



# Restorying mathematics: Mathematical Labyrinths

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## To get started:

- Intro to the Hornby labyrinths project
- Intro to the larger 5-year math art project with UBC: *Restorying intergenerational community relationships with mathematics and art*

# Hornby mathematical labyrinths project

- Our first math-art project identified by the community
- Two labyrinths that will be designed and built through community workshops: one behind the new School, another at the new Arts Centre
- School labyrinth: classical labyrinth design with memory spots to remember and honour the old and new schools
- Arts centre labyrinth: Roman tile labyrinth? Space-filling curve?....
- Design and build process collaborative with the Hornby community
- Inquire (Nov.), Design/ Prototype (March), Build (April, May, June)

# Reclaiming mathematics through math & art


- Five-year project exploring our relationship with math via the arts
- Can we reclaim and re-story our math stories through working with math and art? Will these experiences help us see math in a different way?
- A different community-chosen math art project each year, with Inquire, Design, Build/ Make structure
- Mathematical poetry? Dance? Theatre? Sculpture? Textile arts? ...
- Research into the whole community's math stories and relationships over the whole project
- Documenting our processes through film, writing, community dialogue circles, smaller co-research group of UBC and Hornby community participants

# Community and academic partners

- Hornby Community School
- Hornby Daycare
- Hornby Arts Council
- Hornby Spark
- Talking with Hornby Denman Health Care & HIES
- Bridges Math and Art Organization
- UBC Faculty of Education

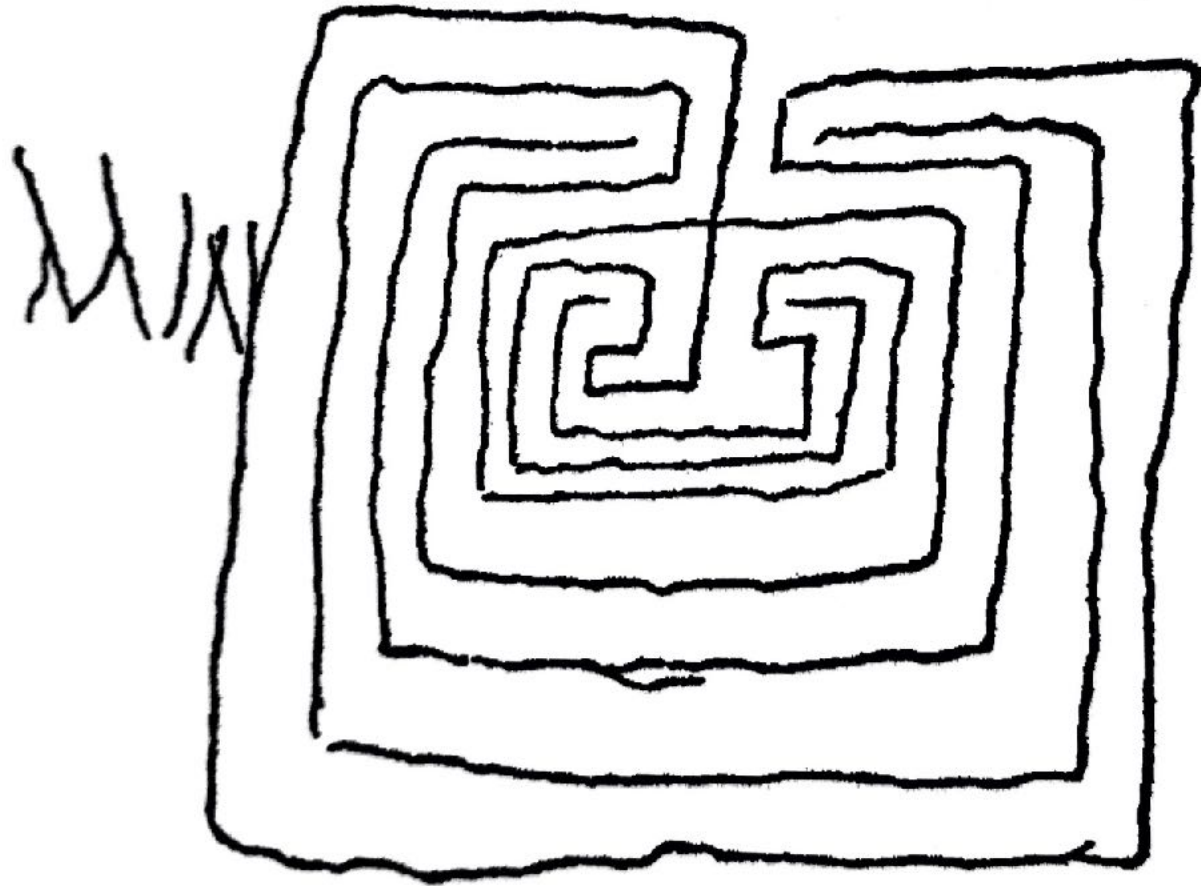
# November and March community workshops

- Mapping or drawing our math stories so far
- Intro to the history and mathematics of labyrinths
- Exploring classical labyrinth seeds (and Roman tiles..?)
- Building a portable classical labyrinth on a large tarp
- Play with variance and invariance
- Create large labyrinths on the beach and walk them
- Try out the Gardner's Double Appleton labyrinth walk <<https://vimeo.com/398426388>>



Hohokam carved  
labyrinth, Casa Grande,  
Near Coolidge, Arizona

LABYRINTHVS  
HIC HABITAT



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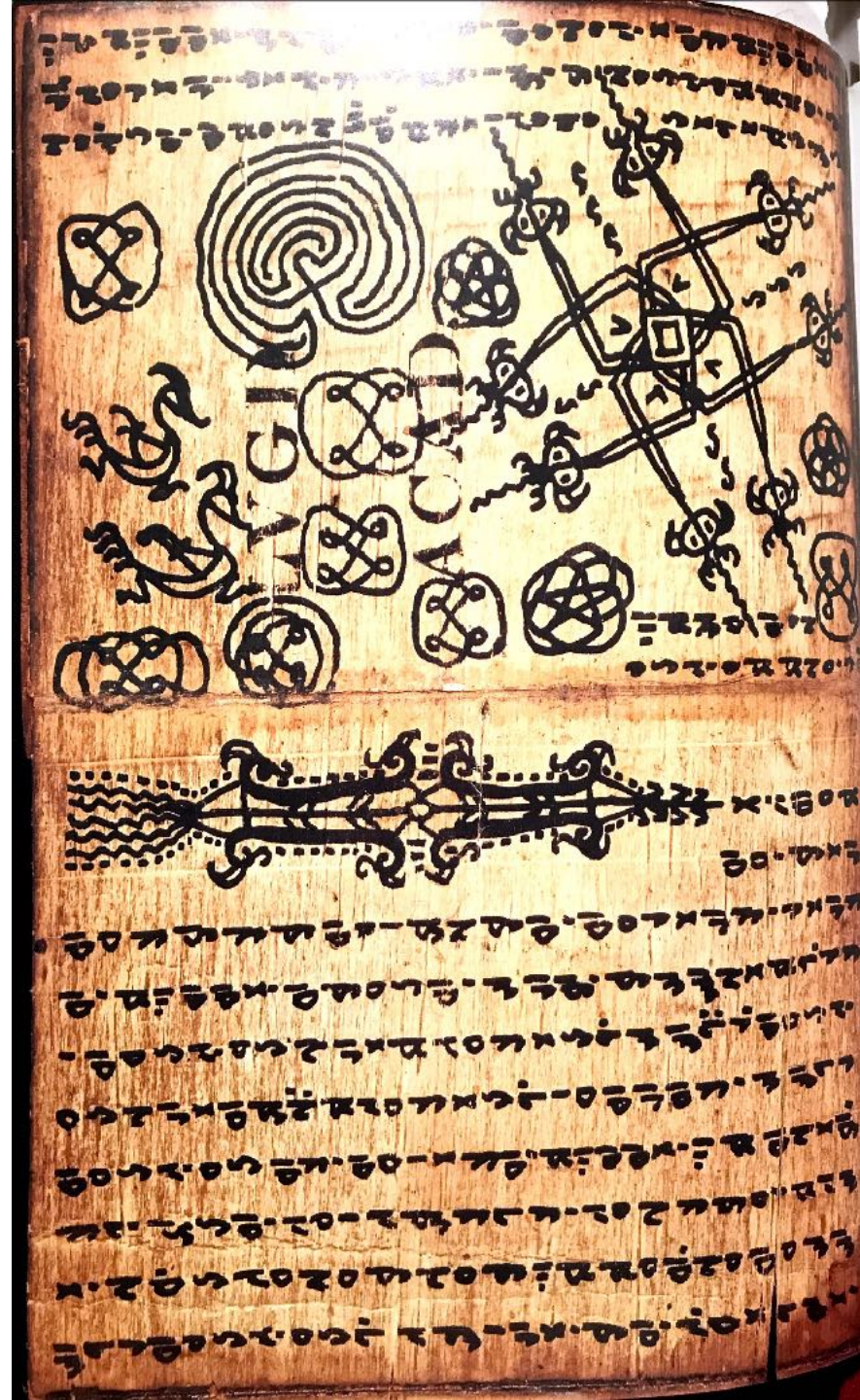
OTAVIUS

Graffito, Pompeii  
house pillar, circa 79 AD

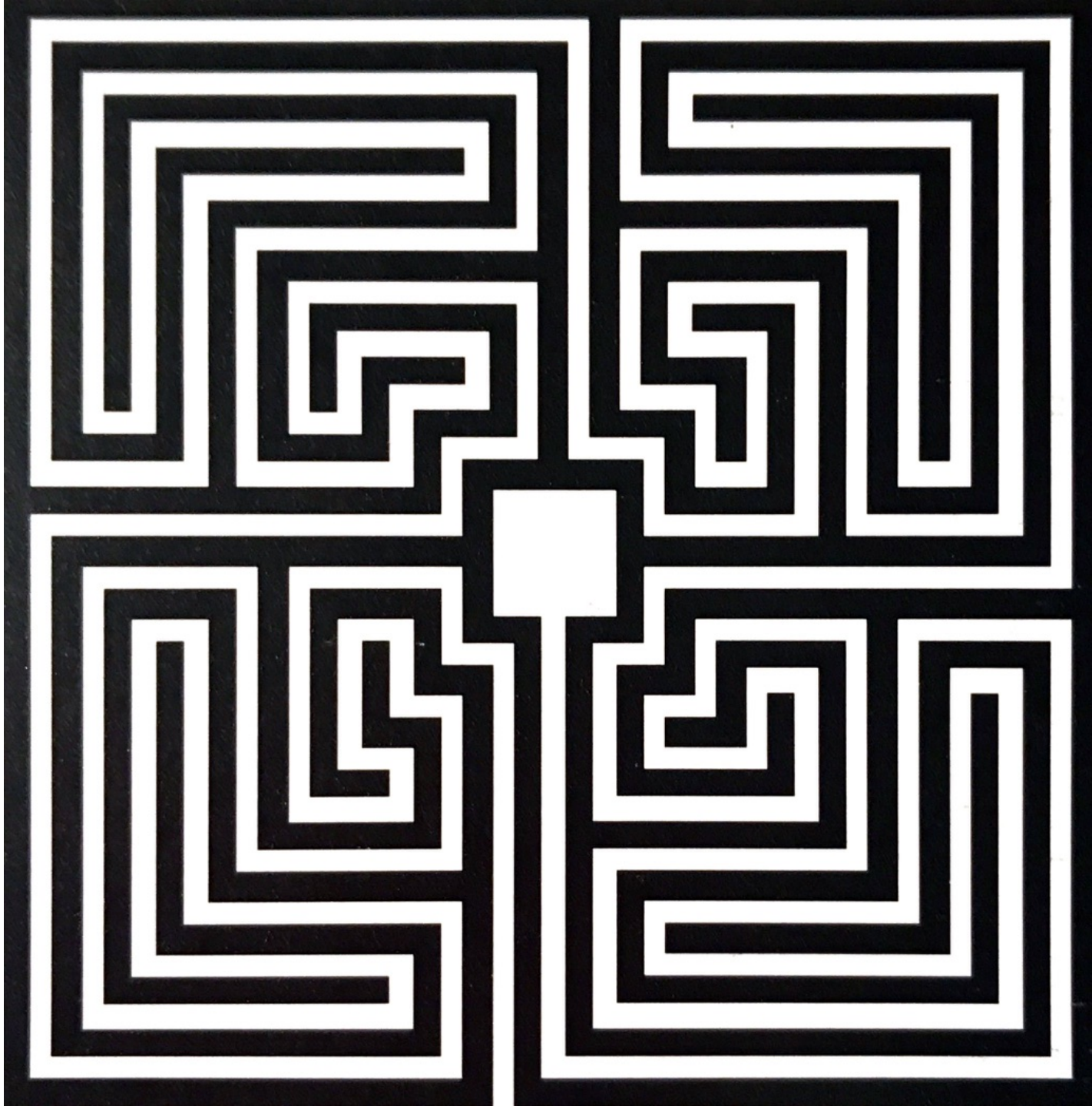




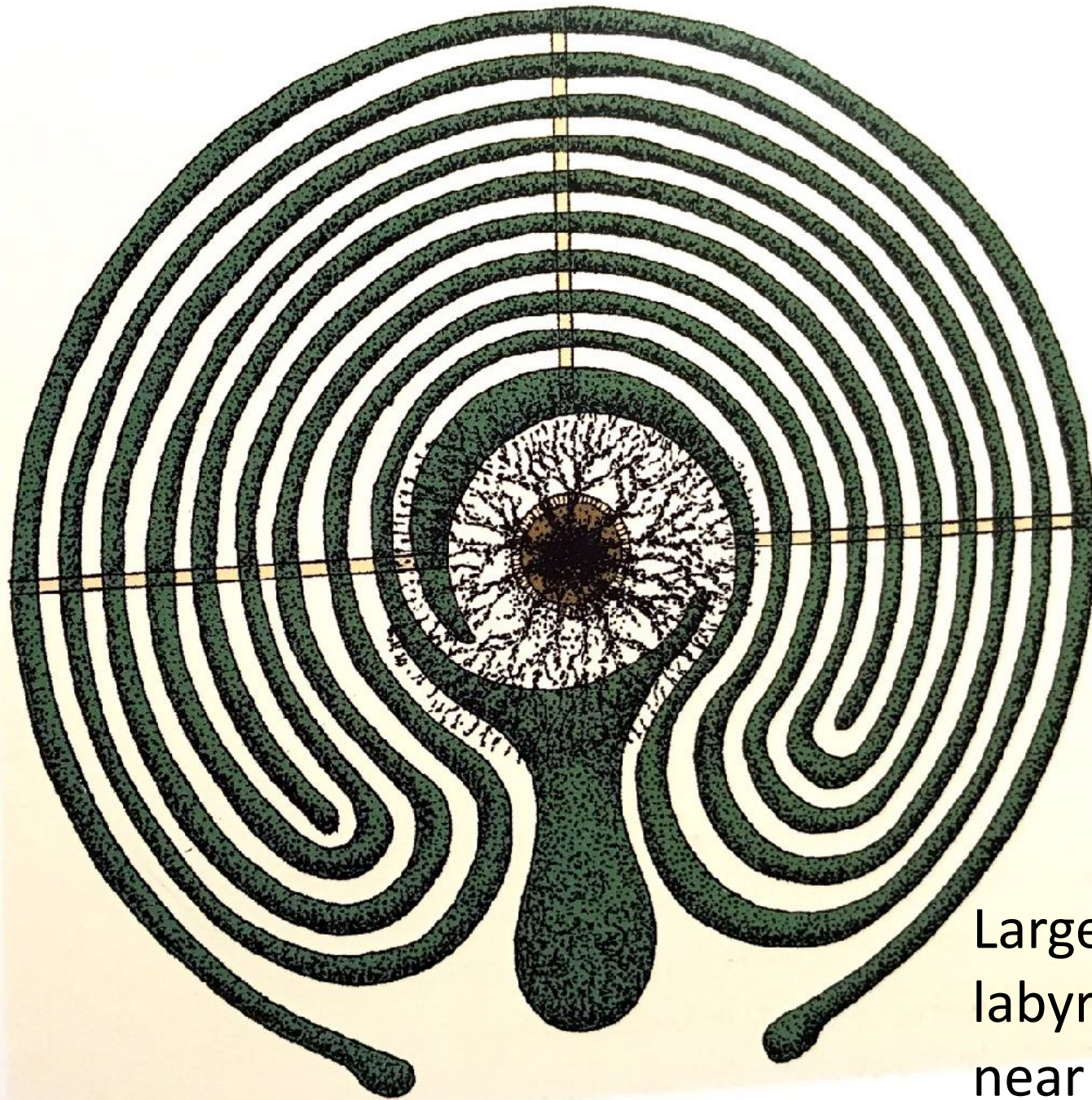
Stone slab, Qanawat, Syria in Louvre



Bark cloth magical scroll, Sumatra



Roman simple  
meander  
labyrinth



Large 'Rad' (wheel)  
labyrinth with yew tree  
near Hanover, Germany

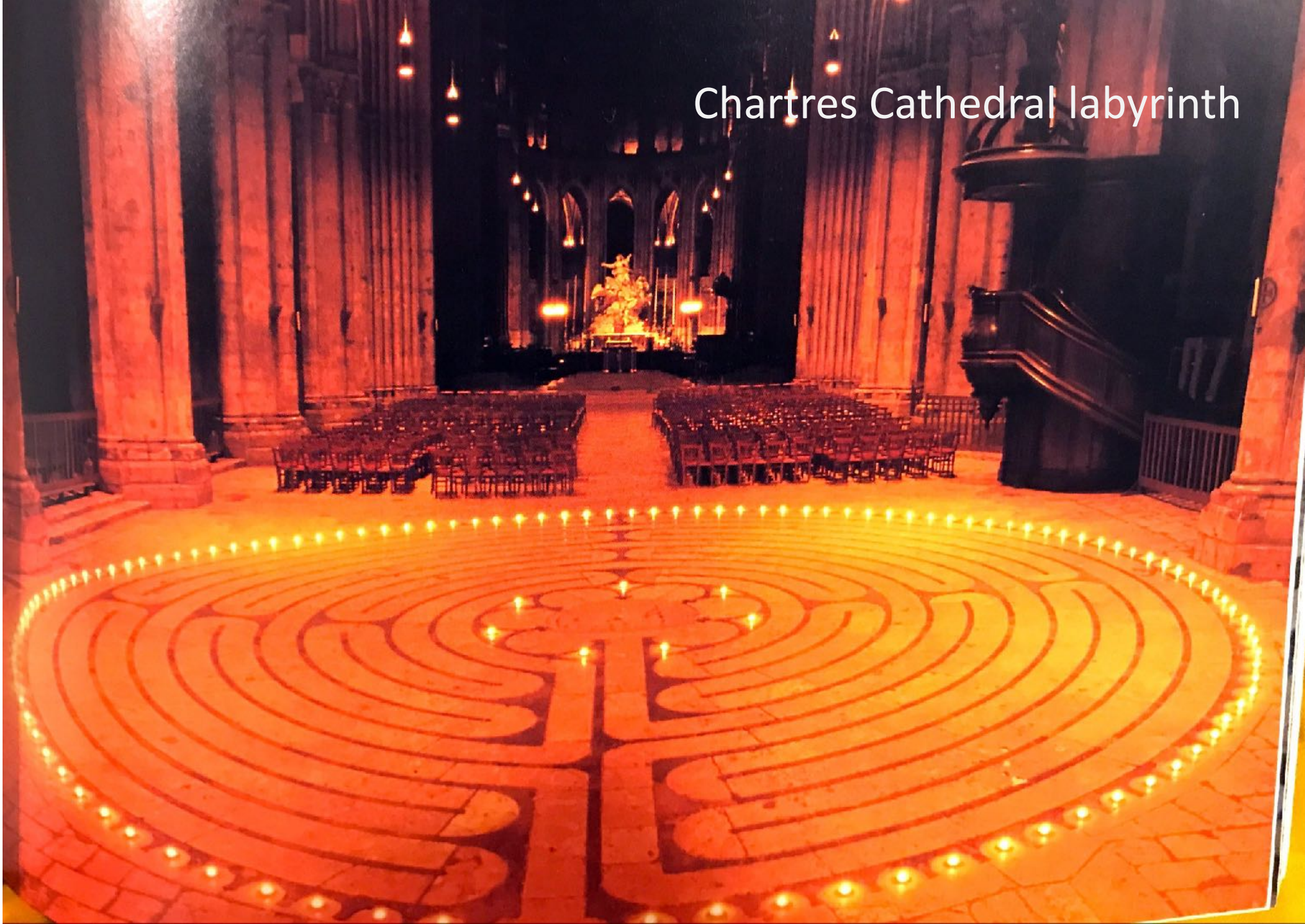


Renaissance fishermen's labyrinth, Stockholm Archipelago



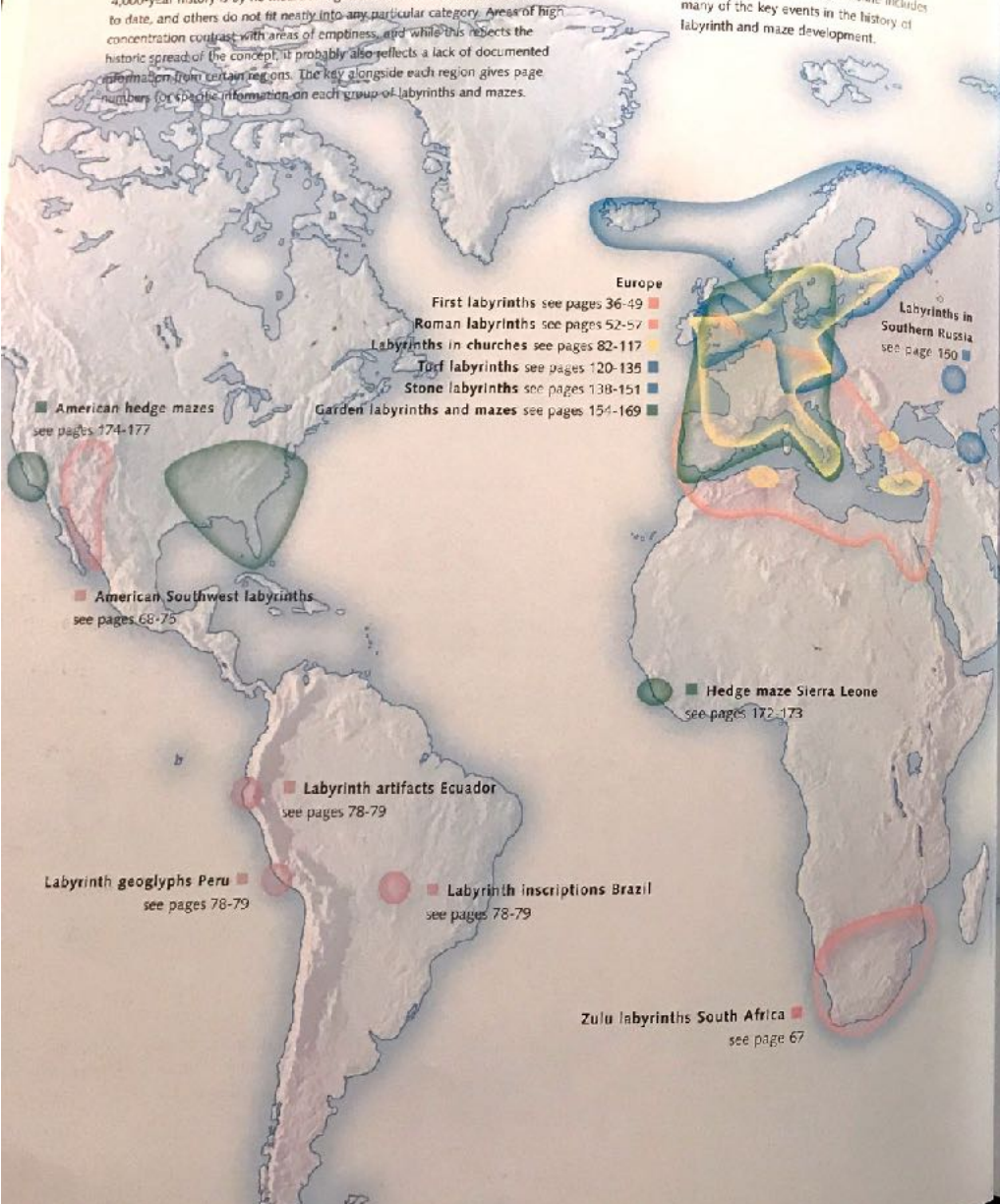
Turf labyrinth,  
Boughton Green,  
England

# Chartres Cathedral labyrinth



### Historic Labyrinths and Mazes Worldwide

The task of mapping the distribution of mazes and labyrinths across their 4,000-year history is by no means straightforward. Some examples are difficult to date, and others do not fit neatly into any particular category. Areas of high concentration contrast with areas of emptiness, and while this reflects the historic spread of the concept, it probably also reflects a lack of documented information from certain regions. The key alongside each region gives page numbers for specific information on each group of labyrinths and mazes.



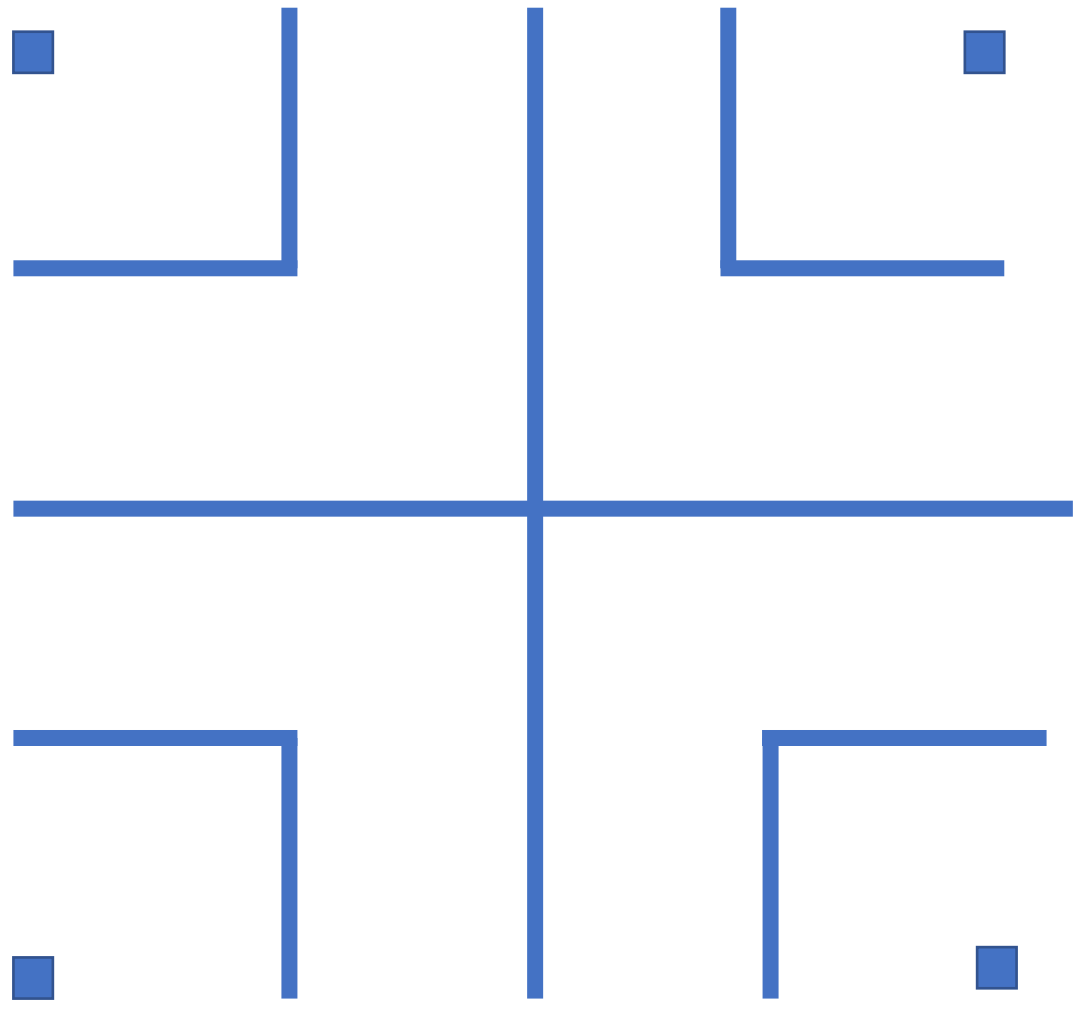
### Family Tree and Timeline

The evolution of labyrinths and mazes can be simplified to show the five major groups depicted in the family tree opposite. Numerous other smaller branches representing local variations on the basic types are omitted for clarity. The accompanying timeline includes many of the key events in the history of labyrinth and maze development.



Period	Event
2000 BCE	The first labyrinth
1900 BCE	Knossos Labyrinth temple by Labyrinth petroglyphs in Gallic
1800 BCE	Egyptian Labyrinth temple by
1550 BCE	Labyrinthine frescos in Egypt
1380 BCE	Knossos Labyrinth abandoned
1250 BCE	City of Troy besieged
1200 BCE	Pylos tablet labyrinth
1000 BCE	Val Camonica labyrinth petroglyphs
900 BCE	Gordion graffiti, Turkey
650 BCE	Tragilattella Vase labyrinth
500 BCE	Labyrinth graffiti in Morocco?
400 BCE	Labyrinths widespread in Greece
300 BCE	Labyrinth coins issued at Knossos
250 BCE	First labyrinths in India?
165 BCE	First Roman mosaic labyrinths
0 BCE	Pompeii labyrinth graffiti
79 CE	Labyrinth mosaics widespread
324 CE	First Christian labyrinth
500 CE	Early labyrinths in Scandinavia?
600 CE	Early Christian labyrinths
860 CE	Labyrinths appear in manuscripts
1000 CE	Labyrinths widespread in India
1100 CE	First labyrinths in Italian cathedrals
1190 CE	First labyrinths in French cathedrals
1205 CE	Chartres Cathedral labyrinth
1300 CE	Labyrinths reach Indonesia
1400 CE	First garden labyrinths and mazes
1500 CE	Stone labyrinths in Scandinavia
1600 CE	Turf labyrinths popular in Europe
1700 CE	Labyrinth in American Southwest?
1819 CE	First hedge labyrinths in America
1878 CE	First samples puzzle mazes
1900 CE	Stone-revival labyrinths
1900 CE	Modern revival begins

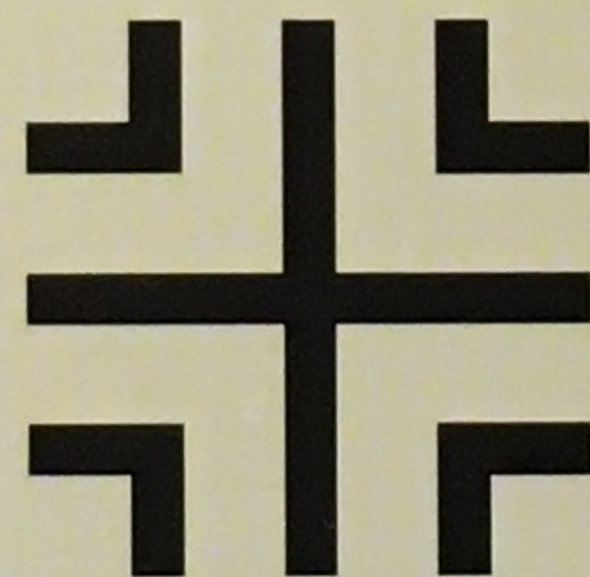
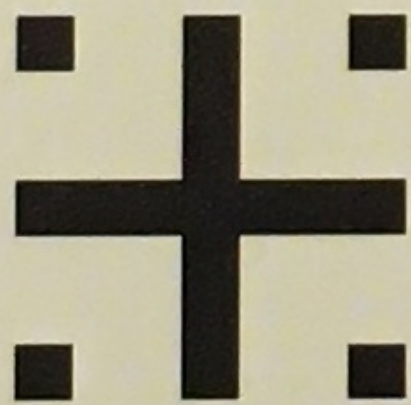






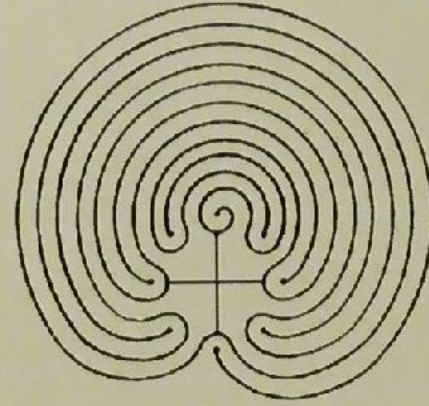


Expanding the seed

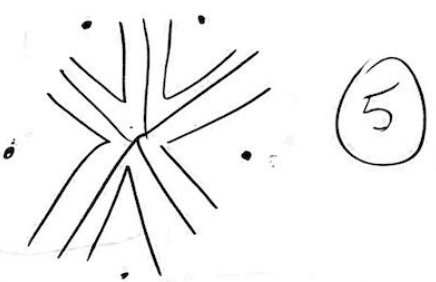
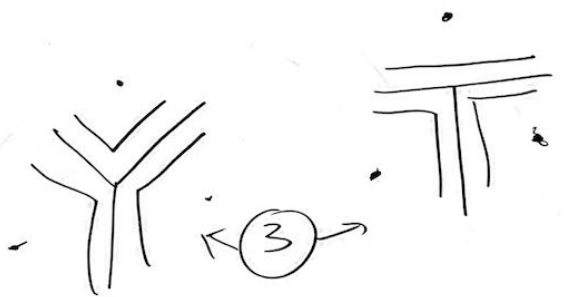
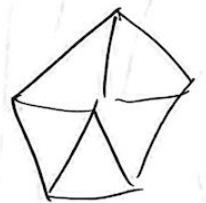
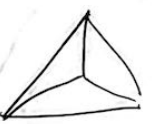
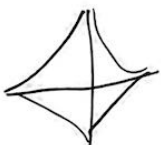


## Interesting Variants

Changing the symmetry and structure of the seed can produce some surprising variations, including this complex labyrinth in an Indian magic book.



Other seeds?



Suggested labyrinth seeds to try out, generated by participants in Hornby Island Beach Labyrinth workshop, March 2022

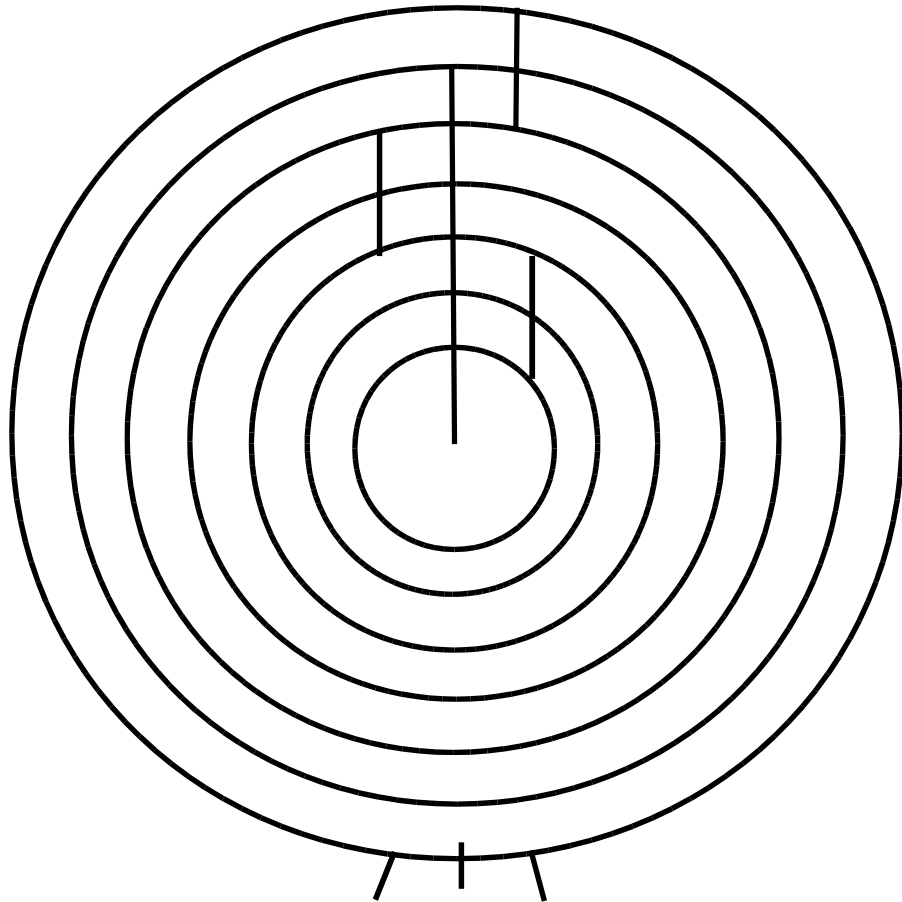
A bicursal (two-path) labyrinth design based on 7 concentric circles

Two-Path Labyrinth

Step 2

Add lines as shown below

Tony Law 15.03.2022

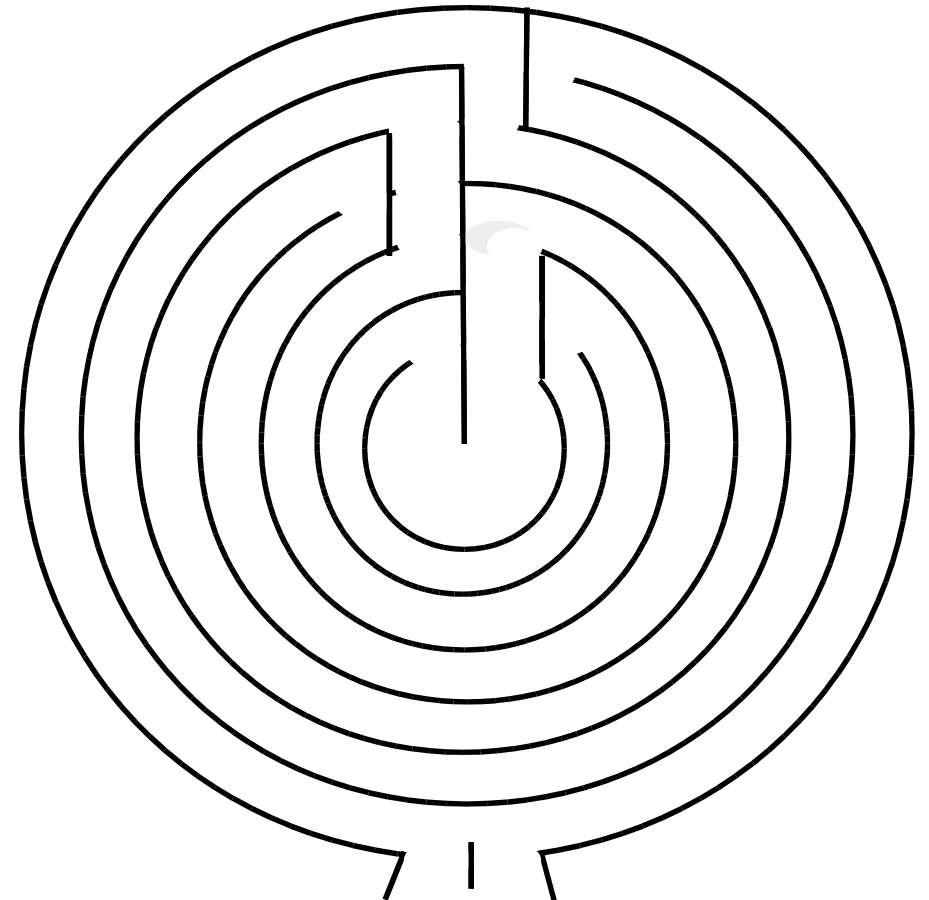


Two-Path Labyrinth

Step 3

Make gaps in each circle as shown

Tony Law 15.03.2022

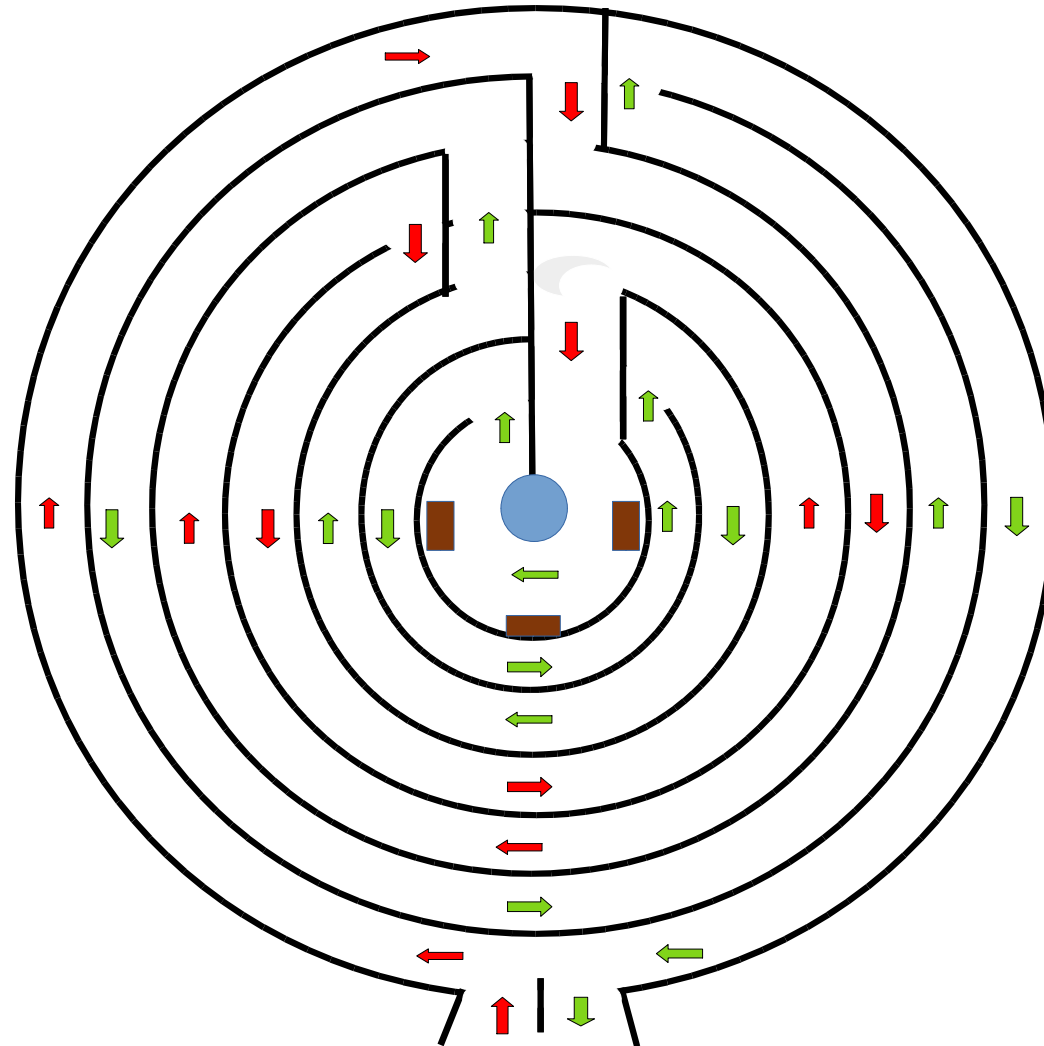


# Two-Path Labyrinth

This labyrinth has separate paths in (red) and out (green)

The central area can be large enough to contain a pond (blue) and benches (brown)

*Tony Law 15.03.2022*







**You are invited! \*Free\***  
**Hornby Island Beach Labyrinth**  
**Math Art Workshop**  
**Thursday March 24, 2-4 PM, Big Trib**

Meet Tribune Bay picnic shelter  
Draw, make, walk & dance two labyrinth designs  
Workshop filming by Zsofin & Julian  
*Looking forward to seeing you there!*

hornby  
**arts**









Thank you!

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