

LESSON IDEA

Amazing mazes

MATHS

ART & DESIGN



Learn with
Procreate®



Lesson ideas

Use these Lesson Ideas to spark your imagination for using Procreate in the classroom. Feel free to take them further and make them your own.

Design a maze

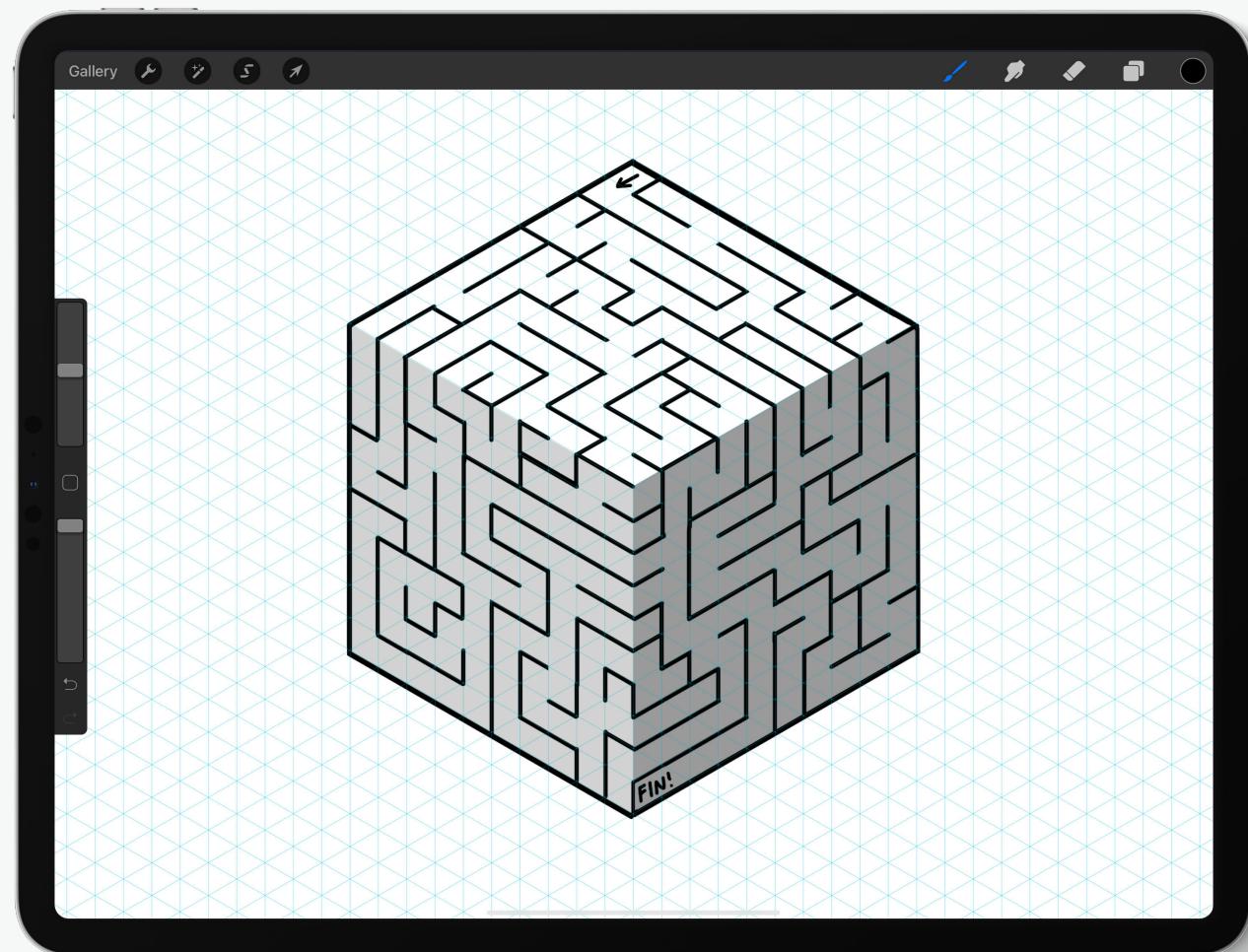
Students will learn how to create grid mazes, radial mazes and 3D mazes using Procreate's *Drawing Guides* and *Drawing Assist* tools. Add the ingredient of illustration, and they'll be lost for days.

All you need is an iPad and the following app:



Educational Value

- ✓ Students will create patterns, pictures and shapes using digital technologies.
- ✓ Students will use spatial logic and geometric reasoning skills to create puzzles, prompting them to think in both 2-dimensional and 3-dimensional terms.
- ✓ Students will understand the different Drawing Assist tools in Procreate.



In this guide

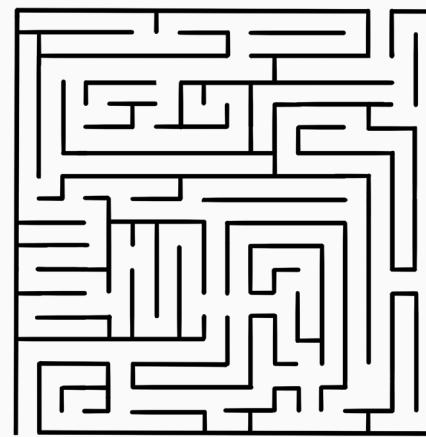
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Types of mazes

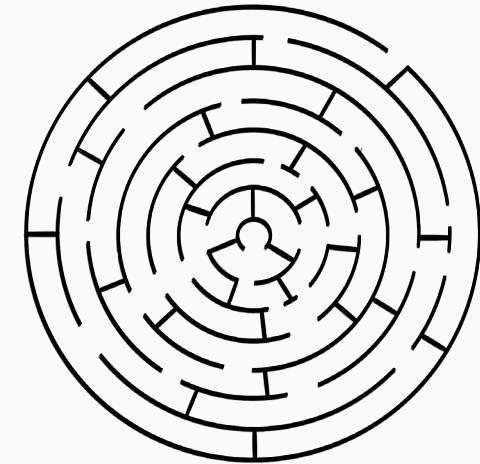
Drawing assistance

In this lesson we'll be using Procreate's drawing guides and assistance tools to draw three different styles of mazes.

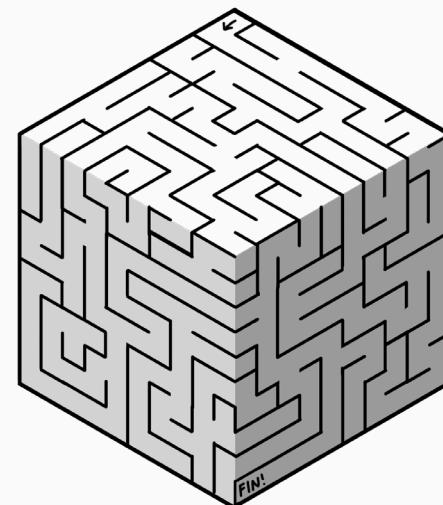
- * A simple 2D maze using *Drawing Assist* on a *2D Grid*.
- * A radial maze using *QuickShape*.
- * A challenging 3D Maze using *Drawing Assist* on an *Isometric Grid*.



2D GRID



RADIAL MAZE



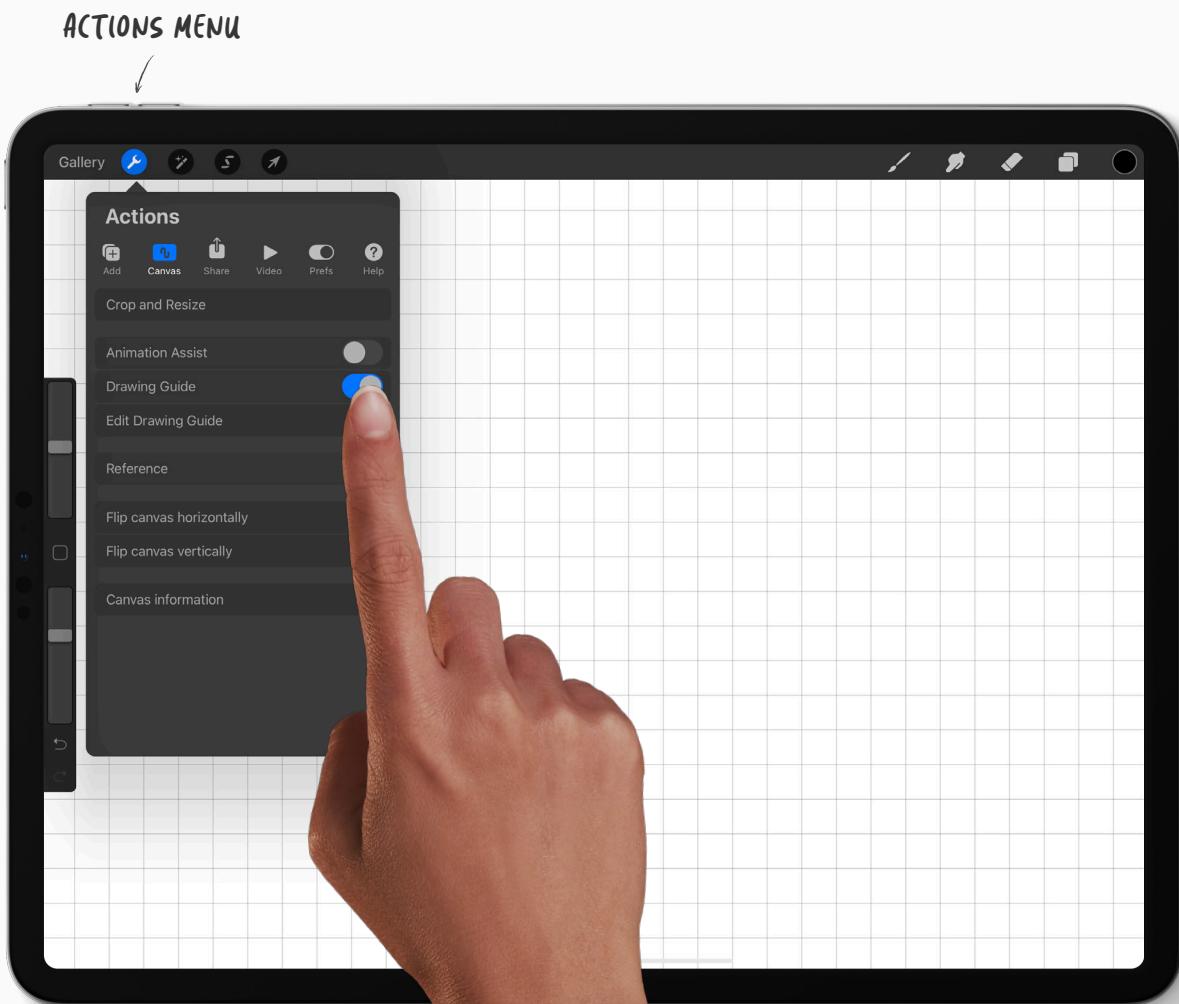
3D MAZE

2D Grid Maze

2.

Create a grid drawing guide

- 1 Tap the wrench icon to open the *Actions* menu.
- 2 Turn on the *Drawing Guide* toggle.
- 3 Then tap *Edit Drawing Guide*.



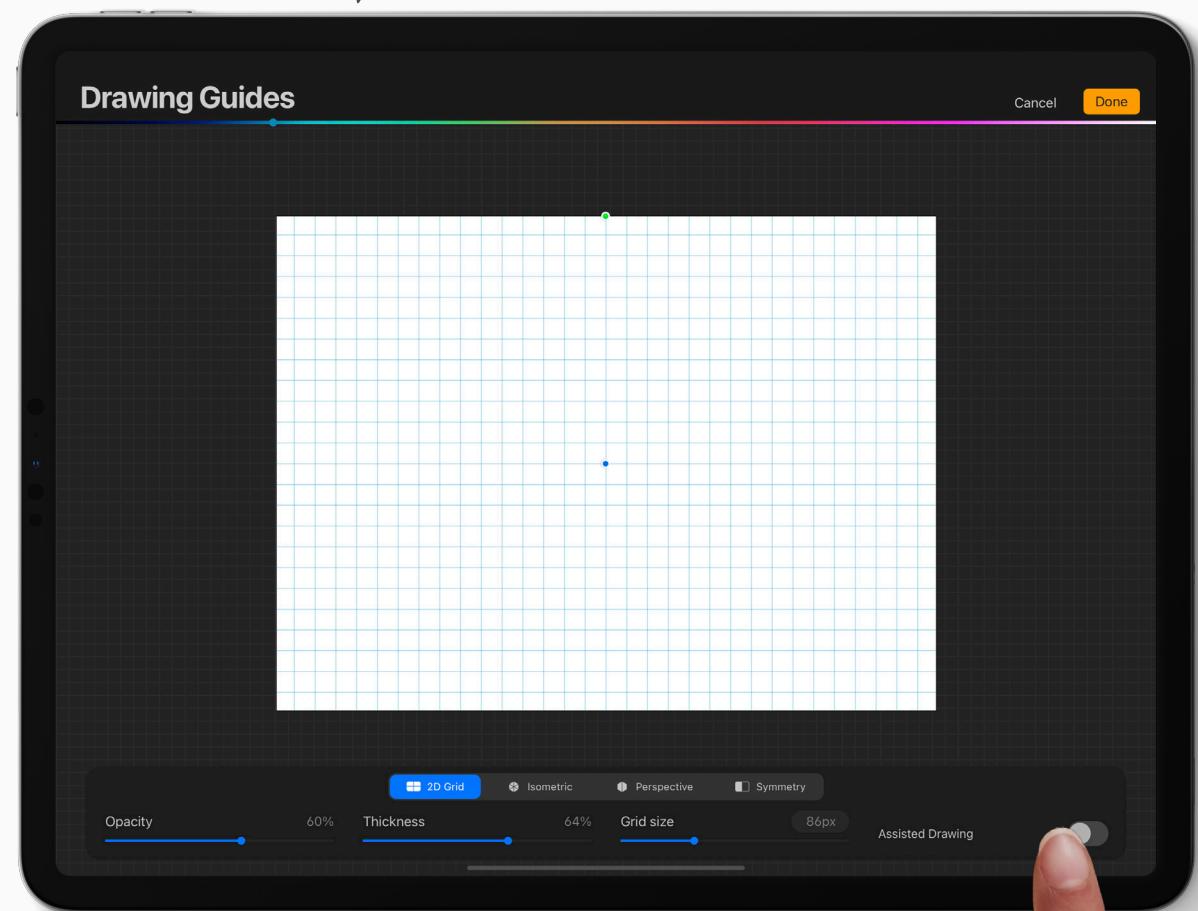
3.

Edit drawing guide

Now you can edit your drawing guide to make it easier to see behind your artwork.

Once you're happy with how your 2D Grid appears, turn on the *Assisted Drawing* toggle, and tap *Done*.

GUIDE
APPEARANCE



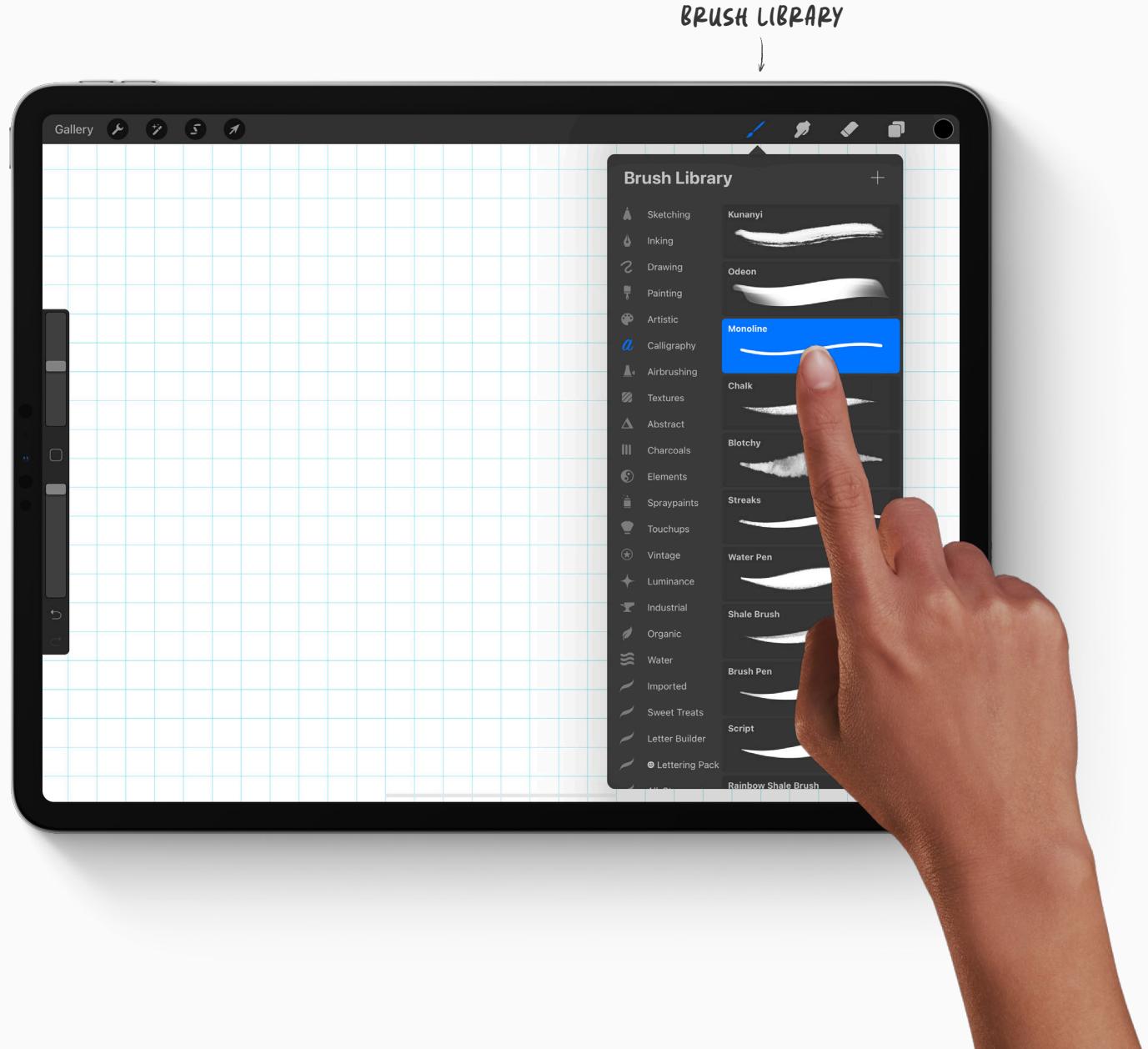
Select a brush

Tap the Brush icon in the top-right to open the *Brush Library*.

Select the *Calligraphy* brush set, and choose the *Monoline* brush.

WHY MONOLINE?

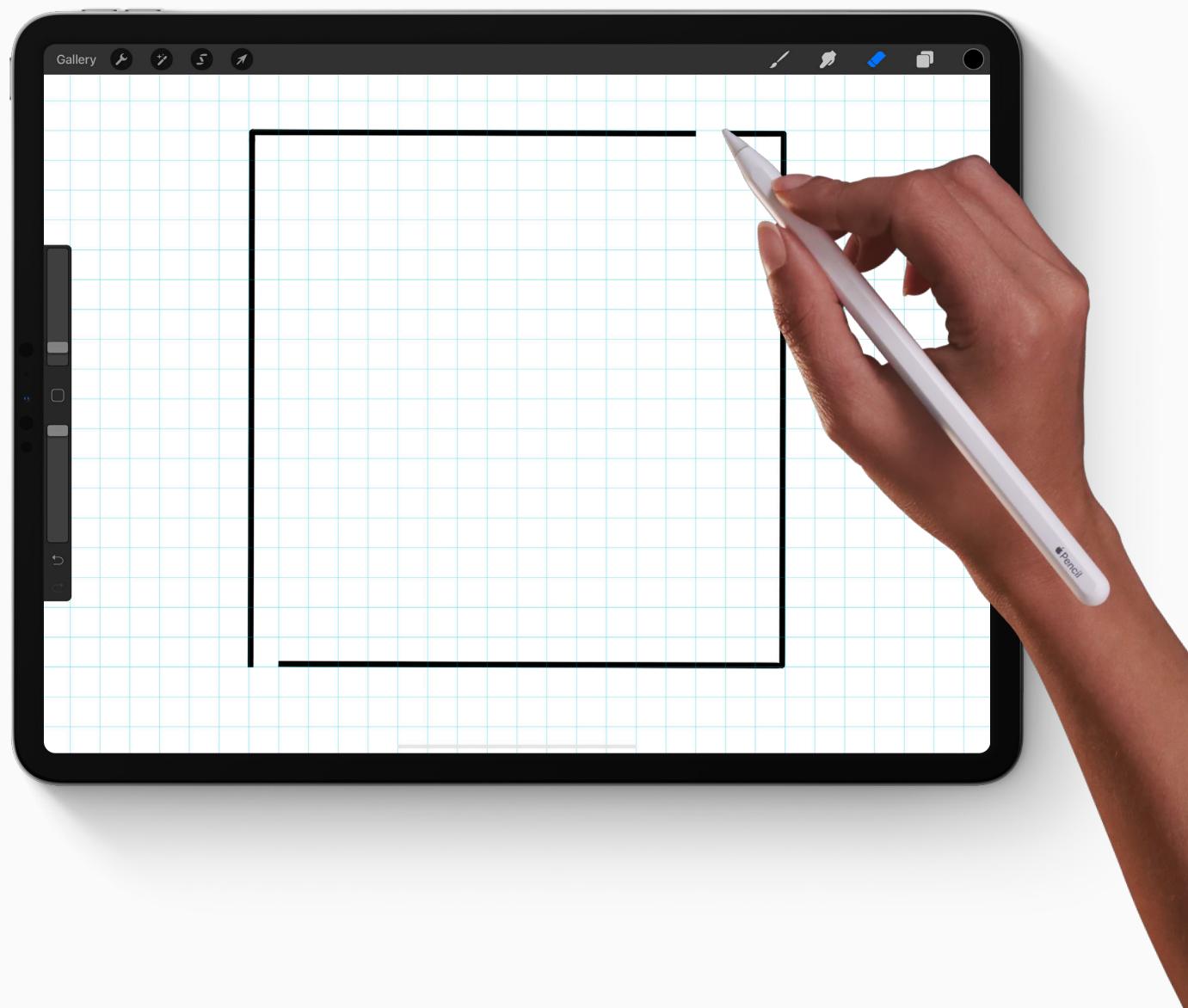
A monoline brush is a brush that doesn't change in thickness with pressure or tilt as you draw. It's a great brush to use for drawing mazes, because it will help your lines to look consistent.



Draw a square

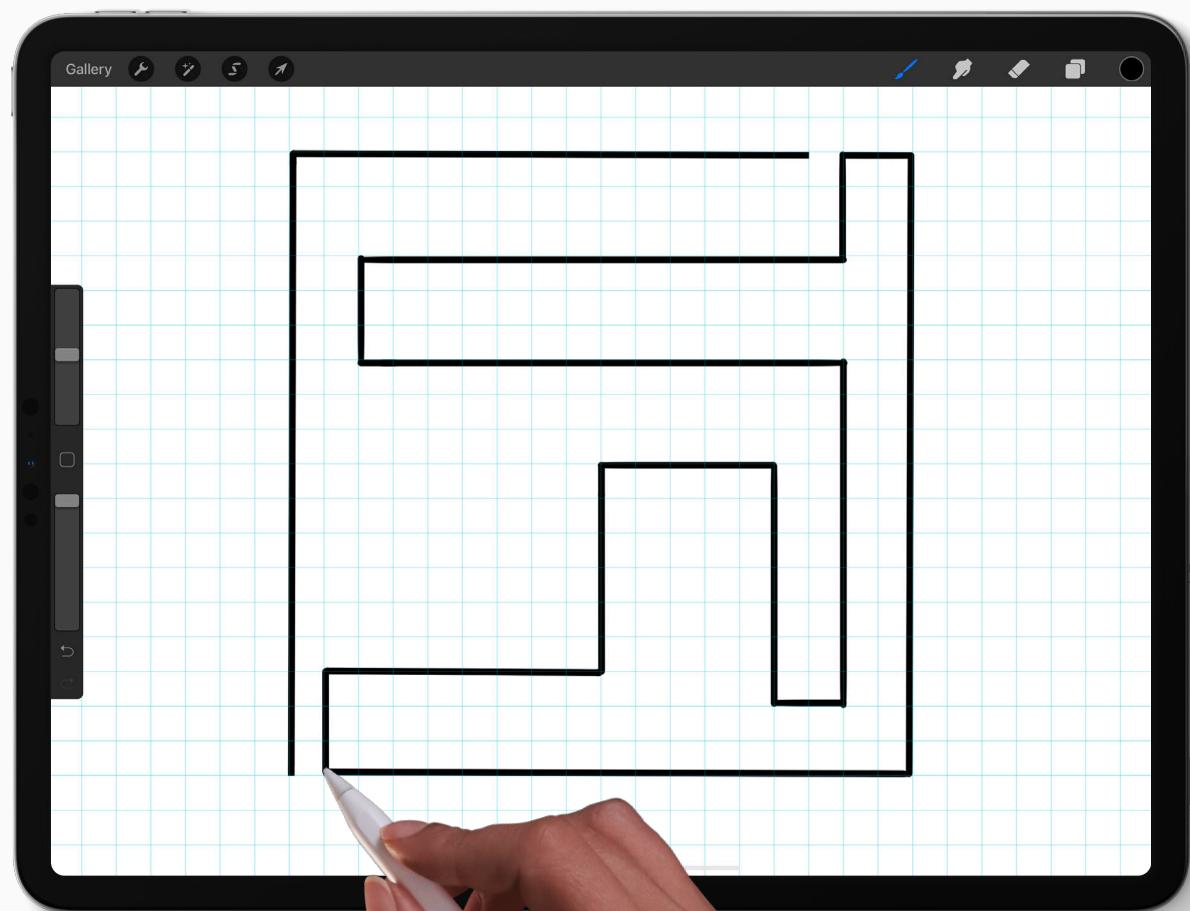
Draw a maze border that fills most of the canvas, leaving two gaps – a spot to start and spot to finish.

You can choose to align your maze to your grid lines, or just use the guide for Drawing Assist.



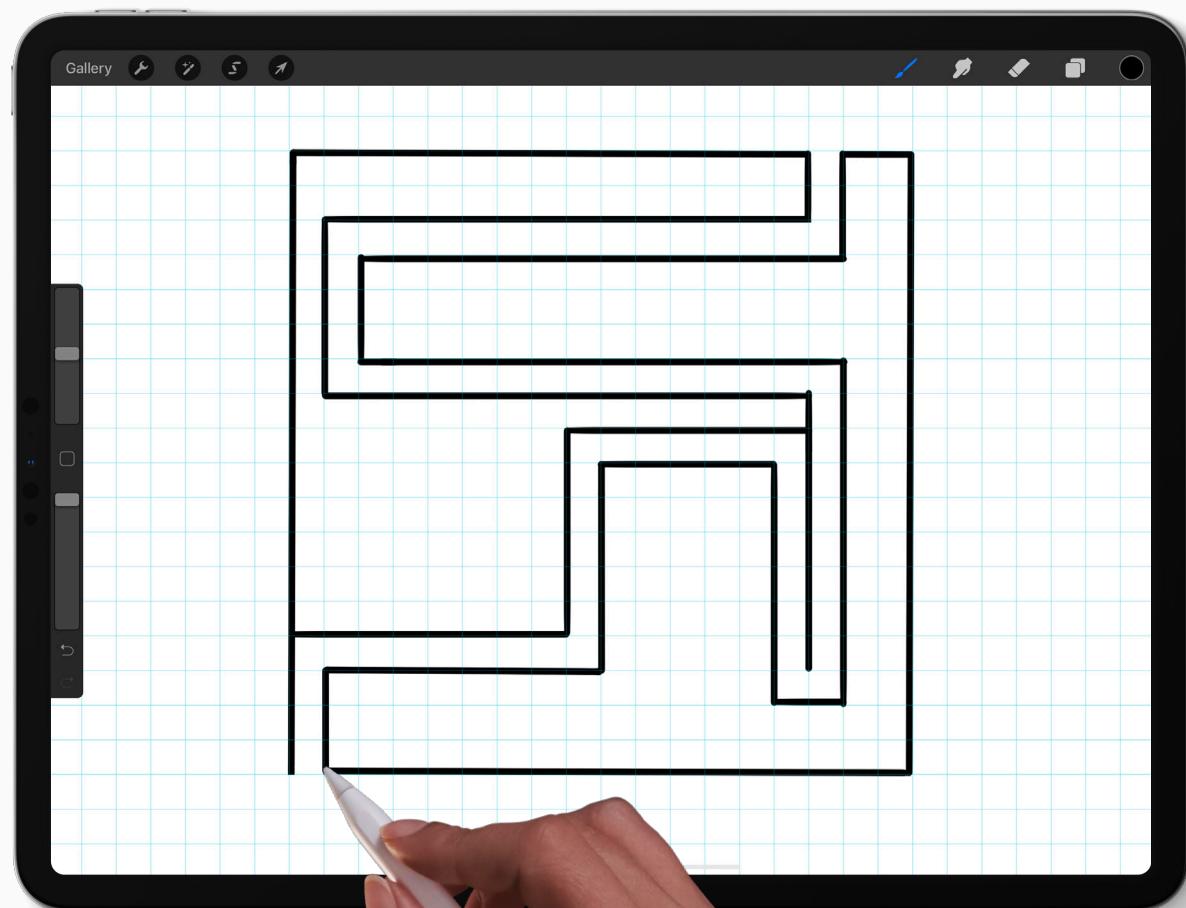
Draw a path

Next, join entrance and exit, adding in twists and turns along the way to make the maze more difficult.



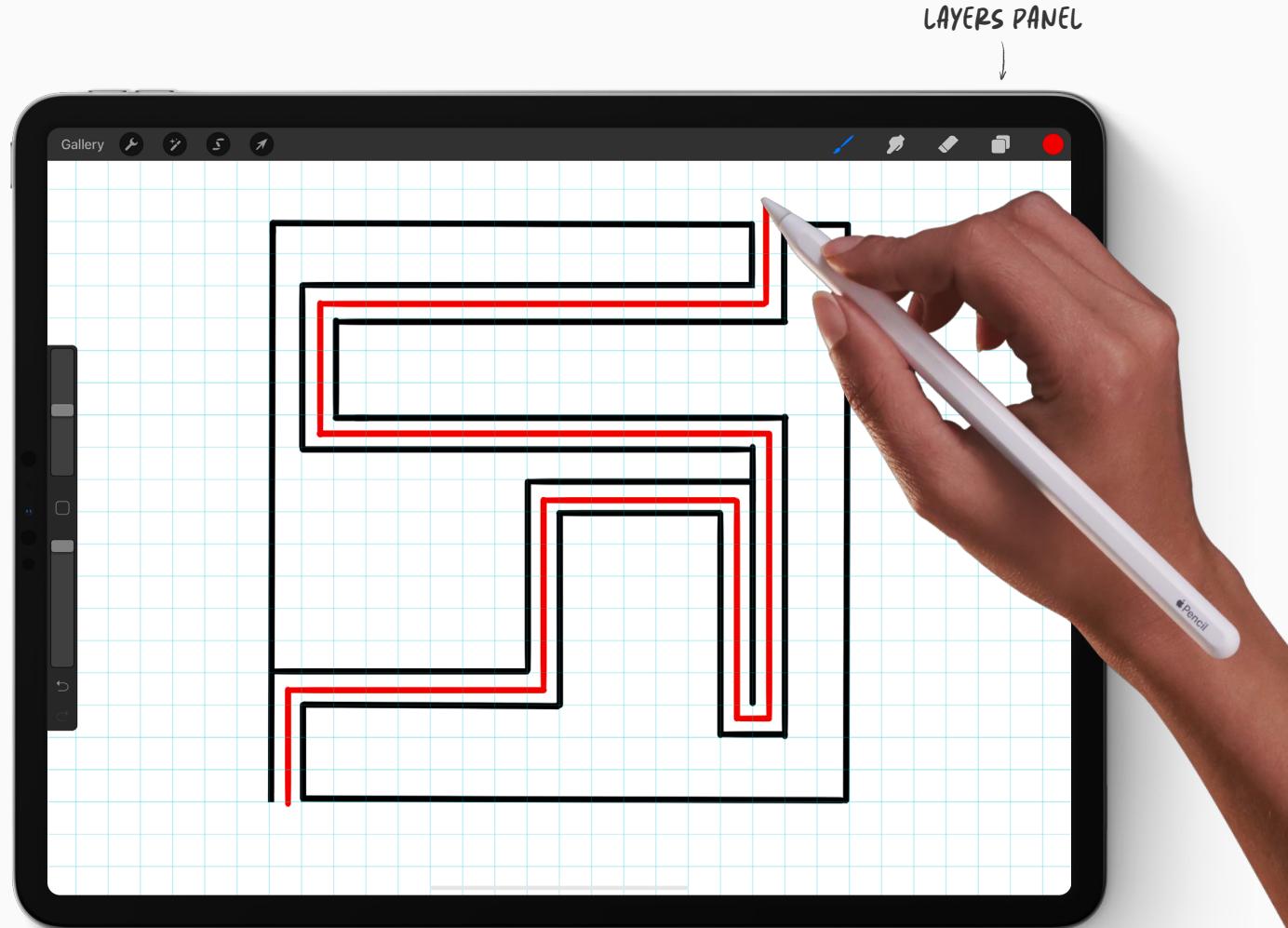
Close path

Draw another line that runs alongside your initial path, closing it off into a channel.



Highlight solution

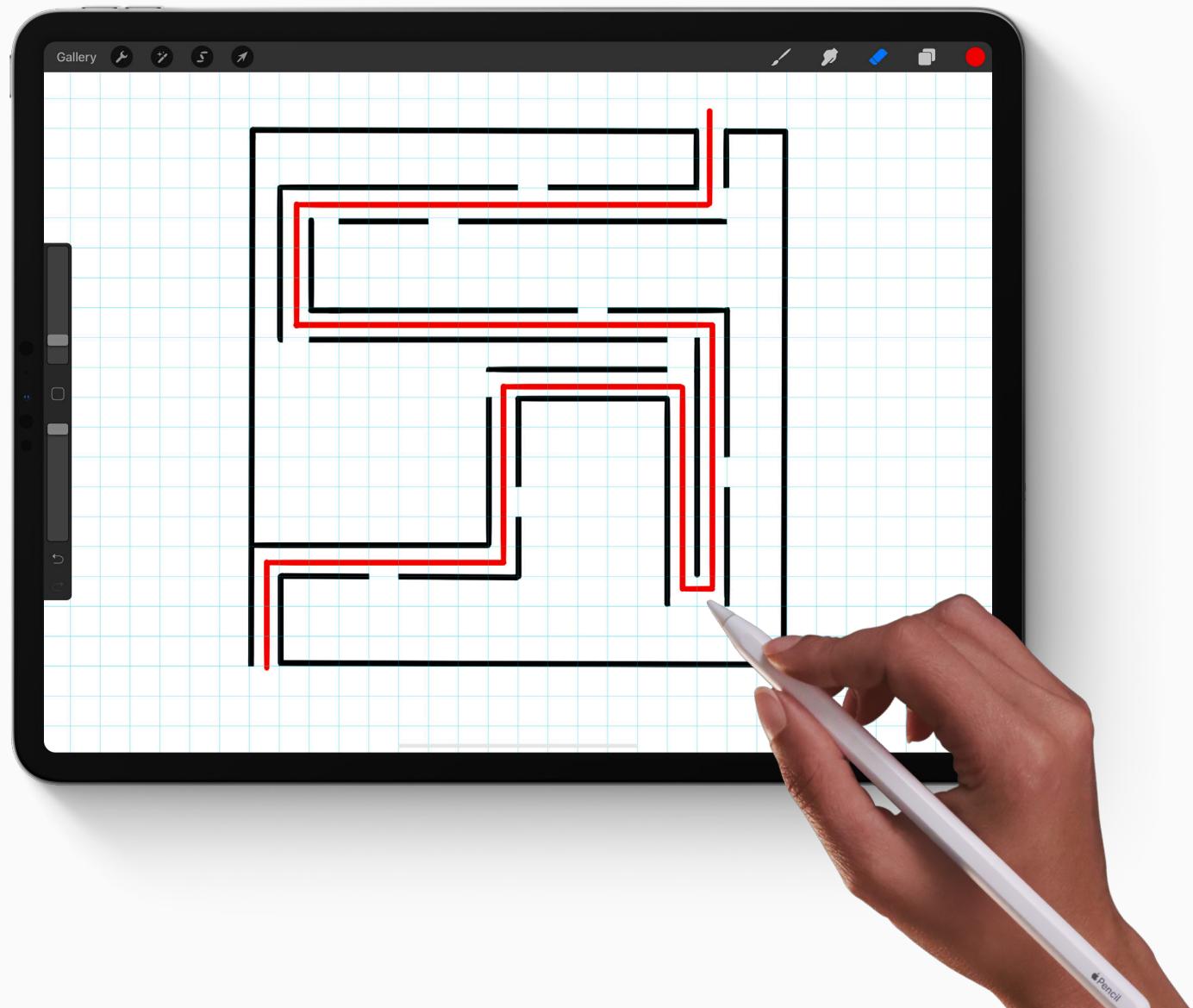
- 1 Tap the two squares in the top-right corner to open the *Layers Panel*.
- 2 Tap the + icon to create a new layer.
- 3 Select a new color, then draw a line through the path you've just created. This will be your copy of the solution.



Erase parts of the main path

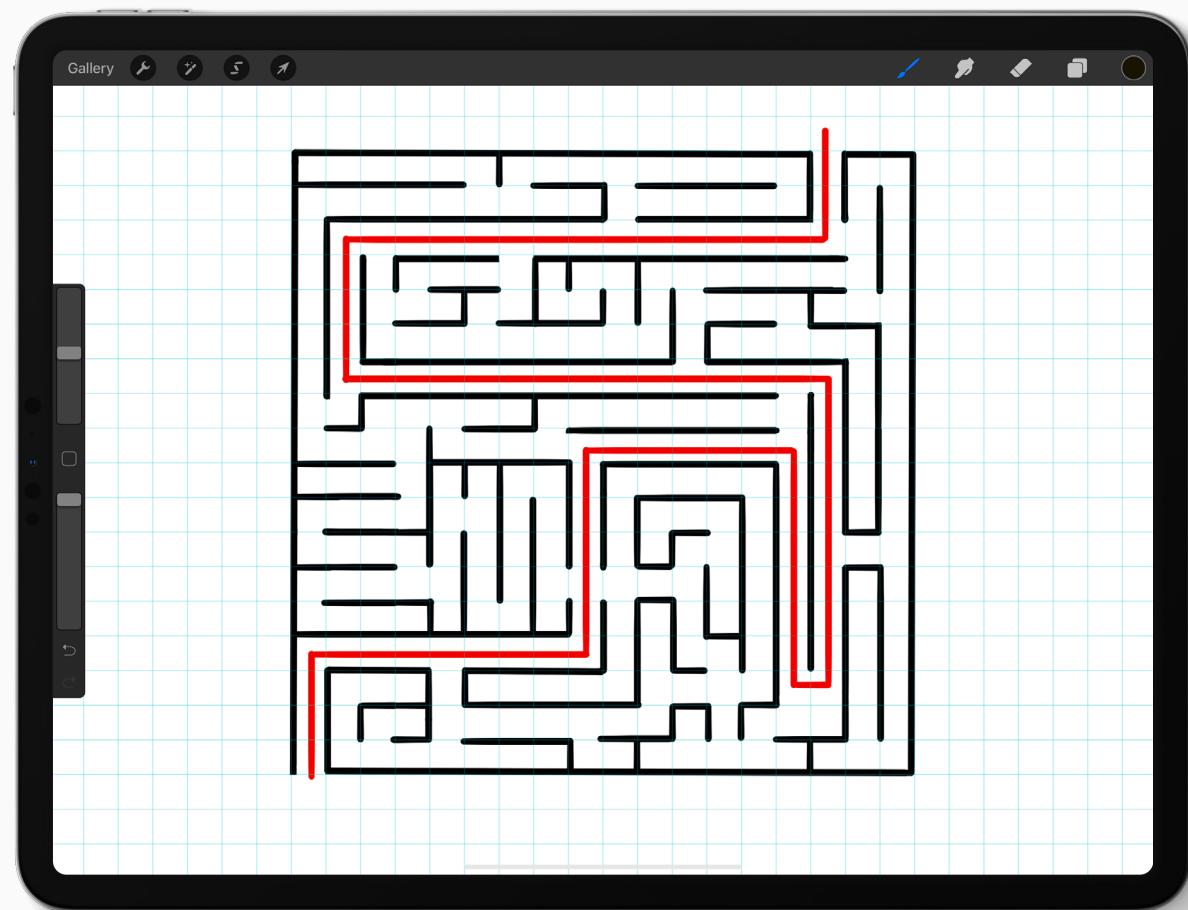
Back on your first layer, erase sections of your original path.

These will be places to enter and exit the main path of the maze. The more of these you draw, the easier your maze will be.



Draw alternate paths

Using your first color, create lots of distracting paths, that will confuse the person trying to complete the maze.



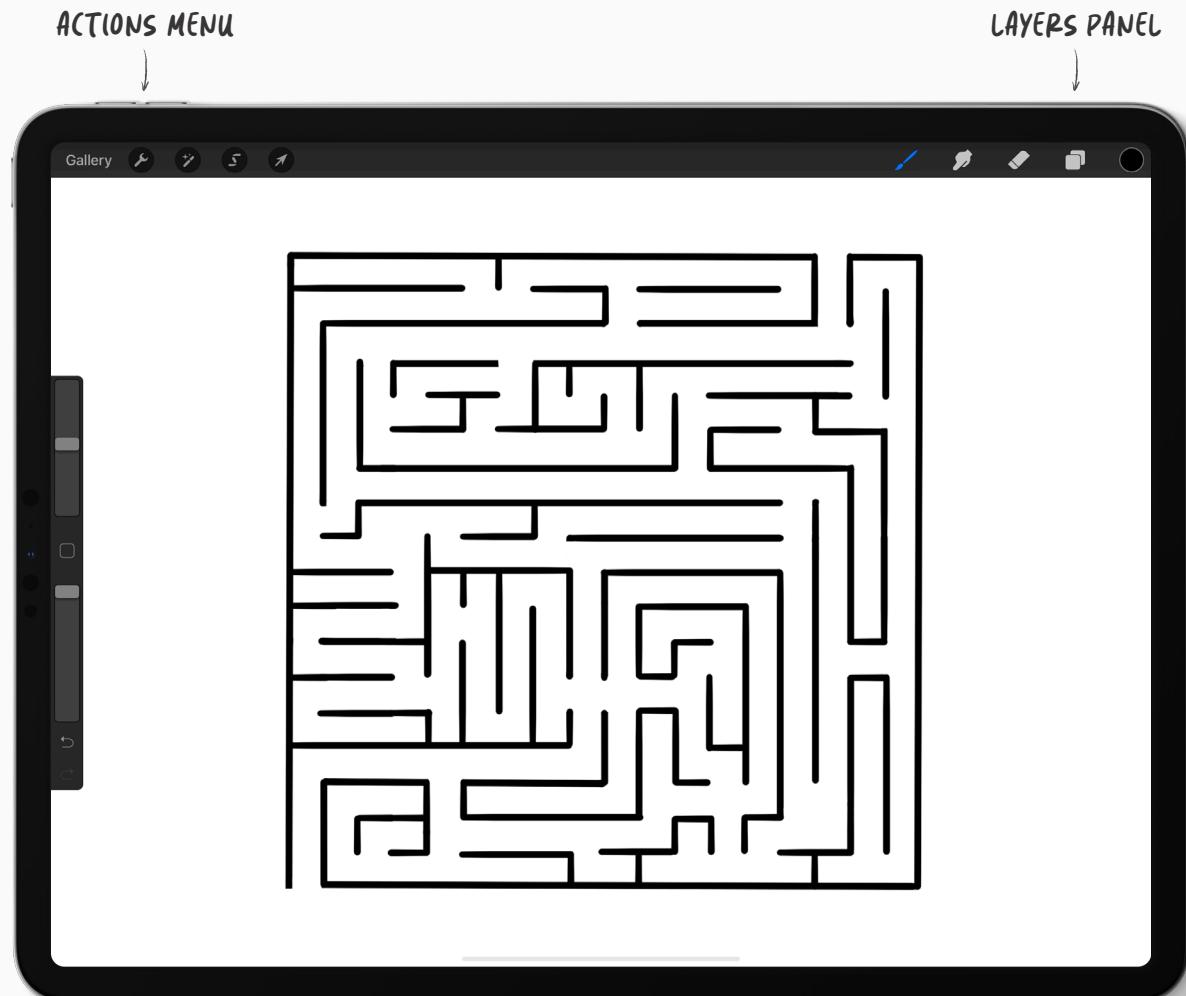
Hide solution

Now that you have drawn your maze, open the *Layers Panel* and tap the *Visibility Checkbox* next to your solution layer to hide the answer.

Congratulations! You've drawn a 2D Maze.

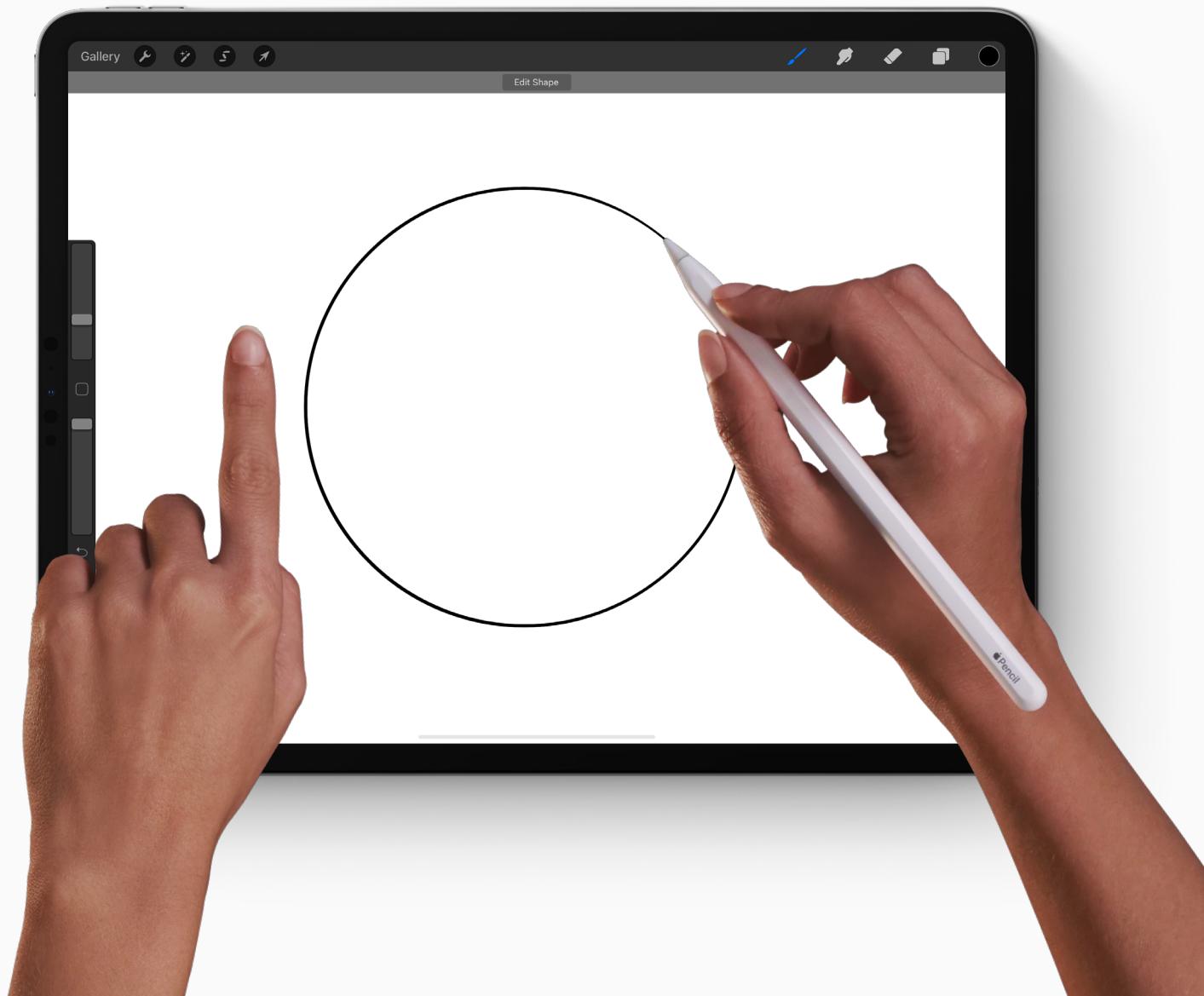
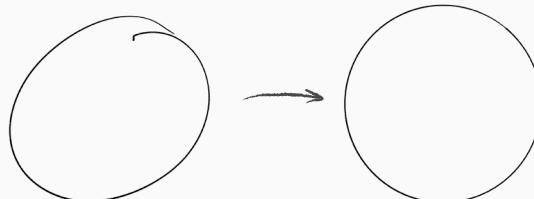
TO SHARE WITH YOUR FRIENDS:

- 1 Tap the wrench icon to open *Actions*.
- 2 Tap *Share*.
- 3 Tap *PNG*, and use *Airdrop* to send it to your classmates.



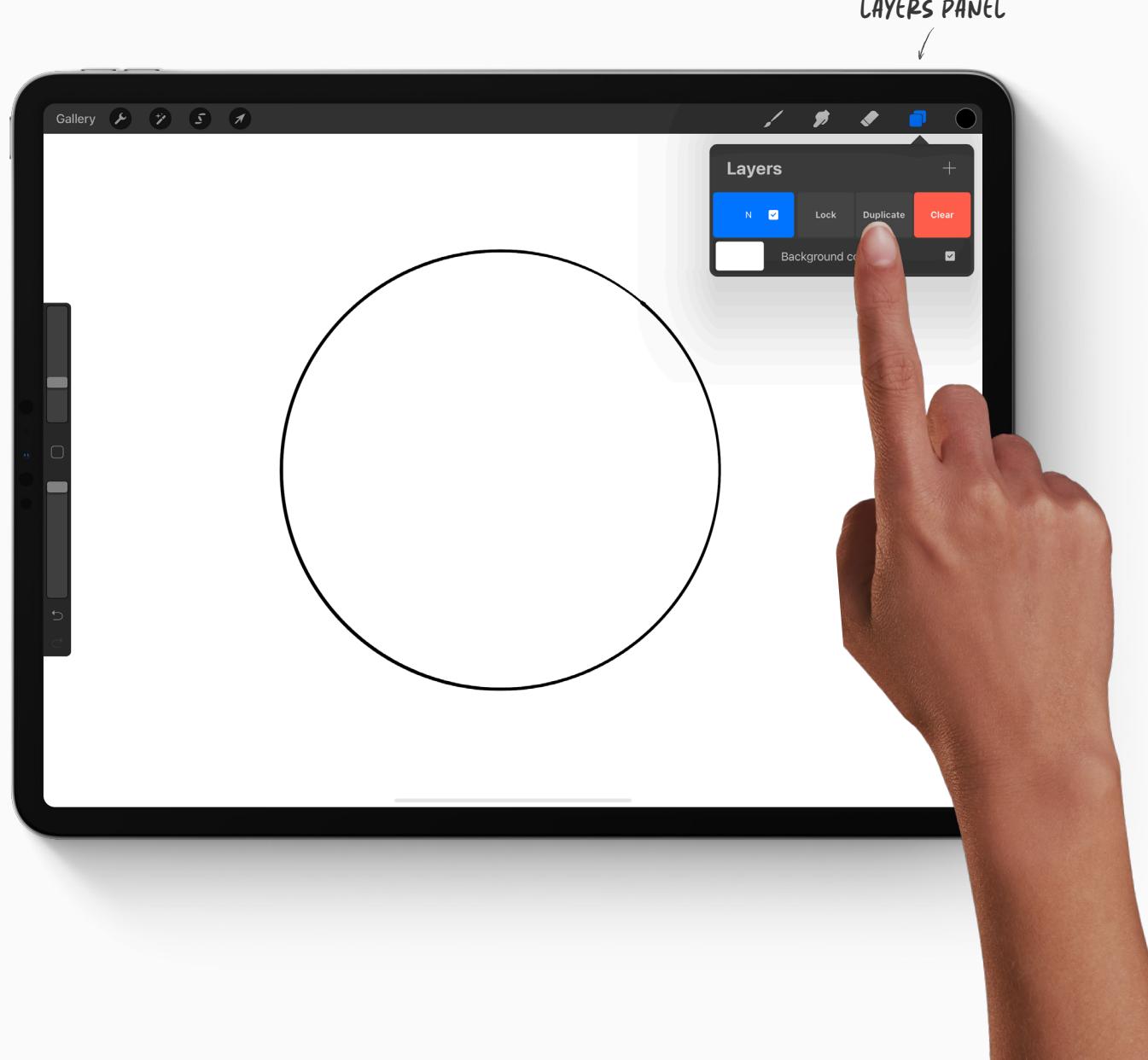
QuickShape

- 1 Start your new maze on a new canvas. Go back to the *Gallery* and tap the *+* in the top right to create a new A4 canvas.
- 2 Tap the brush icon to open the *Brush Library*. In *Calligraphy*, select the *Monoline* brush.
- 3 Draw a large circle and hold for a second to make it a smooth shape. Tap with your other hand, to snap the shape to a perfect circle.



Duplicate

- 1 Tap the two squares in the top right to open the *Layers panel*.
- 2 Swipe left on your circle layer to reveal three layer actions.
- 3 Tap *Duplicate*.

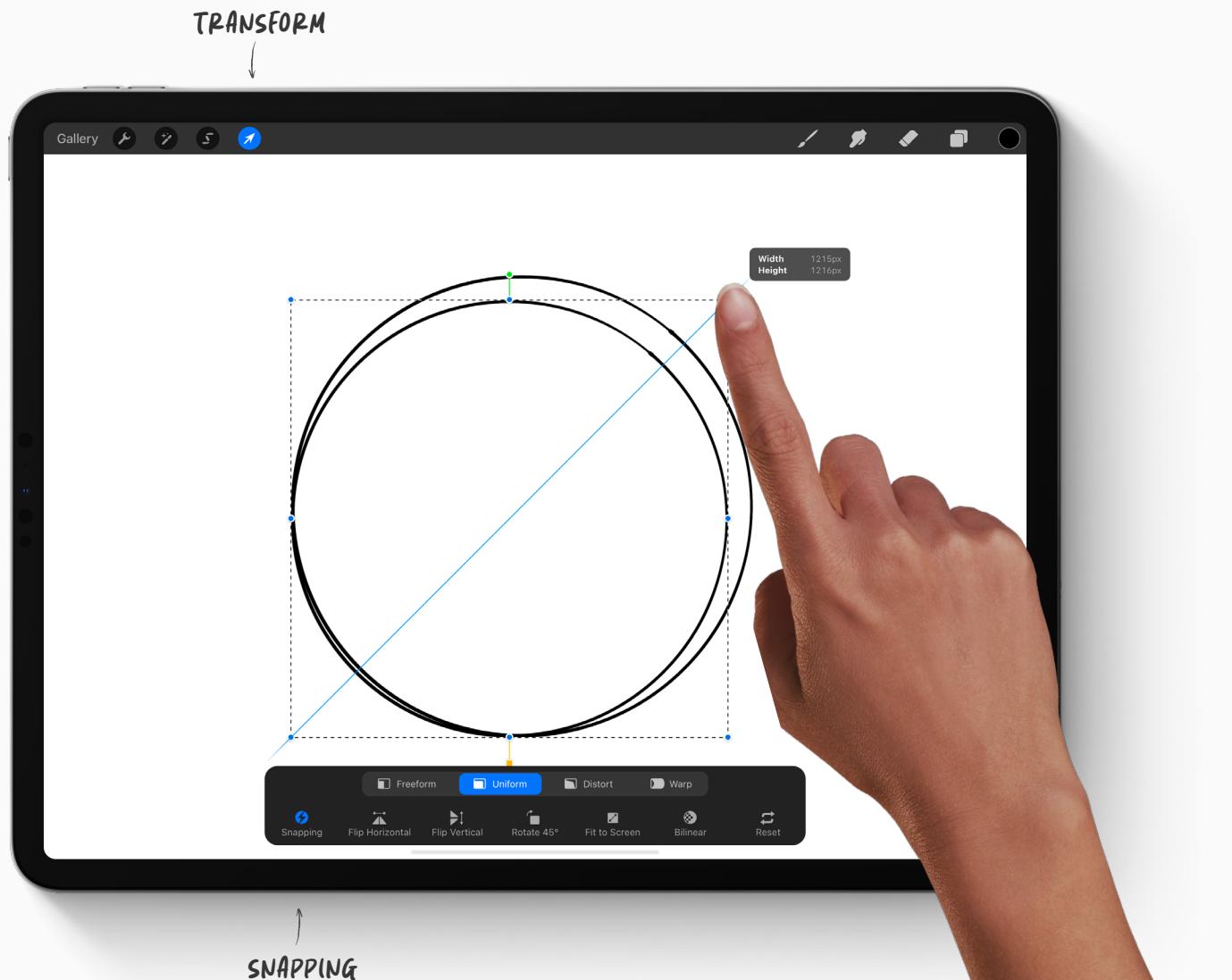
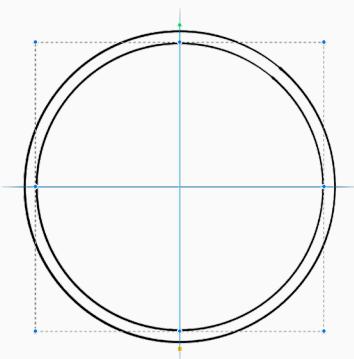


Transform

- 1 On your new layer, tap the arrow icon to enter *Transform Mode*.
- 2 Use the blue corner nodes to resize your circle.
- 3 Move your circle so that it is centred horizontally and vertically.

SNAPPING IN PLACE

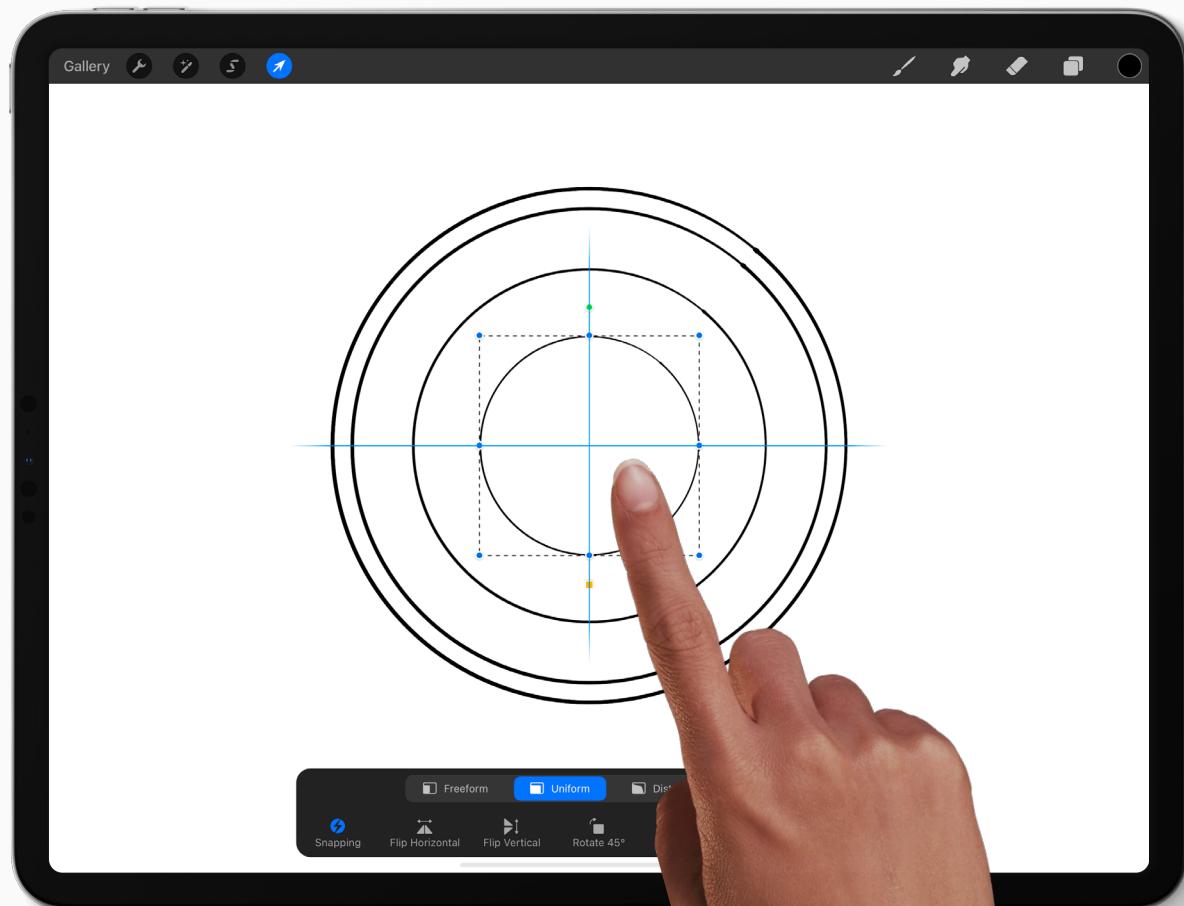
Turn on *Snapping* in the bottom left corner to activate blue guide lines, that will help you centre your circles.



Repeat

Repeat until you have as many circles as you would like your maze to have in layers.

The more circles there are, the more difficult you maze will be.

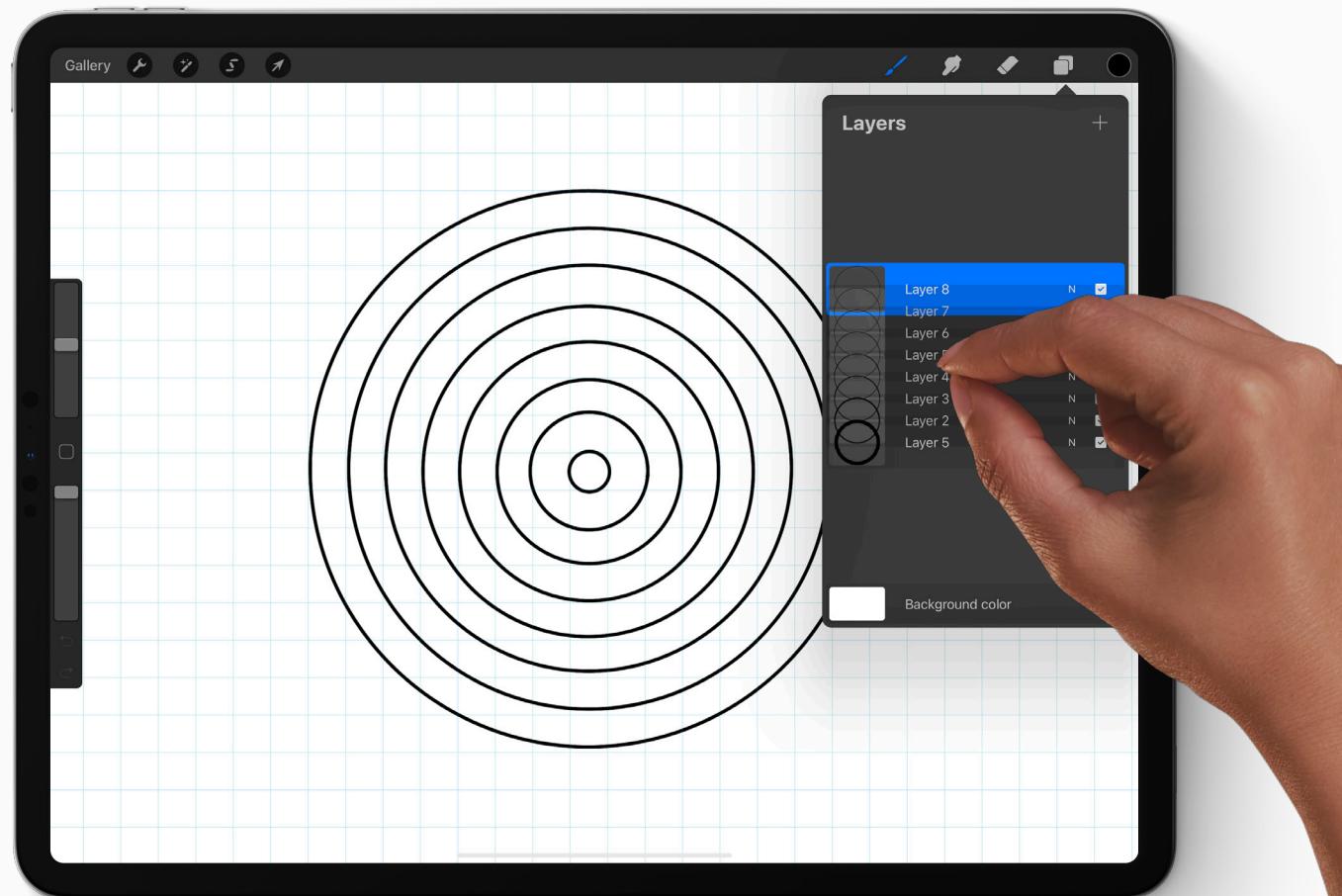


Merge layers

Once all your circles are drawn, open the Layers Panel and pinch to merge all the layers together.

TIP

Before you merge your layers you might like to turn on your 2D drawing grid again to help you get consistent spacing between each of your circles.

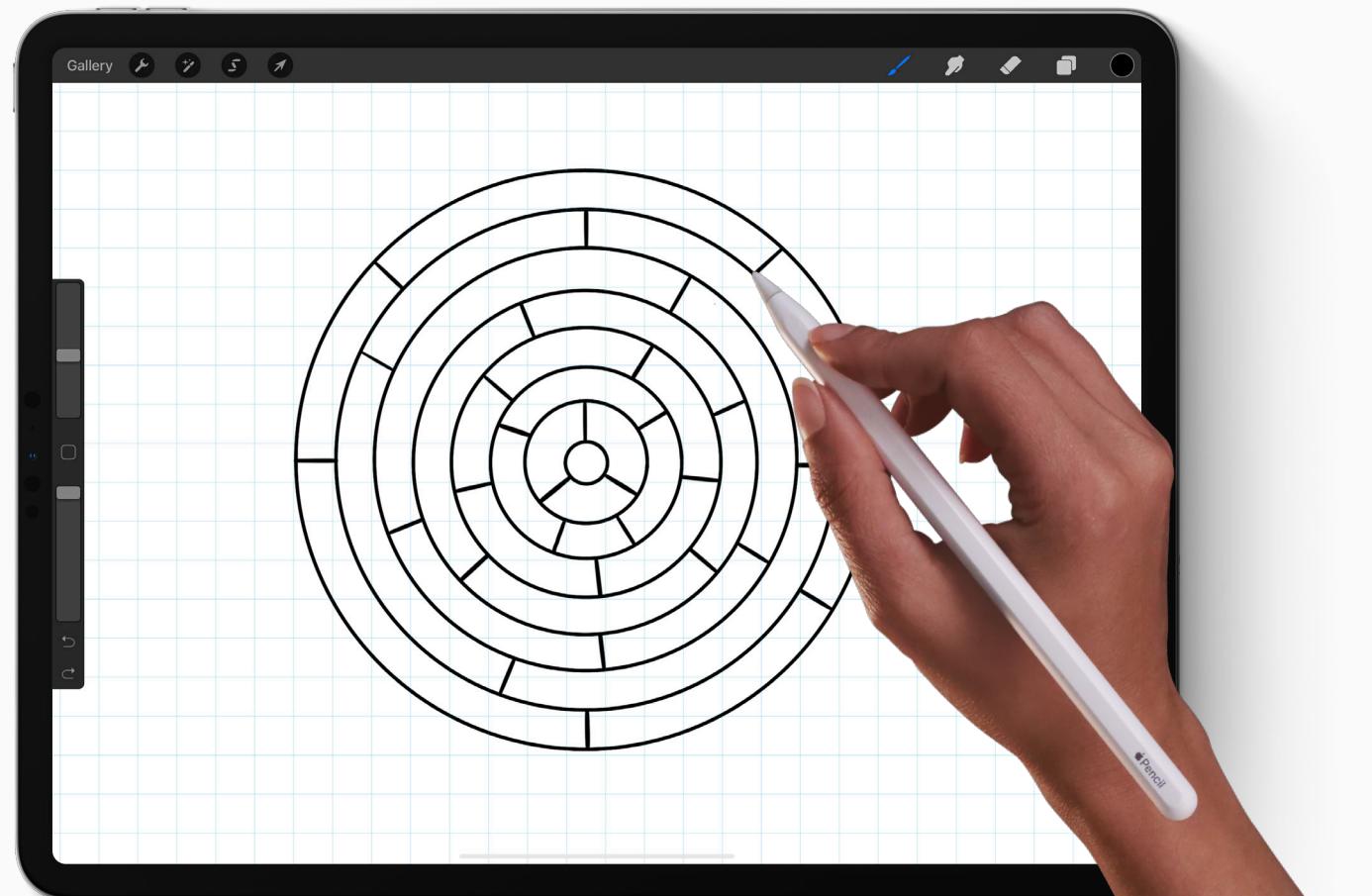


Draw segments

Draw lines at random segments to break up each of the rings into smaller pieces.

The more segments you draw, the harder the maze will be.

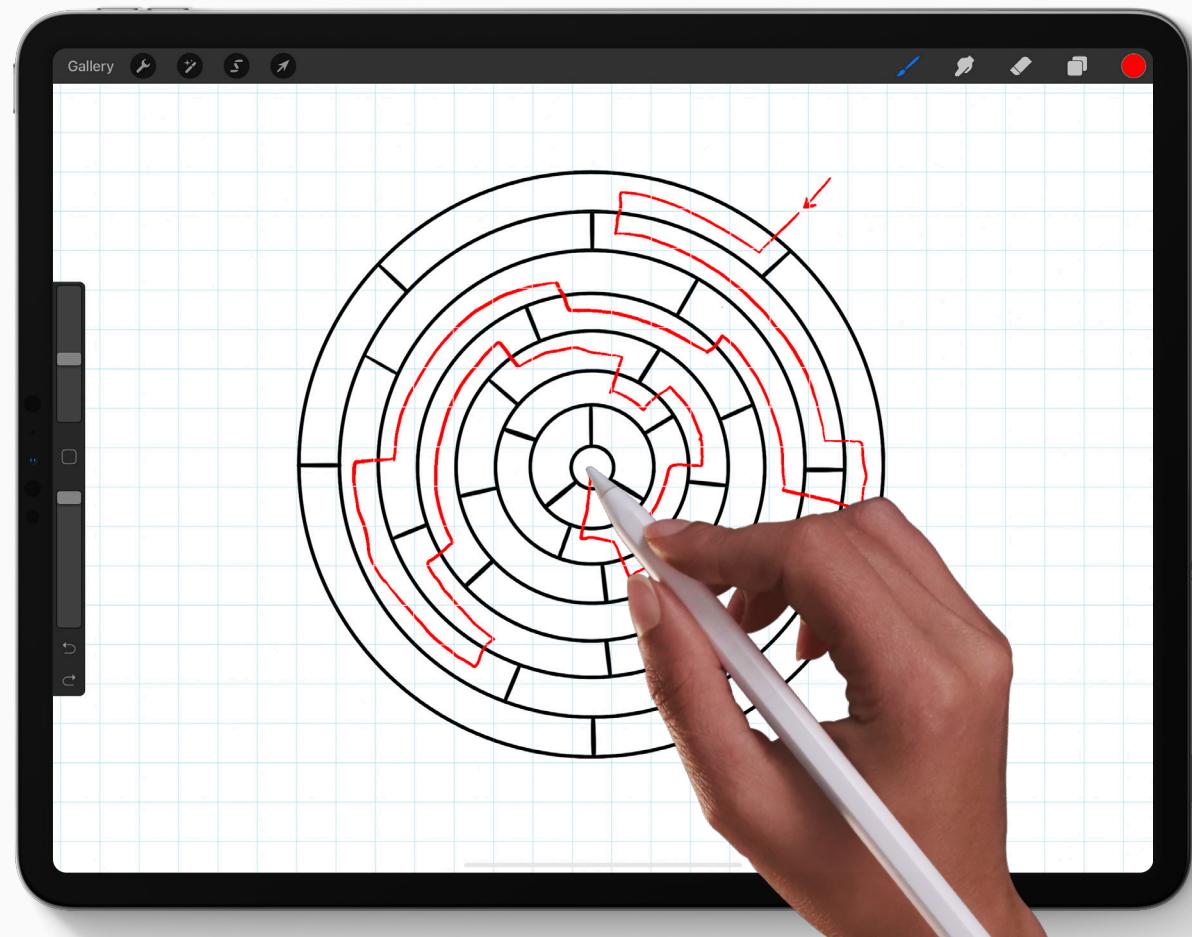
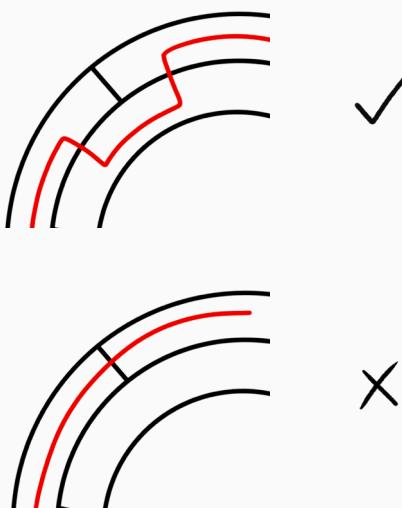
3-5 lines for each circle is usually enough for smaller rings.



Draw a path

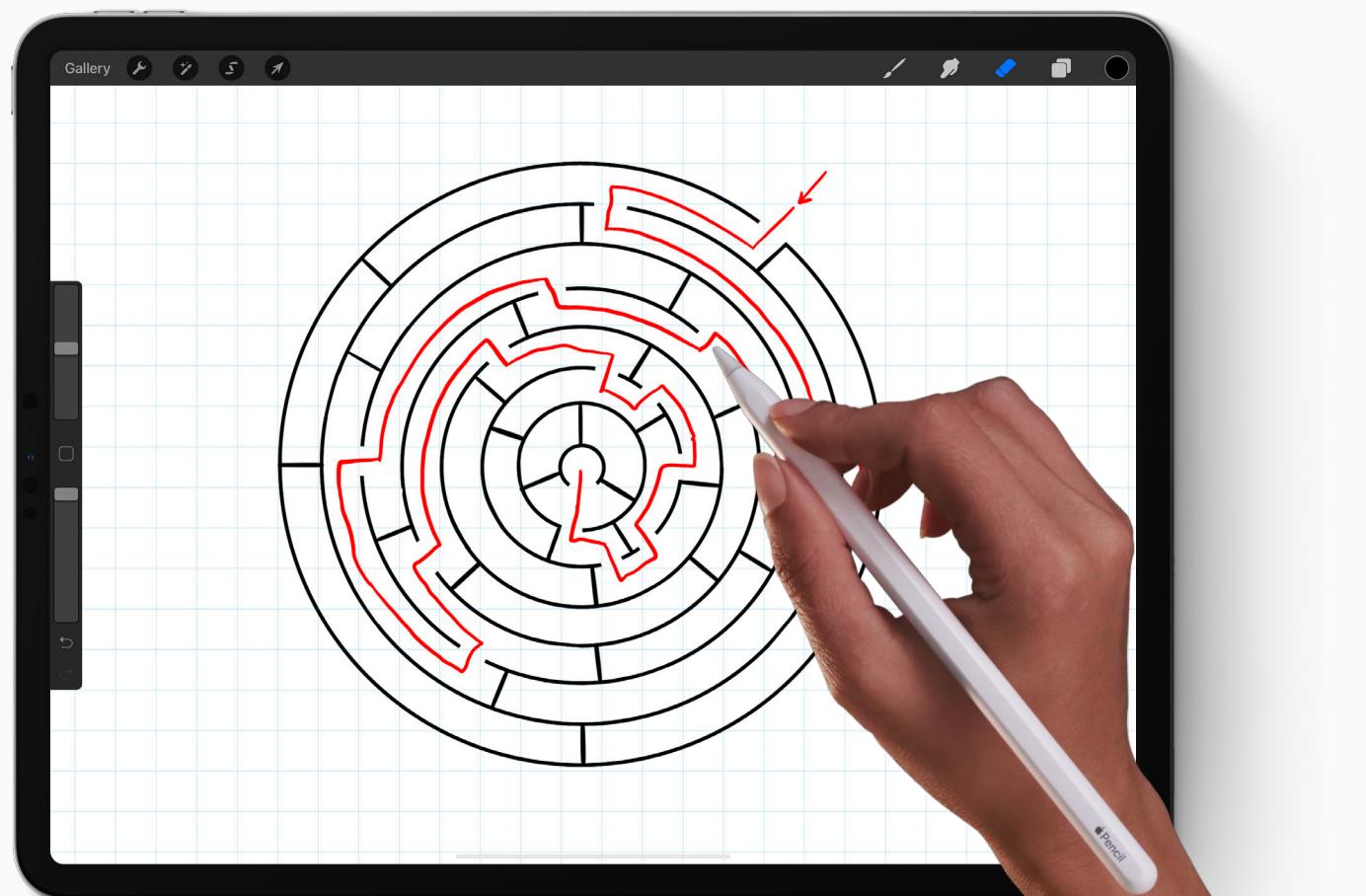
On a new layer, draw a path through the maze until you get to the center.

The path should only go up and down through the rings, and not sideways through segments.



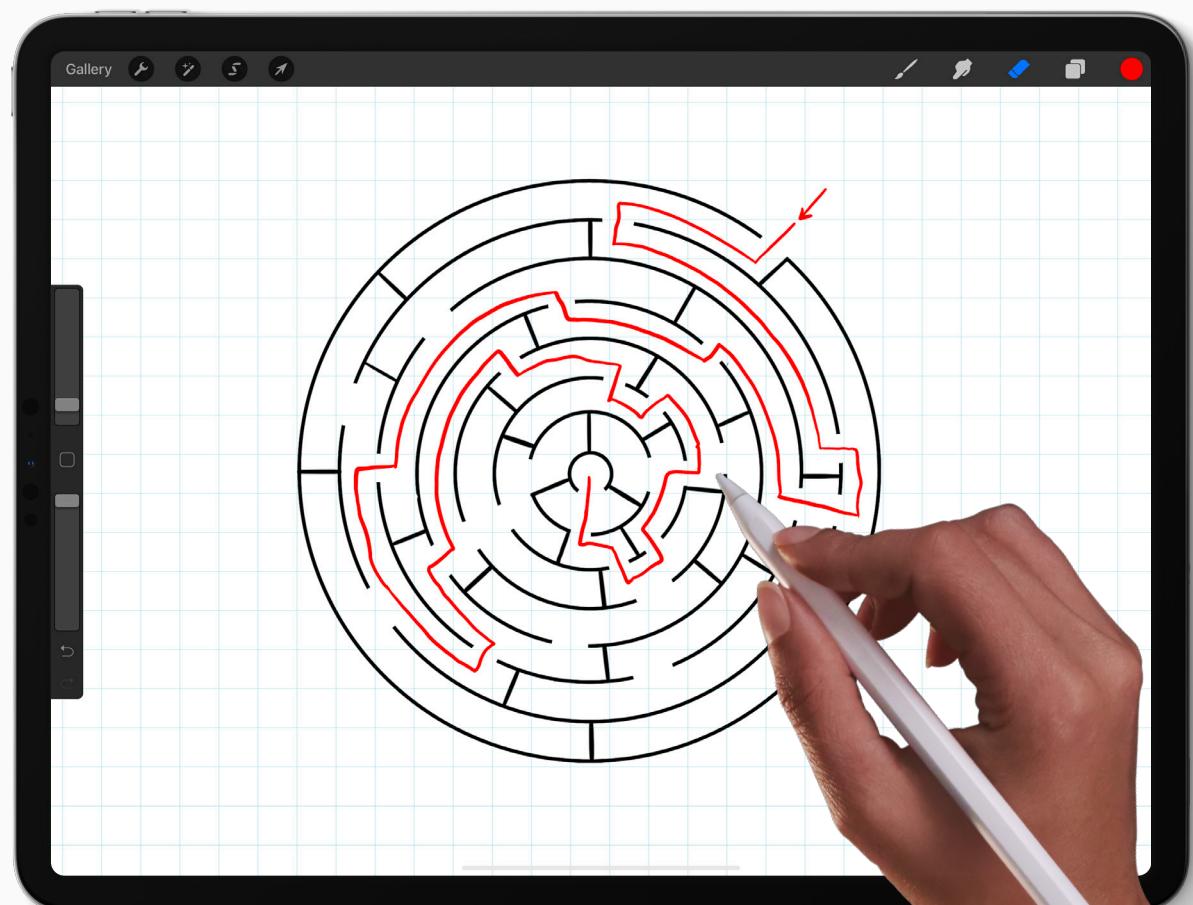
Erase along the path

On your original layer, erase the maze along the path you have drawn until you reach the center.



Open the other segments

Now go back to all the closed segments and erase an opening to connect them to your path.



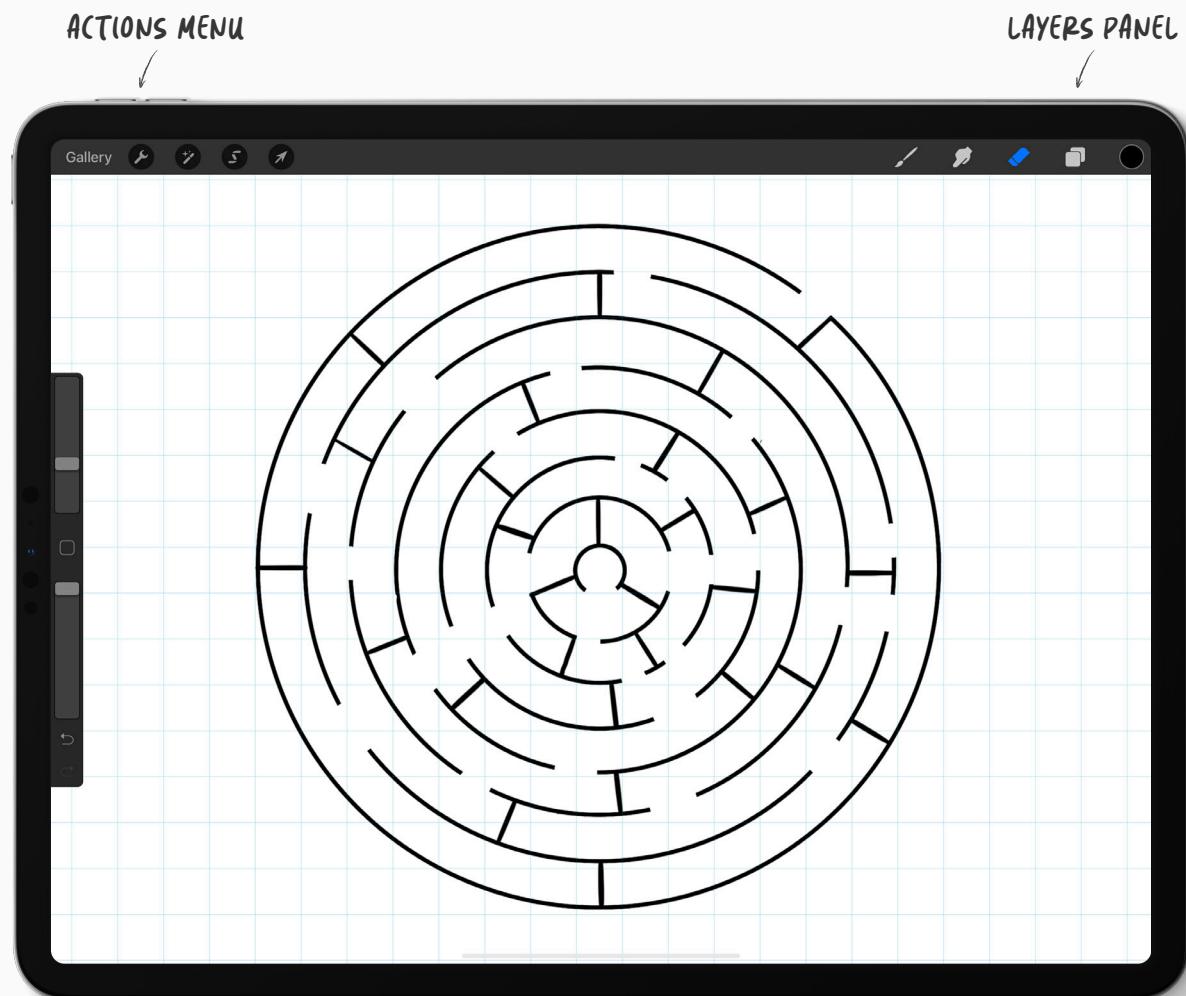
Hide solution

As with your first maze, open the *Layers Panel* again and tap the *Visibility Checkbox* next to your solution layer to hide the answer.

Congratulations! You've drawn a Radial Maze.

TO SHARE WITH YOUR FRIENDS:

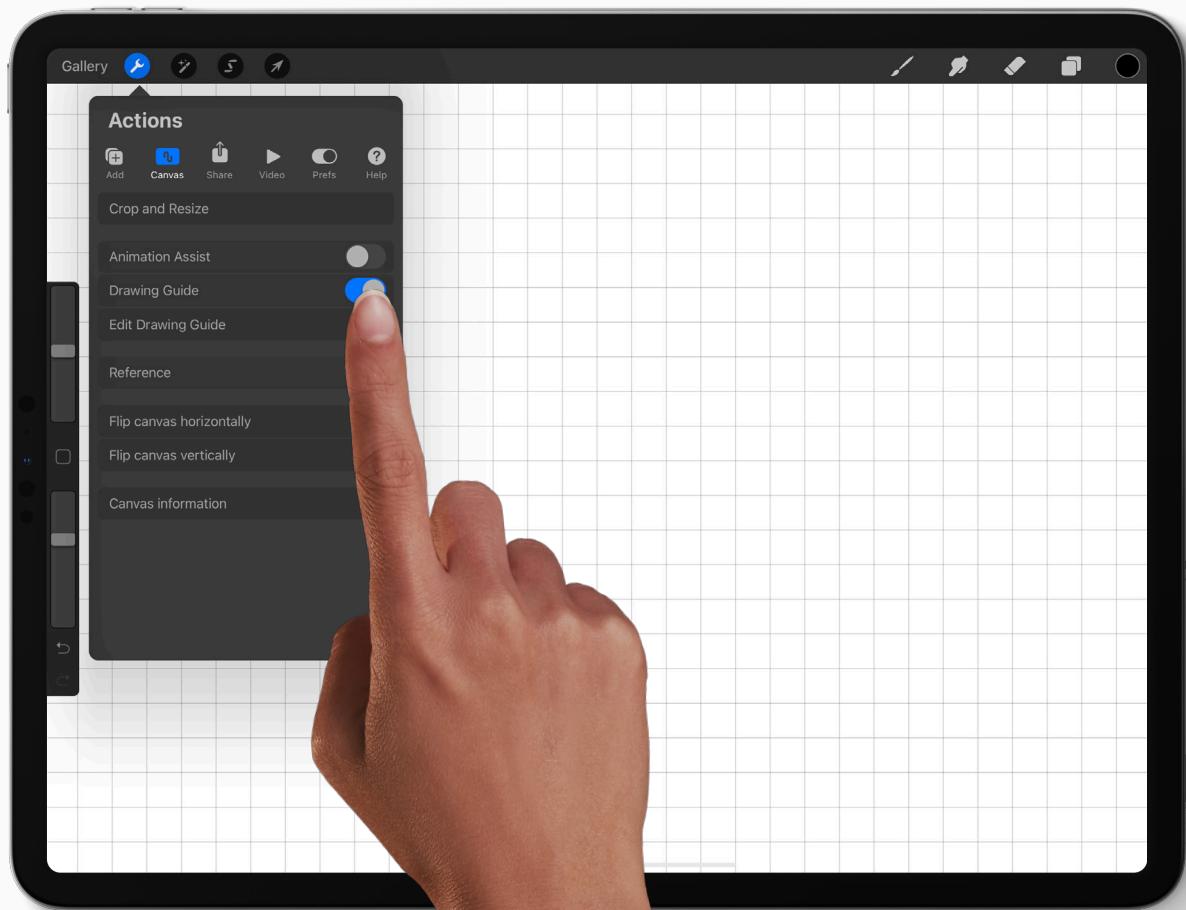
- 1 Tap the wrench icon to open the *Actions menu*.
- 2 Tap *Share*.
- 3 Tap *PNG*, and use *Airdrop* to send it to your classmates.



3D Maze

Create a grid drawing guide

- 1 Create a new file for your new maze, and tap the wrench icon to open the *Actions* menu.
- 2 Turn on the *Drawing Guide* toggle.
- 3 Then tap *Edit Drawing Guide*.



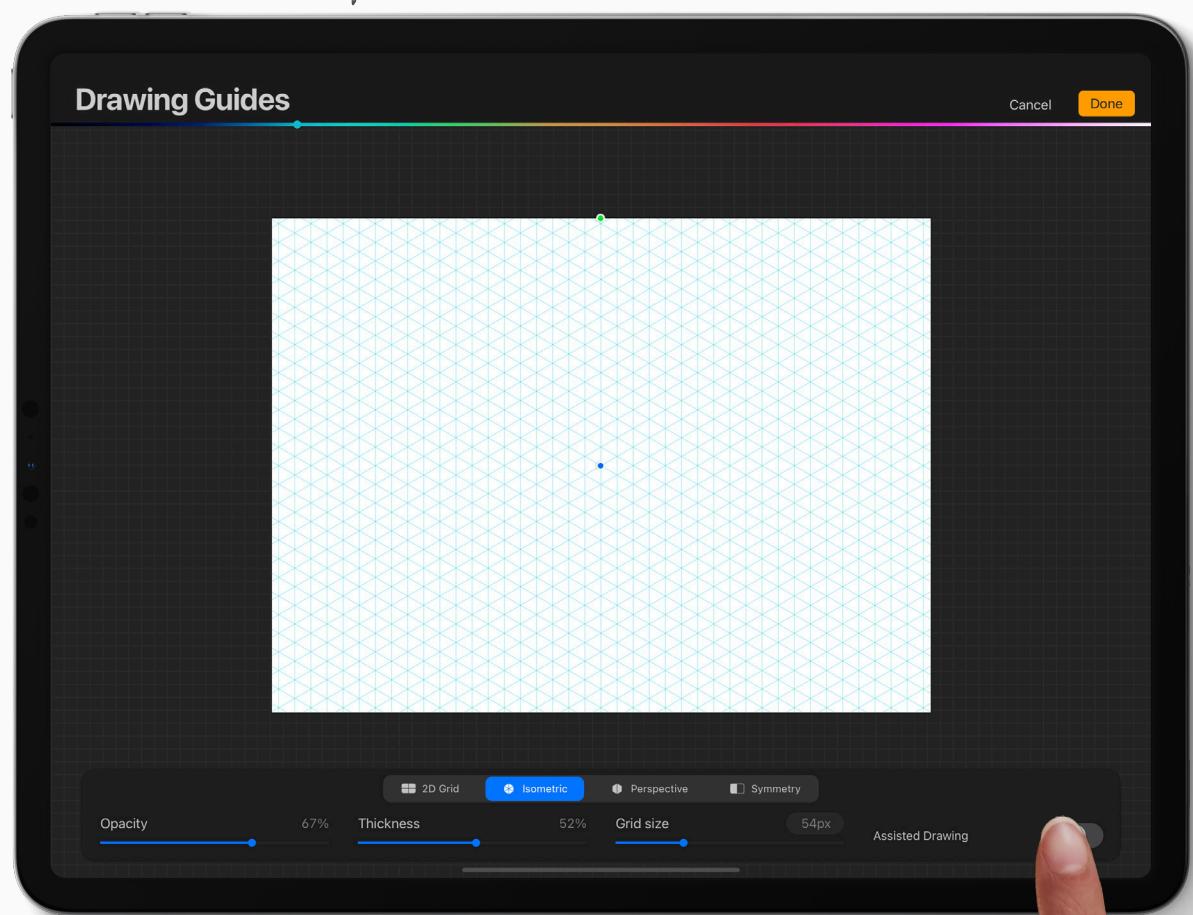
Edit drawing guide

Select *Isometric* from the four grid options down the bottom.

Then turn on the *Assisted Drawing* toggle, and tap *Done*.

GUIDE
APPEARANCE

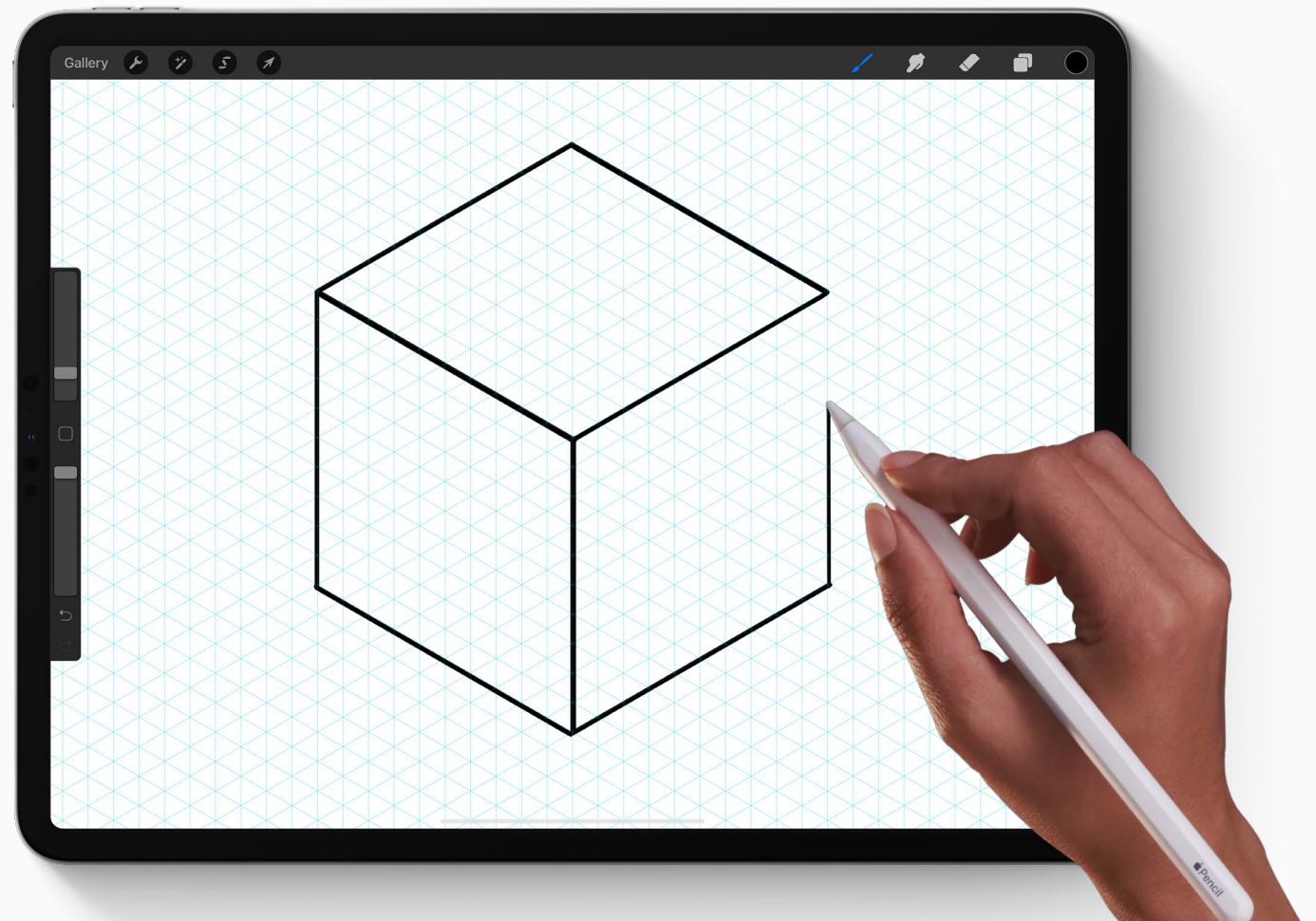
CHANGE COLOR
WITH SLIDER



Draw a cube

Follow the isometric drawing guides to make a 3D object.

Make sure you use *Drawing Assist* on the layer to make it perfect, and draw in line with the grid.



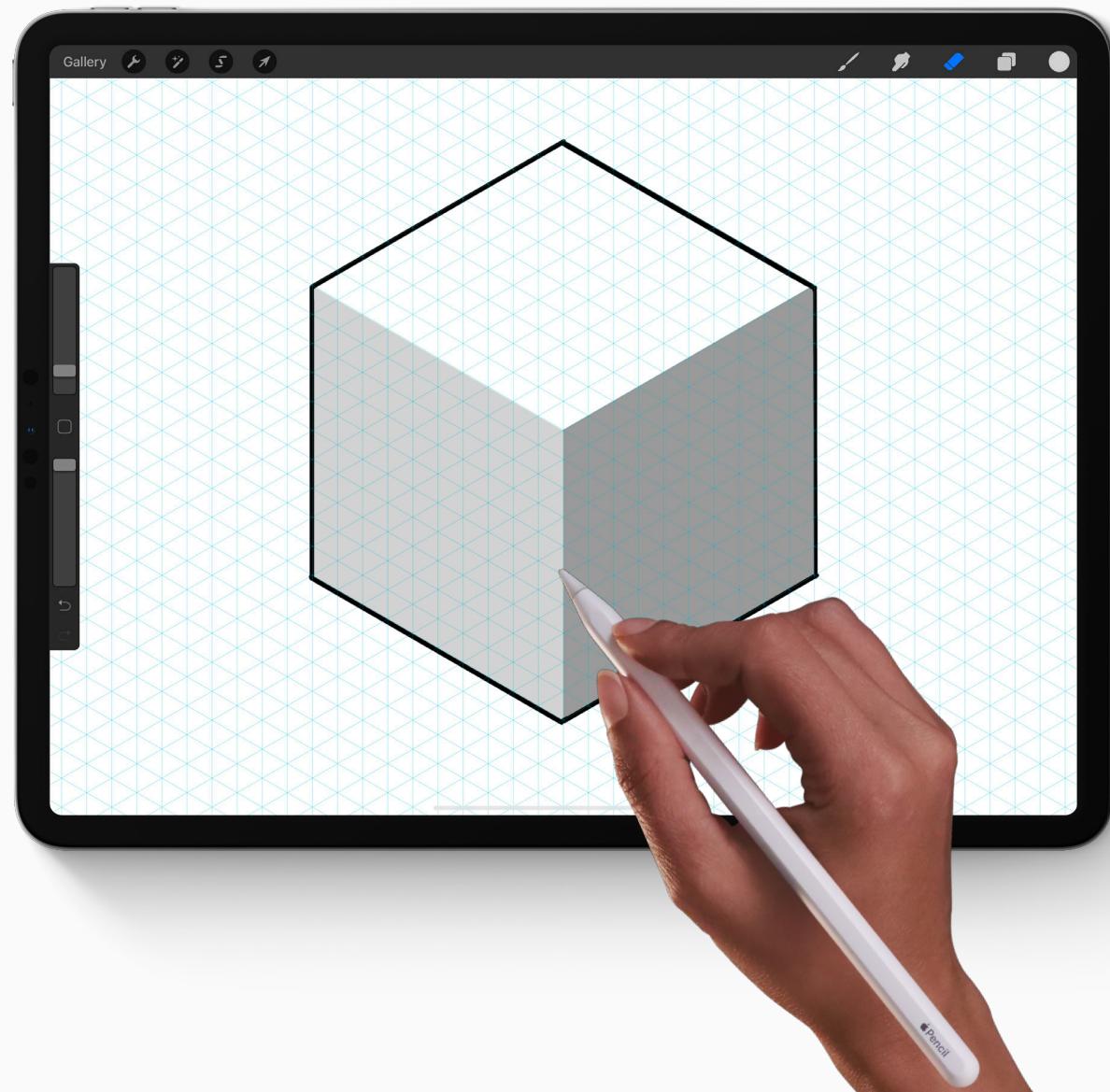
Shade your object

Create a new layer and shade the 3D object to represent the faces of the object.

- * Make sure you pick two colors to shade your object, one slightly darker than the other.
- * Erase any inside lines on your original layer, so that it's only your shading that distinguishes the faces.

HINT

Don't forget you can use ColorDrop to color the faces quickly.

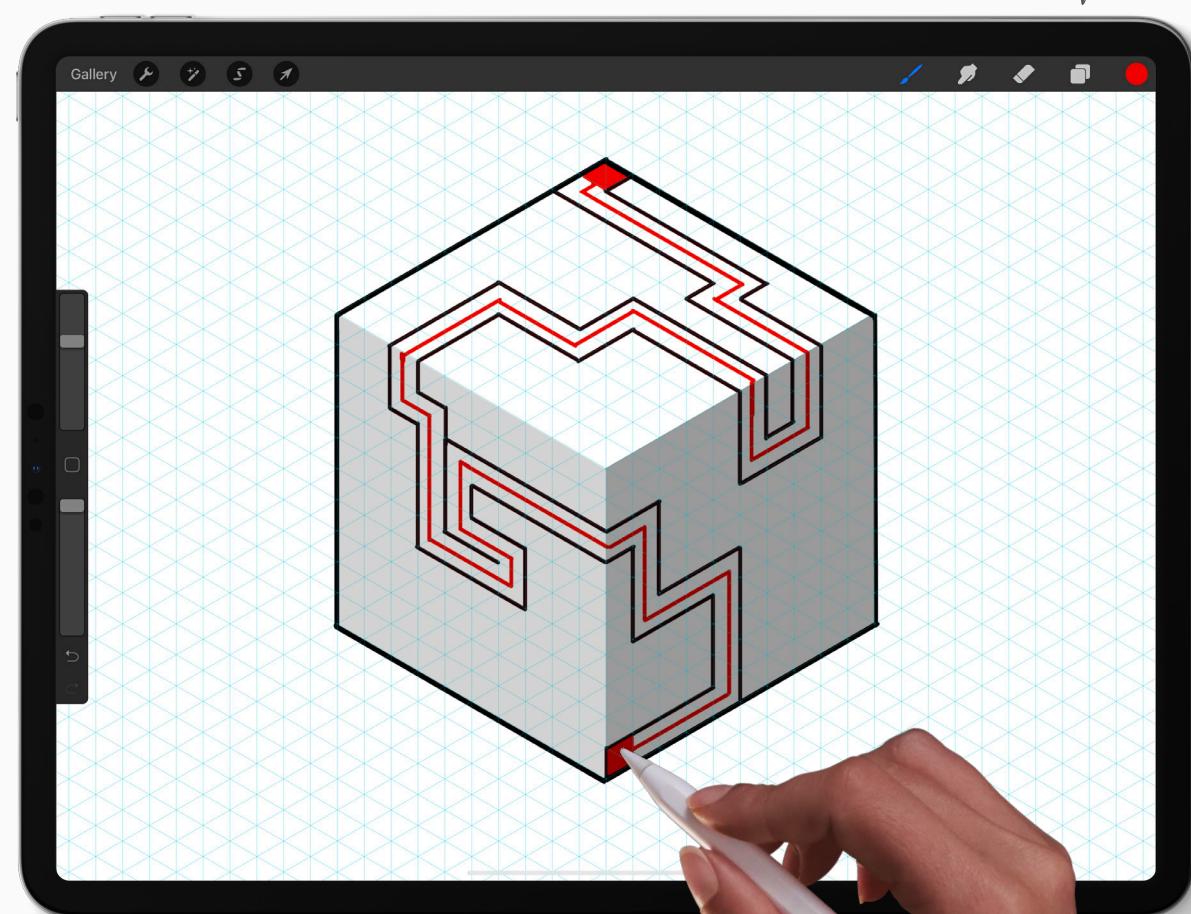
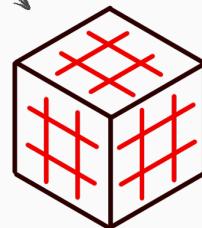


Draw your path

- 1 Open the *Layers Panel* and tap the **+** to create a new layer.
- 2 Draw a path on your 3D object. Make sure your path obeys the direction of the face (see below) and that you draw along the grid lines.
- 3 Once you're happy with the path, enclose the other side so that it creates a closed path from start to finish.
- 4 Next, create another new layer and highlight your path solution in a new color.

THE RIGHT DIRECTION

Even though the isometric drawing guide allows you to draw in three directions, you only want to draw in two directions on each side, so your object has the illusion of being in 3D.



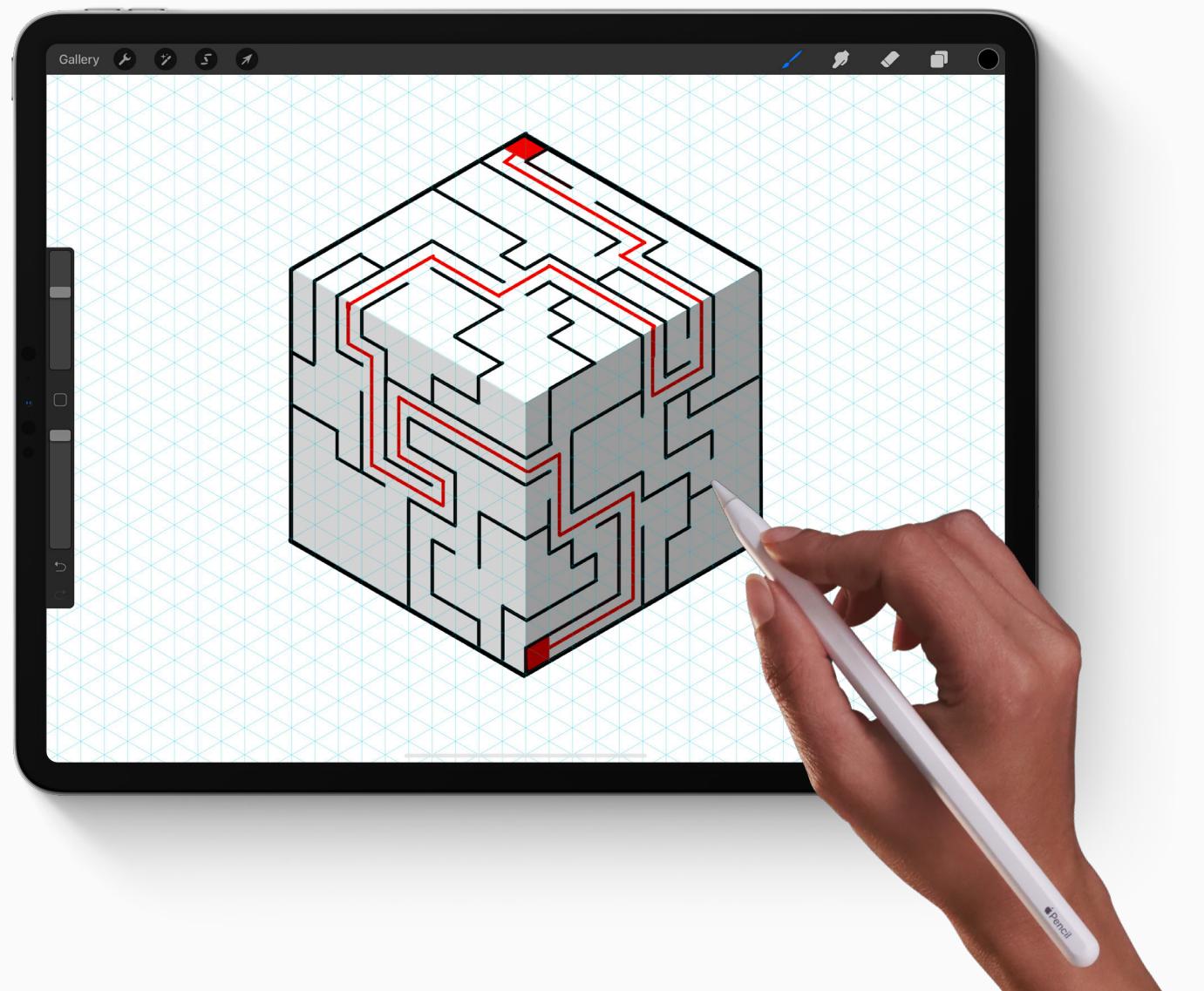
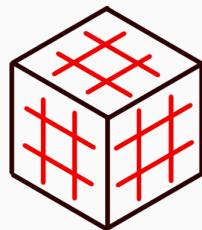
LAYERS PANEL

Create some openings

- 1 On your original layer, erase some openings in the main path.
- 2 For each opening, create a random shape that only has one opening along the path.
- 3 Once the object is full of shapes, look for any that don't have any openings to the main path. Erase an opening for each of these that connects it to the main path.

REMINDER

Make sure your new lines obey the face direction of your object.

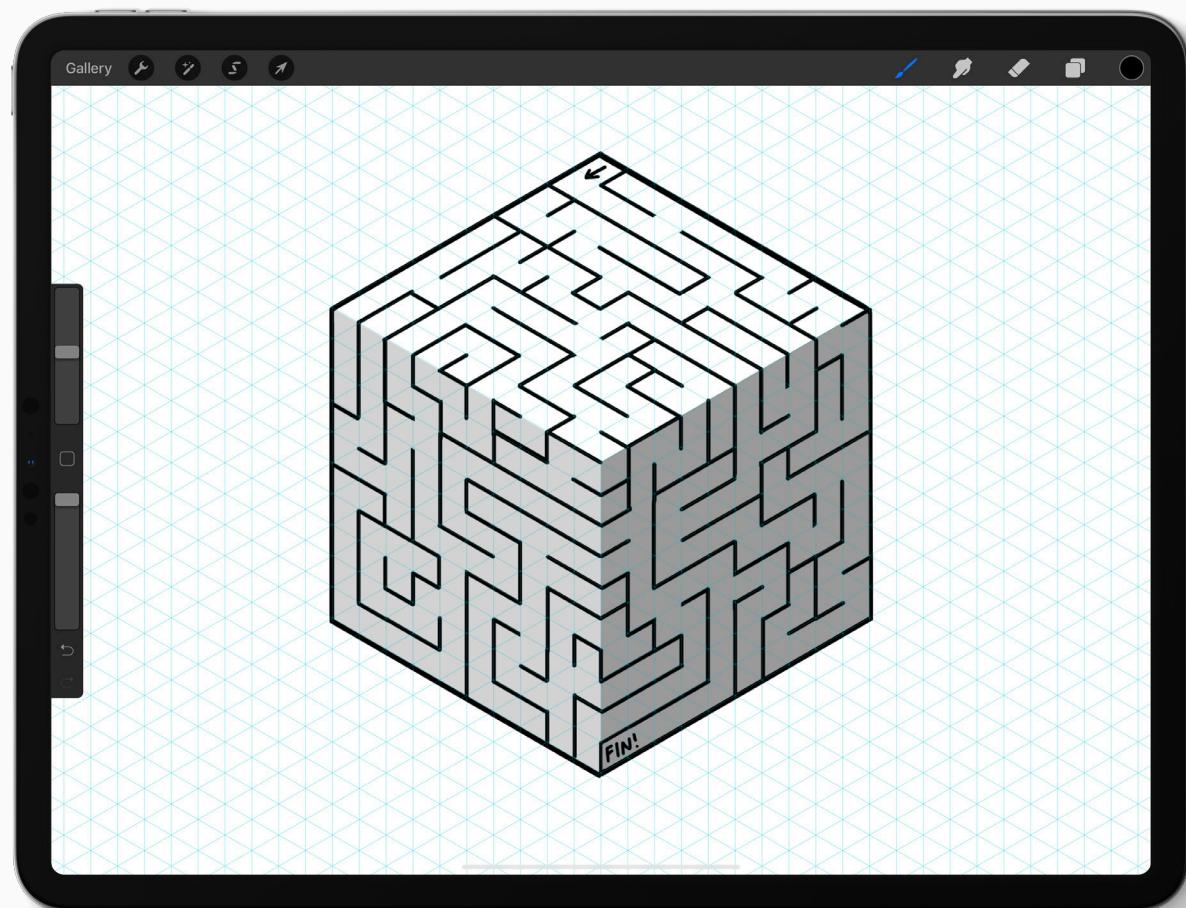


Fill

Fill in the shapes with lines to create random paths. Hide the solution layer, and add indicators that show where the maze starts and finishes.

TO SHARE WITH YOUR FRIENDS:

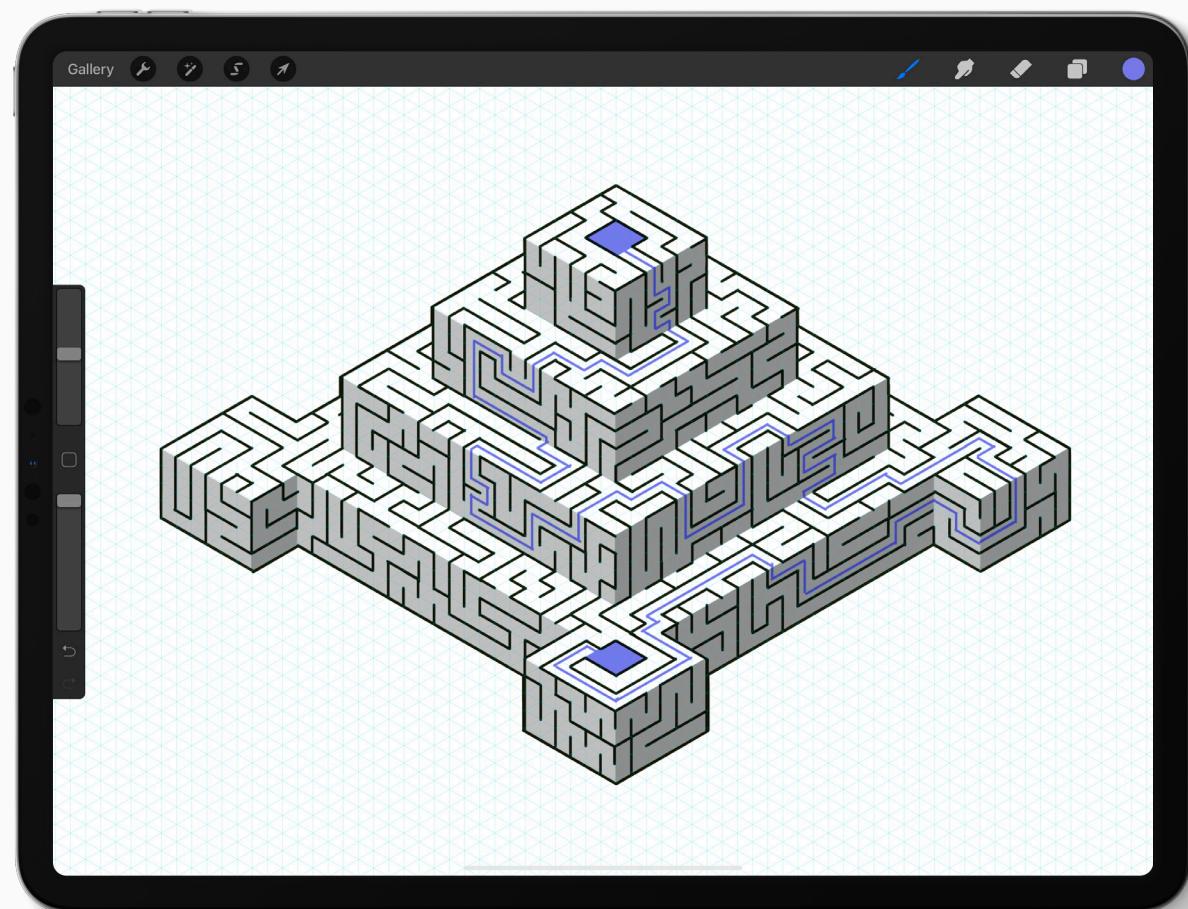
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Take it further

Complex shapes

Use the skills from these three kinds of mazes to create more of different shapes and sizes. What other mazes can you create?

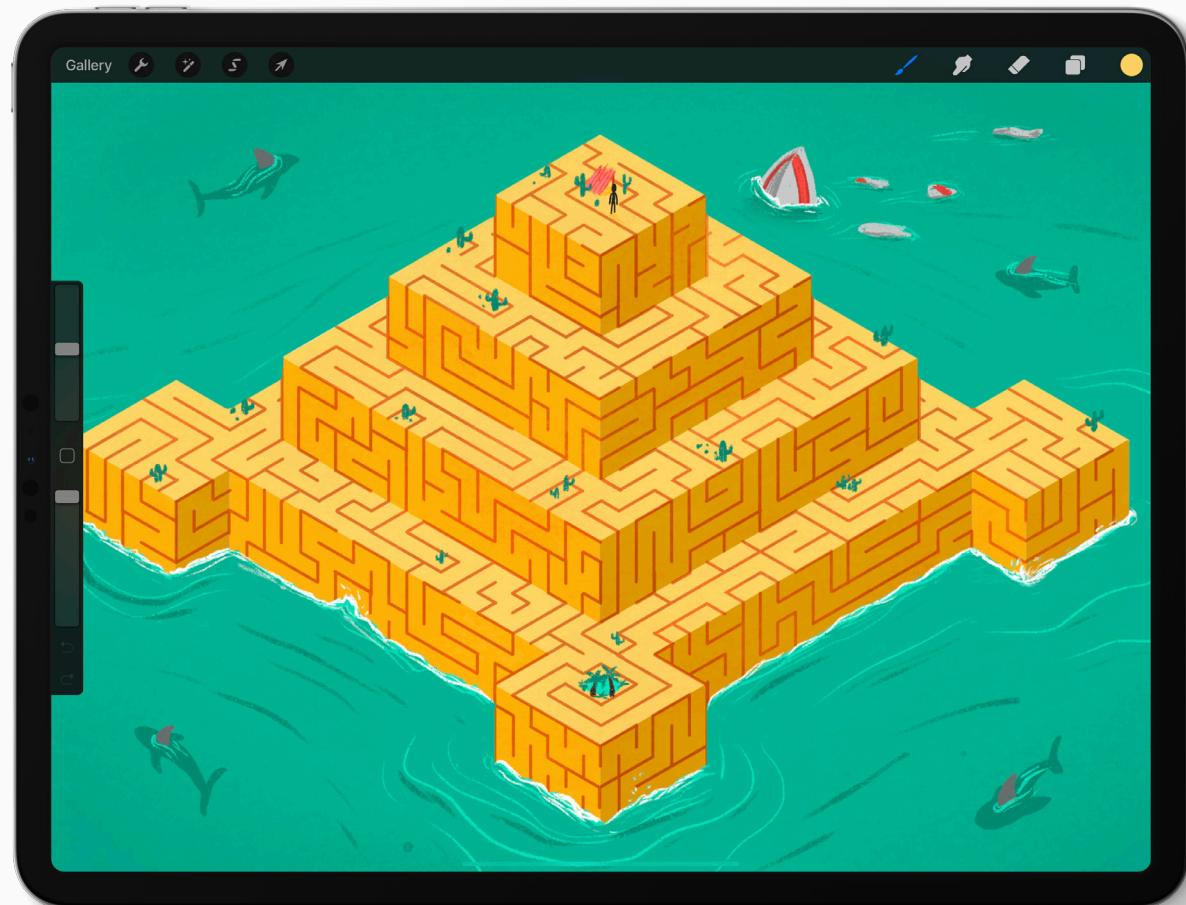


Add a story

How can you use illustration to tell a story using your maze? What could your maze be made out of? Who is trying to find their way through it?

REMEMBER

Don't forget to duplicate your working file before you add illustration, so you have the original to refer back to later.



Create

Artistic expression helps make education meaningful, memorable and fun. Find more creative lesson ideas at education.procreate.art

To dive deeper into the full creative potential of Procreate, see our Handbook at procreate.art/handbook



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