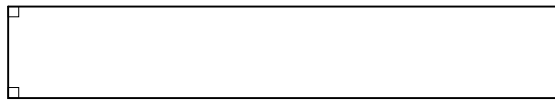


# Visualizing Non-Euclidean Geometry in Thirty Seconds

## Wrong Perspective



HYPERBOLIC



EUCLIDEAN



ELLIPTIC

3 Possible Postulates:  
Distance between two straight lines mutually perpendicular to a base line will: DIVERGE (Hyperbolic Geometry); STAY EQUAL (Euclidean Geometry); or CONVERGE (Elliptic Geometry).

At left is the wrong way to visualize Non-Euclidean geometry (Wikipedia, etc.) At right are Proper Perspective visualizations.

The wrong way portrays distance accurately but sacrifices the straightness of straight lines. A proper Perspective view sees the opposite: straight lines always appear straight, while the density of distance appears to be compressing (Hyperbolic), or expanding (Elliptic), as you look farther and farther outward.

Both systems are correct to imply that space appears Euclidean at the base line. In all three geometries, local space seems Euclidean everywhere you go.

Wikipedia; "Non-Euclidean Geometry"; 26th April 2014;  
[http://en.wikipedia.org/wiki/Non-Euclidean\\_geometry](http://en.wikipedia.org/wiki/Non-Euclidean_geometry)  
5th July 2014 ..... Jim Barnes, architect

## Proper Perspective



HYPERBOLIC



EUCLIDEAN



ELLIPTIC

3 Possible Postulates:  
Distance between two straight lines mutually perpendicular to a base line will: DIVERGE (Hyperbolic Geometry); STAY EQUAL (Euclidean Geometry); or CONVERGE (Elliptic Geometry).