

Poetic Starlight

By Stacy David

Tiger Farm Press



Einstein's Cube

It's not rocket science.

*Everything should be made as simple as possible,
but no simpler.*

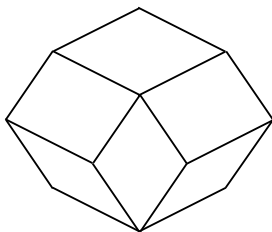
Albert Einstein, 1950

The Forth

Einstein added the 4th dimension of time into the theory of physics, to give us the physics of spacetime. But, neither mathematicians nor physicists have shown us a simple way to draw a 4 dimensional hypercube.

In this book, using Einstein's axiom, "Everything should be made as simple as possible, but no simpler," you will learn to draw in four dimensions and beyond.

The steps are so straight forward, a grade schooler could be taught to follow them. Below is a 4 dimensional Einstein cube.

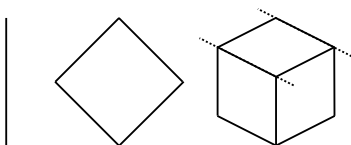


It only has 6 front sides. It's very straight forward to draw.

Your Requirements

To learn the drawing techniques, you must be familiar with the basic geometric shapes:

- A point to show position, 0 dimensions.
- A line is for distance, 1 dimension.
- A square of 2 dimensions, area.
- A cube of 3 dimensions, volume.



Drawing 0 to 3 Dimensions

A 0 dimensional point, is position.

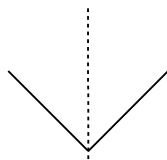
A 1 dimensional line segment is a representation of the distance between 2 end points. It can represent the distance of an object's height, length, or depth.



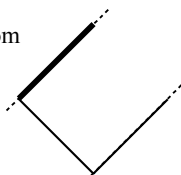
Draw a Square

To draw a square, start with a point. From the point, to the left, draw the 1st dimension: width. To the right, draw the 2nd dimension: length. The dimensional segments are mirrored through the dotted line. Width and length are the 2 dimensional base line segments of the square.

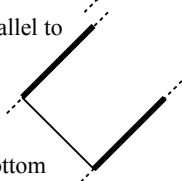
Baseline segments.
The dotted line is for reference



Top left side. It is drawn using the bottom right side as a guideline.

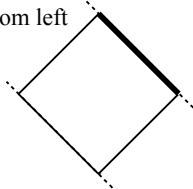


Key drawing tip: opposite sides are parallel to each other.



The top right side is drawn using the bottom left side as a guideline.

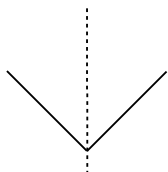
The top right side is parallel to the bottom left side.



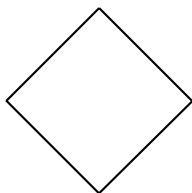
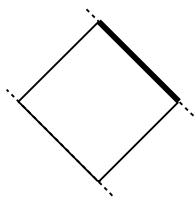
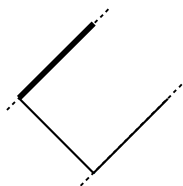
4 / Drawing 0 to 3 Dimensions

In summary, drawing a 2 dimensional square.

Draw the 2 baselines.



Draw the sides using the baselines as guidelines.

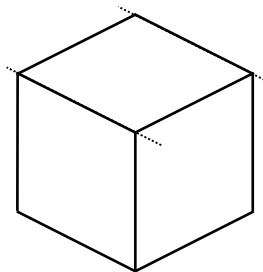


That completes a square.

Draw a Cube

A cube is a 3 dimensional object. When a cube is printed on paper, or displayed on a phone, or on a computer screen, there are only 2 dimensions. The cube's 3 dimensional shape is altered to fit into 2 dimensions.

Below, the 3 dimensional cube that is represented in 2 dimensions.



Each side of a cube is a square. In 3 dimensions, the shape of each square side, is adjusted to fit in 2 dimensions. Below, is the steps to draw the left square side of the above cube.

To draw each of the square sides of cube, use the same steps as drawing a 2 dimensional square.

1. Draw the 2 dimensional baselines.
2. Then draw the other 2 sides using the baselines as guidelines. The other 2 sides are drawn parallel to their opposite side.

6 / Drawing 0 to 3 Dimensions

To draw a square, start with a point. From the point, to the left, draw the 1st dimension: width. To the right, draw the 2nd dimension: length. The dimensional segments are mirrored through the dotted line. Width and length are the 2 dimensional base line segments of the square.

Draw the baseline segments.

