

WHERE DOES WATER ON  
EARTH COME FROM ?

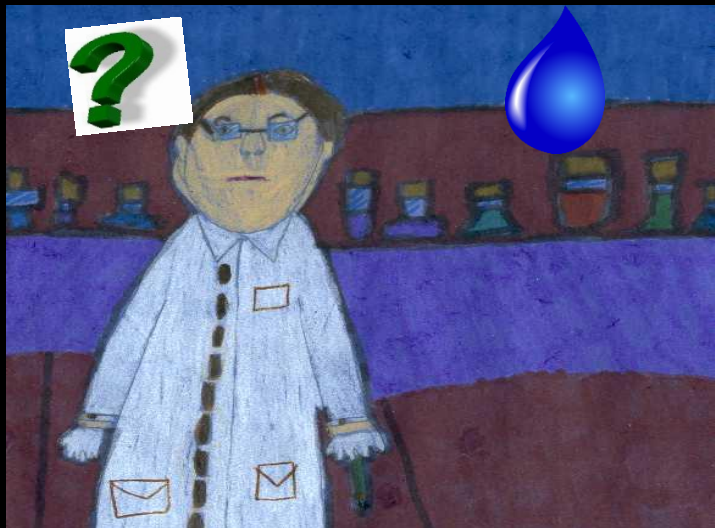
# WATER, WATER EVERYWHERE

Earth compared to other planets has A LOT of water. Over 70% of the Earth's surface is water so the big question is: Where did all this water come from?



# WHERE FROM??

- This has been a very complex and interesting area of study for scientists for many years.



t h e o r y

## THE BIG QUESTION??????

- Many theories were explored .  
However, there are two main theories  
as to how all this water came on  
earth.



## THEORY 1

- The first theory is that the earth held onto some water when it formed, as there would have been ice in the nebula of gas and dust that eventually formed the planets and the sun over 4.5 billion years ago.
  - However, the intense heat that was around when the planets were formed means that all water would have been destroyed.





## THEORY 2

The more likely theory according to scientists is that the oceans would have been delivered by ice-rich asteroids, called carbonaceous chondrites. Carbonaceous chondrites are the rocky meteorites that fall to earth from space. Carbonaceous chondrites have lots of water (H<sub>2</sub>O) in them as well as carbon.

HERE COMES THE SCIENCE BIT!!!



# HEAVY HYDROGEN

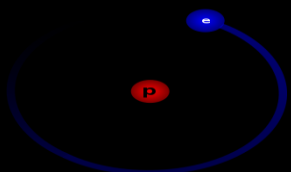
- This is the most likely theory for two reasons:
- The carbonaceous chondrites were formed outside the sun's frost layer.
- The H<sub>2</sub>O in the oceans matches the scientific make up of the water in these carbonaceous chondrites.





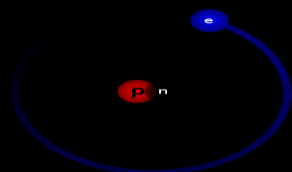
# HEAVY HYDROGEN

- Water molecules containing heavy hydrogen are called Deuterium
- Heavy Hydrogen is important because the levels of hydrogen in our oceans are similar to the deuterium found in carbonaceous chondrites.



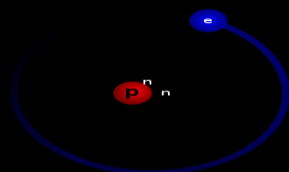
${}^1_1\text{H}$

Protium



${}^2_1\text{H}$

Deuterium



${}^3_1\text{H}$

Tritium

# CONCLUSION

- This strongly suggests that the water that forms our ice caps, oceans, clouds, rivers and lakes came literally

Out of the blue!!!



THANK YOU FOR LISTENING TO  
OUR PRESENTATION.



*Thank  
You*