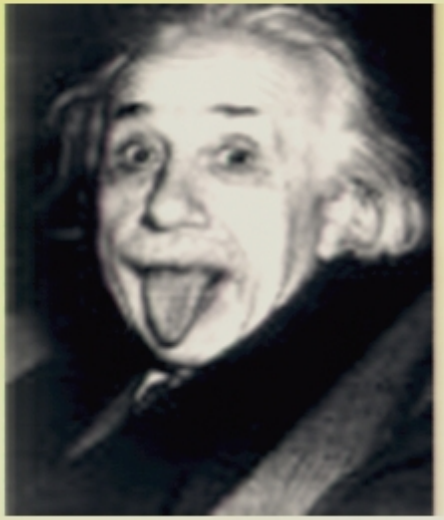
Title: Einstein Inside Out! For Ages 10 to 14

Date: Oct 01, 2005 02:00 PM

URL: http://pirsa.org/05100002

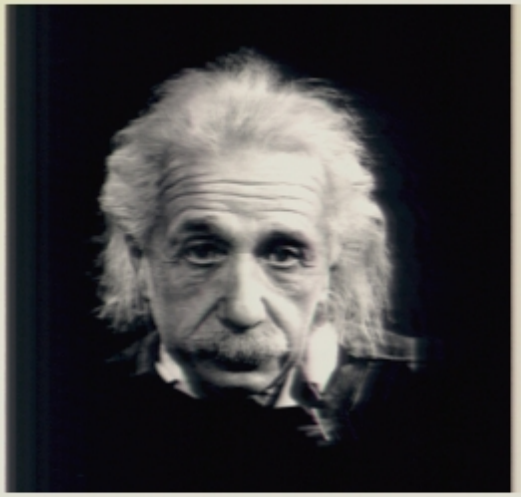
Abstract: Just who was Albert Einstein? And what did he achieve? This talk will introduce some of his amazing discoveries and examine where curiosity can lead you. <kw>Einstein, discovers, curiosity, impact, inventions, light, photons, Damien Pope, space, time, relativity, speed of light </kw>

Einstein Inside Out:
The Curious Case of Albert E.



Summary

- Curious, questioning Albert
- Where his curiousity led him; his discoveries in 1905.
- Albert's impact today in 2005.

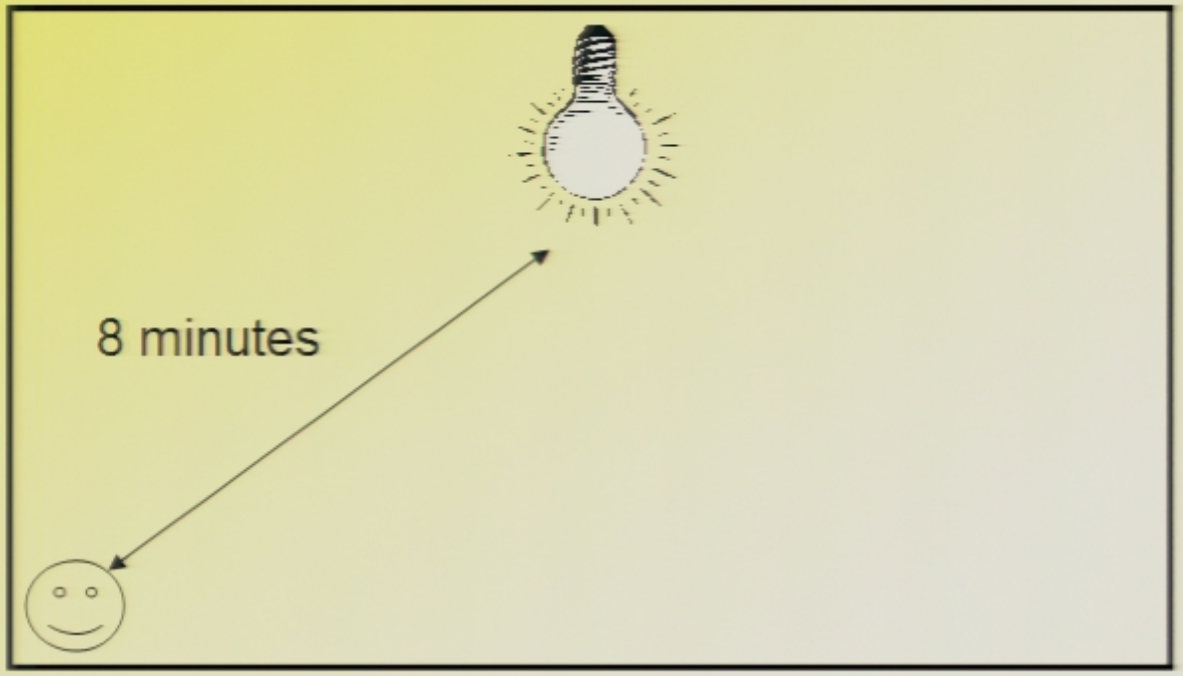


Albert at school

Albert at school

Albert at 16 years of age

"What if I ran after a beam of light? … What if I could run fast enough, would it seem like it was still?"

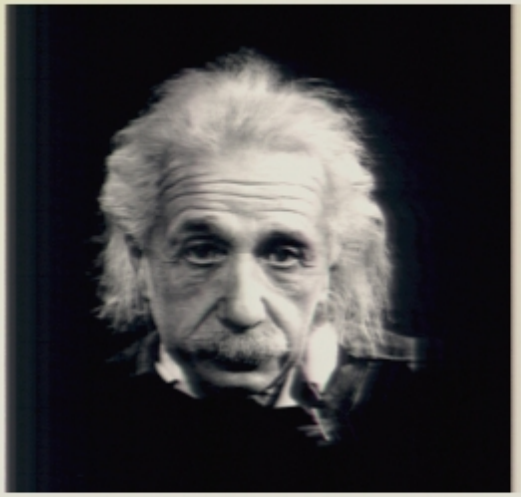

8 minutes

Albert the adult

- 1905
- 26 years old.
- Working approving new inventions and discoveries
  (patent clerk) eg. Toblerone chocolate bar
- Everything came together & his questions paid off.

Summary

- Curious, questioning Albert
- Where his curiousity led him; his discoveries in 1905.
- Albert's impact today in 2005.



Physics is for young people

Albert the adult

- 1905
- What is light made of?

Physics is for young people

Physics is for young people

Physics is for young people

Physics is for young people

Albert the adult

- 1905
- What is light made of?

Albert the adult

- 1905
- What is light made of?

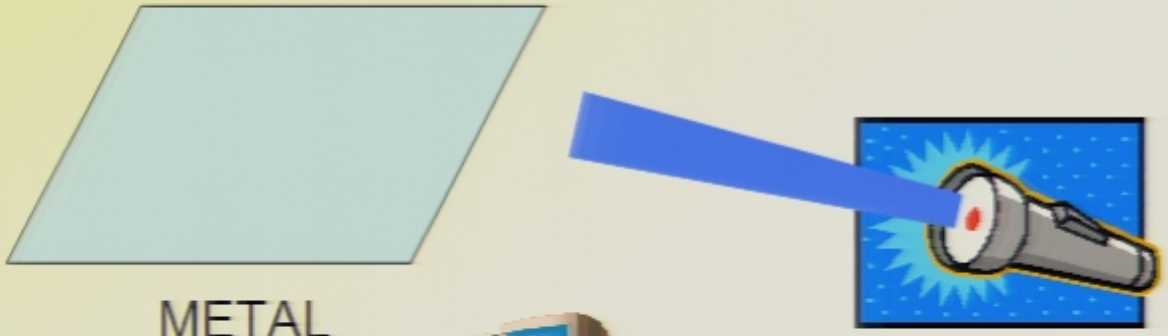
Albert the adult

- 1905
- What is light made of?

Albert the adult

- 1905
- What is light made of?

- Imagine shining a flashlight on a piece of metal.



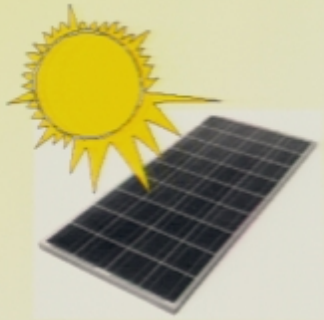
electricity

Why?

- tiny particles of pure energy called PHOTONS

- USES:
- digital cameras

- solar cells



- Imagine shining a flashlight on a piece of metal.

electricity

Why?

- tiny particles of pure energy called PHOTONS

- USES:
- digital cameras

- solar cells

- Imagine shining a flashlight on a piece of metal.

electricity

- QUESTIONS (What makes up light?)

- IDEAS (photons?)

- ANSWERS & DISCOVERIES (Yes, photons.)

- TECHNOLOGIES (digital camera, solar cell)

- QUESTIONS (What makes up light?)

- IDEAS (photons?)

- ANSWERS & DISCOVERIES (Yes, photons.)

- TECHNOLOGIES (digital camera, solar cell)

How fast does light travel?

REALLY fast!

So fast that it could go around the globe seven times a second.

Space and Time

If you travel close to the speed of light, then lots of very strange things start to happen …

Through Einstein's Eyes: Seeing Relativity

Version 1.0 April 2005 Help

ENTER SITE

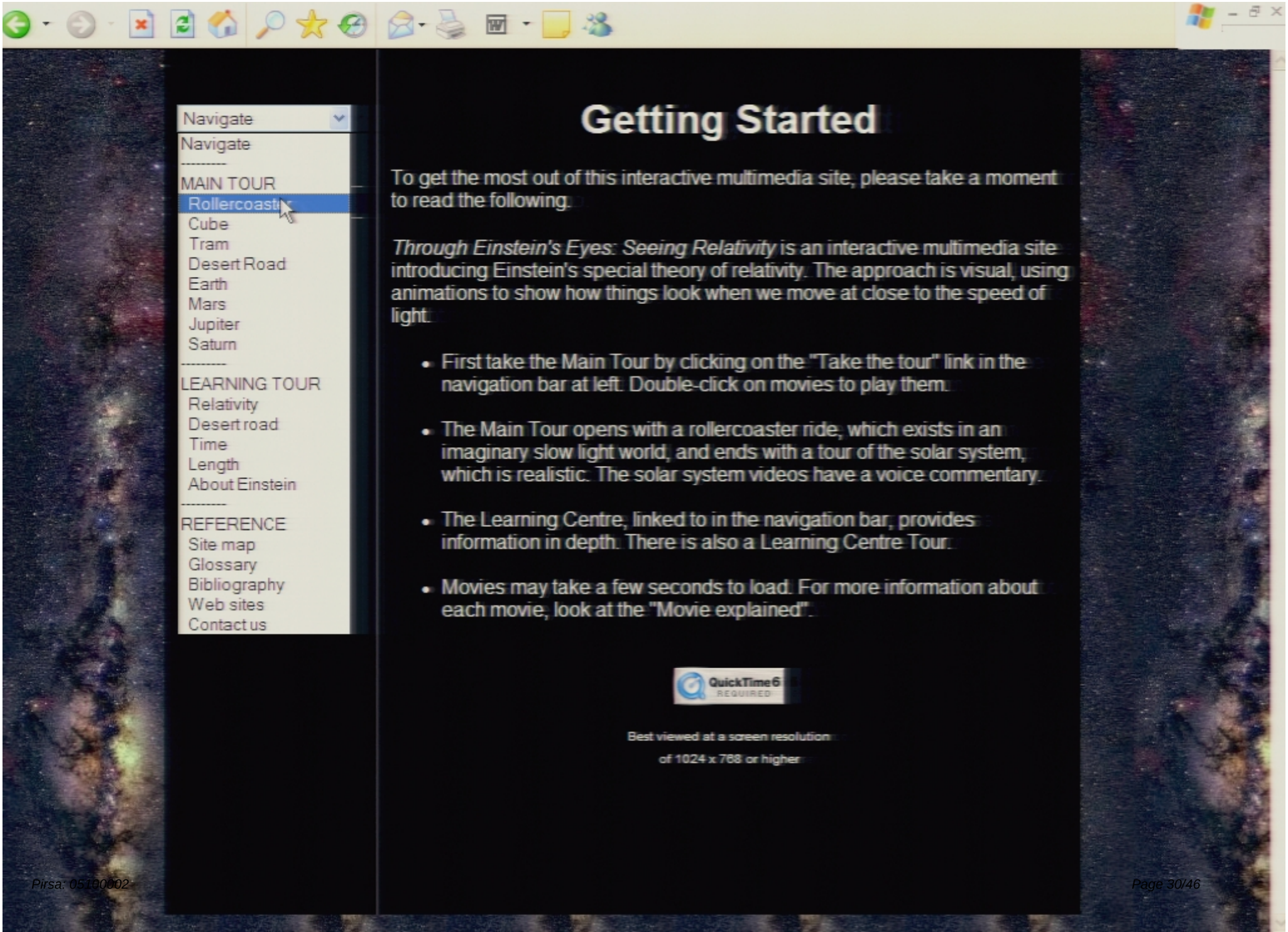
Click here to start your journey

SKIP INTRODUCTORY MOVIE

QuickTime 6 REQUIRED

This site requires Quicktime 6.5

Can you see a movie above?
If not you may need to install Quicktime.


Navigate
Navigate

MAIN TOUR
Rollercoaster
Cube
Tram
Desert Road
Earth
Mars
Jupiter
Saturn

LEARNING TOUR
Relativity
Desert road
Time
Length
About Einstein

REFERENCE
Site map
Glossary
Bibliography
Web sites
Contact us
Getting Started
To get the most out of this interactive multimedia site, please take a moment to read the following.
Through Einstein's Eyes: Seeing Relativity is an interactive multimedia site introducing Einstein's special theory of relativity. The approach is visual, using animations to show how things look when we move at close to the speed of light.
First take the Main Tour by clicking on the "Take the tour" link in the navigation bar at left. Double-click on movies to play them.
The Main Tour opens with a rollercoaster ride, which exists in an imaginary slow light world, and ends with a tour of the solar system, which is realistic. The solar system videos have a voice commentary.
The Learning Centre, linked to in the navigation bar, provides information in depth. There is also a Learning Centre Tour.
Movies may take a few seconds to load. For more information about each movie, look at the "Movie explained".
QuickTime 6
REQUIRED
Best viewed at a screen resolution of 1024 x 768 or higher

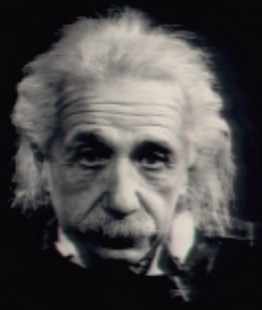
Rollercoaster

Navigate

Home

Help

Learning Centre



Movie explained

Continue tour

The relativistic rollercoaster: we imagine that either the speed of light is very slow or objects are very big.

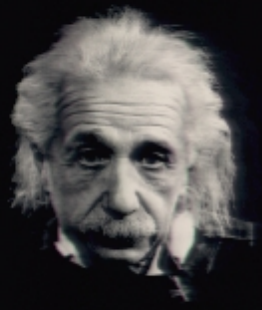
Rollercoaster

Navigate

Home

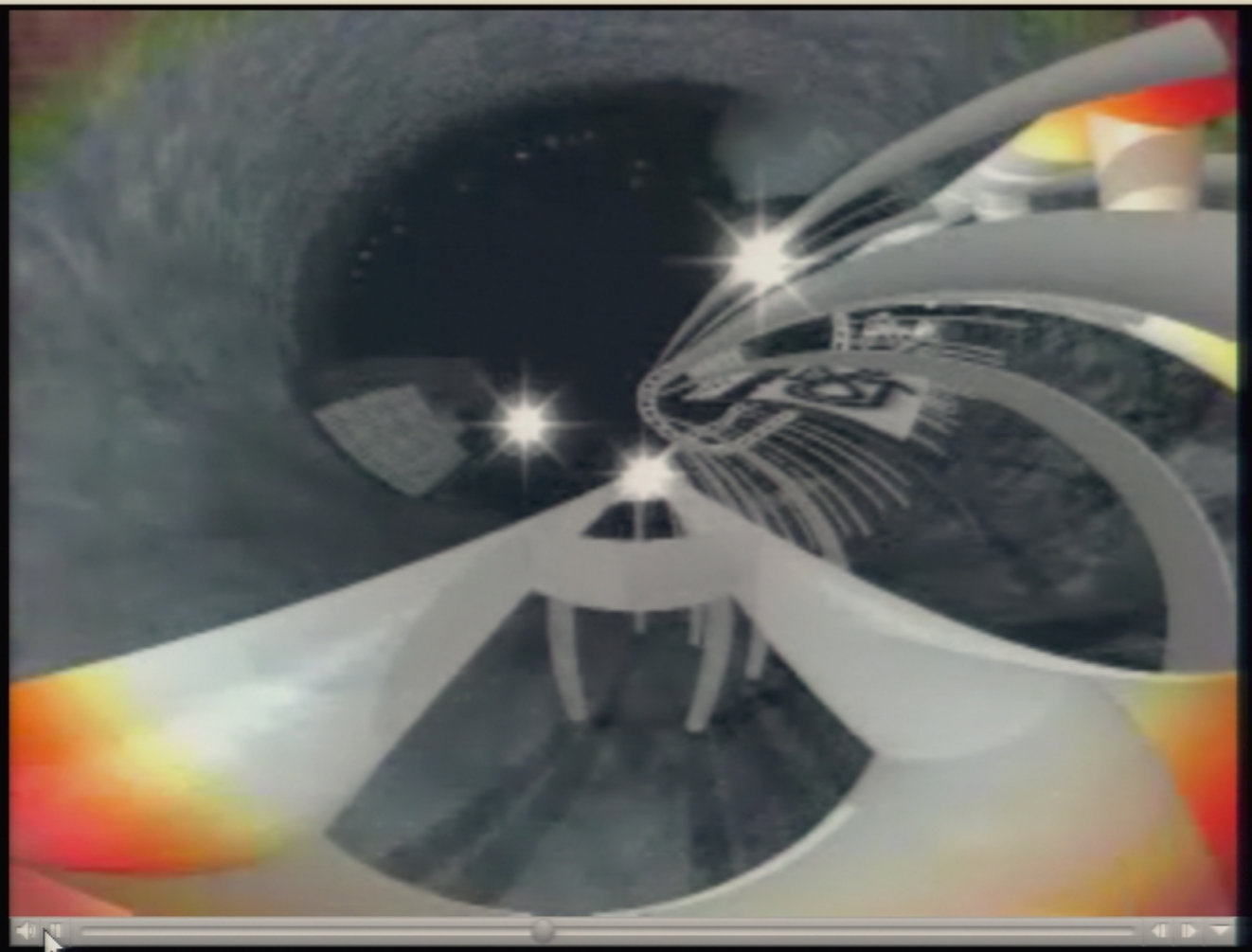
Help

Learning Centre



Movie explained

Continue tour



We see more distant things by older light. Hence an object's parts may be seen at different times.

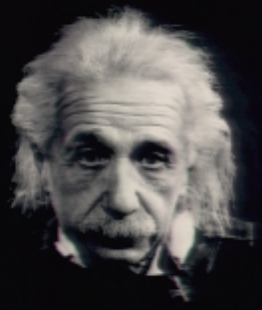
Rollercoaster

Navigate

Home

Help

Learning Centre



Movie explained

Continue tour

We see more distant things by older light. Hence an object's parts may be seen at different times.

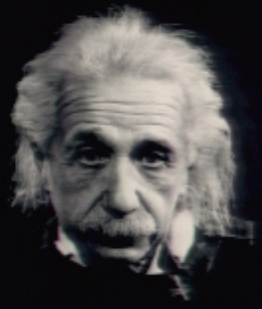
Rollercoaster

Navigate

Home

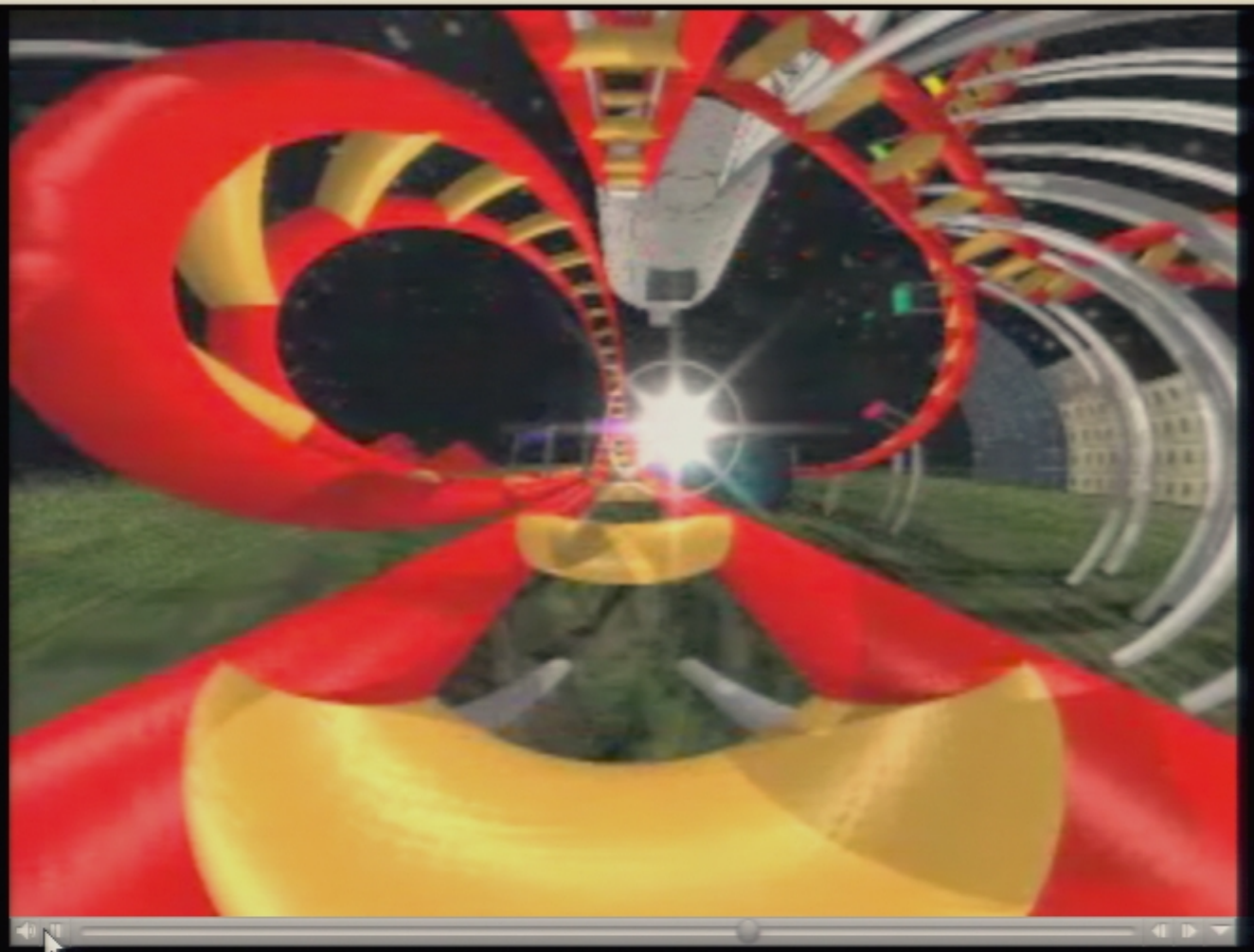
Help

Learning Centre



Movie explained

Continue tour



The ends of lines look further away because light came from them when they were further away.

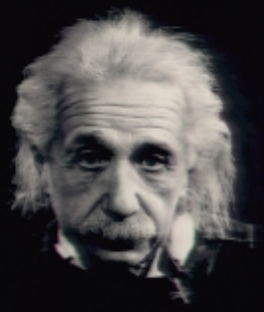
Rollercoaster

Navigate

Home

Help

Learning Centre



Movie explained

Continue tour

The ends of lines look further away because light came from them when they were further away.

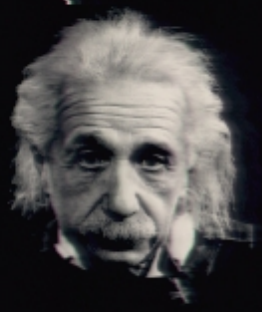
Tram

Navigate

Home

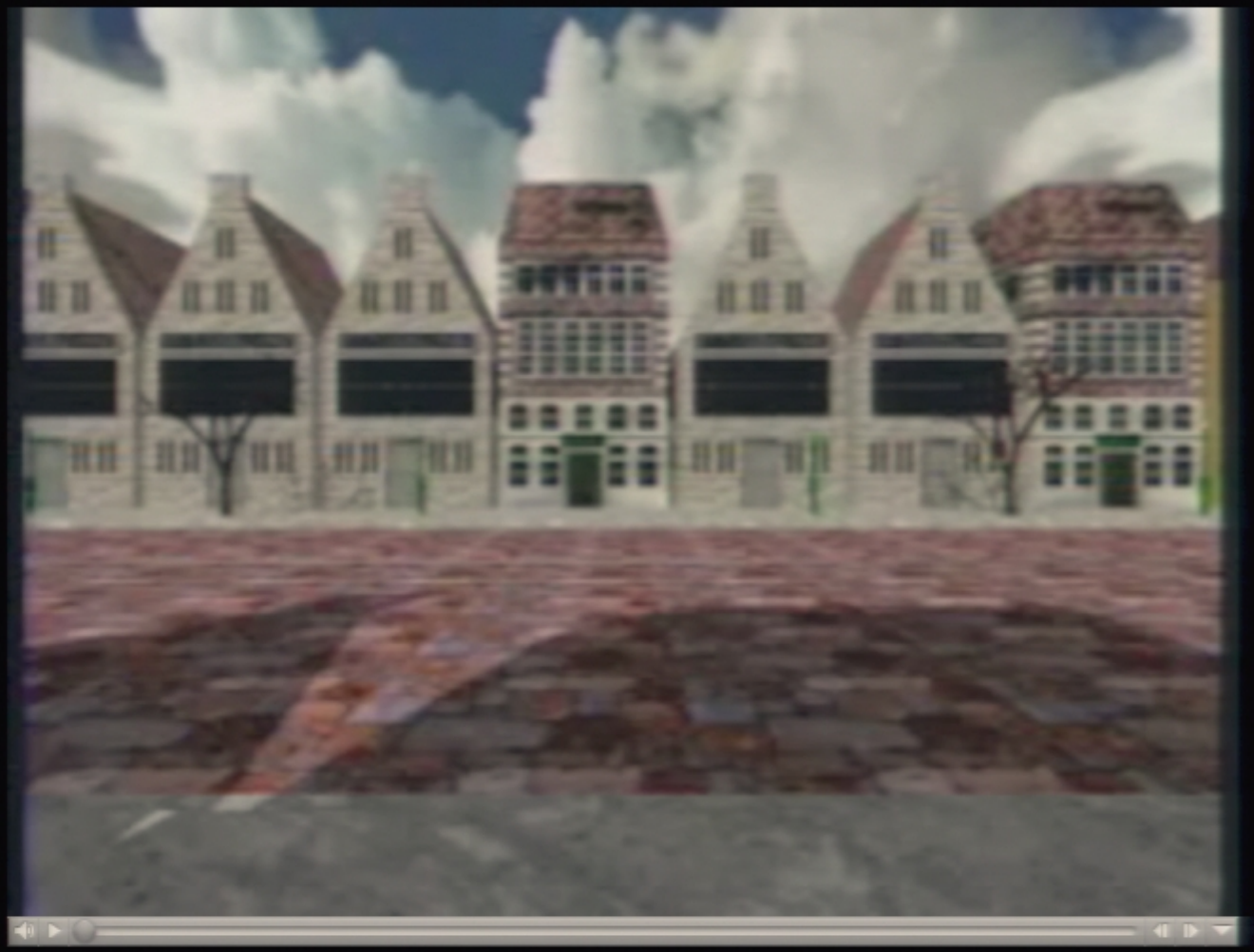
Help

Learning Centre



Movie explained

Continue tour



The Relativistic Tram moving at 87% light speed displays many unusual effects.

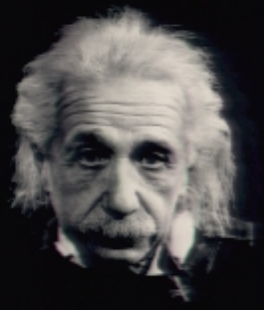
Tram

Navigate

Home

Help

Learning Centre



Movie explained

Continue tour

The tram's apparent speed is faster on approach than when receding.

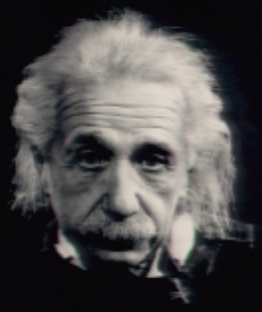
Tram

Navigate

Home

Help

Learning Centre



Movie explained

Continue tour

Shadows behave strangely. Notice the curvature.

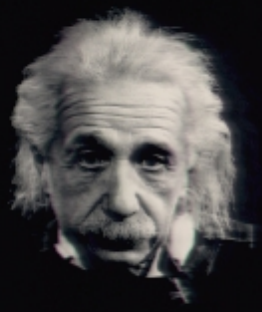
Tram

Navigate

Home

Help

Learning Centre



Movie explained

Continue tour

The tram appears longer on approach and shorter when receding. It is also rotated.

Space and Time

If you travel close to the speed of light, then lots of very strange things start to happen …

- Global Positioning System

- QUESTIONS (How does light move?)

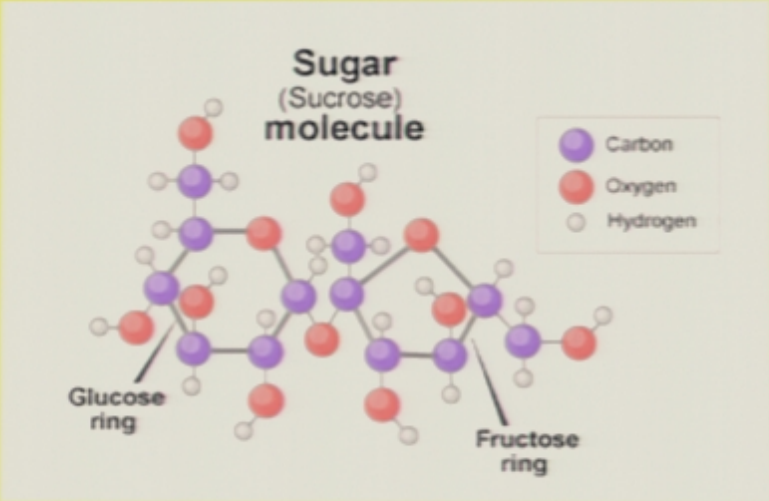
- IDEAS

- ANSWERS & DISCOVERIES (about space & time)

- TECHNOLOGIES (Global Positioning System)

What makes up all objects?

- atoms
- like tiny building blocks or Lego blocks
- Albert's questions played a key role in proving that these were real



- Used in the stockmarket

- QUESTIONS (What is everything made of?)

- IDEAS: (atoms?)

- ANSWERS & DISCOVERIES (atoms)

APPLICATION (stockmarket)

Conclusion

The important thing is not to **stop questioning**.
Curiosity has its own reason for existing."