

## CORRAL

Players take turns placing a horse on the play surface. The goal is to form enclosed areas of any size. On each turn, score points for the size of the enclosed area measured in unit hexagons.


After the four horses have been placed, take turns moving any one horse into a new position, each time scoring points for the area enclosed. When two separate areas are enclosed, double the score. When three separate areas are enclosed, triple the score. The sample at left is worth $6 \times 3=18$ points. First player to reach 100 points wins.

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## The Four Horses of the Epic Ellipse ${ }^{\text {m }}$

Four pentahexes take a wild ride


## - Symmetries

## - Enclosures

- A game of strategy

Kadon Enterprises, Inc.

## Introduction

Shapes made by joining hexagons together on their edges are known as polyhexes. A polyhex made of five hexagons is called a pentahex. There are 22 different pentahexes.

One of them is special in containing both a triangle and a U-shaped opening. Its nickname, according to Len Gordon, the designer of many ball pyramid puzzles, is the Horse. One of
 Len's epic pyramid ideas used just four of them to build a four-level tetrahedron, or triangular pyramid, in two different ways. We named it the Surprising Pyramid and make it in wood in limited editions.


While the four horse-shaped spherical pieces were meant to build a 3D figure, it was also fun to see what the pieces could do flat. One day, while toying with making 2D shapes, it occurred to Elijah Allen, Kadon's math pro, that the pieces could be flattened entirely, turning ellipses into hexagons, like a beehive.

What could 4 horses, comprising 20 hexagons, do? Well, here's a starter collection of two-dimensional figures. How many others can you find? The pieces may not overlap, but they can be turned over with either side up.

## 3-piece figures

Warm up with just three horses and build these symmetrical figures:




Enclose 4 to 10 spaces. We show 8, 9, 10. How symmetrical can you make the enclosure or the fence?



## Symmetries and Enclosures

Arrange the four horses into the figures shown. White areas shown are holes. Which figures have diagonal symmetry? Which ones are rotational? What size enclosures can you form?


Creatures?


