Science 9: Natural Science

(Exam Review)

Jun 4-1:16 PM

Space Unit:

The order of the planets [redacted]

- Inner planets and outer planets

Rocky planets
terrestrial planets

gas planets
gas giants

- What are they divided by? asteroid belt
- How do they travel? [redacted]

circular orbit around the sun

[redacted]

know the facts of the planets from question #2 on page 434

page 434 #2

a. Discovered in 1846 after careful observations

Neptune

b. It has more mass than all the other planets combined.

Jupiter

c. It has surface temperatures ranging from -180 to 400 degrees Celsius.

Mercury

d. It has an atmosphere containing oxygen.

Earth

e. It is neither a gas giant nor a terrestrial planet.

Pluto

f. It has over 1000 rings around it.

Saturn

g. It appears reddish in color.

Mars

h. It has a very warm surface caused by its thick atmosphere

Venus

i. It rotates on its side.

Uranus

Jan 16-10:35 AM

- How does the earth move?
  - Rotation & Revolution (Understand both processes and what they cause)

rotation = earth's spins on its axis over 24 hrs

Revolution - earth revolves around the sun, follows an orbital path over 365 days

23.5

  - Reason for night and day, and reason for our season (be able to explain in detail)

as the earth rotates

one side of the earth

- has sunlight causing

it to be daytime, other

side is facing away from

the sun, dark= nightime

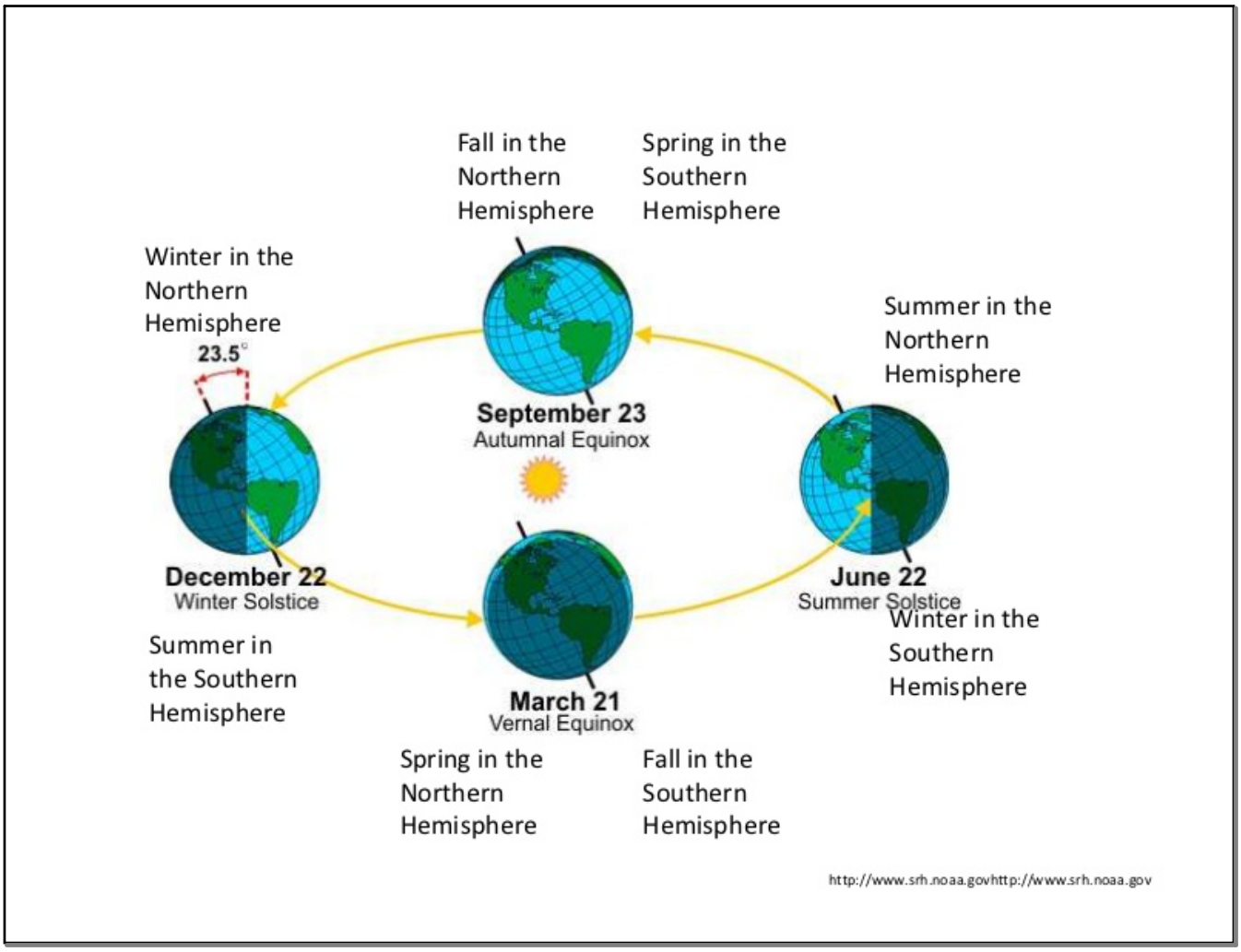
1. The earth is tilted an it never changes its tilt.

2. Our location in our orbital path as we revolve.

3. Winter NH sunlight a an angle

Summer NH sunlight directly

Jun 4-1:17 PM


Fall in the Northern Hemisphere
Spring in the Southern Hemisphere
Winter in the Northern Hemisphere
23.5°
Summer in the Northern Hemisphere
September 23
Autumnal Equinox
December 22
Winter Solstice
June 22
Summer Solstice
Summer in the Southern Hemisphere
Winter in the Southern Hemisphere
March 21
Vernal Equinox
Spring in the Northern Hemisphere
Fall in the Southern Hemisphere
http://www.srh.noaa.govhttp://www.srh.noaa.gov

Jan 15-9:58 AM

- Our solar system
  - Earth center method vs the Sun center method
  - How old is our solar system?
  -

old belief ↓ 4.6 billion years ↓ Current

Jun 4-2:27 PM

Explain the origin of our solar system

nebula → bulge → nuclear fusion → Sun → rocky planets → gas planets

p472 fig #1

Jan 15-1:26 PM

Shapes of galaxies

elliptical Irregular

Spiral

- What Galaxy do we belong to?

Milky Way - Spiral

- Objects in space
  - Satellites, we refer to them as moons, orbit planets

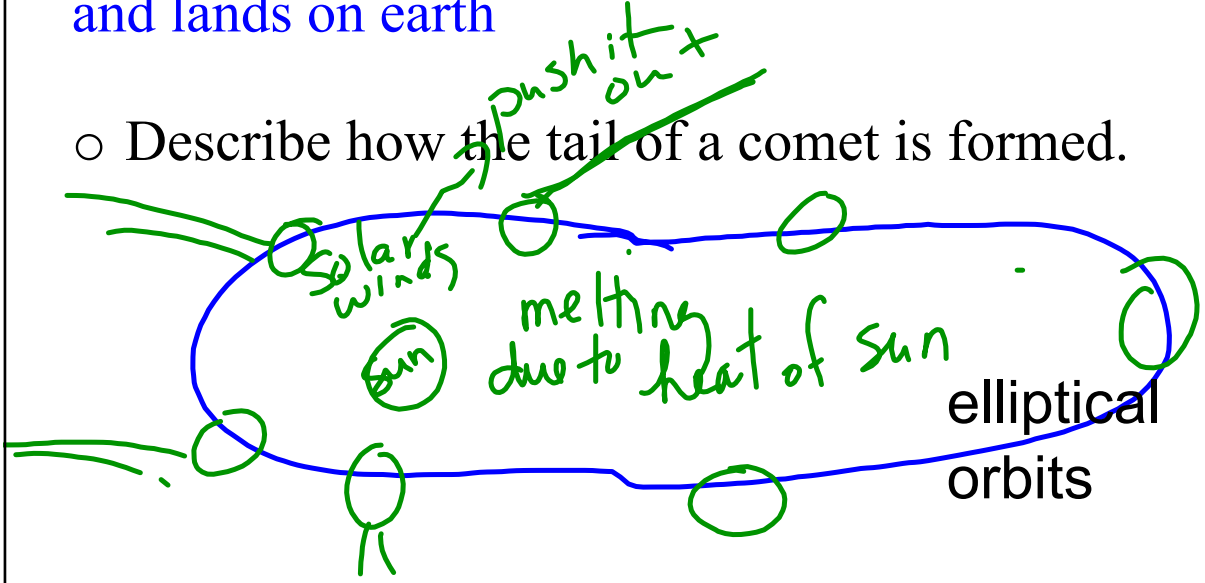
asteroids - rocky, metal objects in space

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.



nebula -> star => red giant / red supergiant

red giant -> white dwarf

red supergiant -> supernova / large supernova

supernova -> neutron star

large supernova -> black hole

- Stars
  - Starting and ending material of all stars
  - Neutron star, pulsar star, black hole,quasar
  - 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
Corona
photosphere

p 453

& Solar flares

red shift	vs	violet shift
objects in space moving away from other object, observe red because its the longest wavelength		objects in space moving towards from other object, observe violet because its the shortest wavelength

Jan 15-1:25 PM

Why don't planes go into space?

need air for lift

need Oxygen for the engine to run

Payload and Launcher

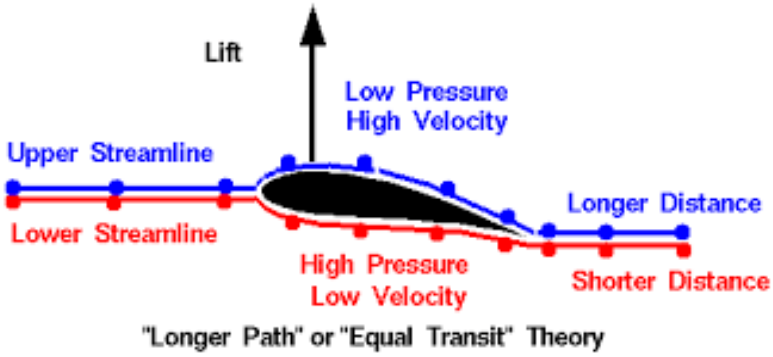
Payload(astronaut) - what you are trying to move and launcher(rocket) is the object that can Move it.

Piloted vs unpiloted spacecraft- differences and advantages and disadvantages of each

piloted - people control it in the craft

unpiloted - no people on board

Why are the wings of aircraft curved?



high pressure

under wing

pushes it UP!!

Jan 15-10:30 AM

	advantage	disadvantage
Piloted	more media attention more first hand experience or view	more expensive limited time in space higher risk to human life
Unpiloted	needs less supplies lower costs no time limit no distance limit	malfunction may be unrepairable space pollution

Jan 15-10:38 AM

Explain the origin of our solar system

nebula → bulge → nuclear fusion → Sun → rocky planets → gas planets

p472 fig #1

Jan 15-1:26 PM

Polaris

quasar

dwarf planet

nuclear fusion

constellation

cosmology

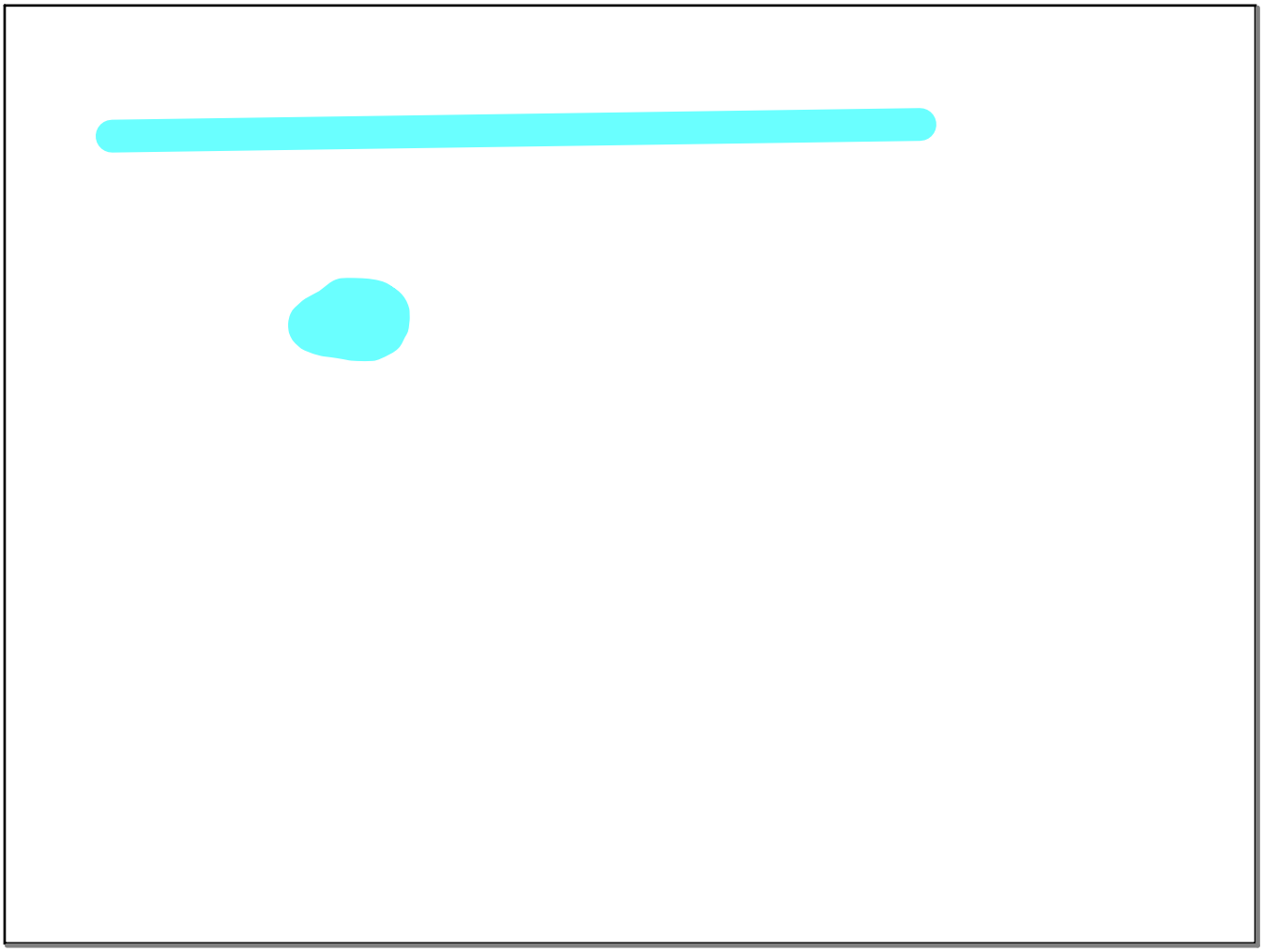
nonluminous

gravity

pulsar

supernova

Jan 15-2:11 PM



Jan 16-10:32 AM

2) Reproduction Unit:

- Plant cell and animal cell p 142 - 143
  - Main differences between the two Animal cell - Centriole

Plant cells have cell wall, larger vacuole, chloroplast to make their own food

- Part of the cells and their functions

Nucleus, controls all the cells functions (brain of cell)

Cell membrane, Keeps all organelle within the cell, controls movement of material into & out of the cell

cell wall, supports the structure of the cell(like skeleton of the cell)

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

Jun 4-1:21 PM

vacuole - sac like structure contains water, minerals, sugars for the cell

centriole - critical in cell division, pulls chromosomes to opposite sides of cell in mitosis

chlorophyll - green pigment need for process of photosynthesis found in chloroplasts

Jan 17-9:53 AM

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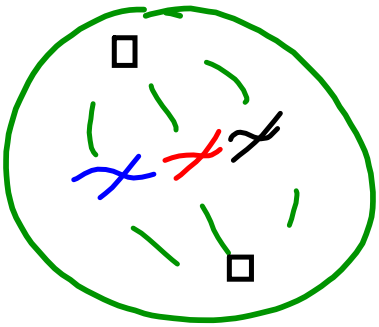
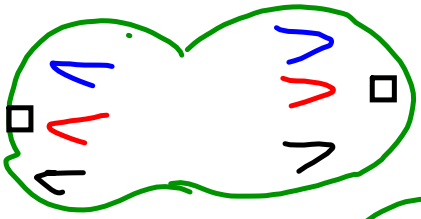
Steps of Mitosis

- Prophase,



Metaphase



Anaphase,

, Telophase

-

cytokinesis

Cytokinesis -equal division of cytoplasm & organelle

Interphase

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

Jun 4-1:22 PM

- Why is it important for cells to divide?
  cells funtion better when small, new to replace old cells, to continue the species
- Difference between Sexual vs. Asexual reproduction

2 parents p 159 1 parent

A/D

  - Advantages and Disadvantages

A - genetically diverse offspring vs. identical to parent

D - slower process - faster/easier

D - have to find a partner

A A

  - Types of asexual reproduction
    - budding - binary fission
    - spore formation
    - fragmentation - vegetative reproduction

p 160-161

- What is DNA? Deoxyribonucleic Acid

p 176-177

  - What is it made up of?

    phosphate, ribose, nitrogen bases

  - Nitrogen bases

    adenine (A) Thymine (T) cytosine (C) guanine (G)

  - DNA Fingerprinting and why it is significant to a Miramichi case.

    DNA Code (not your actual fingerprints)

- Mutated DNA and Cancer (definitions)

p 180 ATCG → TTCG → cell division that goes out of control

mutation - change in your genetic code

Tumors – malignant - harmFUL

Benign -harmless

- 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?

2 divisions	1 division
23 chromosomes	46 chromosomes
reproductive cells	somatic cells
(sex cells)	skin cells, brain cells,
sperm, eggs	bone cells, etc
4 new cells	2 new cells

Jun 4-1:24 PM

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

Meiosis goes wrong, sex cells end up with abnormal number of chromosomes

ex. 1.Down syndrome - trisomy 21 - 47 chromosomes in total

2.Turner syndrome female with 45 chromosomes 0X

3.Klinefelter syndrome - extra X chromosome - 47 chromosomes XXY

Jun 4-1:24 PM

homologous pairs of chromosomes

Cloning Dolly the sheep p 194-197

Carcinogen - a substance that can cause mutations in the genes

ex. radiation

virus

chemical substances

Jun 5-3:12 PM

Exam

Thursday, June 13/19 in this classroom at 8:35 exam starts at 8:45

Bring a pencil, calculator and your textbook to return.

Jan 17-10:32 AM

Exam

Tuesday, Jan 22/19 in this classroom at 8:45

Bring a pencil and your textbook to return.

In case of snow day Monday

Exam

Wednesday, Jan 23 8:45

Jan 17-10:32 AM