

The background features a dark blue to purple gradient with a starry space pattern. Overlaid on this are several faint, light-colored diagrams of celestial bodies. These include circles with arrows indicating rotation or orbital paths, and larger circular structures with radial lines and numerical markings (140, 150, 160, 170, 180, 190, 200, 210, 220, 230, 240, 250, 260) that resemble astronomical charts or maps.

THE FORMATION OF THE EARTH

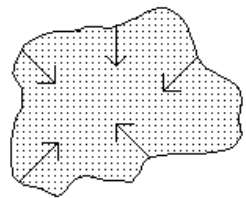
EQ: HOW WAS THE EARTH FORMED?

THE NEBULAR HYPOTHESIS

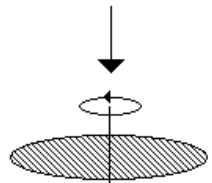
- All stars are born in the depths of space, in clouds of gas and dust
- About 4.6 billion years ago a large cloud of dust and gas collected in the region now occupied by the solar system
- This large cloud of gas and dust is called a nebulae
- Nebulae usually contain more than 99% hydrogen and helium
- The other 1% is made up of other naturally occurring elements



THE BIRTH OF THE SUN

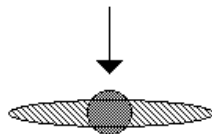


self-gravity contracts a gas cloud

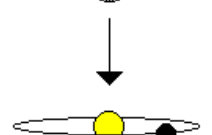


conservation of angular momentum
pulls cloud into a disk

disk begins to rotate



central mass forms (proto-Sun)



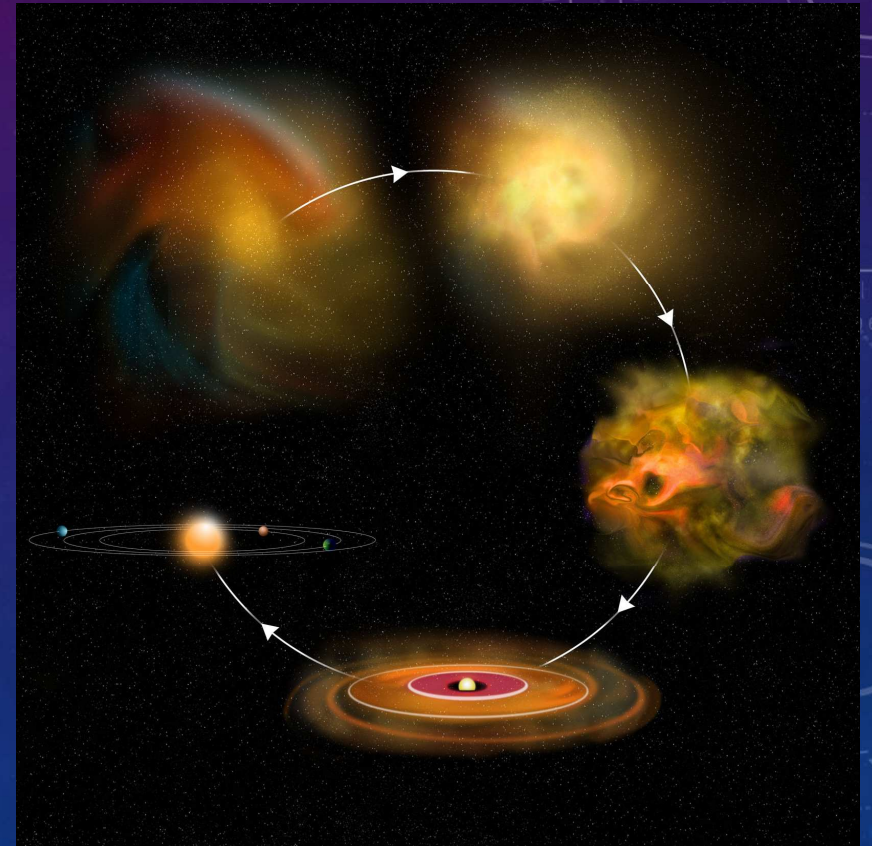
centrifugal force balances gravitational
forces and a ring forms

ring forms into a planet

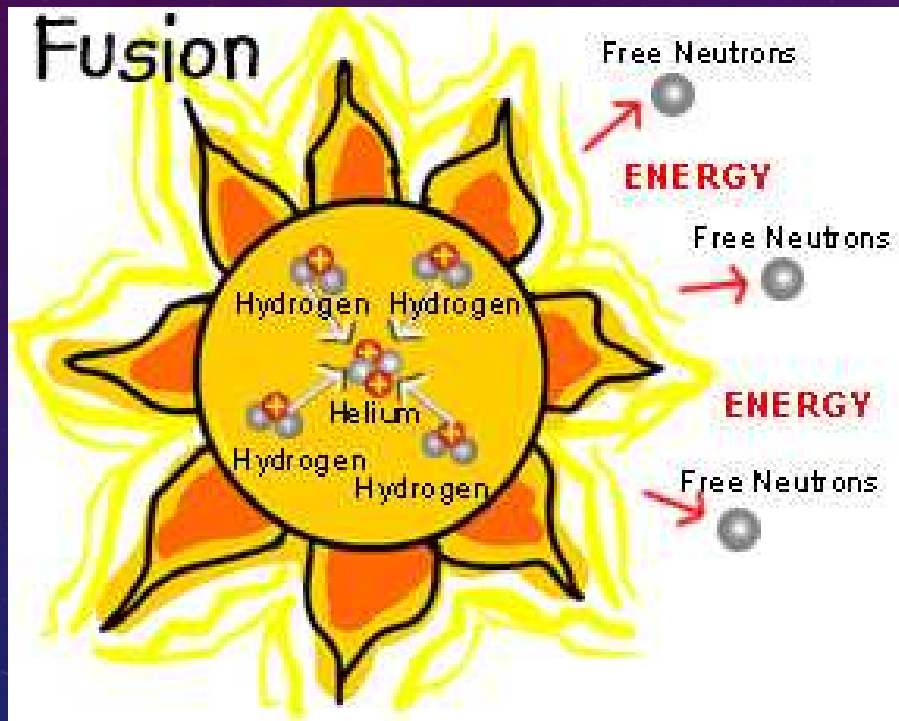
- The sun is a star, and all stars start out as nebulae
- Under the influence of gravity a nebulae slowly starts to pull inward, collapsing on itself
- This collapse would cause the cloud to spin faster
- This rapid spinning would cause the nebulae to become flat around the outer portions forming a disk, also forming a concentration of matter (or lump) in the middle of the nebulae
- This concentration is called a protostar

THE BIRTH OF THE SUN

- Pressure builds in the protostar because of the pull of gravity
- Increased pressure causes increased temperature within the protostar
- Temperature in the protostar continues to increase for several million years
- At about 10,000,000, nuclear fusion begins and a star is born
- The flat disk surrounding it eventually become the planets and the rest of the solar system.



Nuclear Fusion



- Nuclear fusion happens when high temperature and high pressure cause smaller atomic nuclei to combine and form much larger nuclei
- Enormous amounts of energy is released as a result of nuclear fusion
- Once started, nuclear fusion continues for billions of years

THE EARTH

- The energy and distance from the sun makes it possible to have life on Earth
- The temperature is warm enough for water to exist as a liquid
- Mercury and Venus are too close to the sun for water to exist as a liquid
- Mars and other planets are too far away from the sun for water to exist as a liquid, most of the water on these planets are in the form of ice
- Earth is the only planet in the solar system known to have oceans of liquid water.

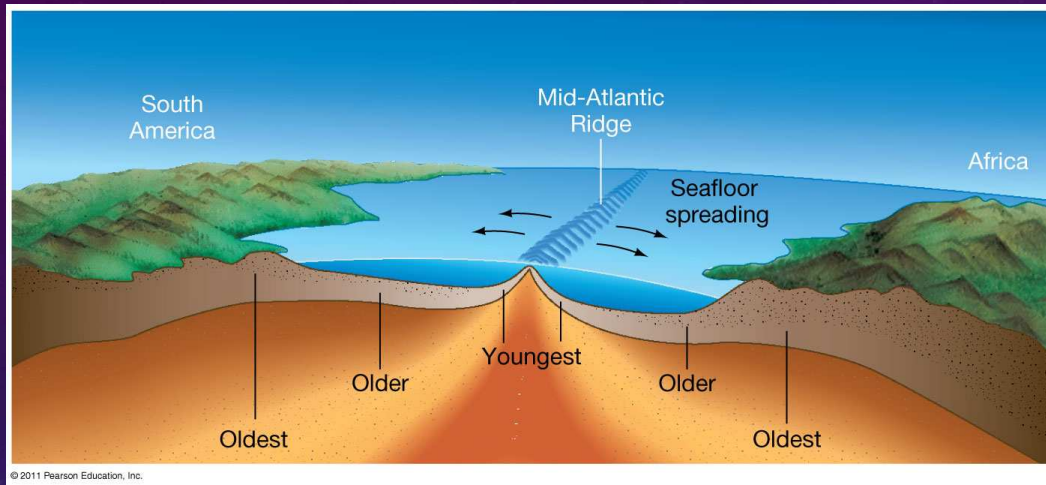


CONTINENTAL DRIFT VS SEAFLOOR SPREADING



- Continental drift states that the continents which were once a large single land mass surrounded by a large sea mass, has broken up into smaller continents which drifted to their present locations

CONTINENTAL DRIFT VS SEAFLOOR SPREADING



- This supported the idea that new crust forms along the ridge as older crust moves aside

- The evidence for continental drift was found on the ocean floor.
- Upon examination scientists found that rocks found on the ocean floor were very young compared to the age of the continental rocks.

WRITE DOWN AND ANSWER THESE QUESTIONS ON YOUR LEFT SIDE

1. WHERE ARE ALL STARS BORN?
2. DESCRIBE A NEBULAE
3. WHAT ARE NEBULAE MADE OUT OF?
4. WHAT CAUSES THE NEBULAE TO COLLAPSE IN ON ITSELF?
5. EXPLAIN WHAT HAPPENS AS A RESULT OF THE COLLAPSE OF THE NEBULAE.
6. DESCRIBE WHAT HAPPENS TO THE NEBULAE AS IT CONTINUES TO SPIN MORE RAPIDLY.
7. WHY DOES PRESSURE INCREASE IN THE PROTOSTAR?
8. WHAT HAPPENS TO THE PROTOSTAR ONCE NUCLEAR FUSION HAS BEGUN?
9. WHAT HAPPENS TO THE DISK SURROUNDING THE PROTOSTAR?
10. WHAT MAKES IT POSSIBLE TO HAVE LIFE ON EARTH?
11. WHAT WOULD HAPPEN IF THE EARTH WERE CLOSER TO THE SUN?
12. WHAT WOULD HAPPEN IF THE EARTH WERE FURTHER AWAY FROM THE SUN?
13. HOW DO SCIENTISTS DETERMINE THE ABSOLUTE AGE OF THE EARTH?
14. WHEN ELEMENTS DECAY, WHAT IS THE FINAL STABLE ELEMENT CALLED?
15. ACCORDING TO CONTINENTAL DRIFTING, WHAT WAS THE EARTH LIKE BEFORE?
16. WHAT DID SCIENTISTS FIND AS EVIDENCE OF CONTINENTAL DRIFTING?