

IGCSE Physics

Complete Revision Summary

Forces

Waves

Magnetism and
Electromagnetism

Space Physics

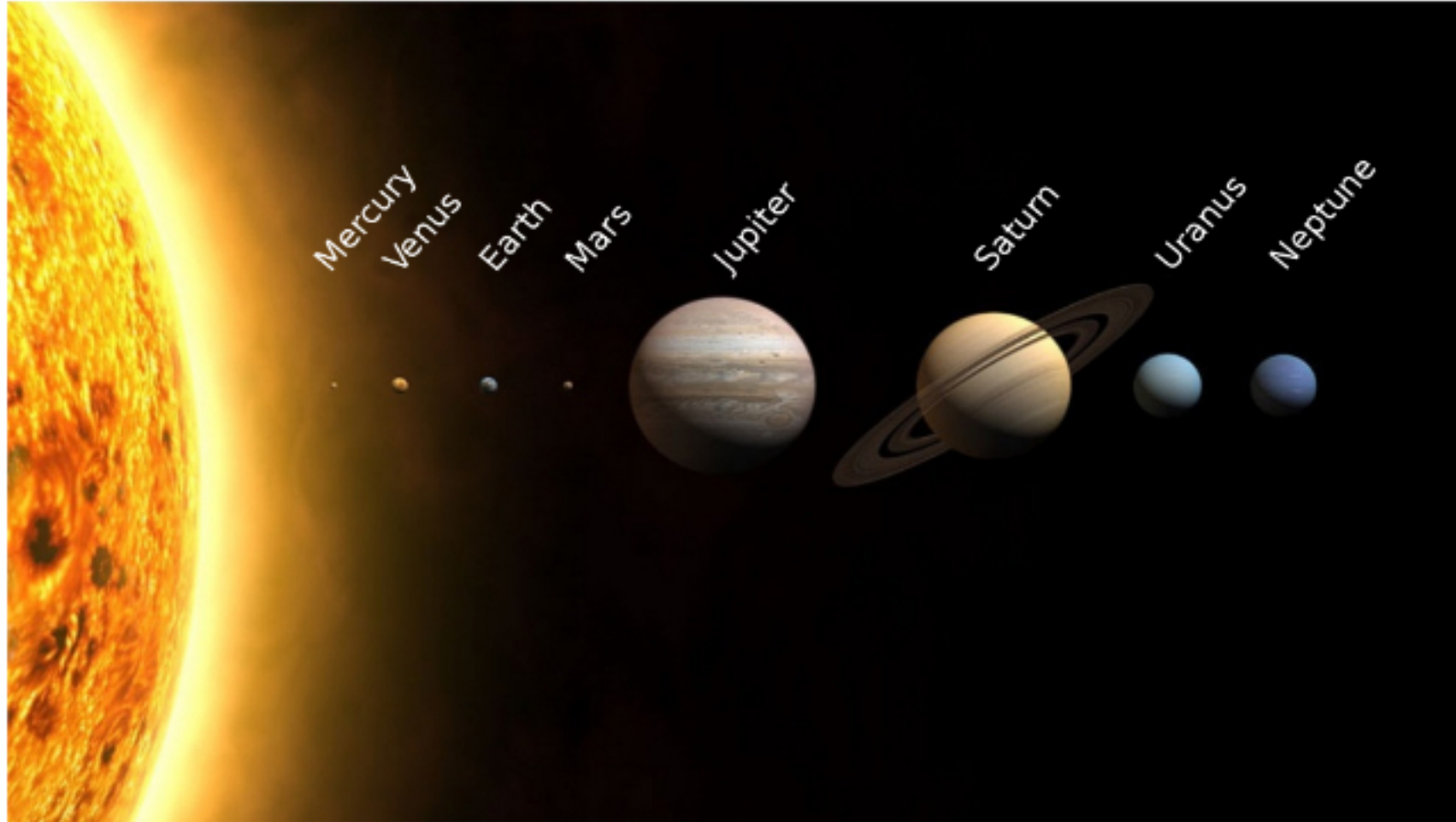
Astrophysics

Solar System

Star Life Cycle

Satellites

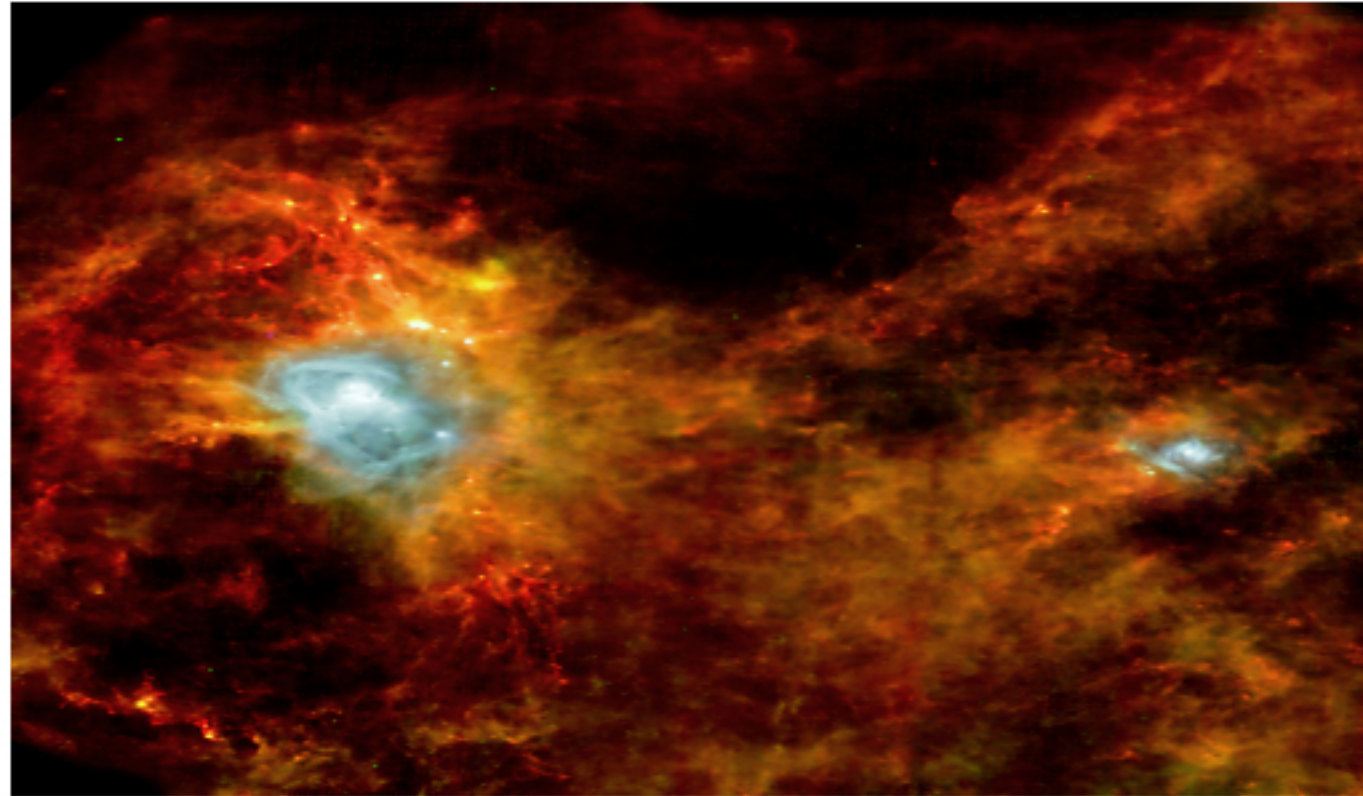
Red Shift



Solar system contains :-

- a) Sun- It is the star
- b) 8 planets.
They orbit around the Sun in their orbits
- c) Dwarf Planets
They orbit around the Sun in their orbits
- d) Comets
balls of ice and dust orbiting in elliptical orders around the sun
- e) Asteroids
They are made up of rock and metal and are smaller than the planets
- f) Meteors
Shooting stars which dust and debris which burns when they enter the Earth.

FORMATION OF A STAR



Source: Wikipedia

Cloud of gas, rock and dust

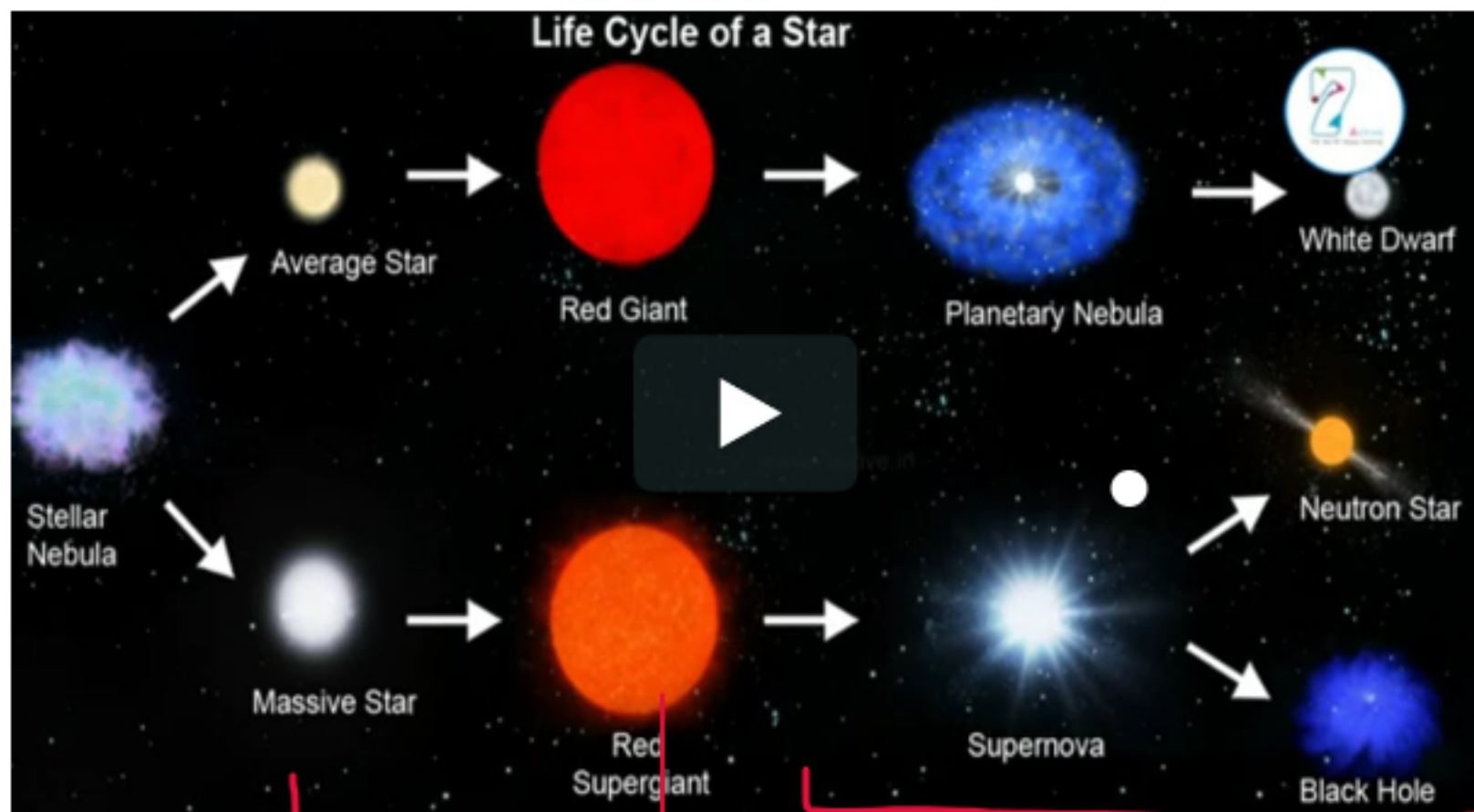
The cloud condensed and pulled to form concentrate Protostar by the gravitational pull.

The particles collide within the cloud and kinetic energy converted to heat energy which resulted in nuclear fusion releasing massive amount of heat

The fusion releasing heat and light turns a proto star into a star.

The star can attract other rocks and dust and form planets.

LIFE CYCLE OF A STAR



Source: Vimeo

All the elements are used up. No fusion. Star collapses due to gravity. Star heats and turn red, yellow and white.

The star compresses and then explode to form a supernova. The supernova give lots of elements in explosion.

All the hydrogen is used up for fusion.

Helium and other elements fuse to form other elements

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A satellite is the object that revolves around the planet.

NATURAL

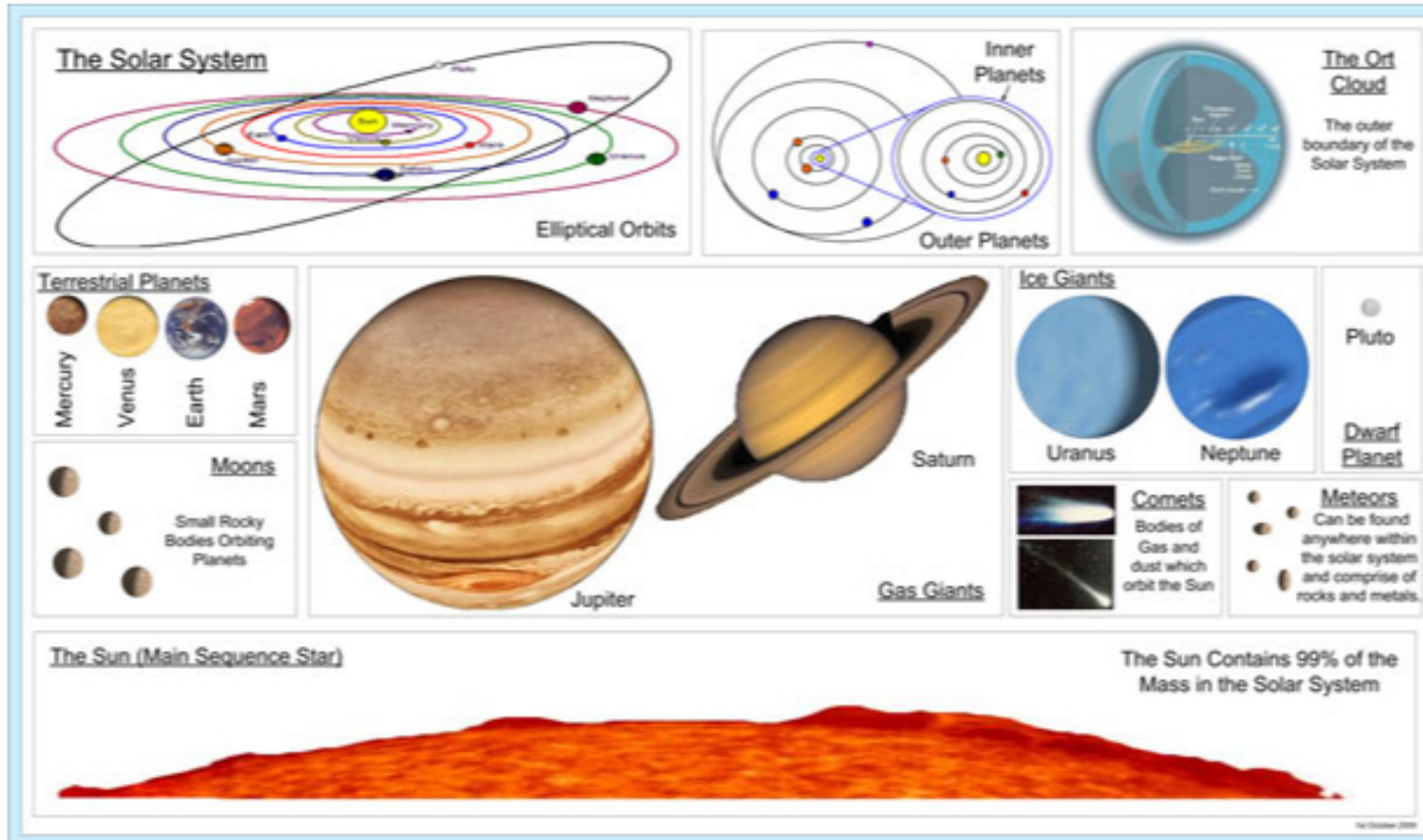
eg Moon

ARTIFICIAL

They are required for weather forecasting, monitoring the environment, communication and GPS tracking.

Satellites move in a particular orbit around Earth. The force is the centripetal force which arises due to the force of gravity and is directed at right angles.

In the orbit, the satellite's speed and kinetic energy do not change as its speed is the same. But velocity changes due to change in direction.

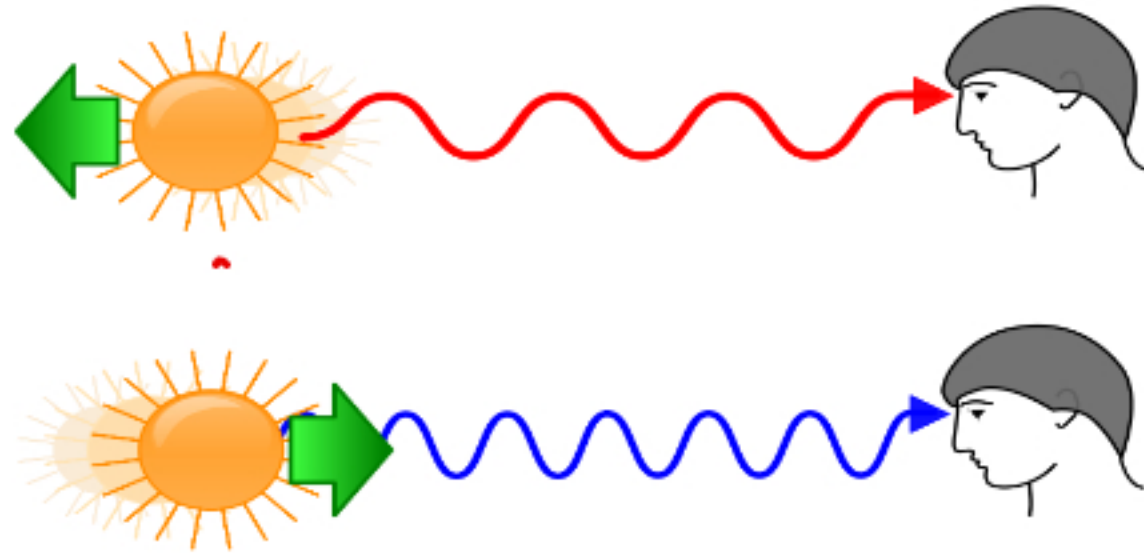


Source: Public Domain Figure

RED SHIFT

DOPPLER EFFECT

When the source is moving away from the observer, the wavelength of the light increases and it is towards the red region of the spectrum and when the source is moving toward the observer, the wavelength of the light decreases and it moves towards the blue region of the spectrum -



Source: Wikimedia Commons

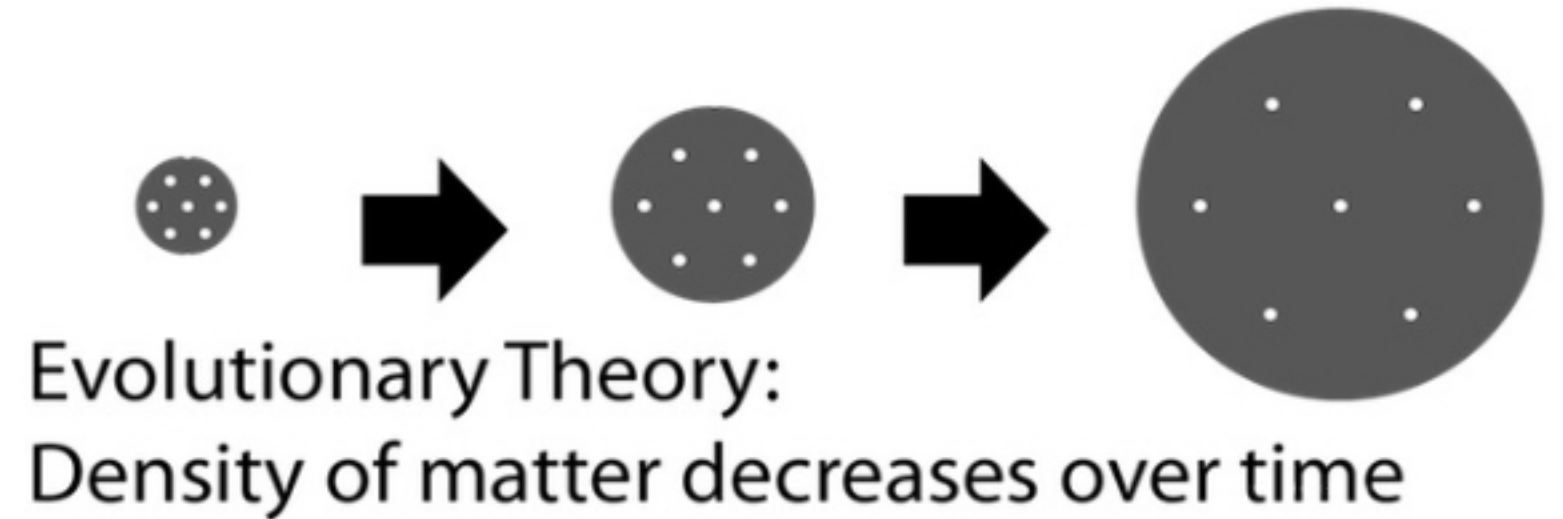
The light coming from the stars and from distant galaxies is red shifted

Further the galaxy, greater the red shift.

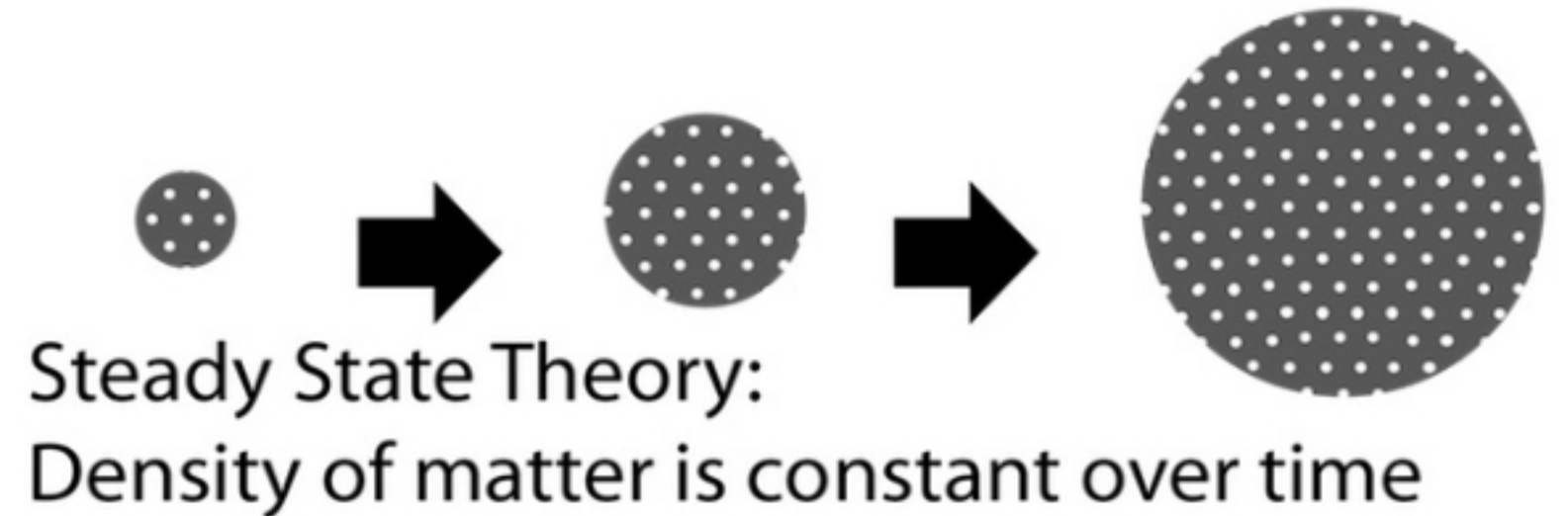
□ **UNIVERSE IS EXPANDING**


the BIG BANG THEORY

Universe was concentrated into one mass which exploded with a bang and is expanding now as well.



Universe always existed. It will last forever. The density of the universe will remain constant

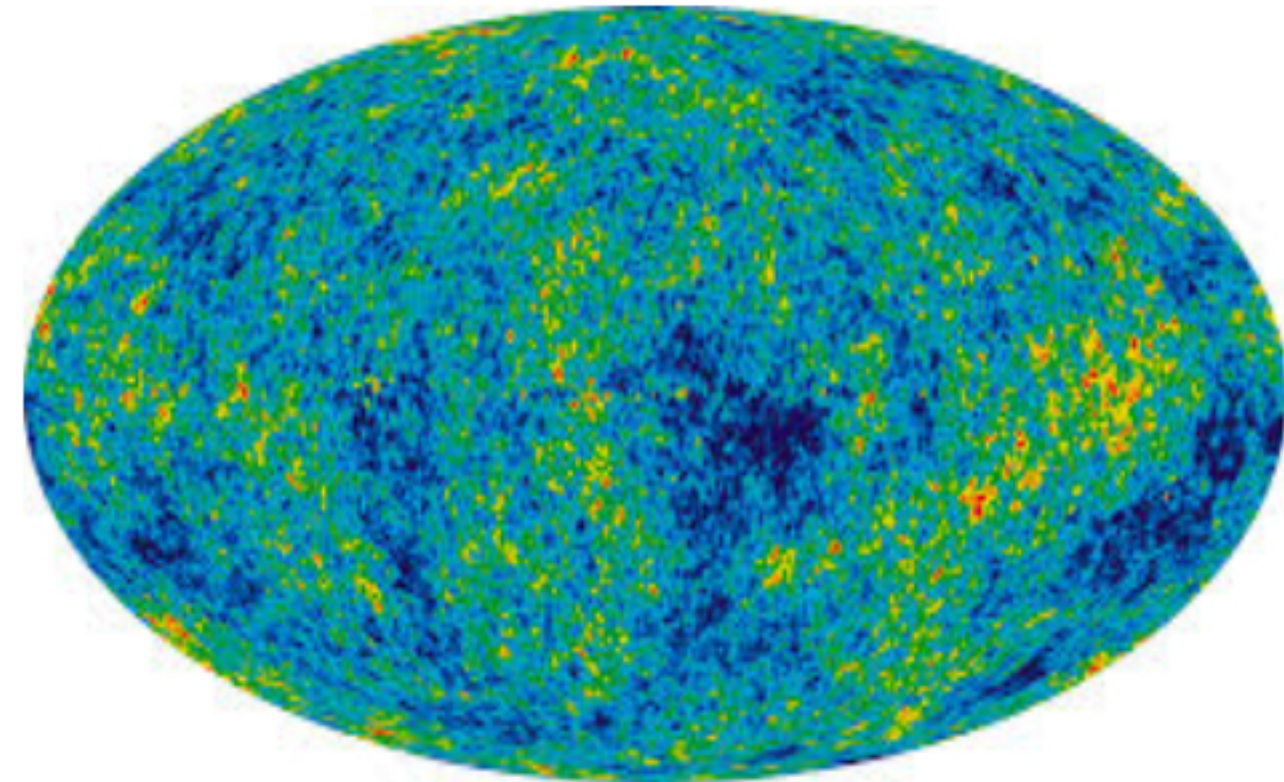


RED SHIFT

COSMIC MICROWAVE BACKGROUND RADIATION

CMBR are the remains of the radiation that comes out from the big bang.

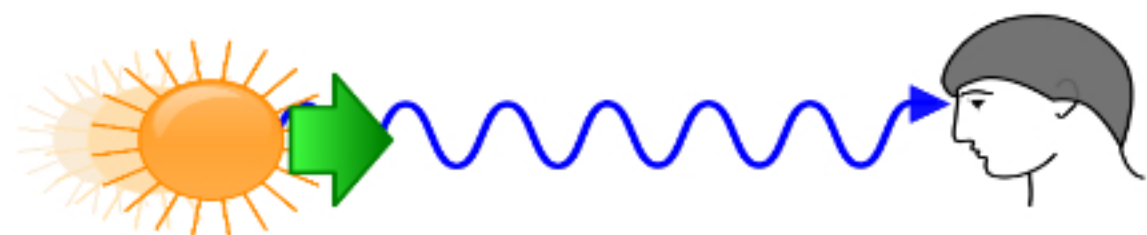
Scientists have discovered CMBR coming from distant galaxies which supports the Big Bang.



RED SHIFT

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Source: Wikimedia Commons

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Further the galaxy, greater the red shift.

□ **UNIVERSE IS EXPANDING**

Solar System

Neutron Star

Protostar

Black Hole

Shooting Star

Centripetal Force

Main Sequence Star

Red Shift

Red Giant

Big Bang Theory

White Dwarf

Cosmic Microwave Background Radiation (CMBR)

Black Dwarf

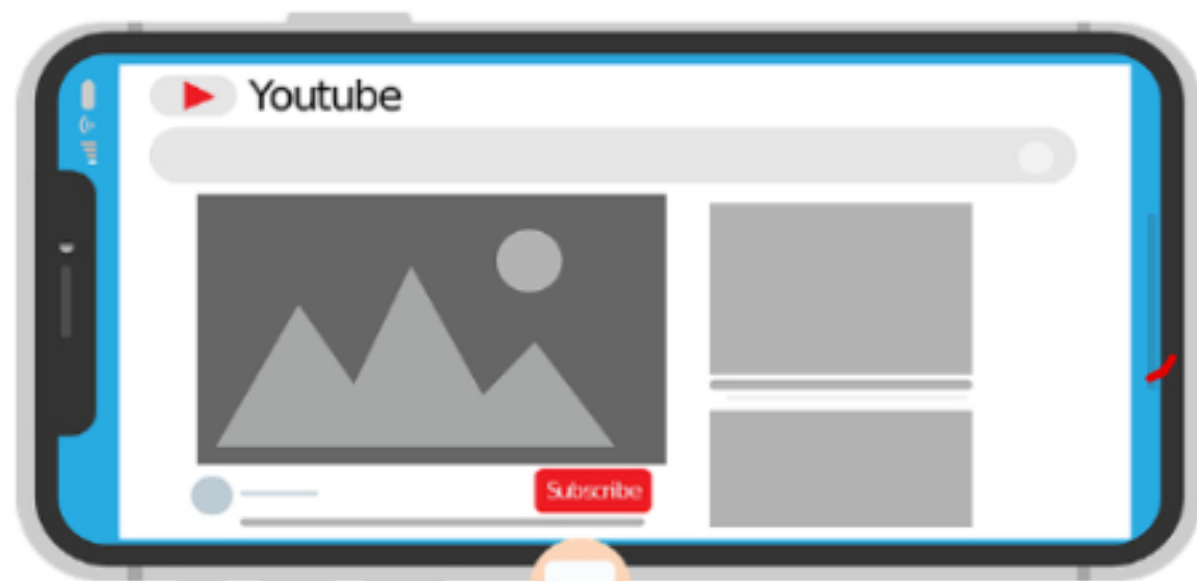
Dark Matter

Red SuperGiants

Super Nova

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NEXT STEP



CHECK SPECIFICATION



EXAM QUESTIONS ON THIS TOPIC

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