

# ① Steady State Theory

- universe has always existed
- matter (stars, planets...) is constantly being created as time goes on



Notes: Origin of the Universe  $\rightarrow$  beginning

There are two main theories

# ② Big Bang Theory

- universe started 10-20 billion years ago (bya)
- all matter is still expanding (moving away) and nothing new is being created



So, which theory is correct?

The evidence...

- ① Red Shift
- ② Cosmic Background Radiation
- ③ Abundance of H + He

## Red Shift

When something is moving away the light gets stretched and the wavelength gets longer - this ~~is~~ what makes it look red.



red orange yellow green blue

Abundance (a lot) of Hydrogen and Helium

A very hot reaction like the big bang would have caused the smallest atoms to form



the universe is 98%  $\text{H} + \text{He}$

## Cosmic Background Radiation

space all over energy  
= CBR

The leftover energy (radiation) from the big bang

