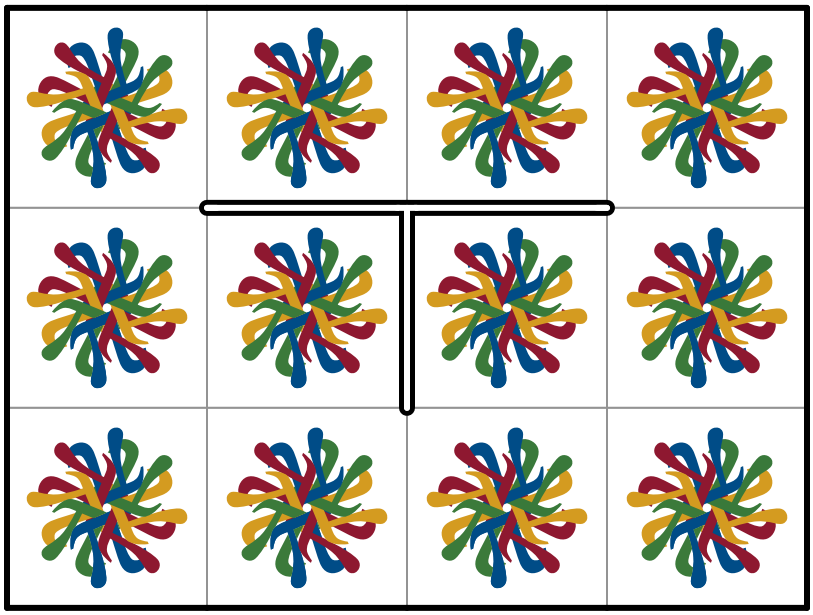


Complex-Hole Cube Folding I

Each of these nets folds into a cube using only grid lines.

Puzzles designed by Oswin Aichholzer, Hugo Akitaya, Kenneth Cheung, Erik Demaine, Martin Demaine, Sándor Fekete, Linda Kleist, Irina Kostitsyna, Maarten Löffler, Zuzana Masárová, Klara Mundilova, and Christiane Schmidt in 2019.





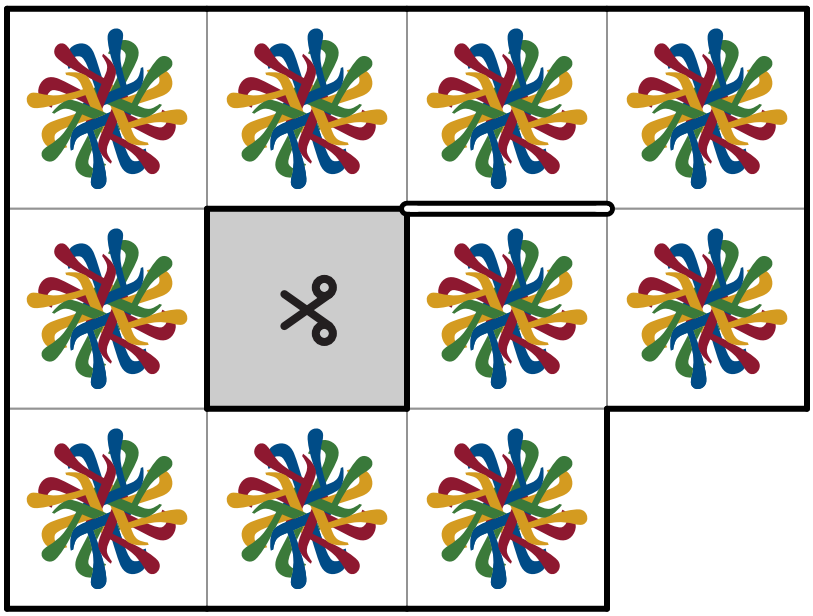
These and all following puzzles come from the following source:

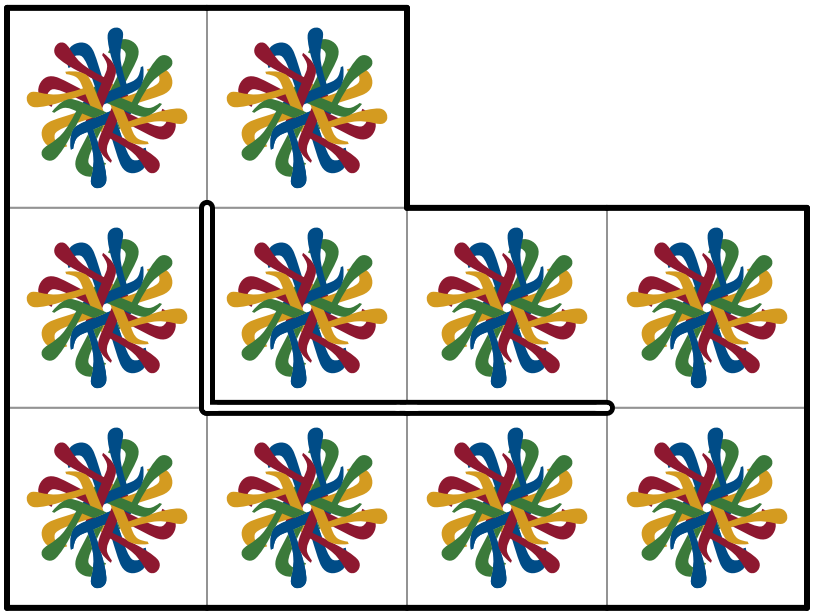
4. Oswin Aichholzer, Hugo A. Akitaya, Kenneth C. Cheung, Erik D. Demaine, Martin L. Demaine, Sándor Fekete, Linda Kleist, Irina Kostitsyna, Maarten Löffler, Zuzana Masárová, Klara Mundilova, and Christiane Schmidt, "Folding Polyominoes with holes into a cube", in *Proceedings of the 31st Canadian Conference in Computational Geometry*, August 2019. http://erikdemaine.org/papers/CubeFolding_CCCG2019/

Complex-Hole Cube Folding II

Each of these nets folds into a cube using only grid lines.

Puzzles designed by Oswin Aichholzer, Hugo Akitaya, Kenneth Cheung, Erik Demaine, Martin Demaine, Sándor Fekete, Linda Kleist, Irina Kostitsyna, Maarten Löffler, Zuzana Masárová, Klara Mundilova, and Christiane Schmidt in 2019.

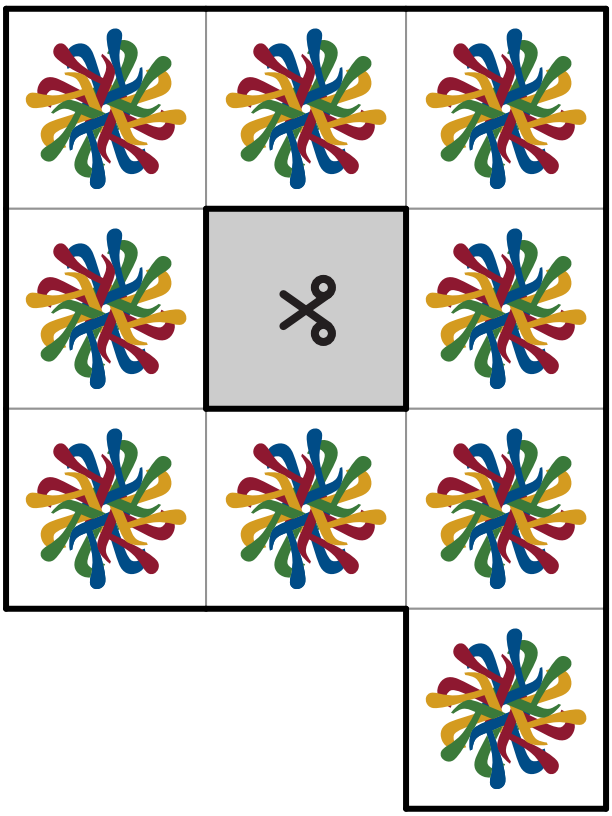


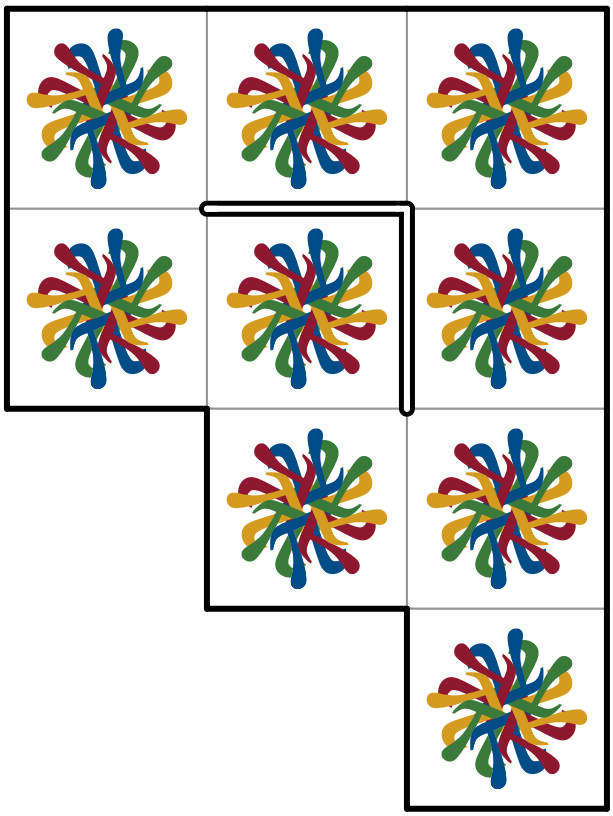


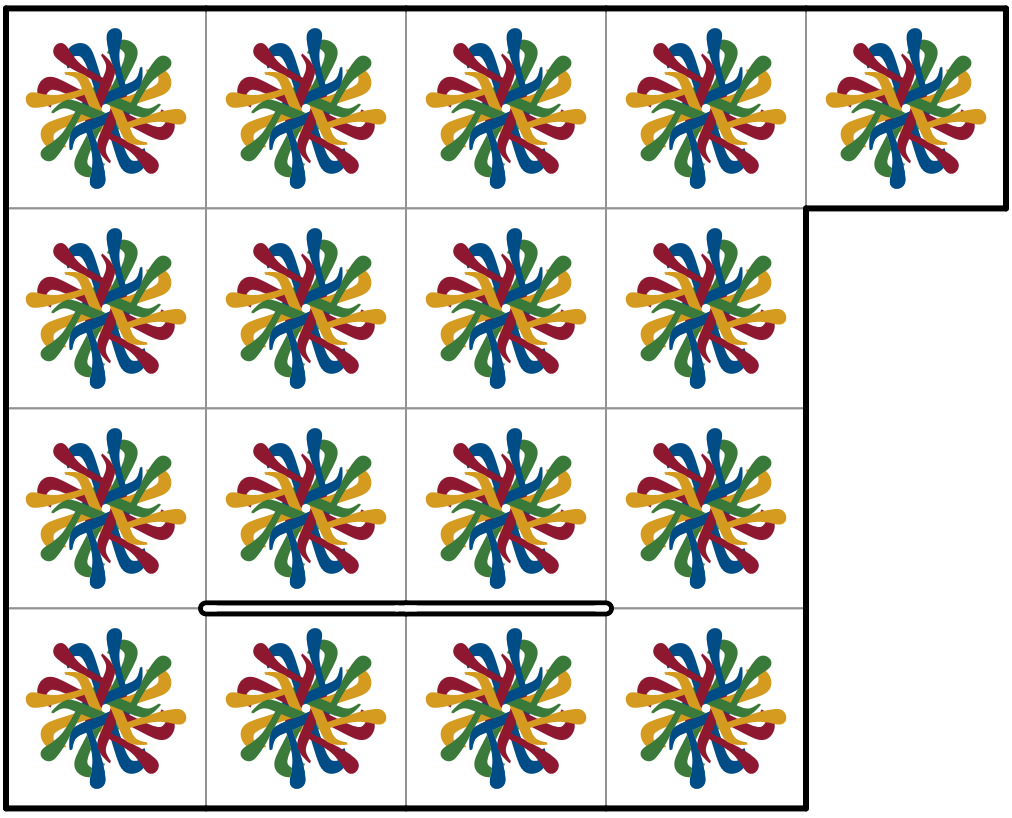
Simple-Hole Cube Folding

Each of these nets folds into a cube using only grid lines.

Puzzles designed by Oswin Aichholzer, Hugo Akitaya, Kenneth Cheung, Erik Demaine, Martin Demaine, Sándor Fekete, Linda Kleist, Irina Kostitsyna, Maarten Löffler, Zuzana Masárová, Klara Mundilova, and Christiane Schmidt in 2019.



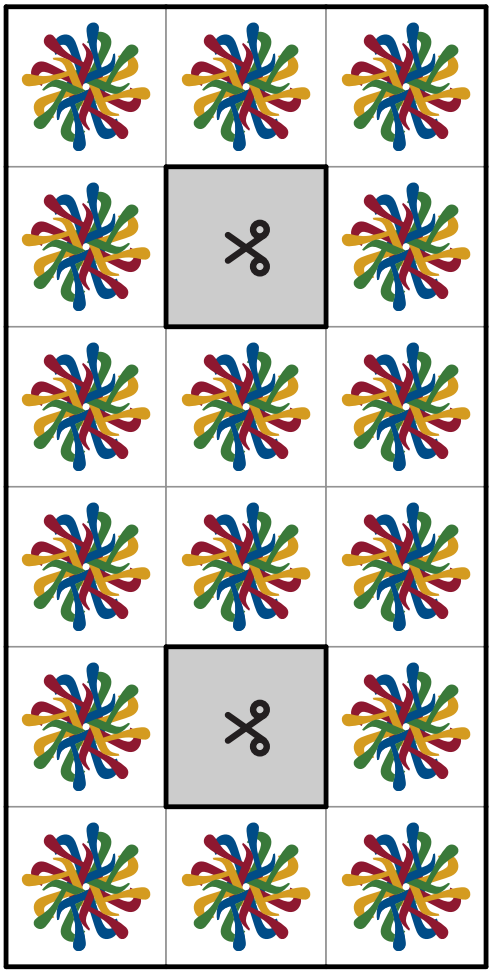


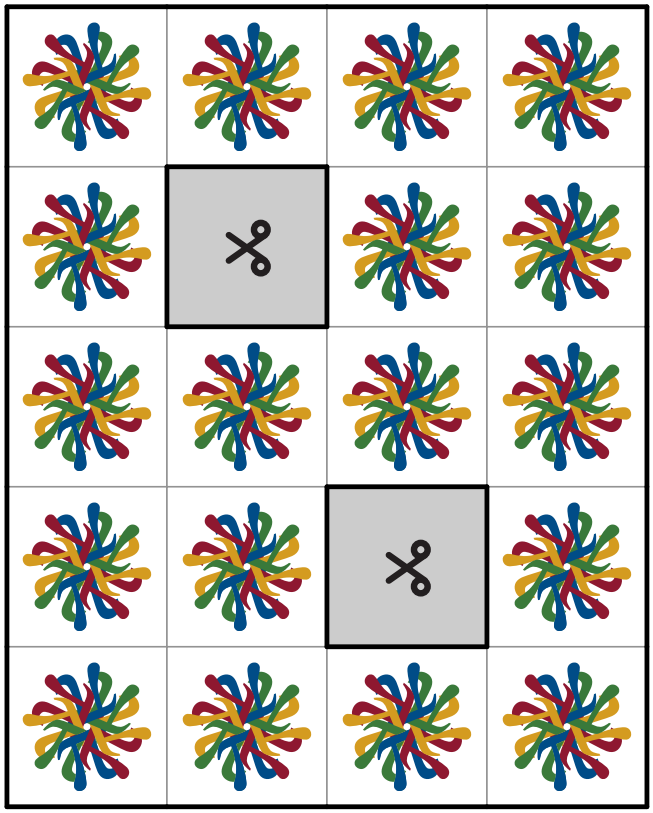


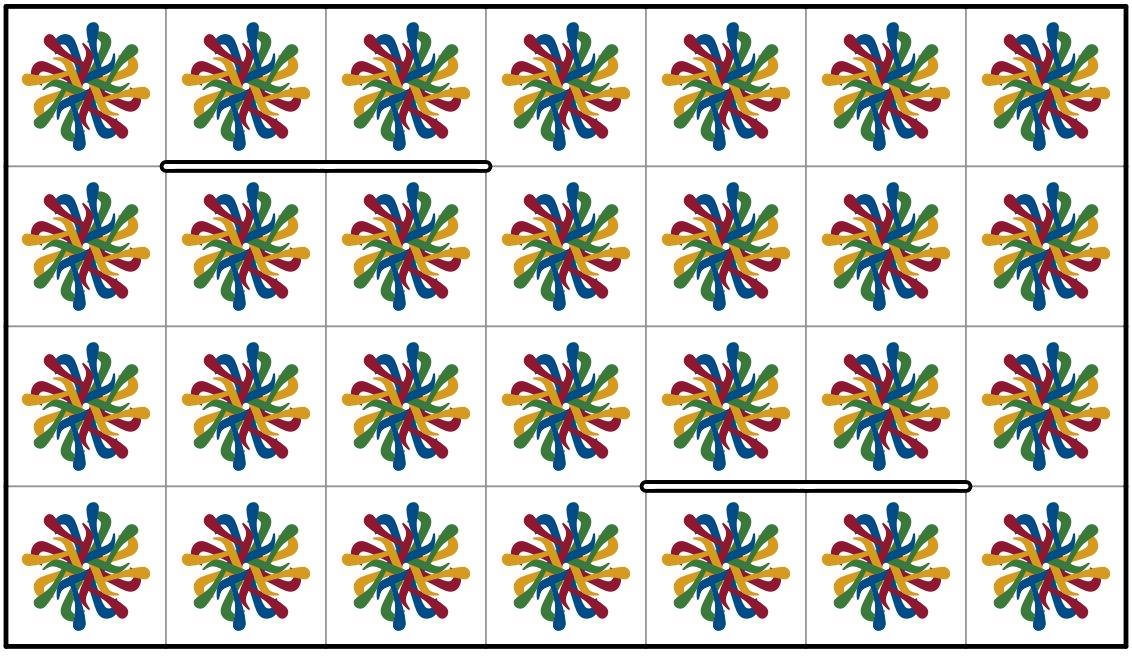
Two-Simple-Hole Cube Folding

Each of these nets folds into a cube using only grid lines.

Puzzles designed by Oswin Aichholzer, Hugo Akitaya, Kenneth Cheung, Erik Demaine, Martin Demaine, Sándor Fekete, Linda Kleist, Irina Kostitsyna, Maarten Löffler, Zuzana Masárová, Klara Mundilova, and Christiane Schmidt in 2019.



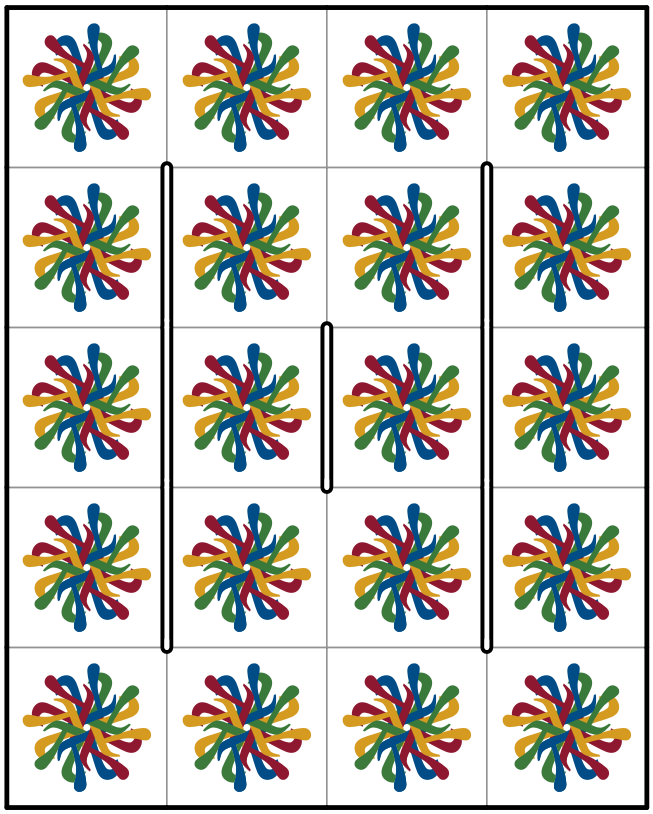


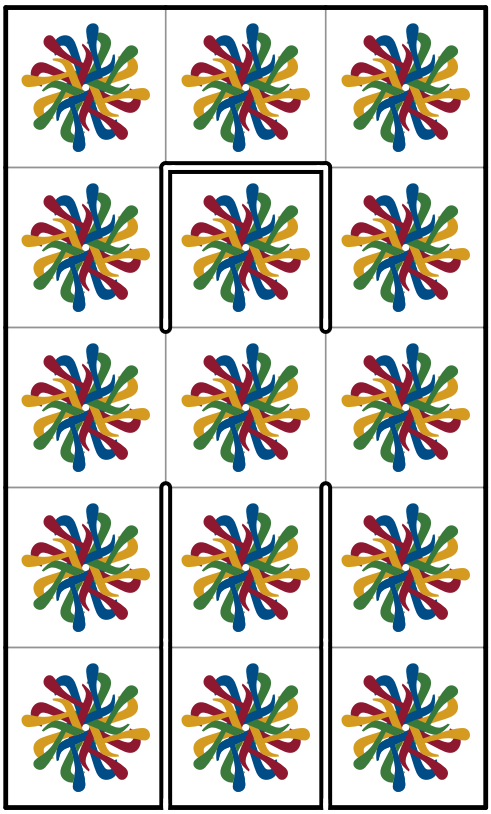


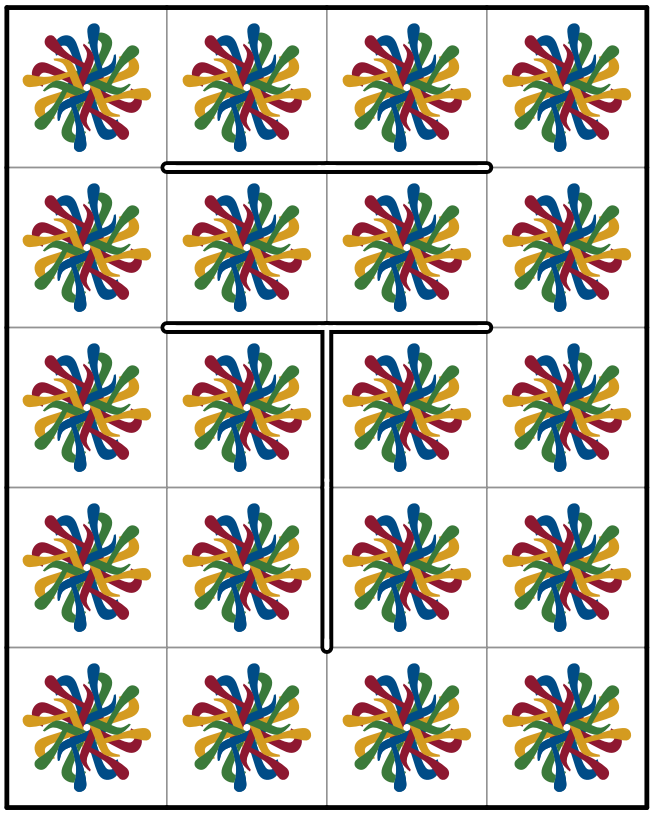
Letter Cube Folding

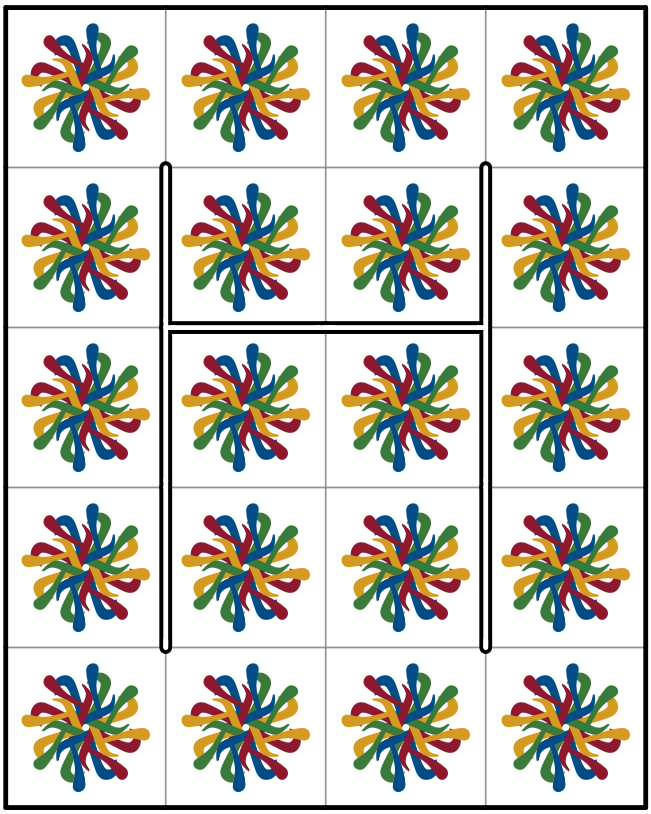
Each of these nets folds into a cube using only grid lines, and needs at least some of the holes.
See the full font at http://erikdemaine.org/fonts/cubefolding/

Puzzles designed by Oswin Aichholzer, Hugo Akitaya, Kenneth Cheung, Erik Demaine, Martin Demaine, Sándor Fekete, Linda Kleist, Irina Kostitsyna, Maarten Löffler, Zuzana Masárová, Klara Mundilova, and Christiane Schmidt in 2019.









prepared for MoMath by Erik & Martin Demaine, 2019