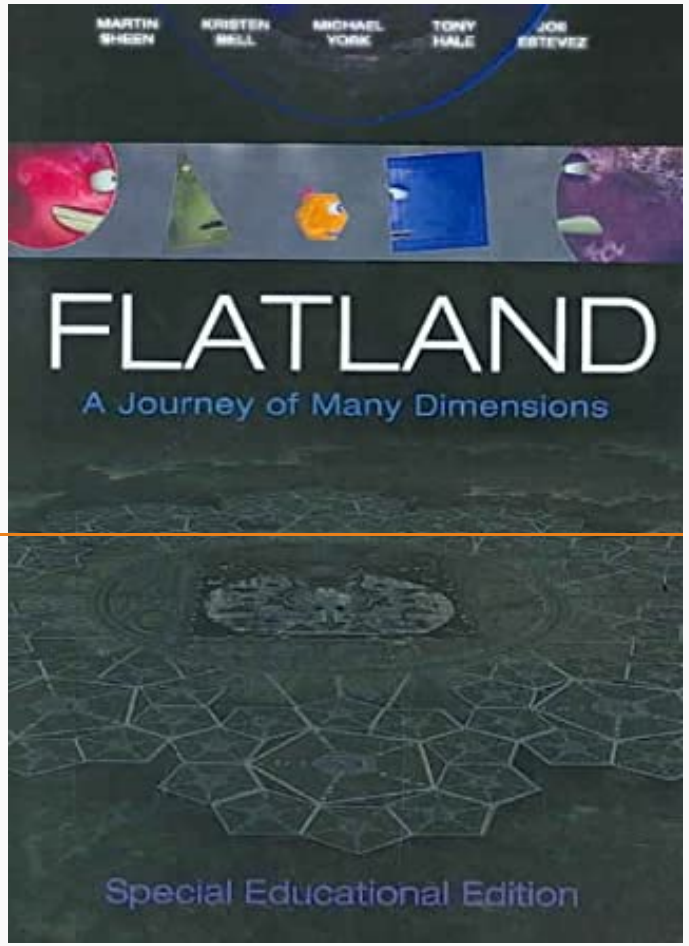
The Physics of Interstellar
What Are Dimensions?



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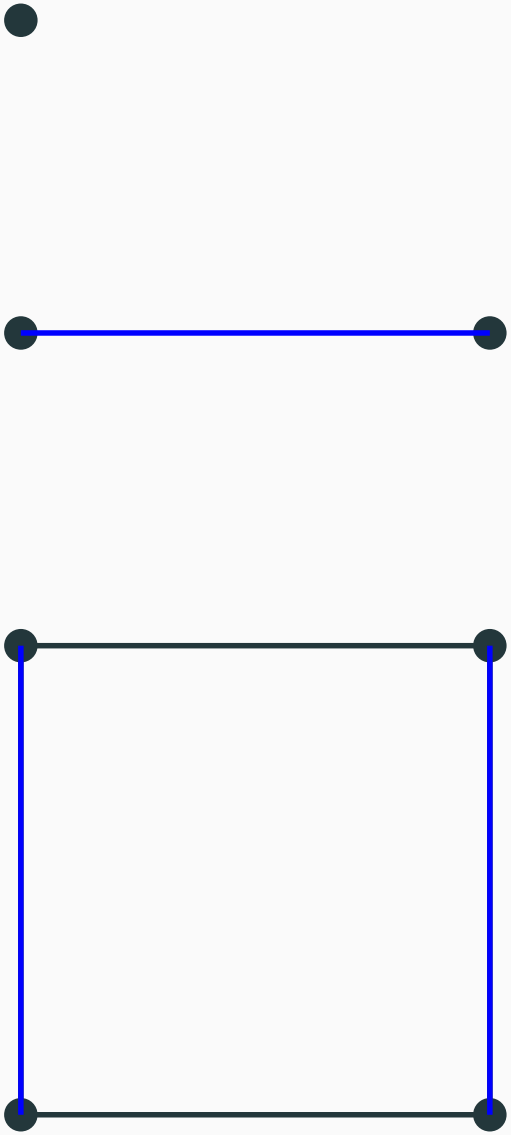
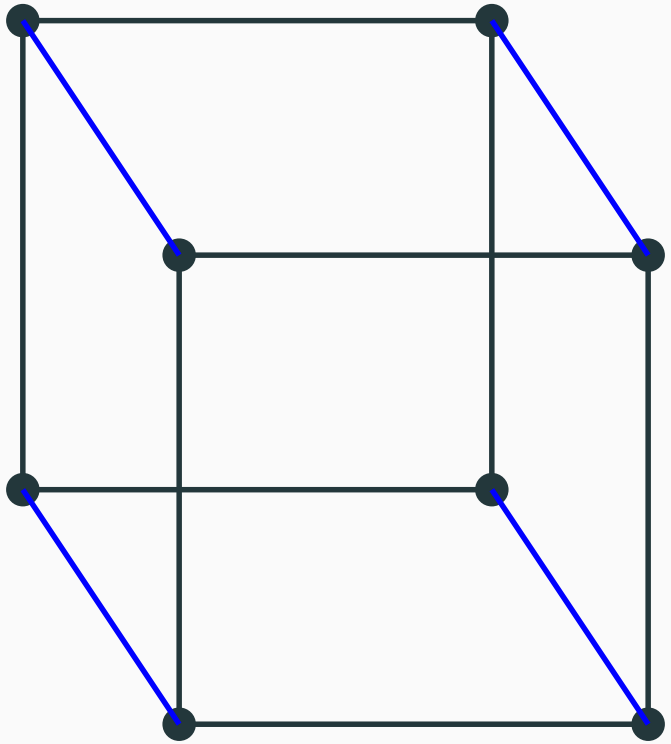
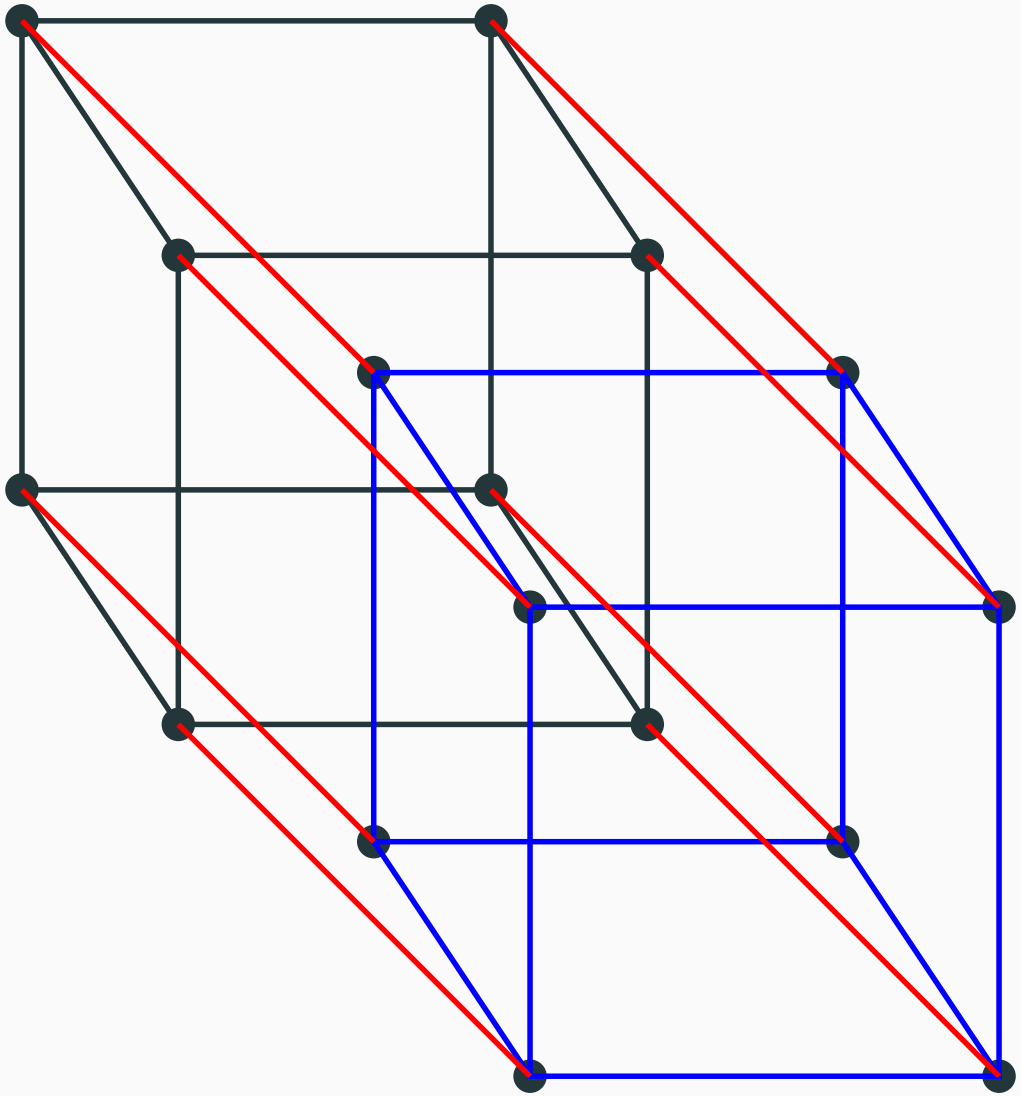
What Are Dimensions? - Point, Length, Area

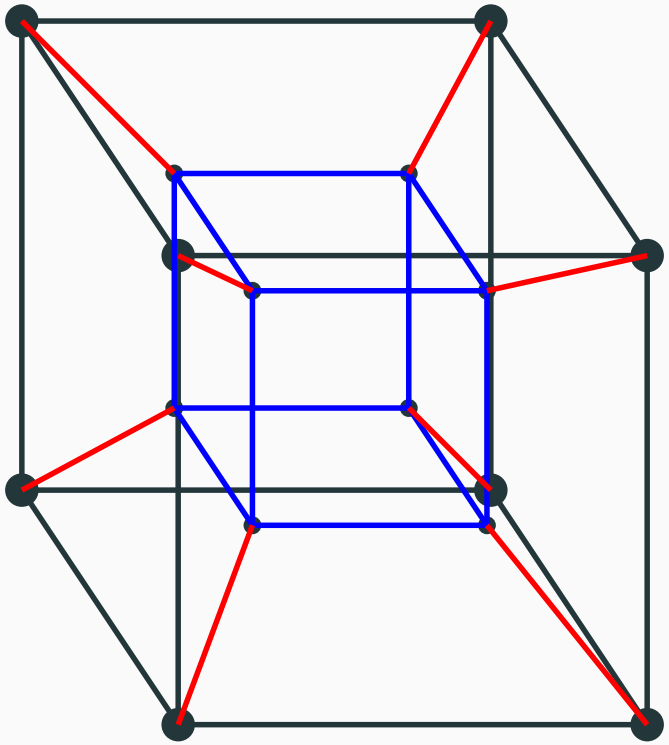




Tesseract - Hypercube



Tesseract 2

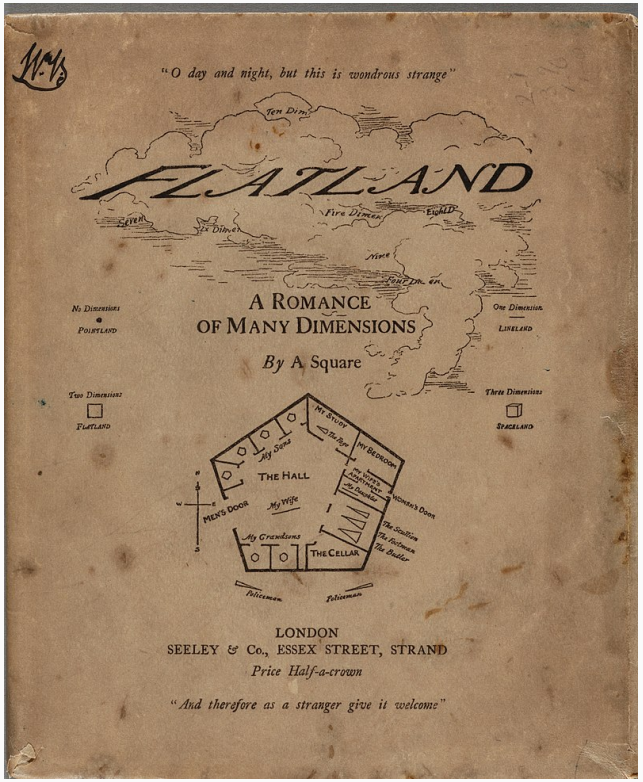


See rotations of a tesseract (projected to 3D):

`https://www.youtube.com/watch?v=t-WyreE9ZkI`

Flatland

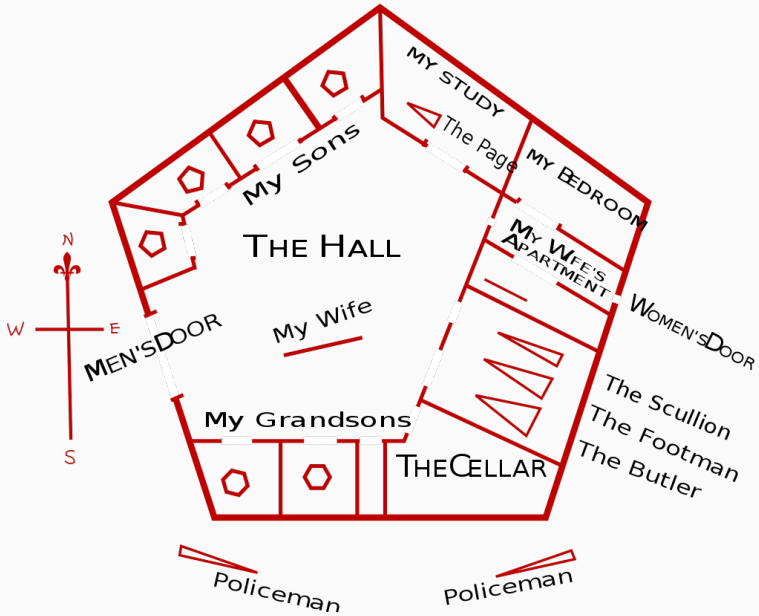
- First published in 1884.
- by Edwin Abbott Abbott
  - Clergyman
  - School Master
  - Shakespearean Scholar
  - Father Edwin Abbott.
  - Mother Jane Abbott



- Victorian England.
- Dimensional Analogy between 2-D and 3-D with some biting criticism of the era.

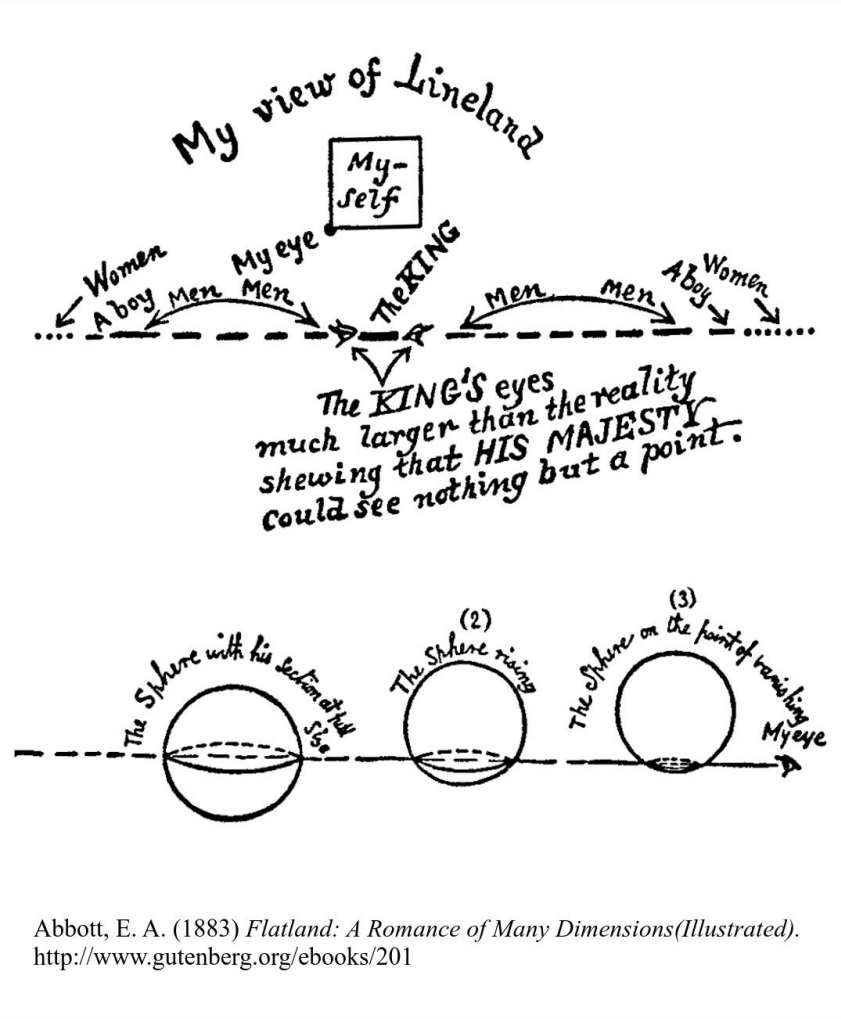
Flatland - The Inhabitants

- A.Square - Main character.
- Greatest length adult, 11in.
  - Women - lines.
  - Soldiers, Low class workmen,
    - thin isoceles triangles.
  - Middle Class - Equilateral triangles.
  - Professional Men
    - Squares and Pentagons.
  - Nobility
    - Hexagons and up to Polygonal.
  - Priests - Circular.
- Children - one more side than father.



Flatland - The Story

- How do they recognize each other?
- Doctrine of Priests - Attend to you configuration.
- Lineland - A Dream.
- The Appearance of the Sphere.
- Trip into Spaceland.
- TED-Ed `https://www.youtube.com/watch?v=MGv8MMi8Q00`
- And what next?
  Flatland 2: Sphereland
  `https://www.youtube.com/watch?v=06LfuKKqXdU`



Abbott, E. A. (1883) *Flatland: A Romance of Many Dimensions(Illustrated).* http://www.gutenberg.org/ebooks/201

Does Anyone Know What Time It Is?

And now on to the idea of time as a dimension ... What is Time?

Time Travel


Time Travel
CHARLTON HESTON RODDY McDOWALL
PLANET OF THE APES
A GEORGE PAL PRODUCTION
H.G. WELLS'
THE TIME MACHINE
DVD
STEVEN SPIELBERG Presents
BACK TO THE FUTURE
A ROBERT ZEMECKIS Film
He was never in time for his classes....
He wasn't in time for his dinner....
Then one day... he wasn't in his time at all.
"BACK TO THE FUTURE" MICHAEL J. FOX
CHRISTOPHER LLOYD - LEA THOMPSON - CRISPIN GLOVER
ROBERT ZEMECKIS & BOB GALE ALAN SILVESTRI BOB GALE & NEIL CANTON
STEVEN SPIELBERG KATHLEEN KENNEDY & FRANK MARSHALL
ROBERT ZEMECKIS
A UNIVERSAL Picture
Eric Bana
Rachel McAdams
The Time Traveler's Wife
From The Acclaimed Bestseller
August 14
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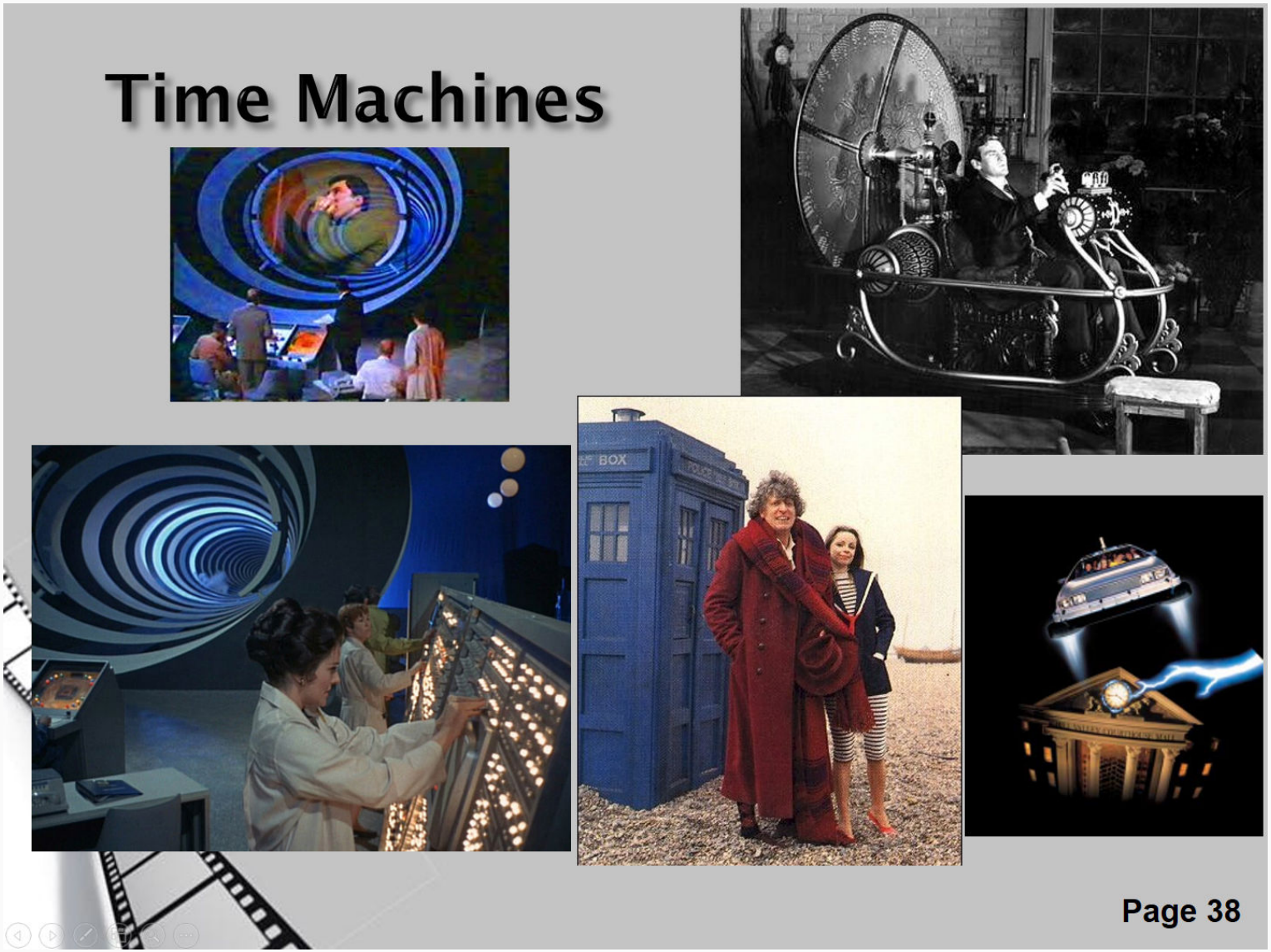
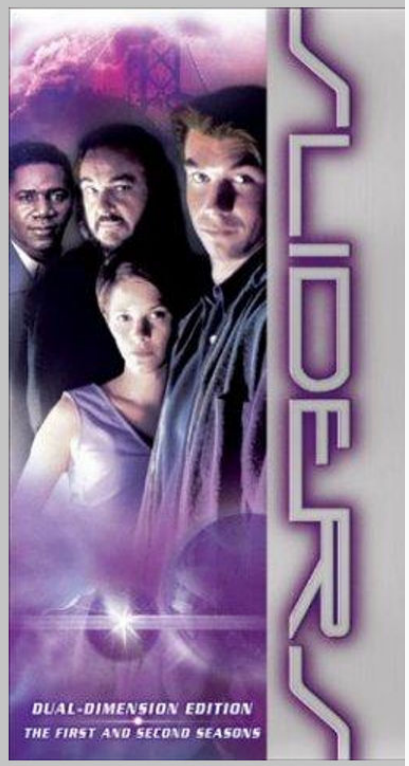
Time Machines



Unlocking the Secrets

Taking a Quantum Leap



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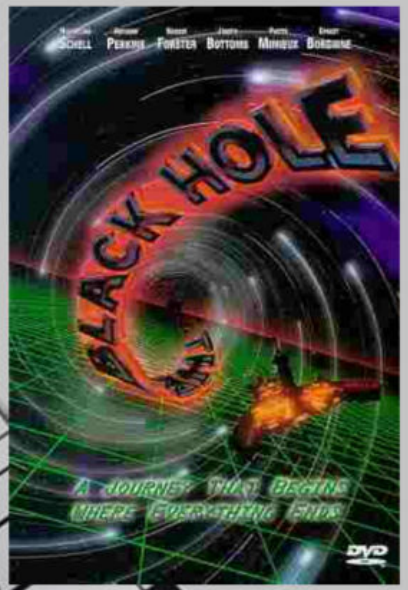
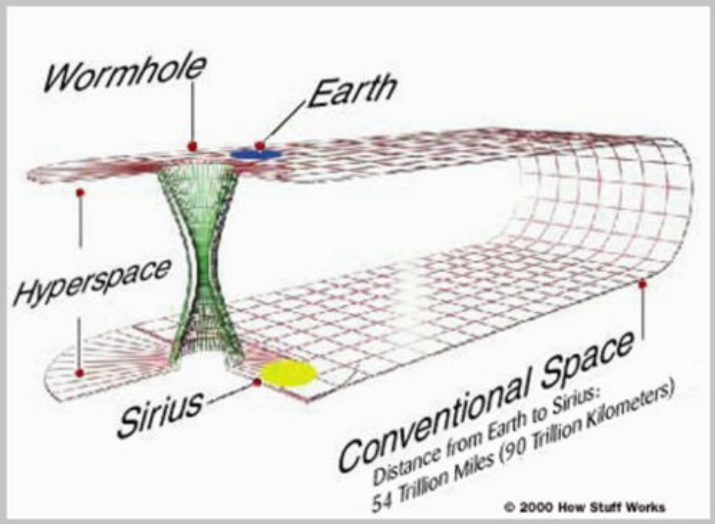
Enter the Wormholes and Paradoxes

Wormhole Portals





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