Changing Ideas About The Universe

test probably
Oct. 17 or 18

Many people like to fantasize about what exist in rest of the universe.

Ancient Ideas:

- People believed that everything orbit around the earth.

Earth-Centred Universe

Improvements Over Time:

- Five hundred years ago scientist started questioning the Earth-centred universe.

Reasons:

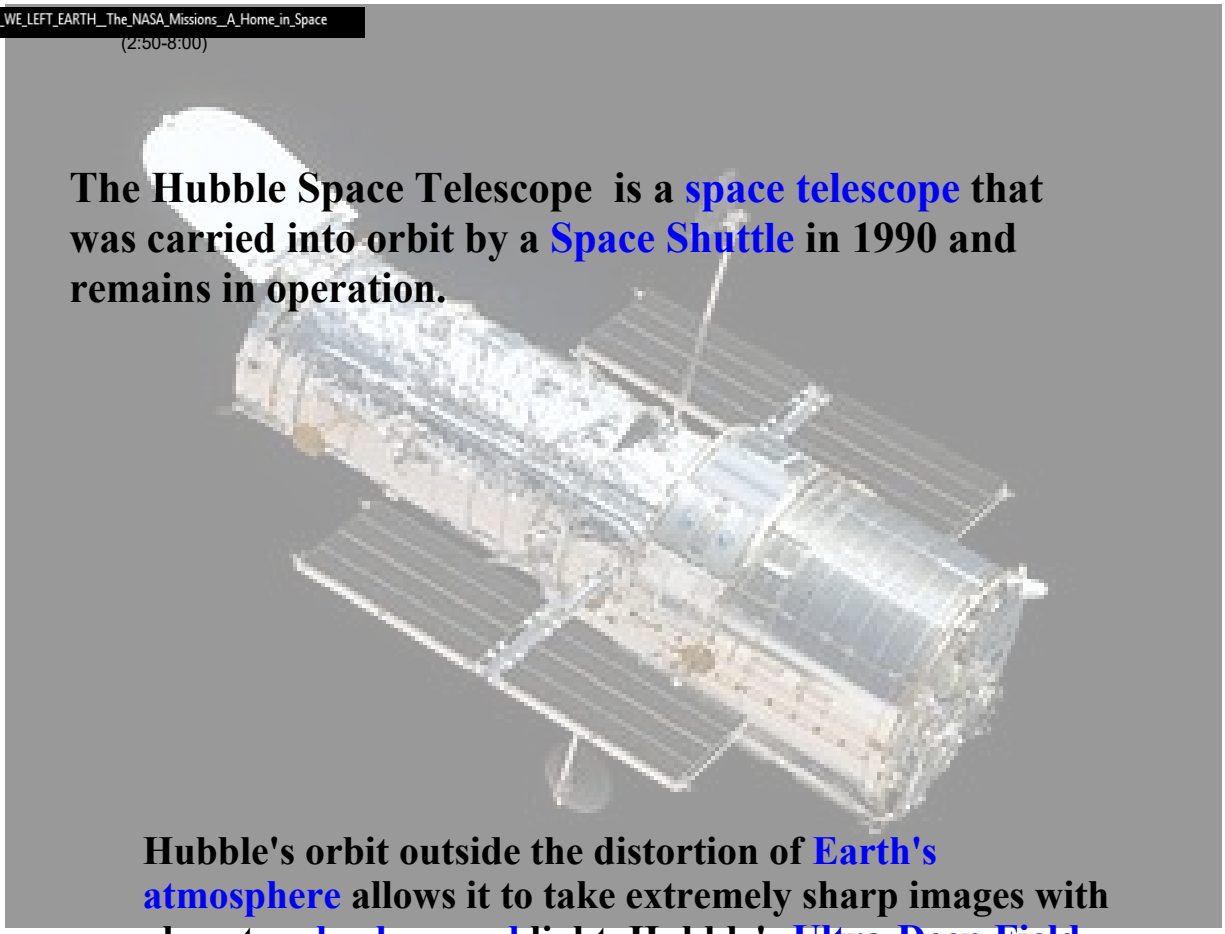
1) They now had telescopes
2) Satellites
3) Space explorations

Scientist were beginning to learn more about nature

- Galileo was the first scientist to use the telescope to make discoveries about our solar system. He was the first scientist to say that the planets traveled around the sun, which is known as the Sun-centred solar system.


Today's Idea
• Planets orbit the sun
• Stars also move
• Vast region beyond the Milky Way Galaxy
• Countless number of Galaxies

WHEN_WE_LEFT_EARTH__The_NASA_Missions__A_Home_in_Space
(2:50-8:00)



The Hubble Space Telescope is a space telescope that was carried into orbit by a Space Shuttle in 1990 and remains in operation.

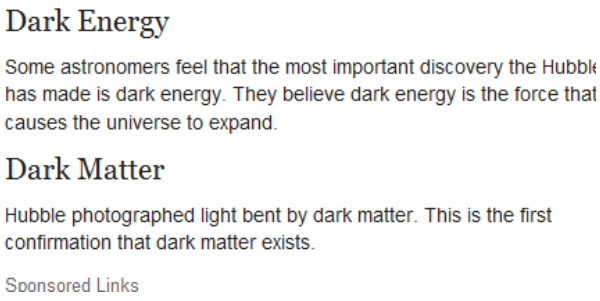
Hubble's orbit outside the distortion of Earth's atmosphere allows it to take extremely sharp images with almost no background light. Hubble's Ultra-Deep Field image, for instance, is the most detailed visible-light image ever made of the universe's most distant objects.

Humble Space Station Discoveries

Dark Energy:
- A force that causes the universe to expand beyond the furthest supernova

Dark Matter:
- everything dark (NOT stars, planets moons...)

~68% dark energy, ~27% dark matter, ~5% normal matter. What is dark matter?



Deep Field Photography:
- magnified photographs of material in the universe

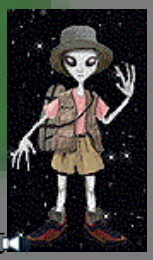
Black Hole:
- Confirmed the black hole at the center of our galaxy

Further Planets:
- Other solar planets
- material gathering to form future planets
- planetary bodies colliding

Who Owns the Solar System?

Don't copy down

Over the years scientist have discovered that there are many valuable resources on other planets, moons, and asteroids. But the question arises:
"Who owns the rights to collect these valuable resources?"



Activity from page 441

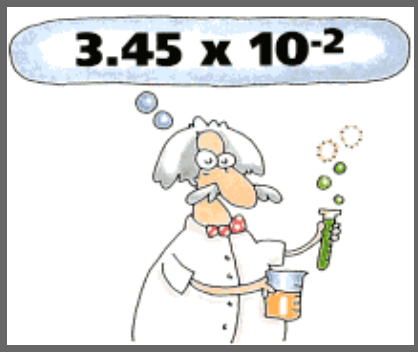
For homework have students research information that supports their side of the debate. Student must bring their information to class tomorrow for a mini debate warm up.

Distance in Space we use scientific notation

The scientific notation allows us to write very large or small numbers using mathematical abbreviations. Using this notation, a number is written with a digit between 1 and 9 before the decimal, followed by a power of 10.

Example:

$32\,000\,000\ km = 3.2 \times 10^{7}\ km$



Example:

$43\,000 = 4.3 \times 10^{4}$

$0.036 = 3.6 \times 10^{-2}$

Scientific Notation

1) 10 x 10 x 10 x 10 _____

2) 10 x 10 x 10 x 10 x 10 _____

3) 3 x 10 x 10 x 10 _____

4) 7 x 10 x 10 x 10 x 10 _____

5) 1,000,000,000,000 _____

6) 0.0000000000000002 _____

Please write the expanded number

7) 1×10^{4} _____

8) 1×10^{1} _____

9) 3×10^{-3} _____

10) 9×10^{4} _____

11) 8.21×10^{1} _____

12) 6.45×10^{-5} _____

13) 3540000 _____

14) .00005470 _____

Scientific notation

360 → 3.6×10^{2}

457,000 → 4.57×10^{5}

0.0003 → 3.0×10^{-4}

$5.6 \times 10^5 = 560\,000$

$5.6 \times 10^1 = 56$

$56 \times 10^1 = 560$

$560 \times 10^1 = 5600$

$5600 \times 10^1 = 56000$

$5.6 \times 10^5 = 560\,000$

$3.25 \times 10^{-3} =$

a) 7.6×10^{4}

=

b) 9.15×10^{-3}

c) 0.47×10^{7}

d) 0.19×1000

e) 6×10^{-1}

f) 25.6×10^{4}

2) a) 495 000 = 4.95×10

b) 672.5 = 6.725×10

c) 0.000 82 = 8.2×10

d) 0.000 007 = 7×10

e) 29.06 = 2.906×10

3) a) 3 120 000 000 =

b) 1 000 000 =

c) 0.000 000 47 =

d) 12.04 =

e) 74.500 =

f) 0.0075 =

4) 298 000 km =

b) 0.000 000 08 =

c) 0.0406 =

5) $4.1 \times 10^{6} =$

b) 5.31×10^{9}

c) 9×10^{-3}

d) $4.03 \times 10^{-5} =$