Abstract: An autobiographical story of how Prof. Lee Smolin got interested in theoretical physics, followed by a broad and deep introduction to what Einstein did.
why are we here?
why are we here?  
what is everything made of?
Why are we here?

What is everything made of?

How do things work?

Why things are the way they are?
why are we here?
what is everything made of?
how do things work?
why things are the way they are?
what is time?
Why are we here?

What is everything made of?

How do things work?

Why things are the way they are?

What is time?

Does God play dice?
Why are we here?
What is everything made of?
How do things work?
Why things are the way they are?
What is time?
Does God play dice?
What is physics?
How was space created?
Why are we here?
What is everything made of?
How do things work?
Why do things work the way they work?
What is time?
Does God play dice?
What is space?
How was space created?
Why are we alive?
What is everything made of?
How do things work?
Why do things have the way they are?
What is time?
What is space?
Does God play dice?
What is physics?
How was space created?
Why are we here?
What is everything made of?
How do things work?
What is time?
Does God play dice?
What is space?
How was space created?
Theory of everything?
Why are we here?
What is everything made of?
How do things work?
Why things are the way they are?
What is time?
Does God play dice?
What is physics?
How was space created?

Theory of Everything
Time?
Measurement of change
4th dimension
Time
Measurement of change

4th dimension
Time

Measurement of change

4th dimension

height

\[ \text{time} \rightarrow \]
Measurement of change

4th dimension

$h(t)$

time

height
Time

Measurement of change

4th dimension

height

h(t) parabola

time →
Time
Measurement of change

height

4th dimension

$h(t)$

parabola

time →
Time

Measurement of change

Block Universe

4th dimension

Height

h(t)

Parabola

Time
If no change is there time?
If no change is there time?

YES

NO
If no change is there time?

YES 24

NO 22
Is no change is there time?

YES 24

NO 22

Newton
If no change is there time?

YES 24  NO 22

Newton

Time (absolute unit, mathematician)
If no change is there time?

YES 24  NO 22

Newton

Time, absolute mathematic
If no change is there time?

**YES 24**

**NO 22**

Newton

Time (absolutely mathematical)
If no change is there time?

YES 24

NO 22

Newton

Time, absolute and mathematical

\[ v = \frac{\Delta \text{position}}{\Delta \text{time}} \]
If no change is there time?

YES 24

NO 22

Descartes, Huygens, Leibniz

Newton

Time, absolute, mathematical

\[ \frac{\Delta \text{position}}{\Delta \text{time}} \]
If no change is there time?

YES 24

Newton

Time, absolute mathematical

$V = \frac{\Delta \text{position}}{\Delta \text{time}}$

NO 22

Descartes, Huygens
Leibniz
If no change is there, is time?

YES 24

Newton

Time, absolute mathematical

\[ v = \frac{\Delta \text{position}}{\Delta \text{time}} \]

NO 22

Descartes, Huygens, Leibniz
If no change is there time?

YES 24

Newton

Time (absolute) mathematics

\[ v = \frac{\Delta \text{position}}{\Delta \text{time}} \]

NO 22

Descartes, Huygens, Leibniz

Time is change in relationships
If no change is there time?

YES 24

Newton

Time, absolute, mathematical

\[ v = \frac{\Delta \text{position}}{\Delta \text{time}} \]

NO 22

Descartes, Huygens

Leibniz

Time is change in relationships
If no change is there time?

**YES** 24

Newton

**TIME** absolute **mathematics**

\[ v = \frac{\Delta \text{position}}{\Delta \text{time}} \]

**NO** 22

Descartes, Huygens

Leibniz

Time is change in relationships

Einstein
Why are we here?
What is everything made of?
How do things work?
Why things are the way they are?
What is time?
Does God play dice?
What is physics?
How was space created?
Newton
3-d Euclidean geometry, initial
Newton

3-d Euclidean geometry, infinite why?
Newton

3-d Euclidean geometry, infinite

why? Kant....
Newton

3-d Euclidean geometry, Initial

why? Kant....

Einstein

3d(P)
Newton

3rd Euclidean geometry, infinitesimal

why? Kant...

Einstein

3d(3) geometry is anything changes in space changes in time
Newton

3-d Euclidean geometry, infinit"ile

why? Kant....

Einstein

3d(P)

geometry is anything
changes in space
changes in time
responds to matter
Newton

3-d Euclidean geometry, infinite

why? Kurt....

Einstein

3d(p) geometry is anything changes in space, changes in time responds to mutual only relationships
If no change is there time?

YES 24

Newton

Descartes, Huygens

Leibniz

Time is change in relationships

Einstein

Time, ysub 2nd mathematics

h(t)
Is no change is there time?

**YES 24**

Newton

Time, absolute mathematics

\[ v = \frac{\Delta \text{position}}{\Delta \text{time}} \]

**NO 22**

Descartes, Huygens

Leibniz

Time is change in relationships

Einstein
If no change is there, time?

YES 24

Newton

Time, absolute mathematics

\[ v = \frac{\Delta \text{position}}{\Delta \text{time}} \]

NO 22

Descartes, Huygens, Leibniz

Time is change in relationships

Einstein
1914 
1919 Eddington
1914  Cludy
1919  Eddington
If no change is there time?

YES 24

Newton

Time, absolute or not?

\[ \frac{\Delta \text{position}}{\Delta \text{time}} \]

NO 22

Descartes, Huygens

Leibniz, Mach

Time is change in relationships

Einstein ✓
If no change is there time?

YES 24

Newton

Time, absolute mathematician

h(t) = \frac{\Delta \text{position}}{\Delta \text{time}}

NO 22

Descartes, Huygens

Leibniz, Much

Time is change in relationships

Einstein

☑
Quantum Gravity

1914, Clunky
1919, Eddington
Quantum Gravity
String Theory

1914 Cloudy
1919 Eddington
Quantum Gravity

Strings Theory

Spin Foam Models

1914 Clumpy
1919 Eddington
Quantum Gravity

String Theory
Spin Foam Models

1914 Clody
1919 Eddington