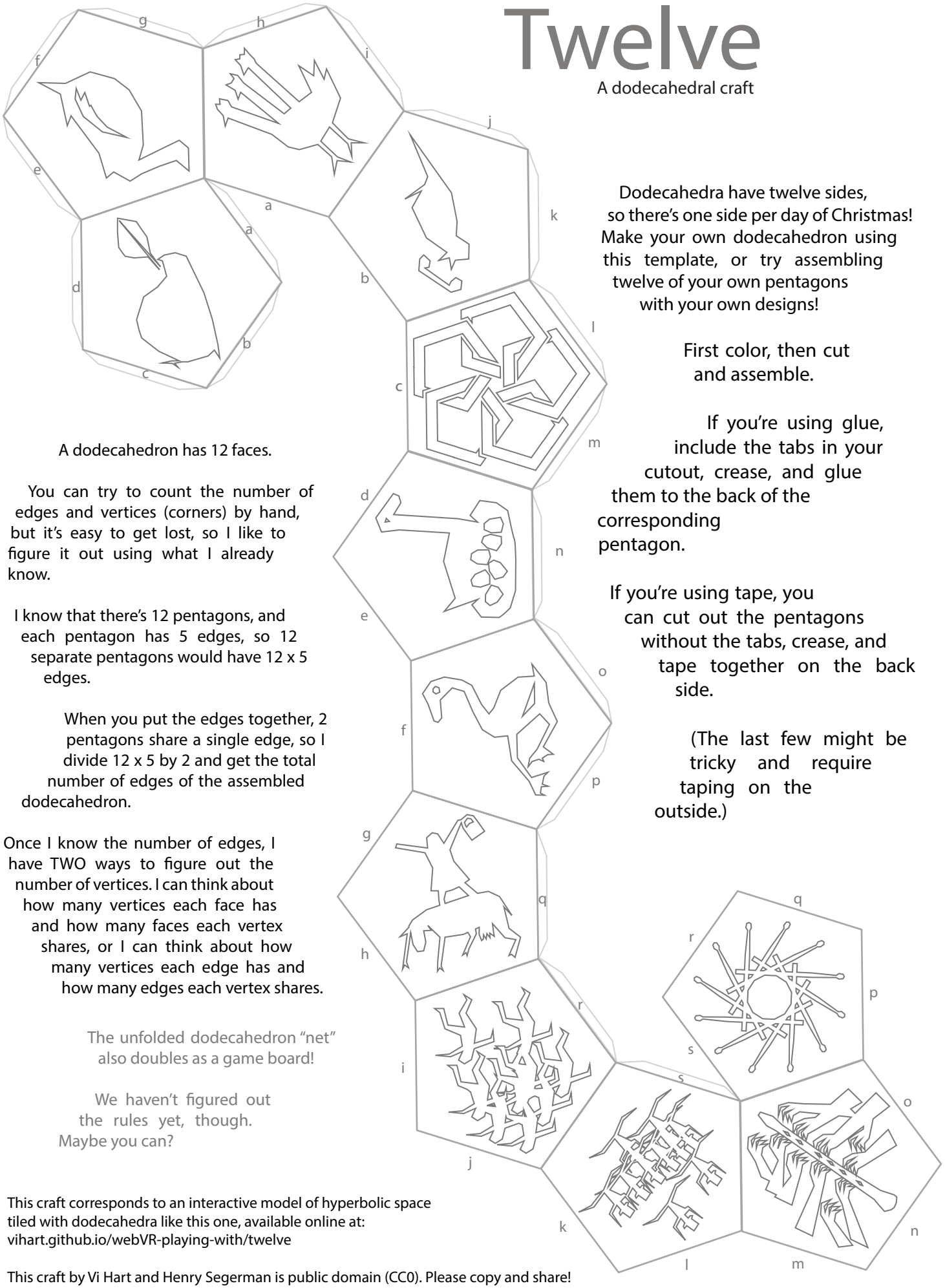
Twelve

A dodecahedral craft



Dodecahedra have twelve sides, so there's one side per day of Christmas! Make your own dodecahedron using this template, or try assembling twelve of your own pentagons with your own designs!

First color, then cut and assemble.

If you're using glue, include the tabs in your cutout, crease, and glue them to the back of the corresponding pentagon.

If you're using tape, you can cut out the pentagons without the tabs, crease, and tape together on the back side.

(The last few might be tricky and require taping on the outside.)

A dodecahedron has 12 faces.

You can try to count the number of edges and vertices (corners) by hand, but it's easy to get lost, so I like to figure it out using what I already know.

I know that there's 12 pentagons, and each pentagon has 5 edges, so 12 separate pentagons would have 12 x 5 edges.

When you put the edges together, 2 pentagons share a single edge, so I divide 12 x 5 by 2 and get the total number of edges of the assembled dodecahedron.

Once I know the number of edges, I have TWO ways to figure out the number of vertices. I can think about how many vertices each face has and how many faces each vertex shares, or I can think about how many vertices each edge has and how many edges each vertex shares.

The unfolded dodecahedron "net" also doubles as a game board!

We haven't figured out the rules yet, though. Maybe you can?

This craft corresponds to an interactive model of hyperbolic space tiled with dodecahedra like this one, available online at: vihart.github.io/webVR-playing-with/twelve

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