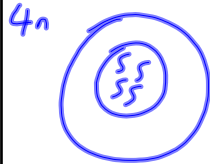


Process of Mitosis

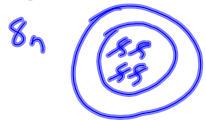
Given a  $4n$  cell in interphase, describe all phases of mitosis, finishing with the formation of 2 cells.

Interphase



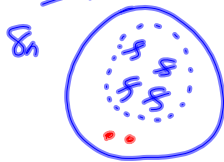
→ The cell is preparing for division

Late Interphase



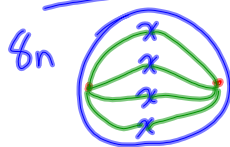
→ Genetic Info makes a copy of itself (Doubles) to prepare for cell Division

Prophase



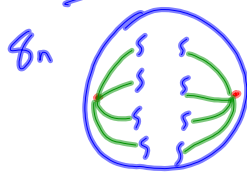
→ Centrioles Appear  
→ Nuclear Membrane starts to disappear

Metaphase



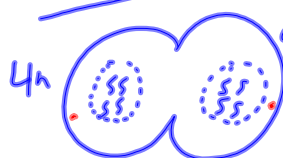
→ Chromosomes line up in the Middle.  
→ Centrioles are at the poles  
→ Spindle fibres are attached to the Chromosomes.

Anaphase



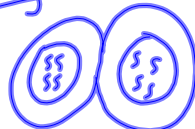
→ Chromosomes are split into sister chromatids.  
→ The chromatids are being pulled to the opposite poles of the cell.

Telophase



→ Equal amounts of Genetic information have reached the poles.  
→ Nuclear membrane starts to reform  
→ Cell Membrane starts to pinch off.

Cytokinesis



→ Membrane pinches, an equal amount of organelles and cytoplasm separate each new cell.

2. Cell Division is important for the repair, growth, and renewal of worn out cells. Helicase  
 The DNA unzips (splits into two separate strands) and each strand makes an exact copy of itself.  
 End up with 2 new strands that were identical to the first.

"Double Helix"

Without DNA replication, cell division would not be possible.

4. Asexual → involves 1 parent splitting or budding into two identical offspring

Sexual → Involves two parent cells fusing together to form unique offspring

b) Zygote → The result of sexual reproduction  
 → Combo of both parents genetic info.

Daughter cell → Result of Asexual

→ Genetic info is identical to the parent.

c) Regeneration → when a lost limb or body part can be re-grow

Fragmentation → A lost body part can (existing) reproduce into a new identical organism to the parent.

d) Budding → a new organism begins as a new growth out from the parent.

5. The cells of the Lizard are not as specialized as human cells.

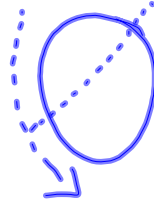
Human cells have much more specific functions.

- Hair
- Skin
- Blood
- Bone.

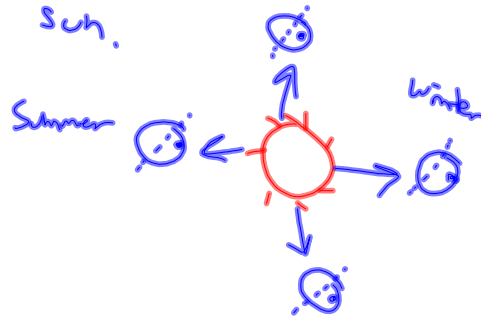
# Space Review

1. The two reasons we have seasons on Earth are:

1) Rotation of the earth on it's Tilted axis.



2) Revolution of the Earth around the sun.

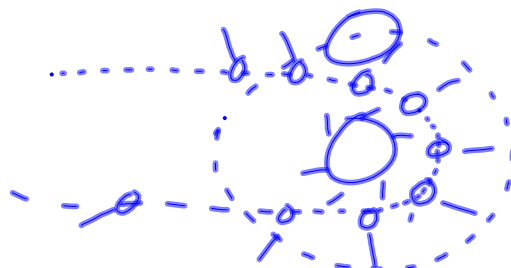


2. A natural satellite is a natural object which orbits a larger object.  
Ex. Moon revolving the Earth.

An artificial satellite is a man made object intentionally put into orbit of a larger object.

Ex. Weather Satellite,

3. A comet is a chunk of frozen matter that travels in a long, regular orbit around the sun.



4. Both begin as a meteoroid.

Meteor is a meteoroid which burns up in the atmosphere producing a bright streak of light.

Meteorite is a meteoroid which is massive enough to reach the earth's surface.

5. Asteroid belt is a large collection of asteroids that lie between Mars and Jupiter (separates inner from the outer planets. It was thought to be a planet that did not materialize because of the force of Jupiter's huge gravity.

6. Inner planet which are closer to the sun, smaller planets that are made up of rock and metal.

Outer Planets are farther away from the sun, are much larger and are made up primarily of gases.

7. Rotation → Spinning on an axis

Revolution → Orbiting a larger object.

## Chemistry

- > Properties of Matter
- Physical or Chemical
  - States of Matter
  - Other physical Properties.

-> Density =  $D = \frac{\text{Mass}}{\text{Volume}}$

$$M = D \times V$$

$$V = \frac{M}{D}$$

### - Composition

-> Atoms - Elements - Compounds -> Molecules.

-> Elements made up of Atoms

↓  
Pure Substance.

-> Molecules made up of compounds  
↓  
2 or more Elements.

## Mixtures

Homogeneous -> Same composition  
ex: Salt water

Heterogeneous.

↳ Different composition

↳ Ex. Trail Mix.