Science 9: Natural Science

(Exam Review)

Jun 4-1:16 PM

Space Unit:

- The order of the planets
  M, V, E, M | J S U N
  - Inner planets and outer planets
    Rocky planets terrestrial planets | gas planets gas giants
    - What are the main differences between the two groups
    - What are they divided by? asteroid belt
    - How do they travel?
      Circular orbit around Sun

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- How does the earth move?
  - Rotation & Revolution (Understand both processes and what they cause)
    rotation 24hrs
    clockwise Ground the Sun
    orbital path 365 days
    23.5°
  - Reason for night and day, and reason for our season (be able to explain in detail)
    (rotation of planet face sun in day away from Sun at night
    ① tilt away winter tilt towards summer
    ② location in the orbit path

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- Our solar system
  - Earth center method vs the Sun center method
  - How old is our solar system?
  -
    old belief → Current
    4.6 billion years

Jun 4-2:27 PM

Shapes of galaxies
elliptical irregular Spiral
Orion Arm
- What Galaxy do we belong to?
  Milky Way - Spiral
- Objects in space
  - Satellites - moon - orbit planets
    asteroids - rock/metal objects in space
    meteoroids - object in space drawn in by earth's gravitational pull
    meteor - meteroid that enters the atmosphere - burning up as it enters
    shooting stars
    , meteorite - a meteor that didn't completely burn up and lands on earth
  - Describe how the tail of a comet is formed
    push it out
    Solar winds
    melting due to heat of sun
    elliptical orbits

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nebula → star → red giant → white dwarf
red supergiant → supernova → neutron star
large supernova → black hole

- Stars
  - Starng and ending material of all stars
  - Neutron star, pulsar star, black hole,quasar
  - ~~What do we use to measure the brightness of a star?~~
  - What is light year a measurement of?
    distance light can travel in a year
    9.46×10^{12} Km →
- Sun
  - What are the layers of the sun? (No diagram)
    Chromosphere p 453
    Corona
    photosphere * solar flares

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2) Reproducon Unit:

- Plant cell and animal cell p 142 - 143
  - Main differences between the two
    - Animal cell - centriole
    - plant cell - cell wall, large vacuole, Chloroplasts, photosynthesis
  - Part of the cells and their funcons
    - Nucleus, brain cell → controls the cell functions
    - Cell membrane, ↳ Keeps all organelle in. Controls movement of materials into + out of the cell.
    - cell wall, Support the structure of the cplant
    - ribosome, build proteins
    - mitochondria, provides the cell with energy
    - cytoplasm, nutrients absorbed, transported and processed here
    - Golgi Apparatus stores proteins until needed

Endoplasmic reticulum (ER)- canals carry material throughout the cell

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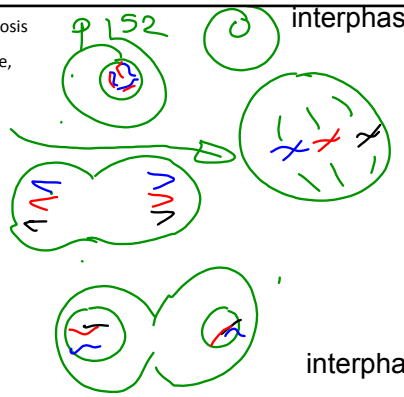
- Steps of Mitosis p 152
  - Prophase,
  - Metaphase
  - Anaphase,
  - , Telophase



Must know order and the basics of what is happening in each phase

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- Why is it important for cells to divide?
  function better when small
  new new cells to continue species
- Difference between Sexual vs. Asexual reproduction
  2 parents p 159 1 parent
  - Advantages and Disadvantages
    - genetically diverse offspring vs. identical to parent
    - slower process - faster/easier
    - have to find a partner
  - Types of asexual reproduction
    - budding - binary fission
    - Spore formation
    - fragmentation - vegetative reproduction

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- What is DNA?
  p 176 - 177 Deoxyribonucleic Acid
  - What is it made up of?
    phosphate , ribose, nitrogen bases
  - Nitrogen bases
    adenine (A) Thymine (T) cytosine (C) guanine (G)
    A-T C-G
  - DNA Fingerprinting and why it is significant to a Miramichi case.

DNA fingerprint - banding sequence not your finger prints

- Mutated DNA and

p 180 ATCG → TTCG

Cancer (definitions) cell division that goes out of control.

mutation - change in your genetic code

Tumor

malignant - harmful tumor

Benign - harmless tumor

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- Difference between **Meiosis and Mitosis** (Make sure you understand each process fully)
  - How many chromosomes found in each type of cell produced by either process?
  - The end results of each process
  - What types of cells each process produces?

Meiosis	and	Mitosis
2 stages of division		1 division stage
23 chromosomes		46 chromosomes
sex cells		somatic cells
sperm, eggs		skin cells, brain cells, bone cells, etc
4 new cells		2 new cells

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Big bang theory be able to explain it

Jun 6-1:46 PM

- Nondisjunction and how we can determine genetic disorders prior to birth

Meiosis goes wrong, sex cells end up with abnormal number of chromosomes, too few or too many

ex. Down syndrome - trisomy 21 - 47 chromosomes in total

Turner syndrome female with 45 chromosomes- only one
Klinefelter syndrome - extra X chromosome - xxy 47 chromosomes

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p194-197

Cloning

Dolly the sheep

Jun 5-3:12 PM

3) Chemistry Unit:

- Warning symbols
- Physical Properes
  - Hardness, malleability, ducle, melng/boiling point, viscosity, color, state, ...
    - Must idenfy
- Chemical Properes
  - Combusble, corrosive
    - Must Idenfy

reacts with acids
gold does not
pyrite does

Jun 4-1:24 PM

- Physical change Vs. Chemical Change (An acon: anything ending in "ing")
  - Must idenfy
  - What are some signs that a chemical change has occurred?

5 clues for chemical change
- Bubbles/fizzing
- heat or light produced
- precipitate - (2 liquids make solid)
- Color change
- difficult to reverse

ice cube melts => physical change in state
burn a book -> chemical color change, diff to reverse heat + light produced
tea from tea leaves - physical change
cook an egg chemical

Jun 4-1:25 PM

- Liquid to Gas, Gas to Liquid, Solid to Liquid, Liquid to Solid, Gas to Solid, Solid to

- Parcle theory 4 parts

elements are the simplest pure substances

- Element vs. Atom vs. Molecule Vs. Compounds
  - Pure substance, - elements + compounds
  - Mixtures
    - Soluon, Heterogeneous, Homogeneous (solution)
    - alloys

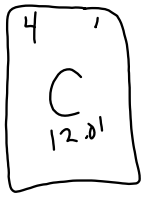
See the various parts
trail mix

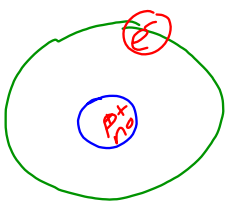
looks all the same
Pepsi

Alloy -> mixture of metals - steel is iron and other metals

Jun 4-1:27 PM

- Atoms
  - electrons, protons, and neutrons
    - Where are they found in an atom?
    - What are their charges?





4p
4e
8n

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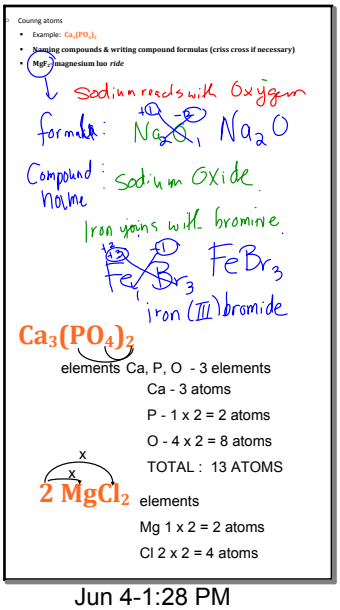

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- Periodic Table
  - How is it ordered? **Now ordered by increasing atomic NUMBER**
  - Metals , Nonmetals, State (Solid, Liquid, Gas)

metals - le and middle to stair step

nonmetals - H & on the right - to the right of stair step

state at room temperature

solid - white leering

liquid - red leering

gas - blue leering

- Periods - ROWS - horizontal

Groups & Families - vercal column or columns

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- Using the periodic table to answer the following
  - # **Protons** = atomic number
  - **#Electron** = Atomic Number
  - **Mass number** = # of **Protons** + # of **Neutrons**
  - **Neutrons** = Mass # – atomic #
  - What are isotopes?

different number of neutrons for the same element/ atom

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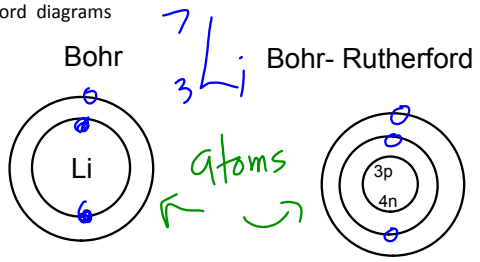
Bohr & Bohr-rutherford Diagrams 2, 8, 8, 18, 18

- Know how many electrons belong in the first 4 orbit
  - Be able to draw and idenfy elements based on Bohr or Bohr-rutherford diagrams



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4) Electricity Unit:

- ✓ Electrostac
- ✓ Stac Electricity
  - Fricon , Contact and Inducon
    - Know the main difference between all ~~three~~ 2
- ✓ Laws of Electric Charges
  - Aracon test vs Repulsion test

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- Electrostac Series Chart
  - Chart will be provided make sure you know how to use it
- Insulators vs. Conductor
  - Know the definion of each term
  - Be able to idenfy some a good insulator of a good conductor

What material is used for wires? COPPER - good conductor

What material covers wires and why?rubber/ plastic - not good conductors - doesn't allow electrical current to escape.

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- Current electricity - electrons can flow freely
  - Electric Circuit
    - Open and Closed Circuits - switches
  - ~~Electric Current~~
    - ~~Definion~~

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- Schemac Circuit Diagrams
  - Must recognize all symbols & use them
- Series and Parallel Circuit
  - Main Difference
  - And be able to idenfy & Draw them

Sway Nerds

Jun 4-1:30 PM

- What is Electrical Potenal?
  - What is it unit of measurement? Amps & volts-

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