Reviewer for GRADE 12-STEM

(S.Y. 2021-2022)

PART 2 – SECOND SEMESTER

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- This reviewer is split into two parts for each semester of Grade 12.
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CONTENTS

GENERAL CHEMISTRY 2

A. Intermolecular forces and liquids and solids

Intermolecular forces

Are attractive forces that act between molecules or particles in the solid or liquid states.

Generally, these attractive forces are much weaker than bonding forces.

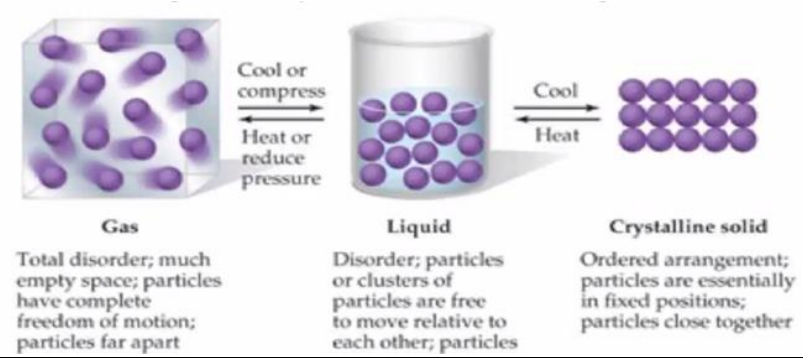
Mediates interaction between molecules.

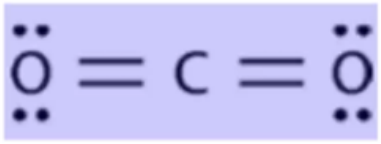
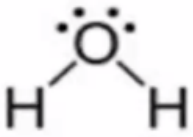
Two kinds of forces

- Intermolecular forces are attractive forces between molecules.
- Intramolecular forces hold atoms together in a molecule.

Kinetic molecular theory

States that

- Matter is made up of particles that are constantly moving
- All particles have energy, but the energy varies depending on the temperature of matter is in
- Molecules in the solid phase have the least amount of energy, while gas particles have the greatest amount of energy
- There are attractive forces between atoms/molecules, and these become stronger as the particles move closer together
- 

Nonpolar	Polar
All of the terminal atoms (or groups) are the same	One or more terminal atoms differ from each other
All of the terminal atoms (or groups) are symmetrically arranged around the central atom	The terminal atoms are not symmetrically arranged
The terminal atoms (or groups) have the same charges	The molecule has one slightly positive end and one slightly negative end
Example: CO_2	Example: H_2O
	

John van Der Waals (1837 – 1923), a Dutch physicist, while working on the theory of ideal gas, recognized the existence of some type of weak force on particles that are very close to each other.

Different types of intermolecular forces

London Dispersion Forces

- Weakest among intermolecular forces
- These forces of attraction result from temporary dipole moments induced in nonpolar molecules

- Attractive forces between gases like O_2 and N_2 which can be liquefied under correct conditions of pressure and temperature

Ion-dipole Forces

- An attractive force that results from the electrostatic attraction between an ion and a neutral molecule that has a dipole

Dipole-dipole Forces

- Are attractive forces between polar molecules
- This type of force is stronger than the dispersion forces because polar molecules have a permanent uneven distribution of electrons
- Molecules align themselves where the positive end of one dipole is directed towards the negative end of the neighboring dipole
- The presence of dipole-dipole interaction explains the higher boiling point of polar molecules than a non-polar molecule of the same molecular weight

Hydrogen Bond

- Is a special type of dipole-dipole interaction between the hydrogen atom in a polar bond

Properties of liquids and intermolecular forces

Surface tension

- The measure of the elastic force in the surface of a liquid
- It is the amount of energy required to stretch or increase the surface of a liquid by a unit area
- Molecules within a liquid are pulled in all directions by intermolecular forces
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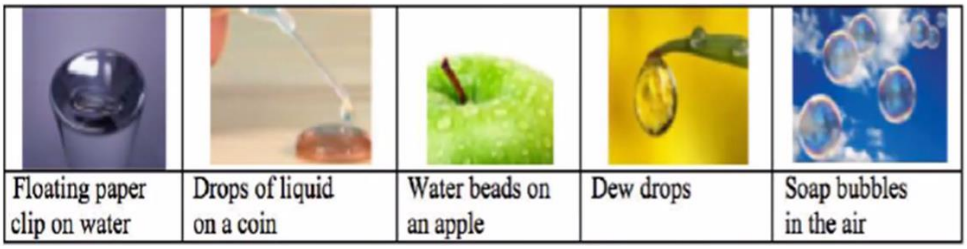


Floating paper clip on water	Drops of liquid on a coin	Water beads on an apple	Dew drops	Soap bubbles in the air

Capillary action

- The tendency of a liquid to rise in narrow tubes or to be drawn into small openings
- Two types of forces are involved in capillary action
    - Cohesion
        - Is the intermolecular attraction between like molecules (the liquid molecules)
    - Adhesion
        - Is an attraction between unlike molecules (such as those in water and in the particles that make up the glass tube)

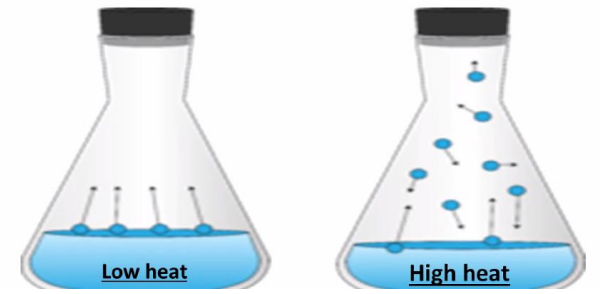
Viscosity

- A measure of a fluid's resistance to flow
- The greater the viscosity, the slower the liquid flows

- 

Vapor pressure of a liquid

- The change of phase from liquid to vapor (gaseous phase)
- The pressure exerted by the gas in equilibrium with a liquid in a closed container at a given temperature

- Equilibrium vapor pressure
  - It is the maximum vapor pressure of a liquid at a given temperature and that it is constant at a constant temperature. It increases with temperature.
  - 

Boiling point

- It is the temperature at which the liquid converts into a gas
- The boiling point of a liquid when the external pressure is 1 atmospheric pressure (atm) is called the normal boiling point

Molar heat of vaporization (ΔHVAP)

- The energy (usually in kilojoules) required to vaporize 1 mole of a liquid at a given temperature

Unique properties of water

- Water is a good solvent
- Its ability to dissolve a large variety of chemical substances
- Water has a high specific heat – the specific heat of water is 1 Celsius

Solid water is less dense, and in fact floats on liquid water

B. Types of Solids

Crystalline solids

- Arranged in fixed geometric patterns or lattices
- Ordered arrangement of their units maximizes the space they occupy and are essentially incompressible

- Example of crystalline solids are ice and sodium chloride (NaCL), copper sulfate (CuSO4), diamond, graphite, and sugar (C12H22O11)

Amorphous solids

- Have a random orientation of particles
- They are considered super-cooled liquids where molecules are arranged in a random manner similar to the liquid state
- Examples of amorphous solids are glass, plastic, coal, and rubber

Behavior when heated

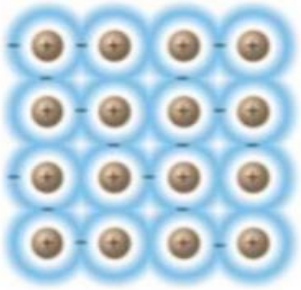
Crystalline solids	Amorphous solids
Change sharply	Soften gradually when they are heated
These attractive forces are broken by the same amount of energy called crystals	They tend to melt over a wide range of temperature

Crystalline solids are characterized by a regular repeating structure called the crystal lattice

Xray diffraction is a technique used to determine the atomic and molecular structure of a crystal, wherein atoms caused a beams of incident X-rays to diffract into many specific directions

C. Types of Crystals

Metallic crystals



- Made of atoms that readily lose electrons to form positive ions (cations) but no atoms in the crystal would readily gain electrons
- The crystal is held together by electrostatic interactions between the cations and delocalized electron
- These interactions are called metallic bonds
- This model of metallic bonding is called the "sea of electrons" model

- Observed property of metallic crystals
    - High melting points
        - A large amount of energy is needed to melt the crystal since the forces of attraction to be broken are numerous and extend throughout the crystal
    - Dense
        - Atoms are packed closely together. Metals exhibit close-packing structures, a most economical way by which atoms utilize space
    - Electrical conductivity
        - Then delocalized electrons move throughout the crystal
    - Thermal or heat conductor
        - The delocalized electrons collide with each other as they move through the crystal, and it is through these collisions that kinetic energy is transferred
    - Malleability/ductility

- When stress is applied to the metal, the metal cations shift in position, but the mobile electrons simply follow the movement of the cations. The attractive forces between cations and mobile electrons are not broken

Ionic crystals

- Are made of ions (cations and anions)
- These ions form strong electrostatic interactions that hold the crystal lattice together
- The electrostatic attractions are numerous and extend throughout the crystal since each ion is surrounded by several ions of opposite charge, making ionic crystals hard and of high melting points
- Are brittle, and would shatter into small pieces when deformed or when pressure is applied on the crystal

Molecular crystals

- Are made of atoms, such as in noble gases, or molecules, such as in sugar C12H22O11, iodine I2, and naphthalene C10H8
- Have relatively low melting points
- Held together by a mix of hydrogen bonding/dipole-dipole and dispersion forces, and these are the attractive forces that are broken when the crystals melts

Covalent network crystals

- Are made of atoms in which each atom is covalently bonded to its nearest neighbors
- There are no individual molecules and the entire crystal may be considered one very large molecule
- Very high melting point, hard
- Example: diamonds silicon dioxide

Type of Solid	Form of Unit Particles	Forces Between Particles	Properties	Examples
Molecular	Atoms or molecules	London dispersion forces, dipole-dipole forces, hydrogen bonds	Fairly soft, low to moderately high melting point, poor thermal and electrical conduction	Argon, Ar; methane, CH_4; sucrose, $C_{12}H_{22}O_{11}$; Dry Ice™, CO_2
Covalent-network	Atoms connected in a network of covalent bonds	Covalent bonds	Very hard, very high melting point, often poor thermal and electrical conduction	Diamond, C; quartz, SiO_2
Ionic	Positive and negative ions	Electrostatic attractions	Hard and brittle, high melting point, poor thermal and electrical conduction	Typical salts—for example, NaCl, $Ca(NO_3)_2$
Metallic	Atoms	Metallic bonds	Soft to very hard, low to very high melting point, excellent thermal and electrical conduction, malleable and ductile	All metallic elements—for example, Cu, Fe, Al, Pt

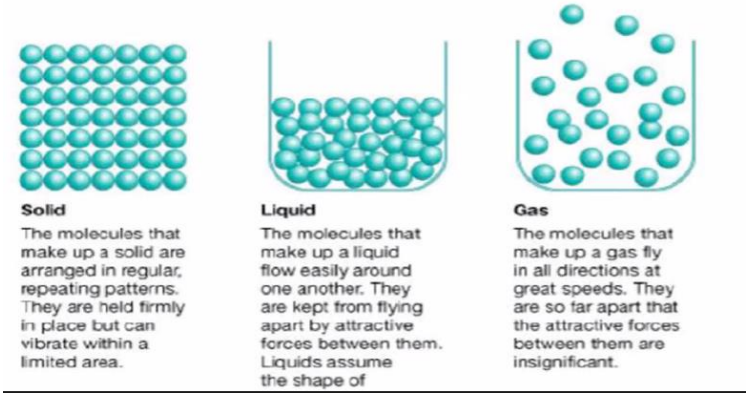
D. Phase

Phase

- A homogenous part of a system in contact with other parts of the system, but separated by well-defined boundaries

Phase changes

- Transformation of matter from one phase to another



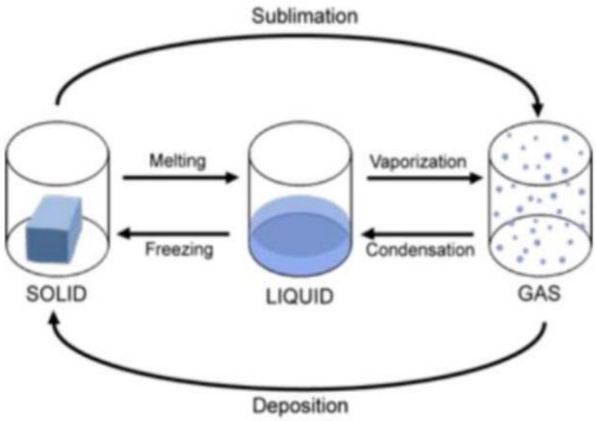
Types of phase changes

Endothermic processes

- Melting
  - Transformation of solid to liquid
- Vaporization
  - Liquid to gas
- Sublimation
  - Solid to gas

Exothermic processes

- Condensation
  - Reverse change from gas to liquid
- Deposition
  - Gas to solid
- Freezing
  - Liquid to solid

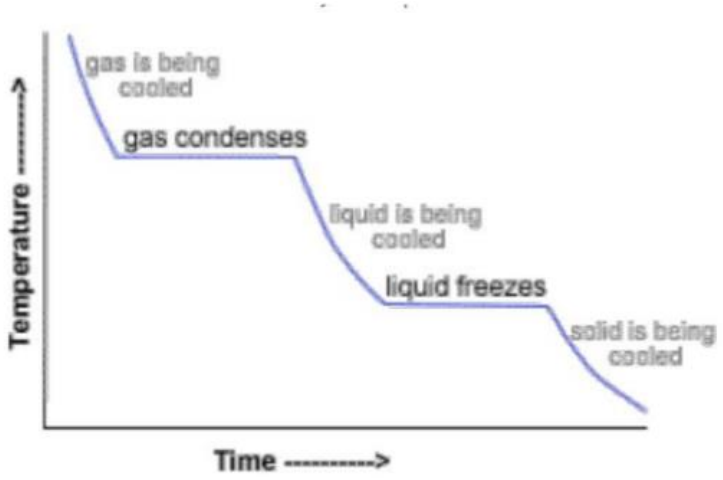


Phase changes occur when heat is added or removed from a substance

- When a substance is heated, the added energy is used by the substance in either of two ways
    - The added heat increases the kinetic energy of the particles and the particles move faster. The increase in kinetic energy is accompanied by an increase in temperature
    - The added heat is used to break attractive forces between particles. There is no observed increase in temperature when this happens. Often a change in the physical appearance of the substance is observed, such as phase change
    - Conversely, the removal or release of heat results in two ways
        - A decrease in kinetic energy of the particles. The motion of the particles slows down. A decrease in temperature is observed
        - Forces of attraction are formed, and a phase change may occur. No change in temperature is observed

Heating curve

- The change in temperature of a substance as it is being heated can be shown in a graph



- During phase changes, two physical states of the substance exist at the same time. When addition or removal of heat is stopped at this temperature, the two physical states will interconvert from one state to the other, and will be at equilibrium
- Melting and freezing
    - The melting point of a solid or the freezing point of a liquid is the temperature at which solid and liquid phases coexist in equilibrium
    - He melting (or freezing) point of a substance when the external pressure is 1 atm pressure is called its normal melting (or freezing) point. For water, this is 0oC.
    - The amount of heat needed to convert the solid to the liquid state at the melting point is called the head of fusion of the substance
- Molar heat of fusion and melting point
    - Molar heat of fusion (ΔHfus) is the energy required to melt 1 mole of a solid.
- Boiling and condensing: liquid-vapor equilibrium
    - The particles are still in contact with each other but are not locked into fixed positions and are free to move past each other
    - The boiling point of a liquid at 1 atm pressure is called its normal boiling point
    - Condensation – reverse of vaporization or boiling, the change from the gas phase to liquid phase
    - Heat of vaporization – when all of the sample has turned into gas, further heating will cause the temperature of the gas to increase again
- Molar heat of vaporization (ΔHvap) and boiling point
    - The heat of vaporization is an extensive property and is thus dependent on the amount of sample undergoing phase change
    - Molar heat of vaporization – is defined as the energy (usually in kilojoules) required to vaporize 1 mole of a liquid at a given temperature, usually, at the boiling point. The molar heat of vaporization of water at 100 C is 40.8 kJ/mol

- Solid vapor equilibrium
    - In a solid, the particles may be in fixed positions, but they are able to vibrate in place and with increasing intensity as temperature increases

    - Sublimation is the process in which molecules go directly from solid into vapor phase. The reverse process is called deposition, where molecules make a transition directly from vapor to solid
- Molar heat of sublimation
    - A substance I the amount of energy that must be added to a mole of solid at a constant pressure to turn it directly into a gas, without passing through the liquid phase
- Heat change with change in temperature
    - When a system contains only one phase (solid, liquid, or gas), the temperature will change when it receives energy during heating or when energy is removed during cooling

Phase Diagram

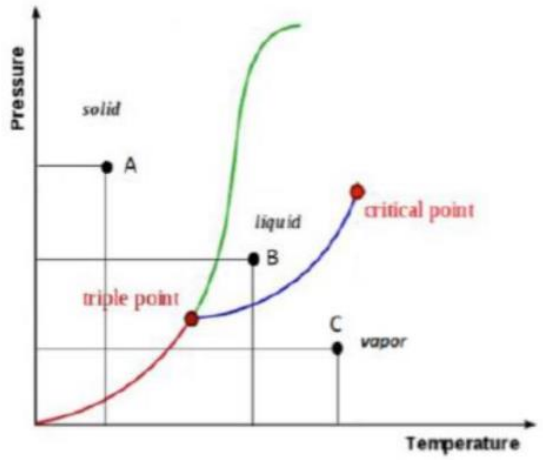
Is a graphical representation of the physical states of a substance under different conditions of temperature and pressure

It gives the possible combinations of pressure and temperature at which certain physical sate or states a substance would be observed

Each substance has its own phase diagram

The three areas

Three areas are marked solid, liquid, and vapor

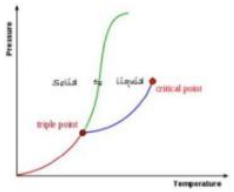


Three lines (curves)

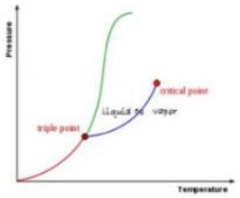
The lines that serve as boundaries between physical states represent combinations of pressures and temperatures at which two phases can exist in equilibrium

In other words, these lines define phase change points

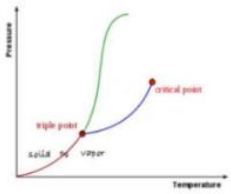
MELTING (OR FREEZING) CURVE – the curve on a phase diagram which represents the transition between liquid and solid states. It shows the effect of pressure on the melting point of the solid. Anywhere on this line, there is equilibrium between the solid and the liquid.



VAPORIZATION (OR CONDENSATION) CURVE – the curve on a phase diagram which represents the transition between gaseous and liquid states. It shows the effect of pressure on the boiling point of the liquid. Anywhere along this line, there will be equilibrium between the liquid and the vapor.



SUBLIMATION (OR DEPOSITION) CURVE – the curve on a phase diagram which represents the transition between gaseous and solid states. It represents the effect of increased temperature on a solid at a very low constant pressure, lower than the triple point.



Two important points

The triple point

- The triple point is the combination of pressure and temperature at which all three phases of matter are at equilibrium
- It is the point on a phase diagram at which the three states of matter coexist
- It is a unique combination of temperature and pressure where all three phases are in equilibrium together

The critical point

- The critical point terminates the liquid/gas phase line. It is the set of temperature and pressure on a phase diagram where the liquid and gaseous phases of a substance merge together into a single phase
- Beyond the temperature of the critical point, the merged single phase is known as a supercritical fluid
- The temperature and pressure corresponding to this are known as the critical temperature and critical pressure

E. Types of solutions and energy of solution formation

Solute

- Minor component in a solution, can be dissolved

Solvent

- Has an ability to dissolve other substances

Concentration units, mole fraction

Concentration expressions are often based on the number of moles of one or more components of a solution. The most commonly used are mole fraction and molality

Mole fraction is a way of describing solution composition. It is the ratio of the number of moles of one component of a mixture to the total number of moles of all components. This is symbolized by

the Greek lowercase letter chi, with a subscript to indicate the component of interest. It is computed using the following formula

Mole fraction
$Mole\ fraction\ of\ component = \frac{Moles\ of\ component}{Total\ moles\ of\ all\ components}$

Example

Example

- What is the mole fraction of the solute in a 40% by mass ethanol (C2H6O) solution in water?
- The problem asks the mole fraction of the solute (C2H6O), given only the percentage mass (40%) of the solute in the solution

In converting concentration units based on the mass or moles of a solute and solvent or mass percentage, it is useful to assume a certain total mass of solution. Assume there is exactly 100 grams of solution. Because the solution is 40% ethanol (C2H6O), it contains 40 grams of ethanol and 60 grams of water	
MM ethanol = 46 g/mole	We have 46 g/mole as the molar mass of ethanol. This is obtained breaking down its chemical equation (C2H6O). In the periodic table, C's atomic mass is 12g, multiply by 2 = 24g. H's atomic mass is 1g, multiply by 6 = 6g. O's atomic mass is 15.9g. Add them together and you get 46g.
MM water = 18 g/mole	We have 18 g/mole as the molar mass of water. This is obtained by breaking down its chemical equation (H2O). In the periodic table, H has a mass of 1g, multiply by 2 = 2g. O has 15.99g. Add them and you get 18g.
$mole_{ethanol} = \frac{40g}{46g/mol} = 0.87mol$ $mole_{water} = \frac{60g}{18g/mol} = 3.33mol$	Change the masses of the components ethanol and water to number of moles. 40g and 60g came from our assumption earlier.
X = mole fraction	
$X_{ethanol} = \frac{(mole_{ethanol})}{(mole_{ethanol}) + (mole_{water})}$ $X_{water} = \frac{(mole_{water})}{(mole_{ethanol}) + (mole_{water})}$	We'll use these formulas to get the mole fraction of ethanol and water
$X_{ethanol} = \frac{0.87\ mol}{0.87\ mol + 3.33\ mol}$ $X_{water} = \frac{3.33\ mol}{0.87\ mol + 3.33\ mol}$	Substitute the values obtained in the formula and solve for the mole fraction of the solute ethanol, and the solvent water.
$\boldsymbol{X_{ethanol} = 0.21}$ $\boldsymbol{X_{water} = 0.79}$	**Final answer; no unit needed**

Molality

Symbolized by m, is the ratio of the number of moles of solute per kilogram of solvent. It is not the same as molarity, even if their names are very similar.

One offshoot of the difference of molality from molarity is that molality does not change with the solution's temperature. In molarity, the volume of a solution can change with temperature due to expansion or contraction, while the mass of solvent in molality does not change with temperature.

Molality		
$m = \frac{moles\ of\ solute}{kilogram\ of\ solvent}$	$m = \frac{n_{solute}}{m_{solvent}}$	$d = \frac{m}{v}$
m = mol/kg		d = density m = mass

Example

Example 1

- What is the molality of a solution containing 0.75 moles of sodium hydroxide in 500 milliliters of water at 25 C? the density of water at 25 C is 1.0 gram per milliliter

We'll be looking for the molality of the NaOH solution	
$d_{H2O} = 1.0\ g/mL$ $V_{H2O} = 500\ mL$ $MM_{H2O} = 18\ g/mol$ $n_{NaOH} = 0.75\ mol$	Given
$m_{H2O} = d_{H2O} \times V$	We'll use this formula to determine the mass of water using the density formula. (Derived)
$m_{H2O} = 1.0 g/mL\ \times 500\ mL$	Substitute values
$m_{H2O} = 500\ g \rightarrow 0.50\ kg$	Convert to kg The mass of water
$m = \frac{moles\ of\ solute}{kilogram\ of\ solvent}$	We'll use this formula to solve for molality
$m = \frac{0.75\ moles\ NaOH}{0.50\ kg\ solvent}$	Substitute values
$\boldsymbol{m = 1.5\ molal\ or\ 1.5 mol/kg}$	**Final answer**

Example 2

- What is the molality of a solution containing 75.5 grams sucrose in 400.0 grams water?

$n = \frac{mass\ C_{12}H_{22}O_{11}}{molar\ mass\ C_{12}H_{22}O_{11}}$	We'll use this formula to convert the mass of solute (sucrose) to number of moles
$n = \frac{75.5\ g}{342\ g/mol}$	Substitute values Mass came from the given Molar mass came from the periodic table; C has an atomic mass of 12.0107 multiplied by 12, add the results of C, H, and O to get 342
$n = 0.221\ mol\ sucrose$	Number of moles of sucrose
$mass_{solvent} = 400g \rightarrow 0.400\ kg$	Convert the mass of the solvent (water) into kg
$m = \frac{moles\ of\ solute}{kilogram\ of\ solvent}$	We'll use this formula to solve for molality
$m = \frac{0.221\ mol}{0.400\ kg}$	Substitute values
$\boldsymbol{m = 0.553\ mol/kg}$	**Final answer**

Example 3

How many grams of sodium hydroxide (NaOH) are needed to prepare a 0.700 molal solution using 700.0 grams water?

Expected Answer:

Given: $m_{solution} = 0.700$ mol/kg
mass $H_2O = 700.0$ g

Unknown: mass of NaOH needed to prepare a 0.700 molal solution

a. Determine the number of NaOH moles needed to prepare the required concentration.

$m = \frac{n_{solute}}{\text{m solvent in kg}}$ thus, $n_{solute} = m \times m_{solvent} = (0.700\ mol/kg)\ (0.700\ kg)$

$n_{solute} = 0.490$ mol NaOH

b. Determine the mass of NaOH from the calculated n of NaOH.

Mass $_{NaOH}$ = n x molar mass $_{NaOH}$

= (0.490 mol) (40.0 g/mol)
= 19.6 g NaOH

Hence, to prepare 0.700 m NaOH solution, 19.60 grams of NaOH is needed to be weighed and dissolved in 700.0 grams of water.

F. Acid and bases

Acid

- A molecule or other entity that can donate a proton or accept an electron pair in reactions
- Acetic acid (vinegar) and citric acid (lemon)

Bases

- Substances which react with acids
- It either accepts a proton, releases a hydroxide anion when dissolved in water, or donates an electron
- Sodium bicarbonate (baking soda), ammonia hydroxide (ammonia water)

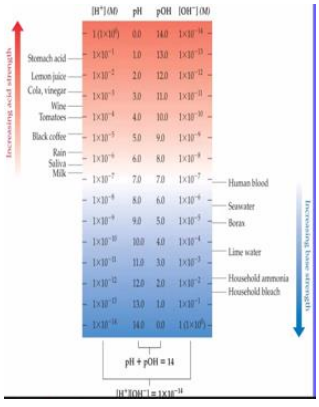
Phenolphthalein

- Often used as indicator in acid-base titrations

Properties of acids and bases

Acids	Bases
Sour taste	Bitter taste
pH less than 7	Slippery
Litmus paper – red	pH greater than 7
Phenolphthalein - clear	Litmus paper – blue
	Phenolphthalein – pink

pH



pH means potential of hydrogen

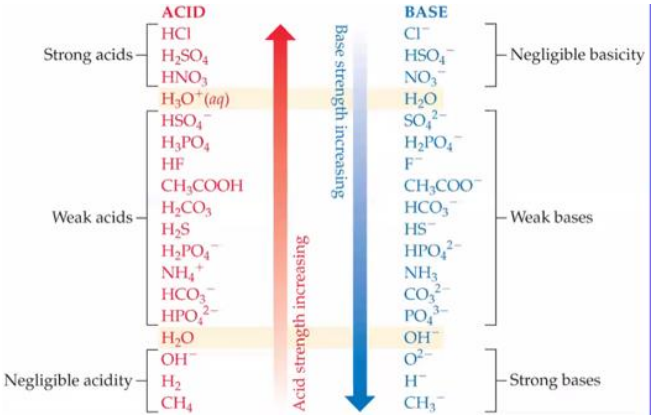
- It is a method of reporting hydrogen ion concentration
- $pH = -\log [H^+]$
- Neutral pH is 7.00
- Acidic pH is below 7.00
- Basic pH is above 7.00

Relative strengths of acids and bases

Acids above the line with H2O as a base are strong acids their conjugate bases do not act as acids in water

Bases below the line with H2O as an acid are strong bases; their conjugate acids do not act as acids in water

The substances between the lines with H2O are conjugate acid-base pairs in water



Acid and base strength

In ever acid-base reaction, equilibrium favors transfer of the proton from the stronger acid to the stronger base to form the weaker acid and the weaker base

$$HCl(aq) + H_2O(I) \rightarrow H_3O^+(aq) + CL^-(aq)$$

- H2O is a much stronger base than Cl^-, so the equilibrium lies far to the right (K >> 1)

$$CH_3COOH(aq) + H_2O(I) \rightleftharpoons H_3O^+(aq) + CH_3COO^-(aq)$$

- Acetate is a stronger base than H2O, so the equilibrium favors the left side (K < 1)

Acid and base definitions

There are three main classifications of acids and bases

- The Arrhenius definition is the most restrictive
- The Bronsted-Lowry description is more broad
- The Lewis classification of acids and bases is the most general of all

Arrhenius acid and base

- Svante Arrhenius
- Water as a solvent
- An acid is a substance that, when dissolved in water, increases the concentration of hydrogen ions and donates proton
- A base is a substance that, when dissolved in water, produces hydroxide ions

Bronsted-Lowry acid and base

- Johannes Bronsted & Thomas Lowry
- An acid is a proton donor
- A base is a proton acceptor
- Bronsted-Lowry acid must have at least one removable (acidic) proton (H^+) to donate
- Bronsted-Lowry base must have at least one nonbonding pair of electrons to accept a proton (H^+)

Lewis theory

- Lewis introduced the electronic theory for acids and bases where in Lewis theory an acid is defined as a substance that accepts electrons while a base is a substance that donates electrons

What is different about water?

- Water can act as a Bronsted-Lowry base and accept a proton (H+) from an acid, as on the previous slide
- It can also donate ap proton and act as an acid, as is seen below
- This makes water amphiprotic - can either donate or accept a proton
- While in pure water, a few molecules act as bases and a few acts as acids, this is called autoionization

Common ion effect

It is the phenomenon in which the addition of an ion common to two solutes decreases solubility and causes precipitation - bond of solid particles that have separated from a solution or it reduces ionization to react equilibrium

The common ion effect causes the reduction of solubility when adding like ions

G. Chemical thermodynamics

Heat (Q)

- Energy is exchanged between system and surround in the form of heat when they are at different temperatures
- Heat added to a system is given by a positive sign, whereas heat extracted from a system is given negative sign
- It is an extensive property. It is not a state function

Energy

- It is the capacity for doing work
- Energy is an extensive property
- Unit: Joule

Work (W)

- Work = Force x displacement i.e. dW = Fdx
- Work done on the system is given by positive sign while work done by the system is given a negative sign
- Mechanical work or pressure-volume work: Work associated with change in volume of a system against an external pressure

Chemical thermodynamics

- The chemistry that deals with energy exchange, entropy, and the spontaneity of a chemical process

Second law of thermodynamics

- The entropy of the universe increases for spontaneous processes: $\Delta S > 0$
- Each system is tended to a randomization

Entropy

The measure of a system's thermal energy per unit temperature that is unavailable for doing useful work

A thermodynamic (energy) function that describes the degree of randomness or probability of existence

As a state function - entropy change depends only on the initial and final states, but not on ow the change occurs

The driving force for a spontaneous process is an increase in the entropy of the universe

Spontaneous processes and entropy
Thermodynamics lets us predict whether a process will occur but gives no information about the time required for the process

A spontaneous process is one that occurs without outside intervention

Significance of entropy
Nature spontaneously proceeds toward the state that has the highest probability of energy existence - highest entropy

Entropy is used to predict whether a given process/reaction is thermodynamically possible

Entropy on the molecular scale
Implications

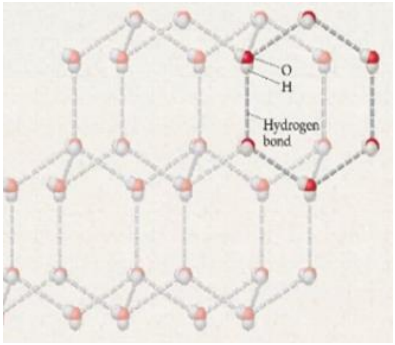
- More particles
  - -> more states -> more entropy
- Higher T
  - -> more energy states -> more entropy
- Less structure (gas vs. solid)
  - -> more states -> more entropy

The number of microstates and, therefore, the entropy tends to increase with increases in

- Temperature
- Volume (gases)
- The number of independently moving molecules

Entropy and physical states
Entropy increases with the freedom of motion of molecules

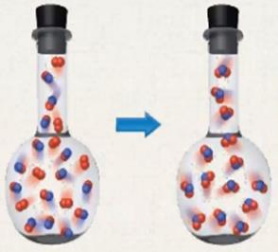
Therefore, S(g) > S(l) > S(s)



Entropy changes

In general, entropy increases when

- Gases are formed from liquids and solids
- Liquids or solutions are formed from solids
- The number of gas molecules increases
- The number of moles increases



Effect of ΔH and ΔS on spontaneity

ΔH	ΔS	Result
-	+	Spontaneous at all temps
+	+	Spontaneous at high temps
-	-	Spontaneous at low temps
+	-	Not spontaneous at any temp

Entropy and second law of thermodynamics

The second law of thermodynamics states that all spontaneous processes are accompanied by increase in the entropy of the universe

- Universe = system + surrounding
- System: the process/reaction whose thermodynamic change is being studied
- Surrounding: the part of the universe that interacts with the system

Conditions for spontaneous process

Entropy change for a process

$\Delta S_{univ} = \Delta S_{sys} + \Delta S_{surr} > 0$ → The process is spontaneous

$\Delta S_{univ} = \Delta S_{sys} + \Delta S_{surr} = 0$ → The process is at equilibrium

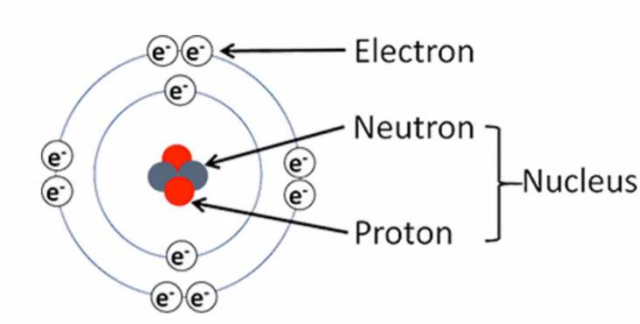
$If\ \Delta S_{sys} < 0, \Delta S_{surr} > 0, and\ |\Delta S_{surr}| > |\Delta S_{sys}|$

$If\ \Delta S_{surr} < 0, \Delta S_{sys} > 0, and\ |\Delta S_{sys}| > |\Delta S_{surr}|$

GENERAL PHYSICS 2

A. Electrical charges

The fundamental building blocks of matter are atoms



1 electron charge = 1.602 x 10^{-19}

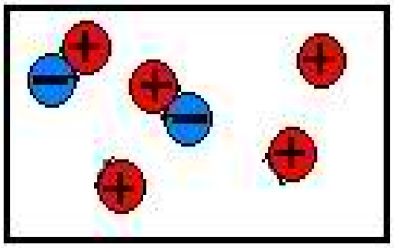
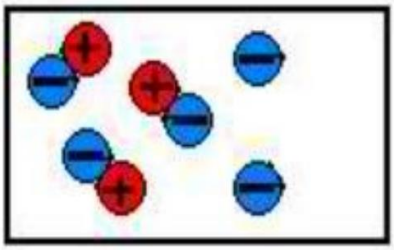
Electric charges

Electro statics is the study of electric charge at rest

Electric charge is a fundamental property of matter

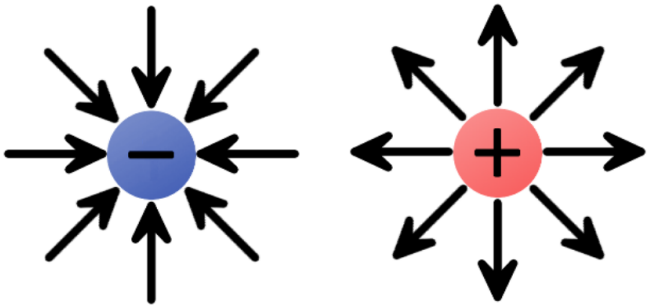
Two types of electric charges

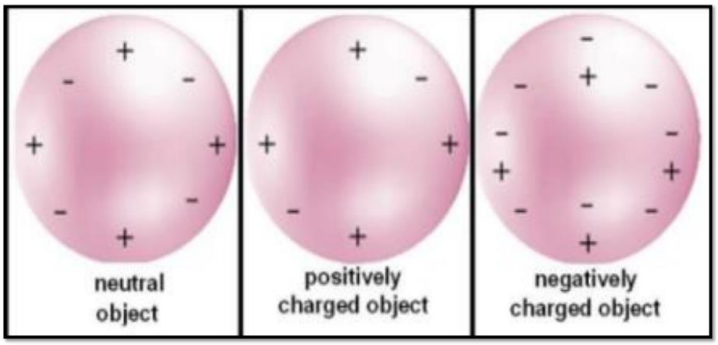
- Positive charge
  - Every proton has a single positive charge
- Negative charge
  - Every electron has a single negative charge

Positively charged (+3)	Negatively charged (-2)
	
Its charge is +3 because there are 3 protons that do not have a pair electron	Its charge is -2 because there are 2 electrons that do not have a pair proton

How does an object become positively and negatively charged?

- An electrical charge is created when electrons are transferred to or removed from an object. Because electrons have a negative charge, when they are added to an object, it becomes negatively charged. When electrons are removed from an object, it becomes positively charged



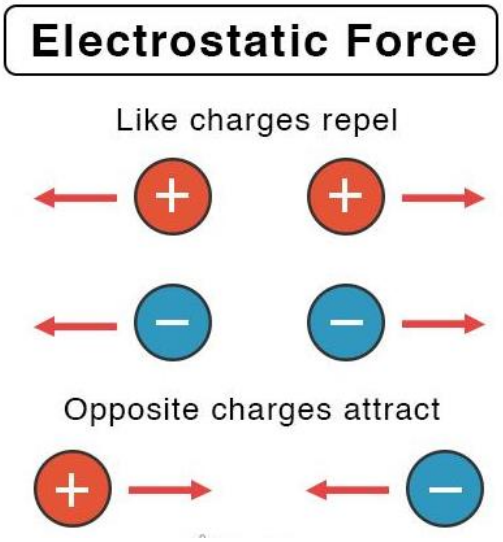
- 

Fundamental charges

- Note that the electron and proton both have the same charge, with the electron being negative and the proton being positive.
- This amount of charge is often called the electronic charge, e. This electronic charge is generally considered a positive value (just like g in gravity). We add the negative sign when we need to
- **$q_e = -e$; $q_p = +e$**

particle	charge (C)	mass (Kg)
proton p^+	$+1.602 \times 10^{-19}$	1.67×10^{-27}
neutron n^0	0	1.67×10^{-27}
electron e^-	-1.602×10^{-19}	9.11×10^{-31}

Electrostatics (static electricity) is a branch of physics that studies electric charges at rest



Electrically charged objects have several important characteristics

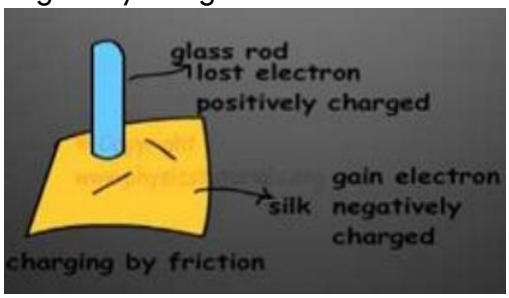
- Like charges repel one another
- Unlike charges attract each another
- Charge is conserved. A neutral object has no net charge. If the plastic rod and fur are initially neutral, when the rod becomes charged by the fur, a negative charge is transferred from the fur to the rod. The net negative charge on the rod is equal to the net positive charge on the fur.

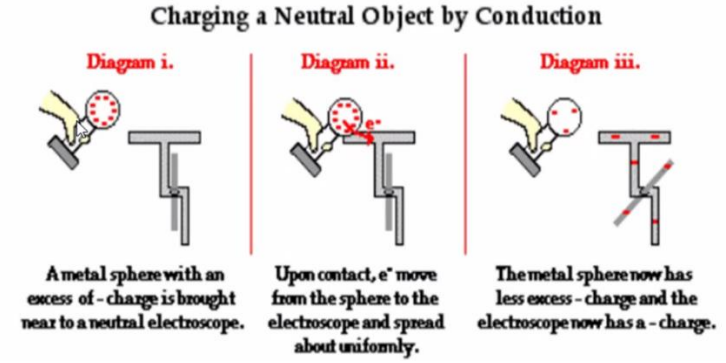
A conductor is a material through which electric charges can easily flow

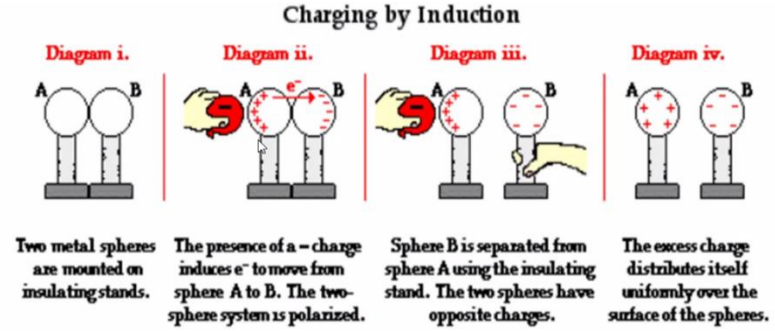
An insulator is a material through which electric charges d not move easily if at all

An object becomes electrostatically charged by

- Friction
    - When you rub one material to another, they are charged by friction

- Material losing electron is positively charged and material gaining electron is negatively charged
- 

- Contact
  - Bringing a neutral object in contact with a previously charged object. Both objects will end up with the same charge although it will be smaller than the initial charge.
  - 

- Induction
  - Induction charging is a method used to charge an object without actually touching the object to any other charged object
  - 

B. Coulomb's Law

Like charges repel, unlike charges attract

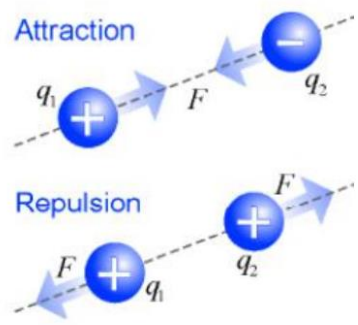
Coulomb's law states that the electrical force between two charged objects is directly proportional to the product of the quantity of charge on the objects and inversely proportional to the square of the separation distance between the two objects

Coulomb's Law			
$F = \frac{kq_1q_2}{r^2}$	$Q_1 = \frac{Fd^2}{KQ_2}$	$Q_2 = \frac{Fd^2}{KQ_1}$	$d = \sqrt{\frac{KQ_1Q_2}{F}}$
Where:			

F = Electric force (Newton / N)
K = Coulomb's law constant ($9 \times 10^9 N \cdot m^2/C^2$)
Q_1 = Quantity of charge on object 1 (Coulomb / C)
Q_2 = Quantity of charge on object 2 (Coulomb / C)
R / D = Distance (Meter / m)

The Coulomb's law equation provides an accurate description of the force between two objects whenever the object act as point charges

The symbols Q_1 and Q_2 in the Coulomb's law equation represent the quantities of charge on the two interacting objects

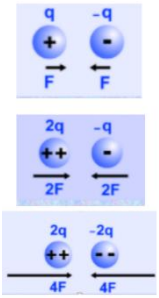


The force between two charges gets stronger as the charges move closer together

The force also gets stronger if the amount of charge becomes larger

The force between two charges is directed along the line connecting their centers

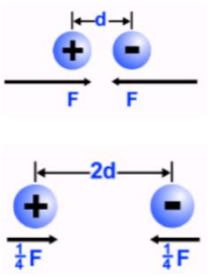
Electric forces always occur in pairs according to Newton's third law, like all forces



The force between charges is directly proportional to the magnitude, or amount, of each charge

Doubling one charge doubles the force

Doubling both charges quadruples the force



The force between charges is inversely proportional to the square of the distance between them

Doubling the distance reduces the force by a factor of 22 = (4), decreasing the force to one-fourth its original value (1/4)

This relationship is called an inverse square law because force and distance follow an inverse square relationship

Examples

Example 1

- Suppose that two-point charges, each with a charge of +1.00 Coulomb are separated by a distance of 1.00 meter. Determine the magnitude of the electrical force of repulsion between them.

$Q_1 = 1.00\ C$ $Q_2 = 1.00\ C$ $d = 1.00\ m$ $K = 9 \times 10^9 N\ \times m^2/C^2$	Given
$F = \frac{kq_1q_2}{r^2}$	We'll use this formula
$F = \frac{\left(9 \times 10^9 N\ \times \frac{m^2}{C^2}\right)(1\ C)(1\ C)}{1m^2}$	Substitute values
$F = \frac{\left(9 \times 10^9 N\ \times \frac{\cancel{m^2}}{\cancel{C^2}}\right)(1\ \cancel{C})(1\ \cancel{C})}{1\cancel{m^2}}$	Cancel the units
$F = \frac{(9 \times 10^9 N)(1)(1)}{1}$	Solve
$\boldsymbol{F = 9 \times 10^9 N\ or\ 9{,}000{,}000{,}000\ N}$	**Final answer**

Example 2

- Two balloons with charges of $+3.3\ \mu C$ and $-8.21\ \mu C$ attract each other with a force of 0.0626 N. Determine the separation distance between the two balloons.

$Q_1 = +3.3\ \mu C$ $Q_2 = -8.21\ \mu C$ $F = -0.0626\ N$ $K = 9 \times 10^9 N\ \times m^2/C^2$	Given F's value is negative since it is attractive
$Q_1 = +3.3\ \mu C \rightarrow +3.37\ \times 10^{-6}\ C$ $Q_2 = -8.21\ \mu C \rightarrow -8.21 \times 10^{-6}\ C$	The unit of Q1 and Q2 is μC, or micro- Coulomb. Because of this you must convert them into regular Coulomb first. 1 micro-Coulomb is equivalent to 1/1000000 Coulomb. 1 C is 10^6 μC.
$d = \sqrt{\frac{KQ_1Q_2}{F}}$	We'll use this formula

$d = \sqrt{\frac{(9 \times 10^9 N \times \frac{m^2}{C^2})(-8.21 \times 10^{-6} C)(3.37 \times 10^{-6} C)}{(-0.0626\ N)}}$	Substitute values
$= \sqrt{\frac{(9 \times 10^9 \cancel{N} \times \frac{m^2}{\cancel{C^2}})(-8.21 \times 10^{-6} \cancel{C})(3.37 \times 10^{-6} \cancel{C})}{(-0.0626\ \cancel{N})}}$	Cancel units
$= \sqrt{\frac{(9 \times 10^9 \times m^2)(-8.21 \times 10^{-6})(3.37 \times 10^{-6})}{(-0.0626)}}$ $= \sqrt{\frac{-0.2490093}{-0.0626}}$ $= \sqrt{3.977784345}$	Solve
$\boldsymbol{d = +1.99\ m}$	**Final answer**

Example 3

- Two balloons are charged with an identical quantity and type of charge: -6.25 nC (nanoCoulomb). They are held apart at a separation distance of 61.7 cm. Determine the magnitude of the electrical force of repulsion between them.

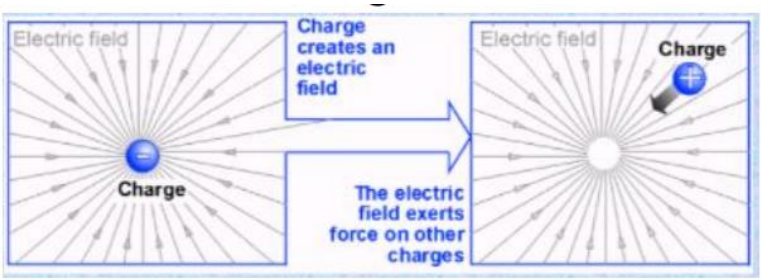
$Q_1 = -6.25\ nC$ $Q_2 = -6.25\ nC$ $d = 61.7\ cm$ $K = 9 \times 10^9 N \times m^2/C^2$	Given
$Q_1 = -6.25\ nC \rightarrow -6.25 \times 10^{-9} C$ $Q_2 = -6.25\ nC \rightarrow -6.25 \times 10^{-9} C$ $d = 61.7\ cm \rightarrow 0.617\ m$	Convert units 1 C is 10^6 microCoulomb 1 C is 10^9 nanoCoulomb Since Q1 and Q2 is in nanoCoulomb, convert it to Coulomb Convert cm to m
$F = \frac{kq_1q_2}{r^2}$	We'll use this formula
$F = \frac{\left(9 \times 10^9 N \times \frac{m^2}{C^2}\right)(6.25 \times 10^{-9} C)(6.25 \times 10^{-9} C)}{(0.617\ m)^2}$	Substitute values
$F = \frac{\left(9 \times 10^9 N \times \frac{\cancel{m^2}}{\cancel{C^2}}\right)(6.25 \times 10^{-9} \cancel{C})(6.25 \times 10^{-9} \cancel{C})}{(0.617\ \cancel{m})^2}$	Cancel units
$F = \frac{(9 \times 10^9 N)(6.25 \times 10^{-9})(6.25 \times 10^{-9})}{(0.617\ )^2}$	Solve
$\boldsymbol{F = 9.3 \times 10^{-7}\ N}$	**Final answer**

C. Fields and Forces

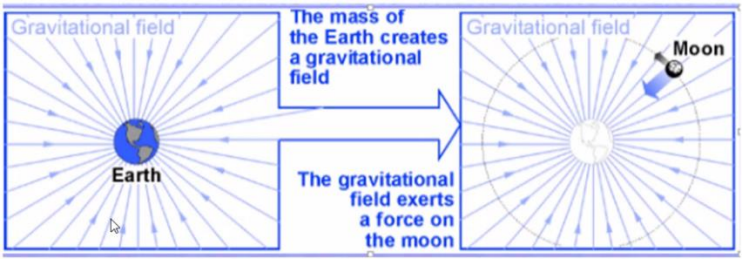
The concept of a field is used to describe any quantity that has a value for all points in space.

You can think of the field as the way forces are transmitted between objects.

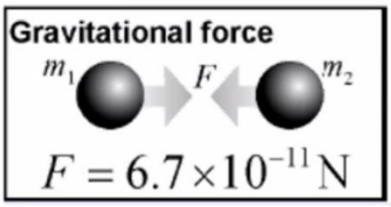
Charge creates an electric field that creates forces on other charges.

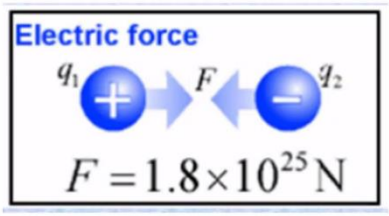


Mass creates a gravitational field that exerts forces on other masses.



Gravitational forces are far weaker than electric forces





Electric field

An electric property associated with each point in space when charge is present in any form.

The strength of an electric field E at any point may be defined as the electric, or Coulomb, force F exerted per unit positive electric charge q at that point or simply

Electric field	
$E = \frac{F}{q}$	E = Electric force (Newton per Coulomb N/C) F = Force (N) Q = Electric charge (C)

Examples

Example 1

- Annika pulls her wool sweater over her head, which charges her body as the sweater rubs against her cotton shirt
    - What is the electric field at a location where a 1.60 x 10^{-19} C piece of lint experiences a force of 3.2 x 10^{-9} N as it floats near Annika?

$q = 1.60 \times 10^{-19}\ C$ $F = 3.2 \times 10^{-9}\ N$	Given
$E = \frac{F}{q}$	We'll use this formula
$E = \frac{(3.2 \times 10^{-9})}{(1.60 \times 10^{-19})}$	Substitute and solve
$\boldsymbol{E = 2 \times 10^{10} N/C}$	**Final answer**

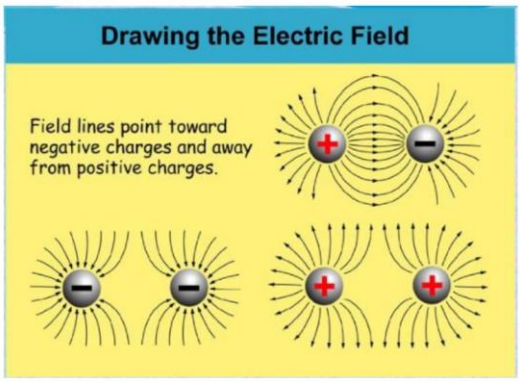
- What will happen if Annika now touches a conductor such as a door knob?
  - The energy will be transferred to the door knob

Example 2

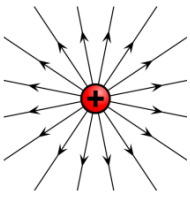
- A fly accumulates 3.0 x 10^{-10} C of positive charge as it flies through the air. What is the magnitude and direction of the electric field at a location 2.0 cm away from the fly?

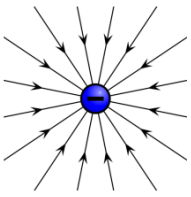
$q = 3.0 \times 10^{-10}\ C$ $d = 2.0\ cm$	Given
$d = 2.0\ cm \rightarrow 0.02\ m$	Convert to meter
$E = \frac{KQ}{d^2}$	Since there is no F given, we'll use Coulomb's law formula
$E = \frac{(9 \times 10^{9})(3 \times 10^{-10})}{(0.02)^2}$	Substitute values and solve
$\boldsymbol{E = 6750\ N}$	**Final answer**

Drawing the electric field



Electric field for a point charge





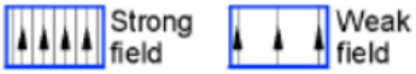
If the charge is positive, field lines point radially away from it.

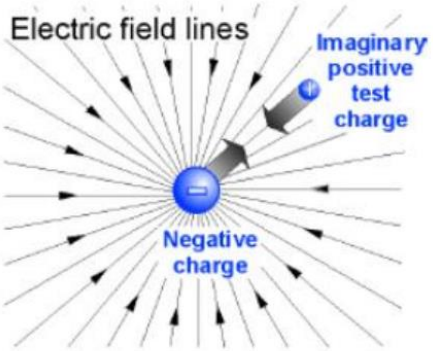
If the charge is negative, field lines point radially towards it.

The field lines show the force on a positive test charge

Field lines always point away from positive charge and toward negative charge

The spacing of the liens indicates the strength of the electric field





Electric fields and electric force

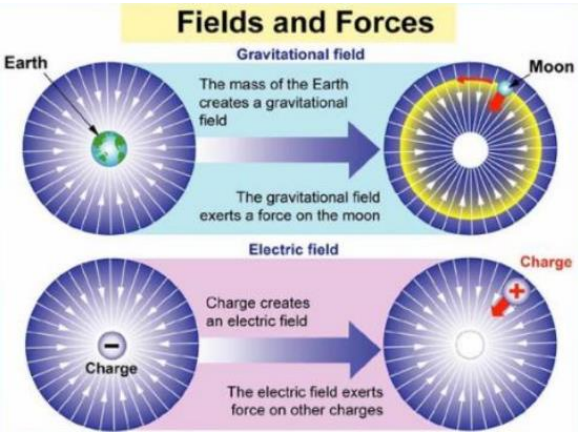
On the earth's surface, the gravitational field creates 9.8 N of force on each kilogram of mass.

With gravity, the strength of the field is in newtons per kilogram (N/kg) because the field describes the amount of force per kilogram of mass.

With the electric field, the strength is in newtons per coulomb (N/C).

The electric field describes the amount of force per coulomb of charge.

Field	Units	Equation
Gravity	$\vec{g} = \frac{\text{newtons}}{\text{kilogram}} \left(\frac{N}{kg}\right)$	$\vec{F} = m\vec{g}$
Electricity	$\vec{E} = \frac{\text{newtons}}{\text{coulomb}} \left(\frac{N}{C}\right)$	$\vec{F} = q\vec{E}$



D. Electric Flux and Gauss's Law

Electric flux

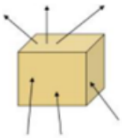
Let's start by defining an area on the surface of an object. The magnitude is "A" and the direction is directed perpendicular to the area like a force normal.

Flux or flow is a genera term associated with a field that is bound by a certain area. So electric flux is any area that has an electric filed passing through it.

The electric field lines look like lines of a fluid. So, you can imagine these lines are flowing (even though nothing is really flowing). The word flux roughly means flow.

So based on this idea wea can define the electric flux as the electric field through a surface area.

Visually we can try to understand that the flux is simply the number of electric fields passing through any given area.



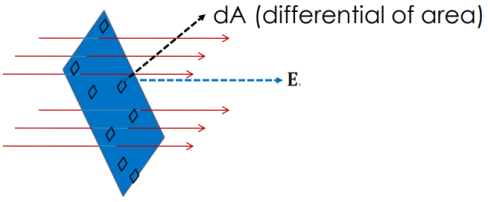
In the left figure, the flux is zero

In the right figure, the flux is 2

When E lines passing through a closed surface, the flux is positive

When E lines go into a closed surface, the flux is negative

Electric field through an open surface

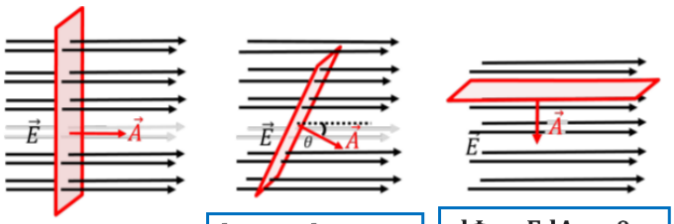


Electric field through an open surface			
$d\varphi = \vec{E}.\vec{dA}$	$d\varphi = E.dA\,cos\theta$	 $\varphi = \int d\varphi$	 $\varphi = \oint(\overrightarrow{E.})(\overrightarrow{dA})$
$d\varphi$ = Electric flux	$\vec{E}$ = Electric field	dA = Differential of area	θ = Angle between dA and E

$$d\Phi = \vec{E}.\vec{dA}$$
$$d\Phi = E.dA\cos\theta$$

Where:
d Φ = electric flux
$\vec{E}$ = Electric Field
dA = differential of area
θ = the angle between dA and E

$$\Phi = \int d\Phi$$
$$\Phi = \oint \vec{E}.\vec{dA}$$



$d\Phi = EdA$

Maximum flux

$d\Phi = EdA\cos\theta$
$d\Phi = EdA\cos 60°$
$d\Phi = \frac{EdA}{2}$

$d\Phi = EdA\cos\theta$
$d\Phi = EdA\cos 90°$
$d\Phi = 0$

Zero flux

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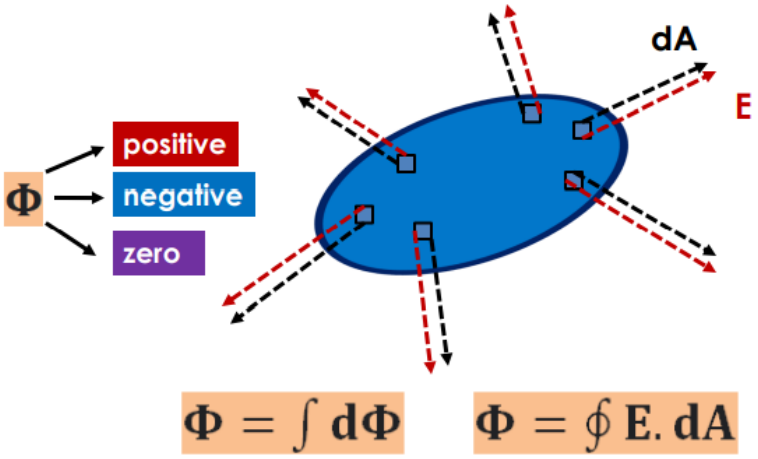
Electric field through a closed surface



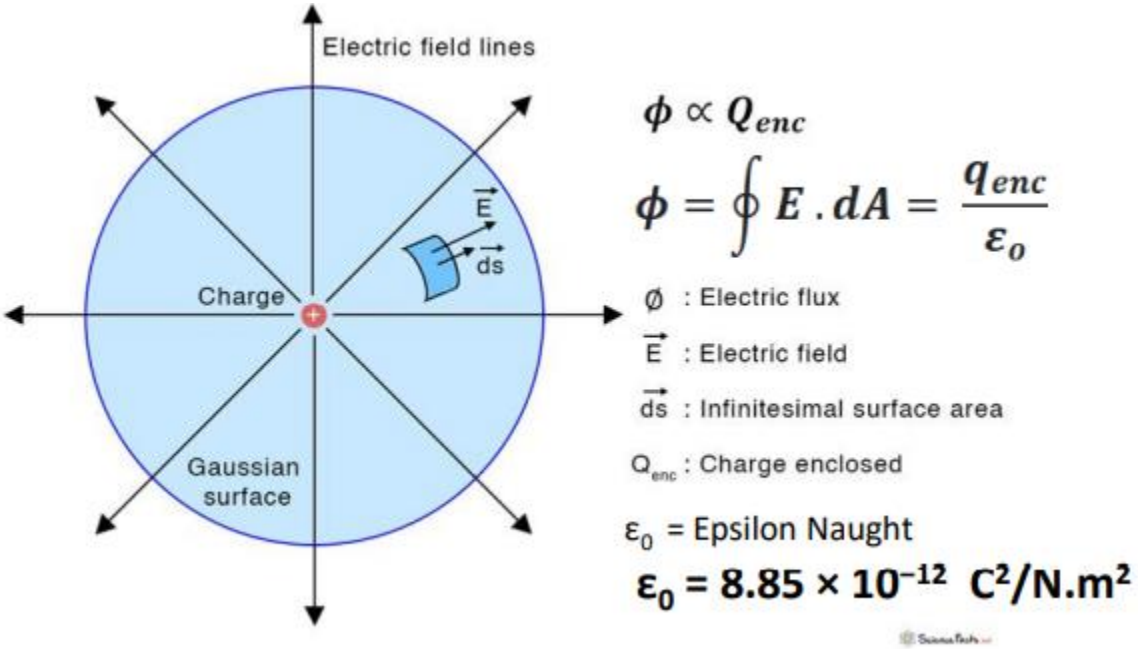
Gauss's law

Where does a fluid come from? A spring! The spring is the source of the flow.

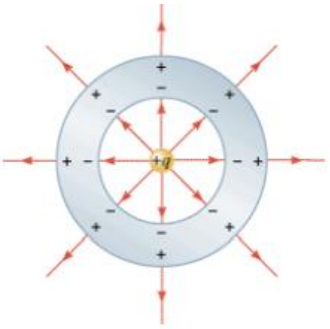
Suppose you enclose the spring with a close surface such as a sphere. If your water accumulates within the sphere, you can see the total flow out of the sphere is equal to the rate of which the source is producing water.

In case of electric fields, the source of the field is the charge.

So, we can now say that the sum of the sources within a closed surface is equal to the flux through the surface. This has become known as Gauss's law.



Consider a positive point charge, Q.

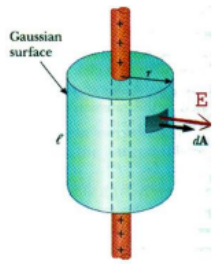
- Is there a source of symmetry?
  - Yes, it is spherical symmetry
  - You then draw a shape in such a way to obey the symmetry and enclose the charge. In this case, we enclose the charge within a sphere. This surface is called a Gaussian surface.
  - 
- What do you know about the electric field at all points on this surface?
  - It is constant.
  - $E \oint dA = \frac{(q_{enc})}{\varepsilon_0}$
  - The "E" is the brought out of the integral.
- Identify the area of the Gaussian surface.
  - In this case, summing each and every dA gives us the surface area of a sphere.
  - $E(4\pi r^2) = \frac{q_{enc}}{\varepsilon_0}$
- The charge enclosed is Q.
  - $E(4\pi r^2) = \frac{q_{enc}}{\varepsilon_0} \rightarrow \boldsymbol{E = \frac{Q}{4\pi r^2 \varepsilon_0}}$
  - This is the equation for a point charge

Point charge
$E = \frac{Q}{4\pi r^2 \varepsilon_0}$

Gauss's law and cylindrical symmetry

Consider a line or rod of charge that is very long (infinite)

We can enclose it within a cylinder. Thus, our gaussian surface is a cylinder



$$\boldsymbol{E \oint dA = \frac{q_{enc}}{\varepsilon_o}} \quad \boldsymbol{E(2\pi rL) = \frac{q_{enc}}{\varepsilon_o}}$$

$$\boldsymbol{E(2\pi rL) = \frac{\gamma L}{\varepsilon_o}}$$

$$\boldsymbol{E = \frac{\gamma}{(2\pi rL)\varepsilon_o}}$$

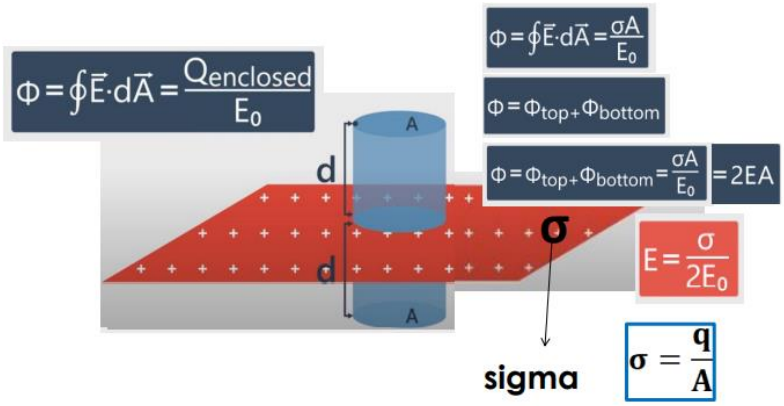
Note: $\boldsymbol{\gamma = \frac{Q}{L}}$

$\boldsymbol{Q = \gamma L = q_{enc}}$

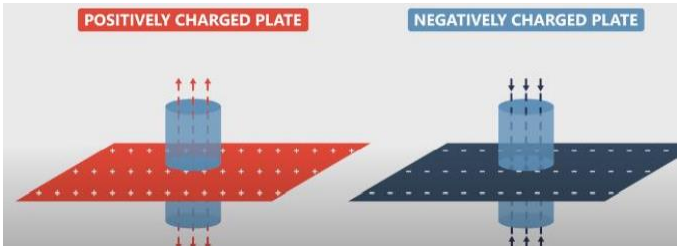
$\boldsymbol{A_{cylinder} = 2\pi rL}$

$$E = \frac{\gamma}{(2\pi rL)\varepsilon_0}$$

Gauss's law and planar symmetry



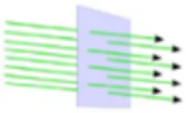
$\sigma = \frac{q}{A}$ $E = \frac{\sigma}{2E_0}$



Examples

Example 1

- A uniform electric field E = 8000 N/C passing through a flat square area of A = 10 m^2. Determine the electric flux.



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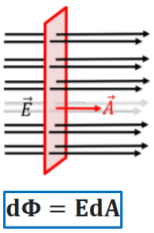
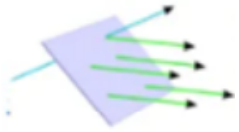
$E = 8000\ N/C$ $A = 10\ m^2$ $\varphi = ?$	Given
$\varphi = EdA$	We'll use this formula because of this  $d\Phi = EdA$ Maximum flux
$\varphi = 8000\ N/C\ (10m^2)$	Substitute values then solve
$\boldsymbol{\varphi = 80000 \frac{N.m^2}{C}}$	**Final answer**

Example 2

- A uniform electric field E = 500 N/C passing through a flat square area A = 2 m^2. Determine the electric flux



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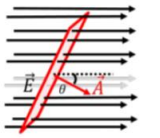
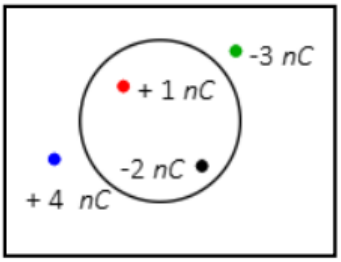
$E = 500\ N/C$ $A = 2\ m^2$ $\theta = 60°$ $\varphi = ?$	Given
$\varphi = EdA\cos\theta$	We'll use this formula because of this  $d\Phi = EdA\cos\theta$ $d\Phi = EdA\cos 60°$ $d\Phi = \frac{EdA}{2}$
$\varphi = (500)(2)\cos 60$	Substitute values then solve
$\boldsymbol{\varphi = 500\frac{N.m^2}{C}}$	**Final answer**

Example 3

- Find the net electric charge inside the sphere below.



-
  - In Gauss's law definition, net charge means the arithmetic sum of all charges inside the desired closed surface.
  - Q_{en} = (+1 nC) + (-2 nC) = -1 nC or -1 x 10^{-9}

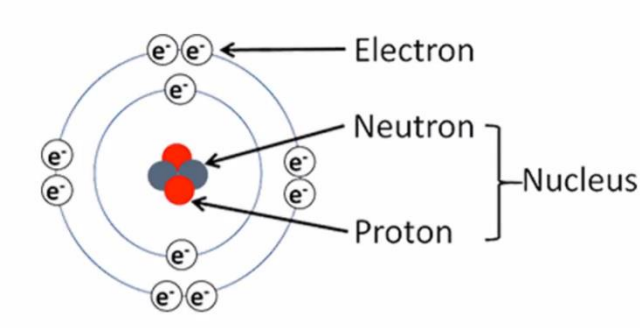
Example 4

- A point charge of -2μC is located at the center of a cube with sides L = 5cm. What is the net electric flux through the surface?
  - In this problem, computing electric flux through the surface of the cube using its direct definition as $\varphi_e = E \times A$ is a hard and time-consuming task.
  - Gauss's law is an alternative to find the electric flux which is simply states that divide enclosed charge by ε_0. Thus, the flux through the above cube is calculated as below.

$\varphi = \oint E.dA = \frac{q_{enc}}{\varepsilon_0}$	We'll use this formula
$\frac{-2\mu C}{8.85 \times 10^{-12}}$	Substitute values
$\frac{-2 \times 10^{-6}}{8.85 \times 10^{-12}}$	Convert value then solve
$\boldsymbol{\varphi = -2.26 \times 10^{-19}}$	**Final answer**

E. Electrical charges

The fundamental building blocks of matter are atoms



1 electron charge = 1.602 x 10^{-19}

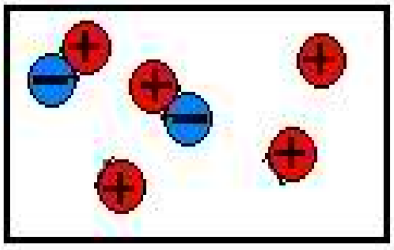
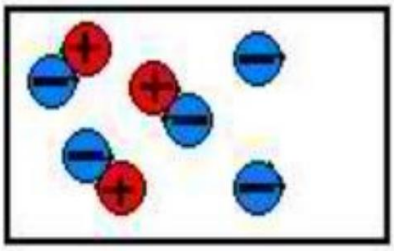
Electric charges

Electro statics is the study of electric charge at rest

Electric charge is a fundamental property of matter

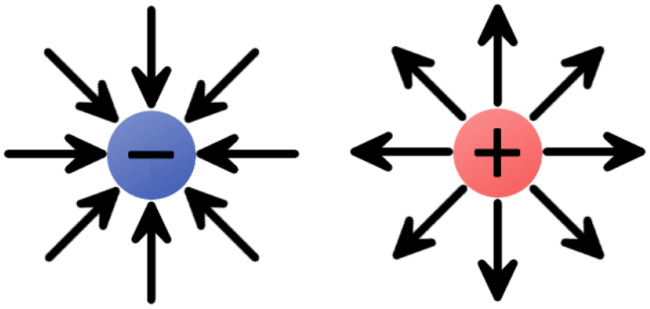
Two types of electric charges

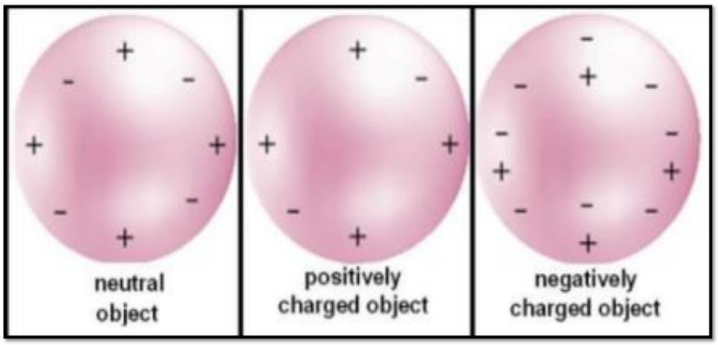
- Positive charge
  - Every proton has a single positive charge
- Negative charge
  - Every electron has a single negative charge

Positively charged (+3)	Negatively charged (-2)
	
Its charge is +3 because there are 3 protons that do not have a pair electron	Its charge is -2 because there are 2 electrons that do not have a pair proton

How does an object become positively and negatively charged?

- An electrical charge is created when electrons are transferred to or removed from an object. Because electrons have a negative charge, when they are added to an object, it becomes negatively charged. When electrons are removed from an object, it becomes positively charged



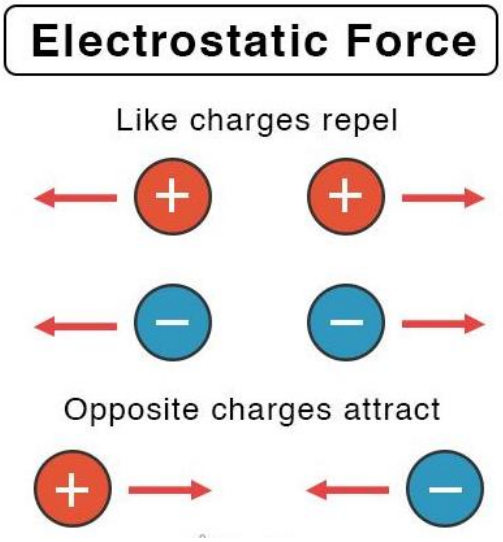
- 

Fundamental charges

- Note that the electron and proton both have the same charge, with the electron being negative and the proton being positive.
- This amount of charge is often called the electronic charge, e. This electronic charge is generally considered a positive value (just like g in gravity). We add the negative sign when we need to
- **$q_e = -e$; $q_p = +e$**

particle	charge (C)	mass (Kg)
proton p^+	$+1.602 \times 10^{-19}$	1.67×10^{-27}
neutron n^0	0	1.67×10^{-27}
electron e^-	-1.602×10^{-19}	9.11×10^{-31}

Electrostatics (static electricity) is a branch of physics that studies electric charges at rest



Electrically charged objects have several important characteristics

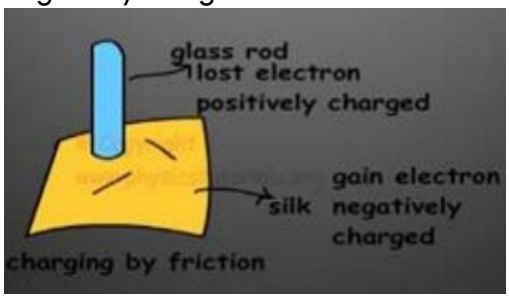
- Like charges repel one another
- Unlike charges attract each another
- Charge is conserved. A neutral object has no net charge. If the plastic rod and fur are initially neutral, when the rod becomes charged by the fur, a negative charge is transferred from the fur to the rod. The net negative charge on the rod is equal to the net positive charge on the fur.

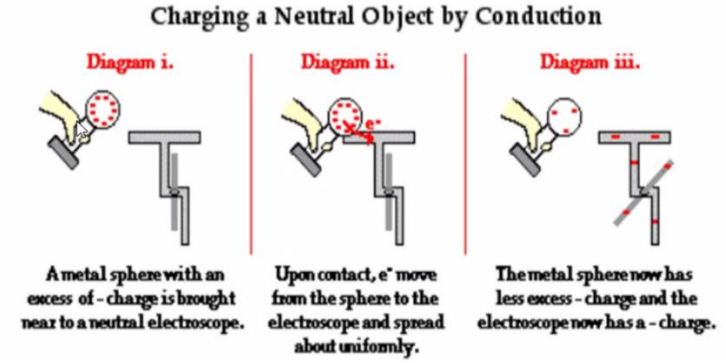
A conductor is a material through which electric charges can easily flow

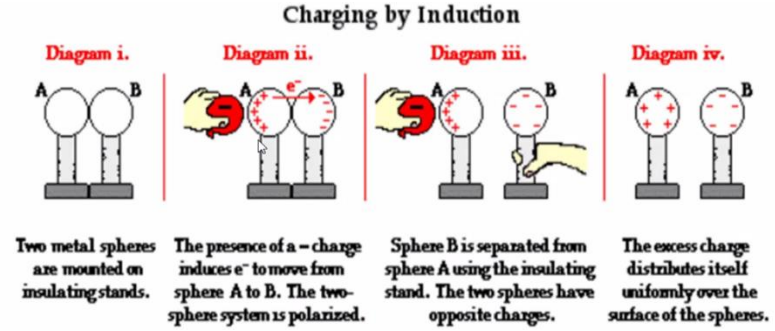
An insulator is a material through which electric charges d not move easily if at all

An object becomes electrostatically charged by

- Friction
    - When you rub one material to another, they are charged by friction

- Material losing electron is positively charged and material gaining electron is negatively charged
  - 

- Contact
  - Bringing a neutral object in contact with a previously charged object. Both objects will end up with the same charge although it will be smaller than the initial charge.
  - 

- Induction
  - Induction charging is a method used to charge an object without actually touching the object to any other charged object
  - 

F. Coulomb's Law

Like charges repel, unlike charges attract

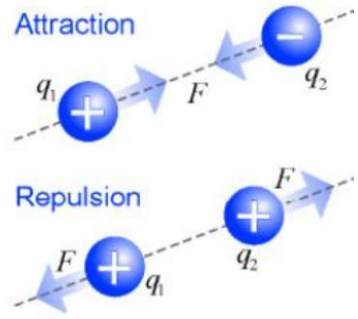
Coulomb's law states that the electrical force between two charged objects is directly proportional to the product of the quantity of charge on the objects and inversely proportional to the square of the separation distance between the two objects

Coulomb's Law			
$F = \frac{kq_1q_2}{r^2}$	$Q_1 = \frac{Fd^2}{KQ_2}$	$Q_2 = \frac{Fd^2}{KQ_1}$	$d = \sqrt{\frac{KQ_1Q_2}{F}}$
Where:			

F = Electric force (Newton / N)
K = Coulomb's law constant ($9 \times 10^9 N \cdot m^2/C^2$)
Q_1 = Quantity of charge on object 1 (Coulomb / C)
Q_2 = Quantity of charge on object 2 (Coulomb / C)
R / D = Distance (Meter / m)

The Coulomb's law equation provides an accurate description of the force between two objects whenever the object act as point charges

The symbols Q_1 and Q_2 in the Coulomb's law equation represent the quantities of charge on the two interacting objects

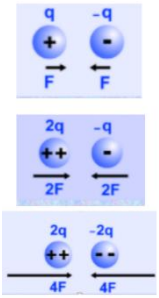


The force between two charges gets stronger as the charges move closer together

The force also gets stronger if the amount of charge becomes larger

The force between two charges is directed along the line connecting their centers

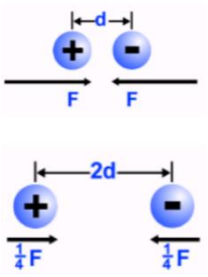
Electric forces always occur in pairs according to Newton's third law, like all forces



The force between charges is directly proportional to the magnitude, or amount, of each charge

Doubling one charge doubles the force

Doubling both charges quadruples the force



The force between charges is inversely proportional to the square of the distance between them

Doubling the distance reduces the force by a factor of 22 = (4), decreasing the force to one-fourth its original value (1/4)

This relationship is called an inverse square law because force and distance follow an inverse square relationship

Examples

Example 1

- Suppose that two-point charges, each with a charge of +1.00 Coulomb are separated by a distance of 1.00 meter. Determine the magnitude of the electrical force of repulsion between them.

$Q_1 = 1.00\ C$ $Q_2 = 1.00\ C$ $d = 1.00\ m$ $K = 9 \times 10^9 N\ \times m^2/C^2$	Given
$F = \frac{kq_1q_2}{r^2}$	We'll use this formula
$F = \frac{\left(9 \times 10^9 N\ \times \frac{m^2}{C^2}\right)(1\ C)(1\ C)}{1m^2}$	Substitute values
$F = \frac{\left(9 \times 10^9 N\ \times \frac{\cancel{m^2}}{\cancel{C^2}}\right)(1\ \cancel{C})(1\ \cancel{C})}{1\cancel{m^2}}$	Cancel the units
$F = \frac{(9 \times 10^9 N)(1)(1)}{1}$	Solve
$\boldsymbol{F = 9 \times 10^9 N\ or\ 9{,}000{,}000{,}000\ N}$	**Final answer**

Example 2

- Two balloons with charges of $+3.3\ \mu C$ and $-8.21\ \mu C$ attract each other with a force of 0.0626 N. Determine the separation distance between the two balloons.

$Q_1 = +3.3\ \mu C$ $Q_2 = -8.21\ \mu C$ $F = -0.0626\ N$ $K = 9 \times 10^9 N\ \times m^2/C^2$	Given F's value is negative since it is attractive
$Q_1 = +3.3\ \mu C \rightarrow +3.37\ \times 10^{-6}\ C$ $Q_2 = -8.21\ \mu C \rightarrow -8.21 \times 10^{-6}\ C$	The unit of Q1 and Q2 is μC, or micro- Coulomb. Because of this you must convert them into regular Coulomb first. 1 micro-Coulomb is equivalent to 1/1000000 Coulomb. 1 C is 10^6 μC.
$d = \sqrt{\frac{KQ_1Q_2}{F}}$	We'll use this formula

$d = \sqrt{\frac{(9 \times 10^9 N \times \frac{m^2}{C^2})(-8.21 \times 10^{-6} C)(3.37 \times 10^{-6} C)}{(-0.0626\ N)}}$	Substitute values
$= \sqrt{\frac{(9 \times 10^9 \cancel{N} \times \frac{m^2}{\cancel{C^2}})(-8.21 \times 10^{-6} \cancel{C})(3.37 \times 10^{-6} \cancel{C})}{(-0.0626\ \cancel{N})}}$	Cancel units
$= \sqrt{\frac{(9 \times 10^9 \times m^2)(-8.21 \times 10^{-6})(3.37 \times 10^{-6})}{(-0.0626)}}$ $= \sqrt{\frac{-0.2490093}{-0.0626}}$ $= \sqrt{3.977784345}$	Solve
$\boldsymbol{d = +1.99\ m}$	**Final answer**

Example 3

- Two balloons are charged with an identical quantity and type of charge: -6.25 nC (nanoCoulomb). They are held apart at a separation distance of 61.7 cm. Determine the magnitude of the electrical force of repulsion between them.

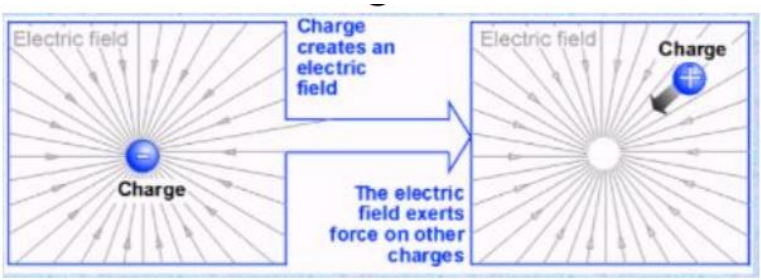
$Q_1 = -6.25\ nC$ $Q_2 = -6.25\ nC$ $d = 61.7\ cm$ $K = 9 \times 10^9 N \times m^2/C^2$	Given
$Q_1 = -6.25\ nC \rightarrow -6.25 \times 10^{-9} C$ $Q_2 = -6.25\ nC \rightarrow -6.25 \times 10^{-9} C$ $d = 61.7\ cm \rightarrow 0.617\ m$	Convert units 1 C is 10^6 microCoulomb 1 C is 10^9 nanoCoulomb Since Q1 and Q2 is in nanoCoulomb, convert it to Coulomb Convert cm to m
$F = \frac{kq_1q_2}{r^2}$	We'll use this formula
$F = \frac{\left(9 \times 10^9 N \times \frac{m^2}{C^2}\right)(6.25 \times 10^{-9} C)(6.25 \times 10^{-9} C)}{(0.617\ m)^2}$	Substitute values
$F = \frac{\left(9 \times 10^9 N \times \frac{\cancel{m^2}}{\cancel{C^2}}\right)(6.25 \times 10^{-9} \cancel{C})(6.25 \times 10^{-9} \cancel{C})}{(0.617\ \cancel{m})^2}$	Cancel units
$F = \frac{(9 \times 10^9 N)(6.25 \times 10^{-9})(6.25 \times 10^{-9})}{(0.617\ )^2}$	Solve
$\boldsymbol{F = 9.3 \times 10^{-7}\ N}$	**Final answer**

G. Fields and Forces

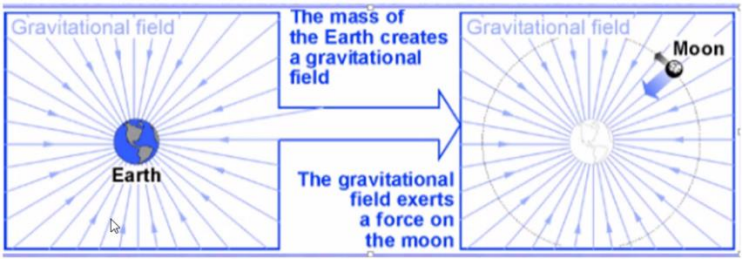
The concept of a field is used to describe any quantity that has a value for all points in space.

You can think of the field as the way forces are transmitted between objects.

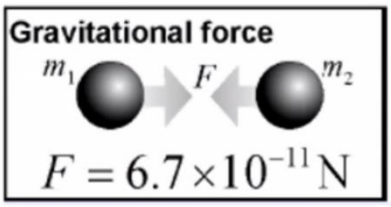
Charge creates an electric field that creates forces on other charges.

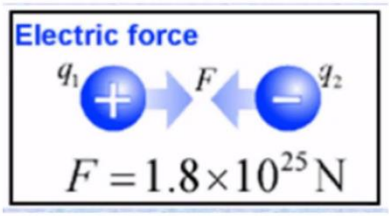


Mass creates a gravitational field that exerts forces on other masses.



Gravitational forces are far weaker than electric forces





Electric field

An electric property associated with each point in space when charge is present in any form.

The strength of an electric field E at any point may be defined as the electric, or Coulomb, force F exerted per unit positive electric charge q at that point or simply

Electric field	
$E = \frac{F}{q}$	E = Electric force (Newton per Coulomb N/C) F = Force (N) Q = Electric charge (C)

Examples

Example 1

- Annika pulls her wool sweater over her head, which charges her body as the sweater rubs against her cotton shirt
  - What is the electric field at a location where a 1.60 x 10^{-19} C piece of lint experiences a force of 3.2 x 10^{-9} N as it floats near Annika?

$q = 1.60 \times 10^{-19}\ C$ $F = 3.2 \times 10^{-9}\ N$	Given
$E = \frac{F}{q}$	We'll use this formula
$E = \frac{(3.2 \times 10^{-9})}{(1.60 \times 10^{-19})}$	Substitute and solve
$\boldsymbol{E = 2 \times 10^{10} N/C}$	**Final answer**

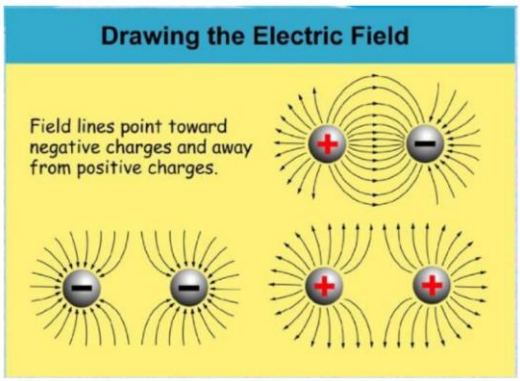
- What will happen if Annika now touches a conductor such as a door knob?
  - The energy will be transferred to the door knob

Example 2

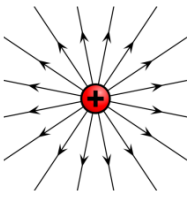
- A fly accumulates 3.0 x 10^{-10} C of positive charge as it flies through the air. What is the magnitude and direction of the electric field at a location 2.0 cm away from the fly?

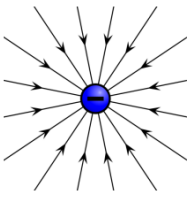
$q = 3.0 \times 10^{-10}\ C$ $d = 2.0\ cm$	Given
$d = 2.0\ cm \rightarrow 0.02\ m$	Convert to meter
$E = \frac{KQ}{d^2}$	Since there is no F given, we'll use Coulomb's law formula
$E = \frac{(9 \times 10^{9})(3 \times 10^{-10})}{(0.02)^2}$	Substitute values and solve
$\boldsymbol{E = 6750\ N}$	**Final answer**

Drawing the electric field



Electric field for a point charge





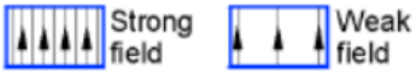
If the charge is positive, field lines point radially away from it.

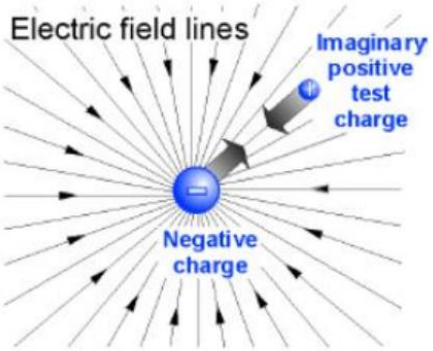
If the charge is negative, field lines point radially towards it.

The field lines show the force on a positive test charge

Field lines always point away from positive charge and toward negative charge

The spacing of the liens indicates the strength of the electric field





Electric fields and electric force

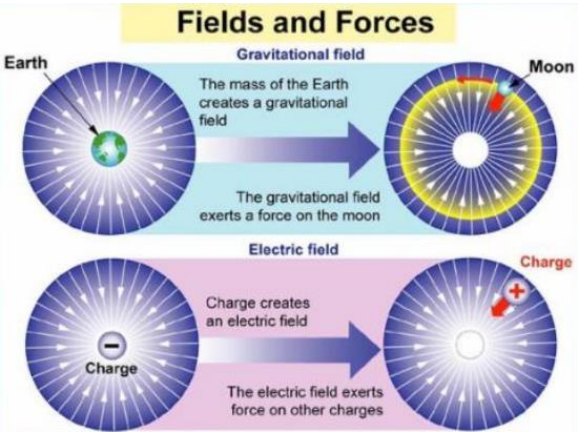
On the earth's surface, the gravitational field creates 9.8 N of force on each kilogram of mass.

With gravity, the strength of the field is in newtons per kilogram (N/kg) because the field describes the amount of force per kilogram of mass.

With the electric field, the strength is in newtons per coulomb (N/C).

The electric field describes the amount of force per coulomb of charge.

Field	Units	Equation
Gravity	$\vec{g} = \frac{\text{newtons}}{\text{kilogram}} \left(\frac{N}{kg}\right)$	$\vec{F} = m\vec{g}$
Electricity	$\vec{E} = \frac{\text{newtons}}{\text{coulomb}} \left(\frac{N}{C}\right)$	$\vec{F} = q\vec{E}$



H. Electric Flux and Gauss's Law

Electric flux

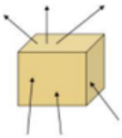
Let's start by defining an area on the surface of an object. The magnitude is "A" and the direction is directed perpendicular to the area like a force normal.

Flux or flow is a genera term associated with a field that is bound by a certain area. So electric flux is any area that has an electric filed passing through it.

The electric field lines look like lines of a fluid. So, you can imagine these lines are flowing (even though nothing is really flowing). The word flux roughly means flow.

So based on this idea wea can define the electric flux as the electric field through a surface area.

Visually we can try to understand that the flux is simply the number of electric fields passing through any given area.



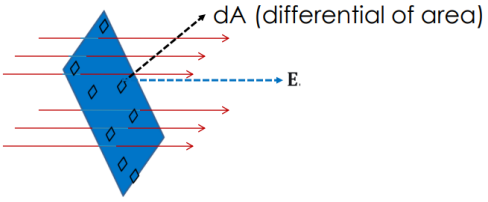
In the left figure, the flux is zero

In the right figure, the flux is 2

When E lines passing through a closed surface, the flux is positive

When E lines go into a closed surface, the flux is negative

Electric field through an open surface

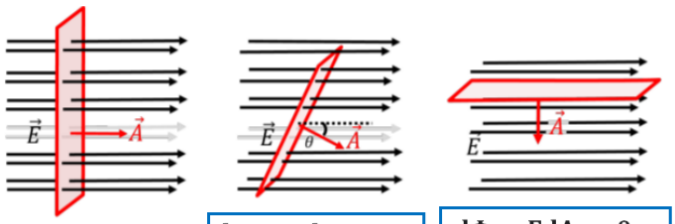


Electric field through an open surface			
$d\varphi = \vec{E}.\vec{dA}$	$d\varphi = E.dA\,cos\theta$	 $\varphi = \int d\varphi$	 $\varphi = \oint(\overrightarrow{E.})(\overrightarrow{dA})$
$d\varphi$ = Electric flux	$\vec{E}$ = Electric field	dA = Differential of area	θ = Angle between dA and E

$$d\Phi = \vec{E}.\vec{dA}$$
$$d\Phi = E.dA\cos\theta$$

Where:
d Φ = electric flux
$\vec{E}$ = Electric Field
dA = differential of area
θ = the angle between dA and E

$$\Phi = \int d\Phi$$
$$\Phi = \oint \vec{E}.\vec{dA}$$



$d\Phi = EdA$

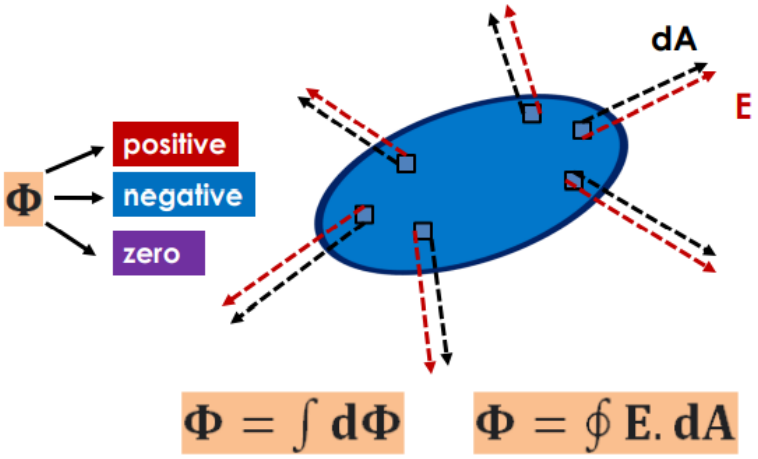
Maximum flux

$d\Phi = EdA\cos\theta$
$d\Phi = EdA\cos 60°$
$d\Phi = \frac{EdA}{2}$

$d\Phi = EdA\cos\theta$
$d\Phi = EdA\cos 90°$
$d\Phi = 0$

Zero flux

Electric field through a closed surface



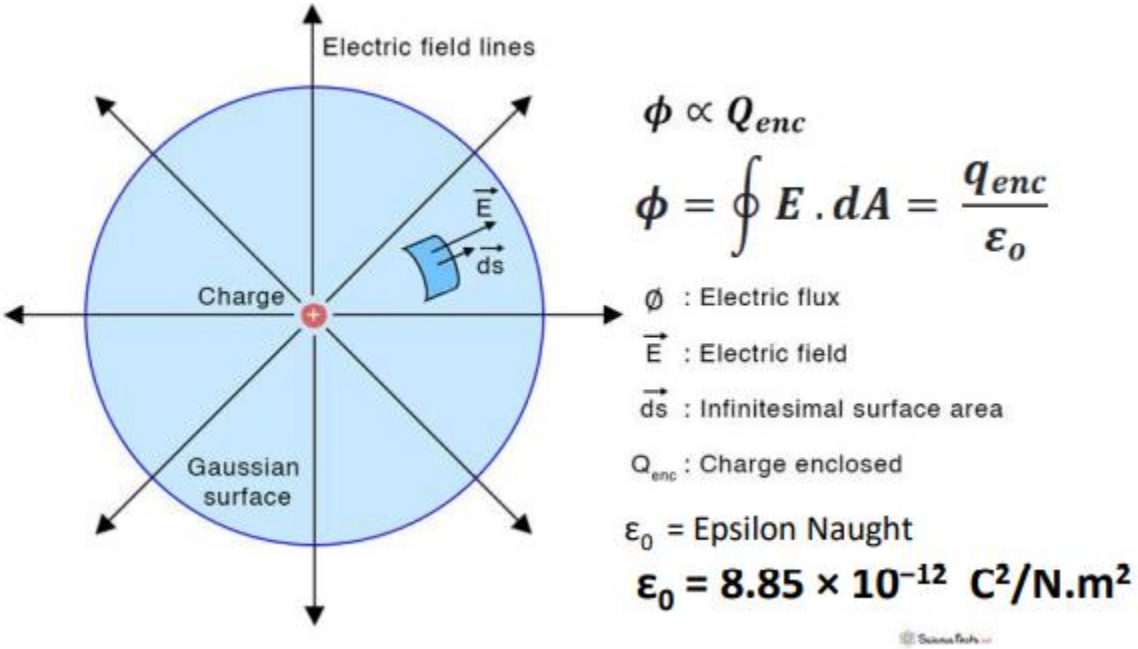
Gauss's law

Where does a fluid come from? A spring! The spring is the source of the flow.

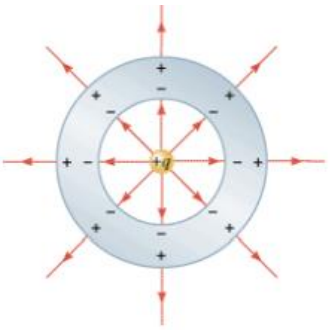
Suppose you enclose the spring with a close surface such as a sphere. If your water accumulates within the sphere, you can see the total flow out of the sphere is equal to the rate of which the source is producing water.

In case of electric fields, the source of the field is the charge.

So, we can now say that the sum of the sources within a closed surface is equal to the flux through the surface. This has become known as Gauss's law.



Consider a positive point charge, Q.

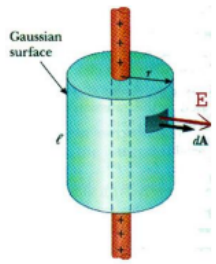
- Is there a source of symmetry?
  - Yes, it is spherical symmetry
  - You then draw a shape in such a way to obey the symmetry and enclose the charge. In this case, we enclose the charge within a sphere. This surface is called a Gaussian surface.
  - 
- What do you know about the electric field at all points on this surface?
  - It is constant.
  - $E \oint dA = \frac{(q_{enc})}{\varepsilon_0}$
  - The "E" is the brought out of the integral.
- Identify the area of the Gaussian surface.
  - In this case, summing each and every dA gives us the surface area of a sphere.
  - $E(4\pi r^2) = \frac{q_{enc}}{\varepsilon_0}$
- The charge enclosed is Q.
  - $E(4\pi r^2) = \frac{q_{enc}}{\varepsilon_0} \rightarrow \boldsymbol{E = \frac{Q}{4\pi r^2 \varepsilon_0}}$
  - This is the equation for a point charge

Point charge
$E = \frac{Q}{4\pi r^2 \varepsilon_0}$

Gauss's law and cylindrical symmetry

Consider a line or rod of charge that is very long (infinite)

We can enclose it within a cylinder. Thus, our gaussian surface is a cylinder



$$\boldsymbol{E \oint dA = \frac{q_{enc}}{\varepsilon_o}} \quad \boldsymbol{E(2\pi rL) = \frac{q_{enc}}{\varepsilon_o}}$$

$$\boldsymbol{E(2\pi rL) = \frac{\gamma L}{\varepsilon_o}}$$

$$\boldsymbol{E = \frac{\gamma}{(2\pi rL)\varepsilon_o}}$$

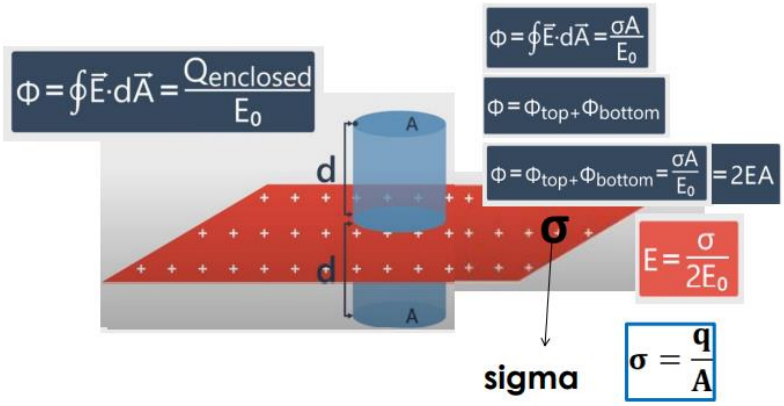
Note: $\boldsymbol{\gamma = \frac{Q}{L}}$

$\boldsymbol{Q = \gamma L = q_{enc}}$

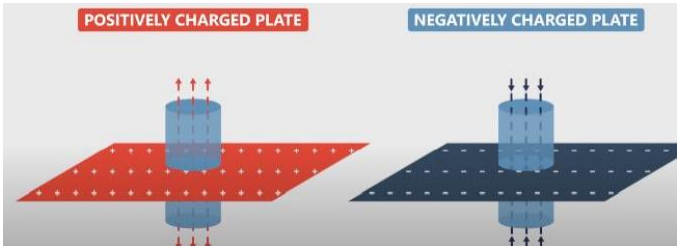
$\boldsymbol{A_{cylinder} = 2\pi rL}$

$$E = \frac{\gamma}{(2\pi rL)\varepsilon_0}$$

Gauss's law and planar symmetry



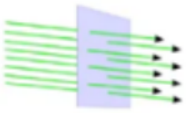
$\sigma = \frac{q}{A}$ $E = \frac{\sigma}{2E_0}$



Examples

Example 1

- A uniform electric field E = 8000 N/C passing through a flat square area of A = 10 m^2. Determine the electric flux.



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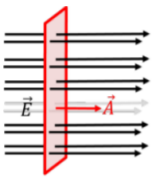
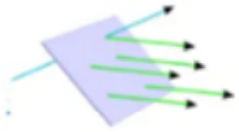
$E = 8000\ N/C$ $A = 10\ m^2$ $\varphi = ?$	Given
$\varphi = EdA$	We'll use this formula because of this  $d\Phi = EdA$ Maximum flux
$\varphi = 8000\ N/C\ (10m^2)$	Substitute values then solve
$\boldsymbol{\varphi = 80000 \frac{N.m^2}{C}}$	**Final answer**

Example 2

- A uniform electric field E = 500 N/C passing through a flat square area A = 2 m^2. Determine the electric flux



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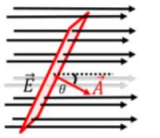
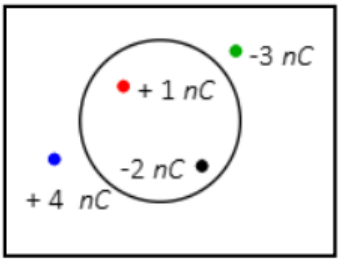
$E = 500\ N/C$ $A = 2\ m^2$ $\theta = 60°$ $\varphi = ?$	Given
$\varphi = EdA\cos\theta$	We'll use this formula because of this  $d\Phi = EdA\cos\theta$ $d\Phi = EdA\cos 60°$ $d\Phi = \frac{EdA}{2}$
$\varphi = (500)(2)\cos 60$	Substitute values then solve
$\boldsymbol{\varphi = 500\frac{N.m^2}{C}}$	**Final answer**

Example 3

- Find the net electric charge inside the sphere below.



-
  - In Gauss's law definition, net charge means the arithmetic sum of all charges inside the desired closed surface.
  - Q_{en} = (+1 nC) + (-2 nC) = -1 nC or -1 x 10^{-9}

Example 4

- A point charge of -2μC is located at the center of a cube with sides L = 5cm. What is the net electric flux through the surface?
  - In this problem, computing electric flux through the surface of the cube using its direct definition as $\varphi_e = E \times A$ is a hard and time-consuming task.
  - Gauss's law is an alternative to find the electric flux which is simply states that divide enclosed charge by ε_0. Thus, the flux through the above cube is calculated as below.

$\varphi = \oint E.dA = \frac{q_{enc}}{\varepsilon_0}$	We'll use this formula
$\frac{-2\mu C}{8.85 \times 10^{-12}}$	Substitute values
$\frac{-2 \times 10^{-6}}{8.85 \times 10^{-12}}$	Convert value then solve
$\boldsymbol{\varphi = -2.26 \times 10^{-19}}$	**Final answer**

MEDIA AND INFORMATION LITERACY

A. Introduction to Media and Information Literacy

What is literacy

- Quality or state of being knowledgeable and competent.
- A person who does not only read and write but also understand and solve problems.
- Means that a person is knowledgeable or well-versed about a specific subject.

What is media literacy

- The ability to access, analyze, evaluate, and create media.
- Media refers to the different means of communication, such as television, radio, newspapers, magazine, and the internet.

What is information literacy

- Information pertains to a specific data acquired for a specific purpose
- Information literacy - the skill that allows a person to recognize when information is needed and how he will be able to access, locate, evaluate, and use it effectively.

Importance of information literacy

- Lets you distinguish what information is relevant.
- Organize and classify the different forms of media which can be used to secure relevant and substantial information.
- Can aid students in developing effective research skills.

What is technology literacy

- Technology - Greek "techne" (art or skill) and tekhnologia (systematic treatment).
- Technology - systematic application of one's art or skill for a practical purpose.
- Technology uses scientific knowledge and computer skills to develop machinery and equipment needed by various industries.
- Technology literacy is the ability to acquire relevant information and use modern-day tools to get, manage, apply, evaluate, create, and communicate information.

Summary

- Media literacy refers to how an individual can use the different types of media in communicating information.
- Information literacy refers to how a person is able to look for relevant information with the help of technology.
- Technology literacy refers to how an individual utilizes technology to communicate and send information through different media platforms.

Relevance of media and information to students

- Acquire knowledge and process information even if the subject is difficult to understand.
- Be able to communicate ideas well.
- Develop 21st century skills such as digital literacy, leadership, and civic literacy.

Characteristics of a good media practitioner

Truthfulness

- Media practitioners should convey a message or information that is accurate, factual, and truthful.
- Erroneous or false information can ham the reputation of others and may cause them danger.

Fairness and objectivity

- Information or message should be based on evidence, If the information is biased and opinionated, it will deceive the public of the truth
- Should be real and accurate

Responsibility and integrity

- Should possess a sense of responsibility and accountability when acquiring information
- Should not compromise reputation and credibility for the sake of popularity and power
- Integrity - being honest and upholding upright moral values
- Responsibility - being accountable for taking a blame

Empathy and sympathy

- Should be sensitive to the needs of others
- Should show respect of privacy of others
- Should sympathize to those who are in need
- Empathy - ability to understand a person's feeling
- Sympathy - feeling pity to someone else's misfortune

Hardworking

- Expected to work hard in sourcing accurate information

B. Evolution of Traditional Media to New Media

Pre-historic age

- Refers to the time before the existence of written or recorded history
- Occurred some 4.5 million years ago or approximately 30,000 years ago
- This era is divided into two periods: stone age and metal age
- Archaeologists believe that there is no form of writing yet

- They etched the knowledge on how to create tools using stones
- Prehistoric art as the earliest form of media
    - Using sharpened tools, prehistoric men also learned how to etch in caves
    - They drew what they see around them such as animals and nature
- Petroglyphs and pictographs
    - Petroglyphs can be carvings or engravings in rocks or caves
    - Pictographs represent words or phrases through images or symbols. It is used to depict nature. Giving us a glimpse of the early people's way of life.
- Manunggul Jar
    - Was excavated from the Tabon Caves in Palawan
    - 890 to 710 B.C.
    - Represents the beliefs of the early Filipinos about death
    - Two figures at the handle represent the journey of the soul in the afterlife
- Megalithic art
    - This art involves the process of arranging or stacking together artistically big rocks for a certain purpose, which I still a mystery.
    - The Stonehenge, located in Salisbury Plains, England is a perfect example of Megalithic Art

Industrial age

- 1760 - 1820
- Industrial city
    - Pertains to a place where several factories are located or built.
    - The factories hire people within the locality as laborers or skilled workers
    - Began in the 18th century in the Great Britain
    - Shifted from using hand tools to power-driven machines
- Steam Press
    - Also known as "steam-powered printing press"
    - Printing of materials became much faster, cheaper, and easier
    - Before this, political parties used to fund publishers so they can be featured in newspapers
    - When printing cost was marked down, publishers printed news for the common people
- Telegraph
    - A system used for transmitting messages from a distance
    - 1837 - William Cooke and Charles Wheatstone patented the first commercial electric telegraph

Electronic age

- 1820 - 1950
- Electronics - things that work using electricity; refers to an object that has electronic components such as sensors and microchips, which functions once it is connected to an electric outlet
- Started 1840s and 1940
- Quite similar with industrial age in a sense that they thrived in manufacturing in a faster and more efficient way

- Marked the beginning of modernization because electronic equipment is more functional and reliable

- Static electricity
    - First discovered by Thales of Miletus (600 B.C.)
    - He noted that if amber was rubbed hard enough, small dust particles will start sticking to it.
- Electricity
    - Proved that electric sparks and lightning are the same thing
    - Conducted the kite experiment (electric conduction)

Information age

- 1950 - present
- The Information Age (also known as the Computer Age, Digital Age, or New Media Age) is a historical period that began in the mid-20th century, characterized by a rapid shift from traditional industry established by the Industrial Revolution to an economy primarily based upon information technology

C. Roles and functions of media in a democratic society

Democracy comes from the Greek word demo (people) and kratos (rule)

In a democratic society, the welfare of the people is important and protected by the government

People Power Revolution (1986)

- Local newspapers in the Philippines reported protests against the government because of labor, poverty, and education issues.
- September 21, 1972 - President Marcos declared Martial Law
- The dictatorial government had controlled mass media
- Journalists and editors were detained and arrested to control the dissemination of negative views against the government

People Power Revolution 2 (2001)

- During the tenure of President Joseph Estrada, media reported about his involvement in illegal gambling and adultery
- This led to an impeachment. Pres. Estrada was accused of plunder, betrayal of public trust, and violation of the constitution.
- When the second envelope, which allegedly contained incriminating evidences against Estrada was not opened based on the senator's majority vote, the prosecution walked out.
- Jaime Cardinal Sin expressed their dismay in public and called on people to unite at EDSA for a peaceful revolution

D. Selected Theories on Media and Information

Media Richness Theory

- Richard Draft and Robert Lengel (1980)
- Personal communication methods such as texting and video calls are generally more effective that other forms of media as the desired media is directly sent to the receiver.

Information Processing Theory

- Suggest that humans process the information they receive instead of merely responding to the stimuli

Contingency Theory

- Joan Woodward (1958)
- A variable can change the behavior and structure of an organization in order to complete a task

Media Naturalness

- Suggests that face to face communication is the most natural method of communication
- Communication is better established and that the message is more clearly understood if people talk in person

Media Synchronization

- It is better if people who need to communicate are all present and available in real time

Channel Expansion Theory

- 1999
- An individual chooses a type of media to use based on his experience in handling that type of media

E. Information Literacy

Sources of information

Theses and dissertation

- A thesis refers to a scholarly or academic research of either undergraduate or master's degree student
- A dissertation refers to the scholarly work of a doctoral student

Interviews

- Interviewing a resource person who is an expert in a specific field is another way of getting accurate and reliable information.

Museum

- A researcher can go to a museum to find resources for his study.
- Primary sources are original materials that were produced during a particular period in history.
- Secondary sources are documents made after an event has occurred.

Internet

- Nowadays, searching information on the internet is easier and more convenient than going to the library
- Instead of borrowing several books, the researchers can just type the keyword on the search engine.

The Search Engine

It is a software system that is designed to carry out web searches. They search the World Wide Web in a systematic way for particular information.

Top 3 most used search engines in the world

Google

- Google as not the first engine to be created in history, but with a 78.23% worldwide market share in 2019, it has a dominant lead over its rival search engines
- Google is a dominant force in search and one of the most popular search engines worldwide; it is the king and will be for the foreseeable future, over other search engines due to its powerful algorithms, easy-to-use interface, leading marketing and advertising platform, and personalized user experience.

Bing

- Having a 6.07% market share in the US, Bing is the second largest search engine in the world, after Google, having origins in Microsoft's previous search engines: MSN Search, Windows Live Search and later Live Search
- Owned and operated by Microsoft to challenge Google in 2009, Bing is the default search engine on Windows PCs, however, its operators could have not convinced users yet that the Bing search engine can be a reliable alternative to Google

Yahoo!

- Yahoo! Search is a web search engine owned by Yahoo, in California. It is one of the most popular email providers and its web search engine is the third largest search engine in the world, having between 1.64% and 2.04% market share.
- Yahoo! Directory was created in April 1994 by David Filo and Jerry Y ang of Stanford University. Now, Yahoo! Is considered an internet portal, rather than a search engine, and according to Alexa ranks as the 11th most visited website on the internet.

Domain

- A domain or a domain name is a location of a website.
- For example, the domain name "google.com" points to the IP address 216.58.216.164.
- Generally, it's easier to remember a name rather than a long string of numbers.

URL overview				
https://	www.	computerhope.com	/jargon/u/	url.html
Protocol	Subdomain	Domain and domain suffix	Directories	Webpage

Most visited websites in the Philippines and their owners

Website	**Parent company, owners, founders, and/or CEOs**
Google	Alphabet Inc. (Parent company); Larry Page, Sergey Brin (Founders)
Facebook	Meta (Parent company); Mark Zuckerberg (Founders)
YouTube	Google (Owner); Chad Hurley Steve, Chen Jawed Karim (Founders); Susan Wojcicki (CEO)
Twitter	Jack Dorsey (Founder); Parag Agrawal (CEO)

Messenger	Facebook/Meta (Parent company)
Roblox	David Baszucki (Founder, CEO)
Shopee	Sea Group (Parent company); Chris Feng (CEO)
Tiktok	ByteDance Ltd. (Parent company); Shou Zi Chew (CEO)
Instagram	Facebook/Meta (Parent company)
CornHub	Mindgeek (Parent company); Feras Antoon (CEO)
**Information from various sources mainly from Wikipedia*	

F. Print media

Any written or pictorial form of communication produced mechanically or electronically using printing, photocopying, or digital methods from which multiple copies can be made through automated processes.

Book

- A written or printed work consisting of pages glued or sewn together along one side and bound in covers
- Almanac
    - An annual calendar containing important dates and statistical information such as astronomical data and tide tables
- Dictionary
    - A reference material used to find the word's definition, etymology (origin), and pronunciation
- Thesaurus
    - Similar with a dictionary, the word entries in this are also arranged alphabetically, each containing based on its synonyms and antonyms
- Atlas
    - A collection of maps showing geographic features, political boundaries, including the climatic, social, and ecological features of certain places

Magazine

- A periodical publication released weekly, monthly, or quarterly. It contains articles on various topics depending on the subject or area the magazine covers.

Newspaper

- Printed on a daily or weekly basis, a newspaper contains a wide range of articles which appears on different sections
- Tabloid
    - Half the size of those of a standard newspaper
    - Typically, popular in style
    - Dominated by headlines, photographs, and sensational stories

    - It is not reliable
- Broadsheet
    - Standard newspaper
    - Refers to large sheets of paper designed with columns which comprise a standard format newspaper
    - Attract more serious readers
    - More trustworthy news sources

Journal

- Scholarly publication containing articles
- Written by researchers, professor, and other experts
- Focuses on a specific discipline or field of study
- Intended for an academic and technical audience, not for general readers

Newsletter

- Tool used by businesses and organization to share valuable information
- Intended for network of customers, prospect, and subscribers

Government gazette

- Also known as official gazette
- A periodical publication that has been authorized to publish public or legal notices

Flyers

- Single, unfolded pages that may only be printed on one side
- Focus one simple message
- Advertisement
- Eye-catching design
- Minimal detail
- Smaller, cheaper, printed on low quality paper
- Purpose is to be distributed to as many people as possible; no shelf life

Leaflet

- Tend to be folded to create multiple pages or sides
- Tend to have more written content and images
- Costs more than a flyer
- Often used for more targeted marketing, intended to be kept slightly longer
- Not exclusively used commercially, can also be used by government, nonprofit organizations, and even religious people to inform and educate people

Pamphlet/brochure

- Folded, neither stapled nor bounded
- Much more likely to be read because it is given to people with minimum interest to a product
- Give potential customers and boost sale leads
- Much better quality than a leaflet or flyer
- Used by companies to introduce themselves, their products, and their services

G. Broadcast Media

- Involves electronically and simultaneously sending information
- Contains signal, print messages, and audio or video content
- Sent to a vast group of recipients using television, radio, newspapers, magazines, and digital media including the internet, emails, and texts

Radio

- Technology of signaling and communicating using radio waves
- Generated by a device called a transmitter that Is connected to an antenna received by another antenna connected to a receiver
- There are two types of modulation: frequency, and amplitude
- FM is slightly better than AM because FM has no static
- Radio is a uniquely personal medium, invoking a listener's imagination to fill in mental images
- Radio tends to go local
- For advertising and public relation, radio is less expensive to sell
- Cheaper than other types of broadcast media

History

1897

- The first commercially successful "wireless telegraphy" was attributed to Guglielmo Marconi and transmitted morse code

1907

- Reginal Fessenden is the first to transmit a program of speech and music

1919

- First experimental radio station by Frank Conrad

1939

- First FM radio (Frequency Modulation)

1979

- Walkman, a brand of portable audio players by Sony

Television

- The electronic delivery of moving images and sound from a source to a receiver
- Still has great reach for businesses
- Advertising
- One of the most creative forms of broadcast
- Has the ability to tell visually compelling stories

History

1922

- John Logie Baird and Charles Francis Jenkins - still pictures

1954

- First color TV set

1981

- High definition

2007

- Flat panel

2012

- Smart TV (Samsung)

2013

- Curved TV

Film

- Also known as “motion picture”
- Series of still photographs on film, projected onto rapid succession by means of light
- Because of “persistence of vision”, there is an illusion of actual, smooth, and continuous movement

Persistence of vision

- The retention of visual image for a short period of time after the removal of the stimulus that produced it
- The phenomenon that produces the illusion of movement when viewing motion pictures

History

1878

- Eadweard Muybridge captured motion images of a horse galloping using 12 cameras

1890s – 1920s

- Silent films

1927

- First movie with spoken words “The Jazz Singer”

1928

- First cartoon with synchronized sound (Steamboat Willie)

1939

- Technicolor in “Wizard of Oz”

H. Media and Information Languages

Audience

- Pertains to a group in a public event
- Readers of print media, TV viewers, movie goers, and internet users

Stakeholders

- A group of people that has the same interest or concern with a particular group
- This group's objectives, policies, and actions should meet and satisfy the needs of the stakeholders

Audience and stakeholders

- Audience of media can be considered as stakeholders since they share the direct beneficiaries of what the media produce
- Producers regard the audience and the stakeholders as valued clients or customers that patronize what they offer

Producers of media

- Authors and journalists
- Editors
- Directors

Guidelines for journalists and broadcasters (Hutchins Commission 1947)

- Obligation to society to use the freedom of expression responsibly
- Should not abuse freedom, or use this power for exploitation or self-interest
- Should prioritize welfare of the society over their careers
- Should present news that is accurate, objective, and meaningful
- Should express unbiased points of view, comments, and criticisms
- Should represent marginalized people like the minority groups

Codes of ethics for media producers

- Codes - a set of standards, principles, and policies that practitioners of a particular sector should observe
- Ethics - a set of values observed by an individual based on grounded principles

Society of professional journalist code of ethics

- Seek truth and report it
    - Journalists should be honest, fair, and courageous in gathering, reporting, and interpreting information
- Minimize harm
    - Ethical journalists treat sources, subjects, and colleagues as human beings deserving of respect
- Act independently
    - Journalists should be free of obligation to any interest other than the public's right to know
- Be accountable and transparent
    - Journalists are accountable to their readers, listeners, viewers, and each other

Philippine Journalist's Code of Ethics (1988)

I. I shall scrupulously report and interpret the news, taking care not to suppress essential facts nor to distort the truth by omission or improper emphasis. I recognize the duty to air the other side and to correct substantive errors promptly
II. I shall not violate confidential information on material given to me in the exercise of my calling
III. I shall resort only to fair and honest methods in my effort to obtain news, photographs, and/or documents, and shall properly identify myself as a representative of the press when obtaining any personal interview intended for publication
IV. I shall refrain from writing reports which will adversely affect a private reputation unless the public interest justifies it. At the same time, I shall fight vigorously for public access to information, as provided for in the Constitution
V. I shall not let personal motives or interests influence me in the performance of my duties; nor shall I accept or offer any present, gift, or other consideration of nature which may cast doubt on my personal integrity
VI. I shall not commit any act of plagiarism
VII. I shall not in any manner ridicule, cast aspersions on, or degrade any person by reason of sex, creed, religious belief, political conviction, cultural and ethnic origin
VIII. I shall presume persons accused of crime of being innocent until proven otherwise. I shall exercise caution in publishing names of miners and women involved in criminal cases so that they may not unjustly lose their standing in society
IX. I shall not take unfair advantage of a fellow journalist
X. I shall accept only as tasks as are compatible with the integrity and dignity of my profession, invoking the "conscience clause" when duties imposed on me conflict with the voice of my conscience
XI. I shall conduct myself in public or while performing my duties as a journalist in such manner as to maintain the dignity of my profession. When in doubt, decency should be my watchword

I. Legal, ethical, societal, issues in media and information

Fair use guidelines

- Fair use - refers to the copying of a copyrighted material, with the purpose of using it for a review, commentary, critic, or parody, without the need to ask from the copyright owner
- Parody - refers to a work which ridicules another in a funny, inoffensive, and non-derogator manner
- A meme isa example of a parody. It is a humorous image, video, piece of text, etc., that is copied (often with slight variations) and spread rapidly by internet
- It will be considered under fair use if
    - The copyrighted work was used far from the original way it was initially used
    - You cite a few lines from a song of a famous celebrity as an introduction to a book review
    - You use a material for non-profit educational purpose
    - The materials had been transformed completely different from the original

Intellectual property

-

- Pertains to the output of a person's intellectual pursuit
- Examples are literary and artistic works, inventions, logos, symbols, and signs as well as names and images used for commercial purpose or advertisements

Trademark

- Can be any word, phrase, symbols, design, or a combination of these things that identifies your goods or services. It's how customers recognize you in the marketplace and distinguish you from your competitors

Copyright

- A collection of rights that automatically vest to someone who creates an original work of authorship like a literary work, song, movie, or software

Patent

- An exclusive right granted for an invention, which is a product or a process that provides, in general, a new way of doing something or offers a new technical solution to a problem

J. Netiquette guidelines

Netiquette (noun)

- Denotes the proper attitude that one should observe when communicating online.

Guidelines

- Observe politeness when responding to or sending a message. When you send a message, it would be best to put a brief description of its content on the subject line so that the receiver will know its content, and if it is urgent for him to response to
- When you receive a message, especially if it is from your superior at work or a client, it would be polite to reply urgently. Acknowledging receipts of the messages sent by a relative or a friend usually conveys thoughtfulness or warmth
- Review first the intended message before sending it so that you can be sure that it is the exact message that you want to convey. If one is careless, it can lead to miscommunication
- As a sign of respect, do not send spam or chain messages to your list of contacts whether they are your family members, friends, or colleagues.
- Before sending a private instant message to someone who is not on your list of connections or address, it would be appropriate to introduce yourself politely and state your reason of communication
- Include greetings
- Even though a person is entitled to freedom of expression, obscene messages, derogatory remarks on one's race or religion, and lewd photos and videos should not be publicly posted as this is unlawful (derogatory - disrespectful; obscene - offensive; lewd - sexually offensive)

Digital divide

Refers to the economic, educational, and social inequalities experienced by those who cannot afford computer and internet access.

Restriction

Can also pertain to the gap on the kind of information which can be accessed and the available form of communication that is allowed to be distributed.

Facebook in China and North Korea

Censorship in Filipino cinema

Philippines

In the Philippines, we do not experience strict restrictions

Our main problem is slow internet connection

According to worldpopulationreview.org

- Monaco - 261 mbps
- Singapore - 255 mbps
- Hongkong - 254 mbps
- Romania - 232 mbps
- Switzerland - 229 mbps
- Philippines is 90th out of 138 countries in terms of internet speeds

Virtual self

The identity we create in virtual worlds, our avatar, our unique and quite probable very different mannerisms, skills, and abilities assumed for that particular virtual world

Dangers of the internet

Internet and computer addiction

- Addiction refers to a condition in which a person seems to have lost control over an action or behavior, which mental health practitioners deemed as self-destructive
- People addicted to online shopping are obsessive compulsive buyers
- When a person feels the urge to be playing computer games constantly
- Becoming hooked to using too much social media
- Hikikomorism - persons who withdraw themselves from the society

Vulnerability to online crimes/cybercrimes/cyberbullying

- The use of electronic communication to bully a person, typically by sending messages of an intimidating or threatening nature
- Spreading gossips about someone to destroy that person's reputation

Pornography

- Printed or visual material containing the explicit description or display of sexual organs or activity, intended to stimulate erotic rather than aesthetic or emotional feelings
- Pornography exists within a broader sociocultural context in which stereotypes about gender, sexism, sexual objectification and violence-supportive attitudes are also at play

- Pornography use can shape sexual practices and is associated with unsafe sexual health practices such as not using condoms and unsafe ways of sexual intercourse.
- Pornography may strengthen attitudes supportive of sexual violence and violence against women
- Pornography is still a taboo in the Philippines. It is the reason why the educational system and parents do not know how to approach this kind of issue

K. Advertising

A mean of communication with the users of a product or service

Messages paid for by those who send them and are intended to inform or influence people who receive them

Always present even though people might not be aware it

Role of advertising

Advertising is a medium. It tells the consumers to do something or to act on something.

Advertisements support other media

Advertising makes the economy grow

Advertising adds to the cost of the products. However, without mass production (which advertisements supports) commodities will be more expensive or not available at all.

Advertising is a big business

Children and adults are exposed to many advertisements

Appeal of ads

According to Beckert (1992), the message of an ad is a combination of a claim and an image

Claim is what the advertiser says about the product

Product differentiation is a kind of claim to show how the product is different from other products.

Informational claim is providing specific facts about the product.

Image is the visual part of the product. It is the feeling that the advertiser wants the viewer or reader to associate with the product.

Advertising in the Philippines

18th century

- Merchants started printing and distributing on small scale handbills or flyers

19th century

- Newspapers carried the first printed advertisements called "anuncios"
- These ads were specific for the elites in Binondo and Escolta

1920 (American Period)

- Enterprising maintained contact with advertisers, wrote copy for them, presented the layout and artwork and delivered the advertisements to various newspapers and circulars for publication

Manuel Buenaventura

- First Filipino to handle advertising accounts

Philippine Publicity Service Inc.

- The first advertising agency in the Philippines by Edmund Bullis in 1921

Pedro Teodoro

- "Dean of Philippine advertising practitioners"
- Founded Philippines Promotions Bureau after the Second World War

San Miguel Corporation

- Known to have advertised its products as early as 1896

1930s

- Four major radio stations - advertisers used radio

1950s

- Profitable decade - radio soap operas advertised Procter and Gamble products - these soap operas were listened to by housewives

1960s

- Nationalism took over - Tagalog became widely used

Components of advertising

Headline

The headline is the most read part of an advertisement

A headline introduces the product or makes the promise statement or puts a question

Direct promise of benefit

- Make a direct promise about how the product will benefit the audience

News headline

- Introduce that something is "new" or "improved"

Curiosity headline

- Promise or benefit is not offered in the headline, indirect approach by posing a question or making a provocative statement, tries to create a lot of curiosity about the product
- Curiosity - Desire to know something
- Provoke - to stir up emotions

Command headlines

- Readers are urged to buy the product by promising a reward

Slogan

It is a phrase or a sentence that describes the benefit derived from the product or one of the product's most important attributes

Came from the Gaelic word sluaghgairm (sluwak-kam)

Short and catchy phrase that catches the attention of the audience

Easy to remember and comes off the tongue easily

Can emphasize product or reward that is offered to the consumer

Emphasize action to be taken

Body copy

When the headline usually makes a claim, the body copy elaborates and provides supporting proof

The amount of detail in an advertisement should be sufficient to answer the questions arising in the minds of a prospective

L. Propaganda Techniques

What is propaganda?

- Information, especially of a biased or misleading nature, used to promote or publicize a particular political cause or point of view
- Is the more or less systematic effort to manipulate other people's beliefs, attitudes, or actions by means of symbols (words, gestures, banners, monuments, music, clothing, insignia, hairstyles, designs on coins and postage stamps, and so forth

Types of propaganda techniques

Bandwagon

- In old-time parades, the circus band would ride on a wagon and attract a lot of followers; many people would try to jump on the band wagon
- Example
    - 90 out of 100 Filipinos wear blue heaven jeans
- Appeals on the person's anxiety in feeling left out

Testimonial

- A recommendation by a celebrity or an authority
- Some ads use an anonymous "expert" - an actor dressed as a doctor or a teacher or anyone else
- Some ads feature big stars like famous athletes, actors, or singers
- Such ads are highly effective but also highly controversial

Plain folks

- A plain folks appeal is the flip side of a testimonial
- With this technique, the ad claims that people just like you - ordinary, everyday teenagers or average will have a fine experience in buying the product
- They promise that plain folks can be special folks through the purchase of the products

Glittering generality

- Ad associates “virtue words” or “virtue images” with the product
- Health is a virtue to most people so a makeup company may emphasize healthy skin even if there is no connection
- Wealth is a virtue many people desire so car advertisers picture these automobiles carrying elegant people to mansions

Name calling

- Opposite of glittering generality
- Associates the competitor’s products with negative qualities

Transfer

- The act of relating something or someone we like or respect with a product
- Symbols are constantly used in this form of propaganda

INTRODUCTION TO PHILOSOPHY OF THE HUMAN PERSON

A. What is Philosophy

The word philosophy is derived from the Greek words philia (love) and sophia (wisdom) and means "the love of wisdom"

According to Pythagoras, men and women in the world could be classified in three groups:

- Those that love pleasure
- Those that love activity
- Those that love wisdom

Philosophy is the study of general and fundamental problems, such as those connected with existence, knowledge, values, reason, mind, and language.

Philosophy is the rational attempt to formulate, understand, and answer fundamental questions.

Philosophy is a set of views of beliefs about life and the universe, which are often held uncritically. We refer to this meaning as the informal sense of philosophy or "having" a philosophy. Usually when a person says "my philosophy is," he or she is referring to an informal personal attitude to whatever topic is being discussed.

Philosophy is a process or reflecting on and criticizing our most deeply held conceptions and beliefs. These two senses of philosophy – “having” and “doing” – cannot be treated entirely independent

of each other, for if we did not have a philosophy in the formal, personal sense, then we could not do a philosophy in the critical, reflective sense.

Having a philosophy, however, is not sufficient for doing philosophy. A genuine philosophical attitude is searching and critical; it is open-minded and tolerant - willing to look at all sides of an issue without prejudice.

To philosophize is not merely to read and know philosophy; there are skills of argumentation to be mastered, techniques of analysis to be employed, and a body of material to be appropriated such that we become able to think philosophically. Philosophers are reflective and critical.

Native dissonance – the attitude is entirely different from behavior.

Philosophy is a rational attempt to look at the world as a whole. Philosophy seeks to combine the conclusions of the various sciences and human experience into some kind of consistent world view.

Philosophers wish to see life, not with the specialized slant of the scientist or the business person or the artist, but with the overall view of someone cognizant of life as a totality.

Philosophy is the logical analysis of language and the clarification of the meaning of words and concepts. Certainly, this is one function of philosophy. In fact, nearly all philosophers have used methods of analysis and have sought to clarify the meaning of terms and the use of language.

Some philosophers see this as the main task of philosophy, and a few claims this is the only legitimate function of philosophy.

Philosophy is a group of perennial problems that interest people and for which philosophers always have sought answers. Philosophy presses its inquiry into the deepest problems of human existence.

Some of the philosophical questions raised in the past have been answered in a manner satisfactory to the majority of philosophers. Many questions, however, have been answered only tentatively, and many problems remain unsolved.

B. Kinds of Philosophy

What is the scope of philosophy or the range of philosophizing? What are the areas under philosophy?

One way of answering these questions is to simply identify the kinds of philosophy there are. This is no different when we are determining the scope.

Various kinds of philosophy can be classified into five general types

Thematic types

Under this classification are the kinds of philosophy that are distinguished from one another according to the topic of the issues being addressed.

Logic

- Keyword: Reasoning
- Concerns: The distinction between correct and incorrect forms of reasoning

Epistemology

- Keyword: Knowledge
- Concerns: The kinds, sources, and conditions of knowledge

Metaphysics

- Keyword: Reality, existence
- Concerns: Whether reality consists of physical objects only, of non-physical objects only, or of both physical and non-physical.

Ethics

- Keyword: Morality
- Concerns: The appropriate moral principles, meaning of moral judgment.

Aesthetics

- Keyword: Beauty
- Concerns: Criteria for judgments about beauty.

Social and political philosophy

- Keyword: The state
- Concerns: Legitimizing the state, limits of the state's political power, social and distributive justice.

Philosophy of science

- Keyword: Science
- Concerns: Difference between scientific and non-scientific statements, induction.

Philosophy of religion

- Keyword: Religious beliefs
- Concerns: Meaning of religious statements, existence of God, problem of evil.

Philosophy of language

- Keyword: Meaning of linguistic expressions
- Concerns: Meaning of proper names, definite descriptions, and psychological statements.

Philosophy of mind

- Keyword: Mind
- Concerns: Whether the mind is physical or not, properties of the mind, possibility of artificial intelligence.

Positional types

These types correspond to what are called philosophical school of thought of philosophical views. For every branch of philosophy, there are competing philosophical views or positions.

Metaphysics

- Materialism, idealism, dualism, monism, pluralism

Epistemology

- Rationalism, empiricism, critical philosophy, pragmatism

Normative ethics

- Consequentialism, deontology, virtue ethics

Social and political philosophy

- Socialism, liberalism, capitalism, social contractarianism

Logic

- Intensional logic, extrensional logic, artistotelian logic, mathematical logic

Philosophy of religion

- Atheism, theism (monotheism, polytheism, pantheism, panentheism), religious pluralism

Aesthetics

- Platonic aesthetics, human aesthetics, Kantian aesthetics, postmodern aesthetics, feminist aesthetics

Philosophy of language

- Ideal-language philosophy, ordinary-language philosophy, referential theory of meaning, use theory of meaning, speech art theory

Philosophy of mind

- Dualism, materialism, epiphenomenalism, physicalism, functionalism, computationalist, biological naturalism

Philosophy of science

- Realism, instrumentalism, falsificationism, constructivism, inductivism, reductionism

Methodological types

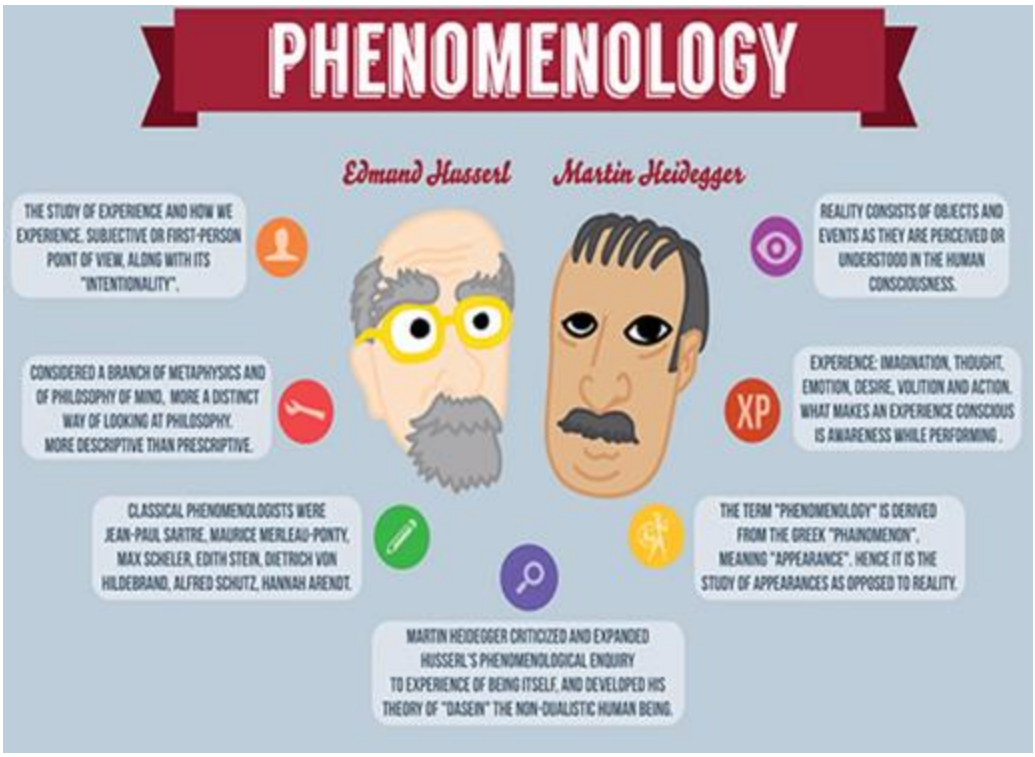
Philosophies are also classified according to the kind of philosophical method that they use

Analytic philosophy

- Uses the methods of linguistic analysis, logical analysis, and conceptual analysis

Phenomenlogy

- Uses the methods of bracketing of presuppositions or suspension of judgments and direct experimental analysis



- Hermeneutics
  - Uses different forms of textual analysis as methods of interpretation

Marxism

- Uses the methods of historical and dialectical materialism

Existentialism

- Uses the method of existential analysis (question of life's meaning)

Feminism

- Uses the method of gender analysis (gender inequality)

Postmodernism

- Uses the methods of deconstruction and power analysis (analysis of power structure)

Regional types

Western Philosophy (national)

- Greek, German, Roman, French, British, and American philosophy

Eastern Philosophy (national)

- Chinese, Indian, Japanese, and Filipino philosophy

Historical types

Western Philosophy

- Ancient Philosophy
  - Greek – Pre-Socratics, Socrates, Plato, Aristotle
  - Roman – Seneca, Marcus Aurelius

- Medieval Philosophy
    - Ancient time until the 15th century
    - St. Augustine, Boethius, John Duns Scotus, St. Thomas Aquinas
- Modern Philosophy
    - 15th to 19th century
    - Descartes, Spinoza, Liebniz, Hume, Berkeley, Locke, Fichte, Schelling, Hegel, Schopenhauer, Nietzche
- Contemporary Philosophy
    - 20th century to present
    - Heiddeger, Sartre, Wittsgenstein, Austin, Searle, Quine, Davidson, Rawls, Derrida, Foucault, Lyotard, Lacan, Adorno, Horkheimer

Eastern Philosophy

- Chinese, Indian, and Islamic philosophies do not fit to the four major historical timelines of western philosophy. They seem to have their own ways of delineating their own

C. Different Philosophers

Pythagoras

- A mathematician and scientist, credited with formulating the Pythagorean Theorem
- Established a community of learners devoted to the study of religion and philosophy

Heraclitus

- Proposed that everything that exists based on a higher order or plan which he called logos
- Change is permanent aspect of the human condition; "no man never steps in the same river twice"

Democritus

- Study the causes of natural phenomena
- Was among the first to propose that matter is composed of tiny particles called atoms

Diogenes of Sinope

- A known advocate of living a simple and virtuous life
- One should not only talk of virtue but should show it in words and actions
- His emphasis on austerity and simplicity often went to the extreme and was said to have lived like a beggar.

Epicurus

- Philosophy could enable man to live a life of happiness
- His views gave rise to Epicureanism - a school of philosophy which believes that wisdom and simple living will result in a life free of fear and pain

D. Socrates

470 – 399 B.C.

Socrates is, basically, the father of Western Philosophy

He never wrote down any of his teachings, his student, Plato, did this for him

Socrates' philosophy arose out of his negative feelings in relation to the teaching of the Sophists

Sophists

- Intelligent men, who travelled from place to place, teaching subjects like grammar, rhetoric (debating, argument, logic, and literature)
- Athens was an emerging democratic center and educated people were needed
- The Sophists were charged for their services, usually employed by the wealthy and powerful – what the Sophists taught was in demand
- Their philosophy
    - The Sophists were concerned with the individual and the individual's place in the world
    - "Man is the measure of all things" - Protagoras
    - Led to the belief that the difference between good and evil cannot be known
    - It all depended on the circumstances – the theory of relativity
    - The Sophists believed other concepts of truth and justice were products of habit and circumstance
    - Created by those in power to suit their own interest
    - "Justice is simply the interest of the stronger" – Thrasymachus
- The problem with them
    - Truth was not the most important issue but rather the ability to persuade your audience of the truth of your position
    - This is how they taught their students
    - The sophists' philosophy created tensions in Athens
    - They suggested there were no absolute norms for right and wrong
    - This contributed to a breakdown in moral order
    - The distinction between good and evil was no longer clear
    - He who could argue the best won out (or he who could pay a Sophist the most to argue won out)
    - Socrates had enough of the Sophists

The life of Socrates

- Born around 470 B.C.
- Lived in Athens at the height of its civilization
- Described as a very ugly man who often walked barefoot and wore the same kind of clothes whatever the weather
- Excellent soldier – he had great physical power and could endure a lot
- He was a very disciplined person
- He was interested in the development of a person's moral character
- He lived a virtuous life

The philosophy of Socrates

- Socrates wad concerned with the question of ethics (moral behavior)
- Unlike the Sophists, he believed that there was definite right and wrong
- He believed that people could accept it and apply it into their daily lives
- He said that it was up to people (society), as a whole, to establish those things that are right and those that are wrong
- Educated his life to searching for standards by which people could live a virtuous/good life
- Socrates was also concerned with justice

    - He wanted life to be fair for all
    - It was a person's duty to explore the truth regarding right and wrong, justice and injustice, courage and cowardice
    - He worked to find principles and laws that all could live by and be happy
    - Universal: these truths would be applicable for all people, at any time, everywhere and in all cases

The Socratic style

Socrates' style was distinctive

- He questioned people through discussions or dialogues
- He chose people who were experts in their field and who fully understood the topic being discussed
- He adopted the role of an ignorant questioner
    - Pretended he did not know and wanted to be educated
- He asked tactful questions which would bring the experts to a dead end – they would run out of answers
    - This showed them, and others, that they did not have all the answers and, so, were not experts
    - Therefore, the aim of this method was to get to the truth of how a person could live a good, moral life
- Why the Socratic method
    - Through the dialogues, Socrates wanted to discover people's views on living a moral, just life
    - Socrates urged people to question what they are being told, as well as their beliefs - question everything
    - Socrates, himself, learned through this process and develop his own philosophy from this method

Other important issues for Socrates

The soul

- The soul is hugely important in his philosophy
    - Had to be nurtured and protected
    - Gaining wisdom would save the soul
    - This would lead the person to living a virtuous life
    - "Knowing what is good is the same as doing what is good" – Socrates
    - Believed people would not willingly do wrong
    - No one wants to be a bad person
    - Later philosophers would disagree with him and said that a person might know what is right but may not be strong enough or disciplined enough to do

Socrates' thinking in action

Socrates believed that an action is right when it promotes humanity's true happiness

Socrates spoke of alcohol

- Drunkenness – only short-term pleasure is gained
    - Whatever you are escaping from, when you drink, will come back
- Drunkenness – has long term effects
    - Leads to ill health
    - Can enslave the body – become addicted to it
- The drinking of alcohol goes against reason – why should you willingly want to damage your body?
- Alcohol and drunkenness does not produce true pleasure – the negative effects far outweigh the temporary happiness

Socrates believed true pleasure could only be attained through living a moral life.

The execution of Socrates

- Socrates was executed in 399 B.C.
- Saw Athens was in danger of destruction
- Became critical of the government
- He was a social and moral critic
- He attempted to improve the Athenians' sense of justice
- His pursuit of virtue and his strict adherence to truth clashed with Athenian society
- He claimed he was the wiser one since he was the only person aware of his own ignorance
- Put on trial and found guilty of heresy and corrupting the minds of the youth
- He was forced to drink a lethal poison
- He was given the opportunity to escape
- However, he chose not to escape, drank the poison and died

E. Plato

Plato's biography

- Born around the year 428 B.C. in Athens
- His father died when he was young
- Plato's birthname was Artistocles (not to be confused with Aristotle) and he gained the nickname "Platon" because of his broad build
- When he was young, his basis of study was music and poetry
- Plato was in the military service from 409 B.C. to 404 B.C. and then joined a group called the Thirty Tyrants, but ended up leaving it because of the violence.
- Socrates was Plato's disciple and Plato started to adopt his philosophy and style of debate
- After Socrates' death in 399 B.C., Plato left Athens with some friends and traveled for the next 12 years while studying geometry, geology, astronomy, and religion.

- Plato's studies were directed toward the question of virtue and the formation of noble character
- When Plato returned to Athens in 387 B.C., he started a school of learning called the Academy, which was eventually described as the first European University
- At the Academy, he taught his subjects astronomy, biology, mathematics, political theory, and philosophy

Plato's works

- He had 37 dialogs or books and 13 letters - "The Republic"
- Give readers a sense of philosophy as a living and unfinished subject, to which they will need to contribute to finish
- Modern scholars doubt the authenticity
- After writing, his works were "lost" until the Renaissance
- They have been steadily studied since
- Big influence in math and science
- Difference between arithmetic and logistic
- "He believed that ideas were far more real than the natural world. He advised that astronomers not waste their time observing the stars and planets. It was better he believed, just to think about them" - Carl Sagan

Allegory of the Cave

- People lived life chained facing a blank wall of a cave
- They could only see the moving shadows projected by the people and fire behind them
- The people began to think this of was reality
- However, philosophers are people from the cave that understands the shadows are being cast by other people in true form
- Fascinated with the idea of "perfect form"

Plato and politics

- The Republic
    - Virtues of Justice
    - Courage
    - Wisdom and Moderation (Individual and Society)
- 3-part society
    - Workers (producing)
        - The "appetite" of the soul
    - Warriors (protecting)
        - The "spirit" of the soul
    - Rules (governing)
        - The "reason" of the soul
- Courage is not merely military courage but primarily civic courage: the ability to preserve the right, law-inspired belief, and stand in defense of such values as friendship and freedom on which a good society is founded.
- Plato's government would have
    - Multiparty system
    - Periodic elections
    - Professional Civil Service (Union)

- Plato believed that there could be a body of knowledge whose attainment would make it possible to completely heal political problems

The End of Plato

- Plato died in 347 B.C. leaving the Academy
- The Academy remained a model for institutions of higher learning until Emperor Justinian closed it

F. Aristotle

"Aristotle was a tireless scholar, whose scientific explorations were as wide-ranging as his philosophical speculations were profound; a teacher who inspired – and who continues to inspire – generations of pupils; a controversial public figure who lived a turbulent life in a turbulent world. He bestrode antiquity like an intellectual colossus. No man before him had contributed so much to learning. No man after could hop to rival his achievement" – Jonathan Barnes (1982)

Life history

- Aristotle (384 – 322 B.C.) was a Greek philosopher, logician, and scientist
- Born in northern Greece, and his father was a court physician to the king of Macedon
- He was the disciple of Plato and attended his school at the age of 17
- He was the teacher of Alexander the Great
- Came back to Athens, after Alexander succeeded his father, and established his school and library at Lyceum

Works of Aristotle

- Considered as Father of Political Science
- Aristotle wrote extensively on subjects like metaphysics, psychology, poetry, biology, moral sciences, politics, etc.
- The most notable of his works on political science were Politics, Nicomachean Ethics and Eudemian Ethics
- He also made certain notes on numerous constitutions but most of it was lost
- The two books on ethics discussed the nature of individual happiness or well being
- Politcs described the role of state to ensure individual happiness
- It explained the ideal city where happiness could be achieved and the means to do so in speculate and practical manner

Aristotle's political view

- He regarded political science to be a master science and state as highest of all communities aiming at highest good
- His approach was scientific and practical -
    - Study based on facts
    - Evaluating the facts
    - Respecting traditions
    - Comparative analysis

State as a natural institution and classification of state

- Rejected sophists view that political society is the product of convention
- Man is political and social animal; hence state is natural - as it reflects both the aspects
- Three arguments to prove the aforesaid
    - Natural instincts argument
    - Teleological argument
    - State as an organism argument

Aristotle, classified states on the basis of two principles: -

- In whom the sovereign powers are vested?
- Whether it is exercised for the good of the community or for the good of the ruler?

If it is good for the community then it is a pure or correct state. If it is good for the ruler, it is a deviant state.

	Correct	Deviant
One Ruler	Kingship	Tyranny
Few Rulers	Aristocracy	Oligarchy
Many Rulers	Polity	Democracy

Aristotle's views

Property

- Defends system of private property as opposed to Plato's views of community property
- Every citizen should possess property of optimum size
- Natural and unnatural forms of property
- Continuance of fixed amount of property for generations by birth control

Slavery

- He defended and justified slavery (household)
- He declared slavery to be an institution of nature. A superior would rule over inferior
- A slave belongs to a free man and as such he exists only for the sake of the latter
- However, he insists on the humanitarian treatment of the slaves

Citizenship

- Not to be determined by residence
- Citizen as a person who has the power to take part in the deliberative or judicial administration
- A good citizen would have the intelligence and the ability to rule and be ruled
- Young and the old could not be citizens, for one was immature and the other infirm
- Women were also not regarded as citizens

Distributive justice

- Aristotle thought that justice is the core of the state. It is a complete virtue
- He also introduced the concept of distributive justice
- "Just" has two meanings: abiding to legal rules and using fair means.
- Distributive justice consists of proper allocation to each person according to his worth

Education

- He believed that education should be designed to train man in a certain type of character suitable to the state
- Three stages of schooling
    - Primary – ages 7-14 years
    - Secondary – ages 14-21 years
    - Higher education – 21 above
- Higher education was for males only as Aristotle believed women were not capable of such complex studies

Women and family

- Family is the first unit of state
- There is a natural friendship between man and a woman for a human thrives to live in pairs
- It was a relation between husband and wife; and the parents and children
- He believed that marriages without children would dissolve easily, for they create necessary bond
- He did not believe in gender equality
- He criticized Spartans for giving their women excessive freedom
- Women by nature cannot have virtue of courage and also, they don't have intellect to participate in administration
- Woman should be part of the city but left out of political process
- A husband is head of the family and wife must obey to his commands

Eudaimonia

- It means nature of happiness
- He identified good as happiness
- Happiness represented quest for excellence
- A life of sufficiency and self-reliance would be a happy one
- Two qualities of soul: rational and irrational
- The aim of state is to ensure happiness of community

E. Freedom of the human person

Freedom (Kalayaan)

- It is the power or inherent right of person to act, speak, or think what one pleases as long as it is right.

Two kinds of freedom

Absolute freedom

- Only applicable to God. God can do everything he wants and everything he does is always good, because it is his nature. Everything he does, speak, and think is right. Goodness and

wisdom are his nature. In the absence of these is not a God. Therefore, God is absolutely good (Supreme Bonum).

Limited freedom

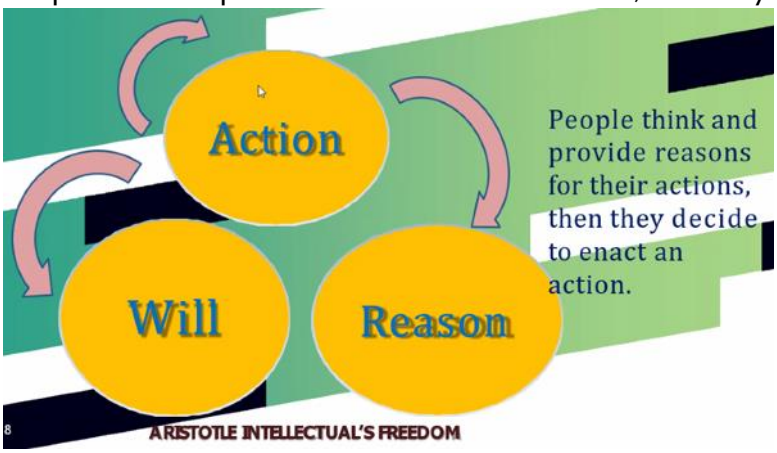
- Applicable only to man. He cannot exhibit freedom at all times and in all situations. He should not suppress freedom of others. Doing what is wrong and bad is not an act of freedom.

Basic ideas about human freedom

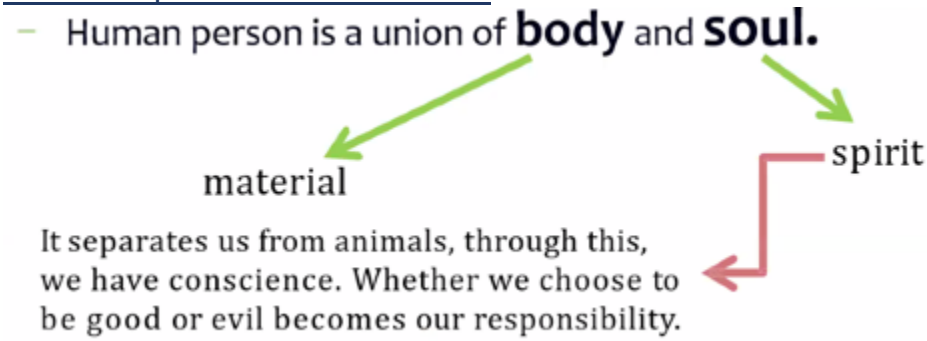
- Lower animals like dogs, cats, etc. do not have freedom
- When an acts out of freewill, he must be responsible for every outcome of his own actions
- Because of others our freedom becomes limited
- The evil repetitious behavior done out of choice is not actually an act of freedom, rather, of slavery
- Law does not curtail you from being free. Rather, it is the opposite. Law is an instrument to help an individual person attain his goal
- When a person is incarcerated, he Is totally deprived of his freedom
- When you want to practice your freedom, make sure it is based on rights
- Your human rights to claim something is the foundation of your freedom
- Freedom must be respected by everybody. It is a gift from God
- When you want to be firm on your rights be sure you can do your duties.
- Every human right has corresponding duties
- When a human person acts with freedom, then he is morally bound on the effect be it good or bad.
- His dignity is rooted on the belief that human person is a son of God
- Human person has the right to live and work out his destiny
- Human right is a moral power residing in a person

RIGHT	DUTIES
The right to life.	The duty to take care of your body.
The right to nationality.	The duty to be a good citizen of your own country.
The right to democracy.	The duty to take part in government affairs and help in its projects for development. Ex. If you do not vote, do not complaint
The right to affordable housing, medicine, etc.	The duty to pay what is due.
The right to protection of the law.	The duty to obey the law.
The right to own private property.	The duty to pay your taxes.
The right to form a family.	The duty to protect your family, love them and have them registered.
The right of workers.	The duty to become good employees.
The right to speech.	The duty to become responsible about the things you said.
The right to education.	The duty to study. Ex. Some student-activists.
The right to travel long distance trips.	The duty to follow the rules and regulations related to your travel.
The right to practice freedom.	The duty to become responsible on the outcome of your actions.
The right to ride a jeepney.	The duty to pay your fare.
The right to religious affiliations.	The duty to follow the precepts of your affiliation.
The right to honor, good name and reputation.	The duty to protect your honor, good name, and reputation.
The right to protection against the bad elements in our society.	The duty to report to the authorities their bad activities.
The right to a good government	The duty to vote good and qualified candidates to run the government.

Aristotle – Power of volition

- If there is no intellect, there would be no will
- Humanity's capacity to make choice, also called freewill, is an instrument of free choice
- It is within the power of everyone to be good or bad, worthy or worthless
- Moral acts are in our power and we are responsible for them
- Attending class is a student's responsibility. Should the student cut class, then he is responsible for any accident or failure in grades that will befall him
- The happiness of every human being's soul is in his hands
- Reason is a divine characteristic, that is, God created humans to reason and are inclined to reason
- Humans have the spark of the divine (made in the characteristics of God)
- Though reason rules over will, our will is an instrument of free choice turning into action
- People think and provide reasons for their actions, then they decide to enact an action
- 

Thomas Aquinas – Love is freedom



- Human being has a supernatural, transcendental destiny
- Man can rise above his ordinary being or self to a highest being or self
- To achieve the highest level of human fulfillment and fulfillment and happiness, humans must aspire to go beyond their basic needs to live, sleep, and eat (living)
- They must aspire to become beings that are not only guided by their animal instincts but also by their intellectual and spiritual aspirations
- Human beings have to develop and perfect himself by doing his daily tasks

- Hence, if a human being perseveringly lives a righteous and virtuous life, he transcends his mortal state and soars to an immortal state of life
- Perfection by participation means the union of humanity with God. Change should promote not only any purely private but the good of the community

Fourfold classification

Eternal law

- Decree of God that governs all creation. It is the law which is the Supreme Reason cannot be understood to be otherwise than unchangeable and eternal.

Human law

- Contains promulgations promulgated by legitimate human authority
- State – civil laws (constitution)
- Church – ecclesiastical laws (canon)

Natural law

- In its ethical sense, applies only to humans
- The first principle and precept of the natural law is that good is to be sought and evil is be avoided (basis of self-preservation)
- A priori (prior knowledge)
- Natural law is the law that governs natural phenomena in nature like the weather, the elements, and gravity. Example: you are avoiding fire because of its heat
- Morality is written in man's heart
- It is human participation God's wisdom

Divine law or revelation

- It gives human beings the certitude where unaided human reason could arrive only at possibilities. It deals with interior disposition as well as external acts and it ensures the final punishment of all evildoings, neither of which is possible for human law.
- Old (mosaic) imperfect, immature
- New (Christians) perfect, mature
- Analysis of this divine law is the function of theology

- God is the first cause
- Only human beings can change the world for its betterment
- We are both material ad spiritual
- We have conscience because of our spirituality

Aristotle	Aquinas
Purpose of human being: to be happy	Purpose of human being: perfect happiness
How to be happy: live a virtuous life	How to be happy: can be found in God

Jean Paul Sartre – Individual freedom

- Human person is the desire to be God: the desire to exist as a being which has its sufficient ground in itself (en sui causa)
- There are no guideposts along the road life
- The human person builds the road to the destiny of his choosing; he is the creator

Existence precedes essence

- The person, first, exists and encounters himself and surges up in the world, then defines himself afterwards. The person is nothing else but that what he makes of himself
- The person is provided with a supreme opportunity to give meaning to one's life. In the course of giving meaning to one's life. In the course of giving meaning to one's life, he fills the world with meaning
- Freedom is, therefore the very core and the door to authentic existence
- Authentic existence is realized only in deed that are committed alone in absolute freedom and responsibility and which is, therefore, the character of true creations
- On the other hand, the human person who tries to escape obligations (obligation to choose) and strives to be en-soi (ex. I was born this way) is acting on bad faith (mauvaise foi)

Thomas Hobbes – Theory of social contract

Law of nature (lex naturalis)

- It is a precept or general rule established by reason by which a person is forbidden to do what is destructive of his life or takes away the means of preserving the same, and to omit that by which he thinks it may be best preserved.
- First law of nature - concerned is preservation of life, and therefore we should "seek peace"
- Second law of nature - mutually divest ourselves of certain rights (such as the right to take another person's life) so as to achieve peace
- Third law of nature – human beings perform the covenant they made. It is the fountain of justice (example: contract not to steal)

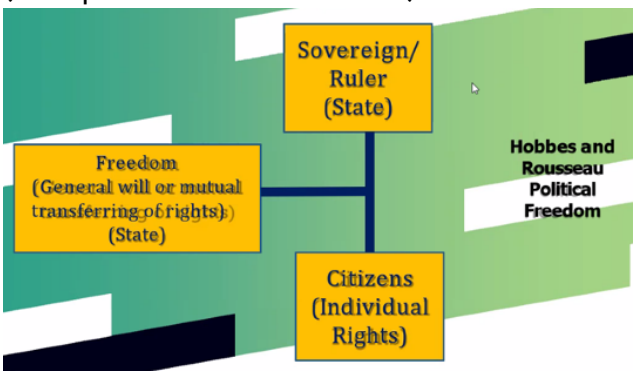
Contract

- That a person be willing, when others are, too (this is necessary for peace building), to lay down this right to all things and be contented with so much liberty against other people as he would allow other people against himself.
- The mutual transferring of these rights is called contract and is the basis of the notion of moral obligation and duty. (Example: If one give up his right to harm you, you give up your right to harm him)

Jean-Jacques Rousseau

The social contract

Hobbes	Rousseau
Mutual consent to end war	Human is born free and good
	He is in chains and has become bad due to evil influence of society and lost his original goodness

- To restore peace, freedom should be brought back
- As he returned to his true self, he saw the necessity and came to form the state through the social contract whereby everyone grants his individual rights to the general will (Example: EDSA revolution 1986)
- 

F. Intersubjectivity

"The world is not comprehensible, but it is embraceable through the embracing of one of its beings"

"All real living is meeting"

"Men feel themselves to be carried by the collectivity, which lifts them out of loneliness and fear of the world and lostness"

- Martin Buber

Intersubjectivity

- It is the condition of man, a subject, among other men, who are also subjects
- It refers to the shared awareness and understanding among persons
- It is made possible by the awareness of the self and the other

Social vs interhuman

- The social refers to the life of a group bound together by common experiences and reactions
- The interhuman refers to the life between and among persons; it refers to the interpersonal, that is, a life of dialogue

Dialogue

- It is a deep and genuine relationship between persons
- It happens when two persons truly acknowledge each other's presence and treat each other as equals

Kinds of relationship

- Ich-es (I-It) relationship
  - It refers to the world of experience and sensation where there are objects.
  - The beings do not actually meet. Instead, the "I" confronts and qualifies an idea, or conceptualization, of the being in its presence and treats that being as an object.
  - Essentially this form of objectivity relates to the world in terms of the self - how an object can serve the individual's interests
  - It is in fact a relationship with oneself; it is not a dialogue, but a monologue
- Ich-du (I-Thou) relationship
  - It refers to the world of encounters and relationships where there are persons
  - It is a concrete encounter without any qualification or objectification of one another
  - It is a dialogue
  - "Through the thou a person becomes I" - Martin Buber

Obstacles to dialogue

Obstacles to dialogue	Contrasted with
Seeming	Being
Speechifying	Personal making present
Imposition	Unfolding

Seeming

- It is a way of approaching the other governed by the image one desires to impress on the other
- It involves deliberately playing up or hiding aspects of yourself to appear more desirable or impressive
- "The origin of all conflict between me and my fellow men is that I do not say what I mean and I don't do what I say" – Martin Buber
- "To yield to seeming is man's essential cowardice, to resist it is his essential courage" – Martin Buber

Being

- It proceeds not from an image, but from what one really is
- It is an acceptance of the other in the way that is also an acceptance of the self as it is

Speechifying

- It refers to one's talking past another
- It is hearing without listening to what one says

Personal making present

- It is the process of fully opening oneself to the other

Imposition

- It constitutes holding one's own opinion, values, attitudes, and oneself without regard for those of another
- It is telling the other how he or she should act, behave and respond to things

Unfolding

- It constitutes finding in the other the disposition toward what one recognizes as true, good, and beautiful
- It involves seeing the other as a unique, singular individual capable of freely actualizing himself or herself

G. Love

"Work and love, that's all there is" – Freud

Finding love is a key developmental event in early adulthood

Psychologists and the public use the word "love", so it must have some meaning

Types of love

Eros

- Erotic love
- It is the word for romantic, passionate love, suitably named after the Greek god of love and desire, Eros (the equivalent of Cupid in Roman mythology)
- With eros love, people let go of their boundaries and get very physically and emotionally involved. This can be a time when people can't get enough of being with their partner of lover.

Philia

- Affectionate love
- Philia represents love between friends, which can often be just as important as romantic love. Philia can mean love between equals, love connected with the mind, and love between people who have shared hard times.

Storge

- Family love
- Storge refers to love between family members, like the love found between parents and children, between siblings, or between old friends that feel like family.
- "It builds a feeling of safety, security and support for one another, as well as the joy that comes from having shared memories"

Ludus

- Playful love
- Ludus is a playful and affectionate type of love. This might mean the love and excitement you feel when you have a crush on someone or when you're first getting to know them.

- Ludus can mean flirting and teasing in the early stages of a relationship, but it can also refer to the playful affection between friends and between children

Mania

- Obsessive love
- Mania can be a jealous and obsessive kind of love. It often involves feelings of codependency, or the feeling that another person will heal and complete you.

Pragma

- Enduring love
- Pragma means long-lasting love. It's a love that has endured and matured over time, and has meaning.
- This kind of love often involves compromises from both people in the relationship, as well as patience and tolerance - and the focus is more on staying in love, rather than just falling in love.

Philautia

- Selflove
- Philatuia refers to selflove or self-compassion, and the Greeks thought that loving yourself meant you had a wider capacity to love others - something we could all still learn from today when it comes to self-care.
- In fact, Aristotle is thought to have said: "All friendly feelings for others are an extension of a man's feelings for himself."

Agape

- Selfless love
- It is a spiritual kind of love, involving enormous empathy. This kind of love means that we accept, forgive, and trust others.
- The concepts of charity and sacrifice within agape can be thought of as the “highest form of love”, particularly in Christianity.

Sternberg’s Triangular Theory

The triangular theory of love explains the topic of love in an interpersonal relationship.

Psychologist Robert Sternberg’s theory describes types of love based on three different scales: intimacy, passion, and commitment. It is important to recognize that a relationship based on a single element is less likely to survive than one based on two or more.

Intimacy – involves feelings of closeness, connectedness, and bondedness

Passion – involves feelings and desires that lead to physical attraction, romance, and sexual consummation

Commitment/decision – involves feelings that lead a person to remain with someone and move toward shared goals

	Intimacy	Passion	Commitment
Nonlove	Low	Low	Low

Liking	High	Low	Low
Infatuated love	Lo	High	Low
Romantic love	High	High	Low
Empty love	Low	Low	High
Companionate love	High	Low	High
Fatuous love	Low	High	High
Consummate love	High	High	High

Love quotes

"I define love thus: The will to extend one's self for the purpose of nurturing one's own or another's spiritual growth" – M. Scott Peck

"Love is the subtlest force in the word" – Mahatma Gandhi

"By accident of fortune a man may rule the world for a time, but by virtue of love he may rule the world forever" – Lao-Tzu

"Love is the only force capable of transforming an enemy into a friend" – Martin Luther King Jr.

"It's a curious thought, but it is only when you see people looking ridiculous, that you realize just how much you love them" – Agatha Christie

"One of the oldest human needs is having someone to wonder where you are when you don't come home at night" – Margaret Mead

"Love is a condition in which the happiness of another person is essential to your own" – Robert Heinlein

"Whose loves... Believes the impossible" – Elizabeth Barrett Browning

"Love doesn't have to feel dizzying" – Michael Levine

"Love is something like the clouds that were in the sky before the sun came out. You cannot touch the clouds, you know; but you feel the rain and know how glad the flowers and the thirsty earth are to have it after a hot day. You cannot touch love either; but you feel the sweetness that it pours into everything" – Annie Sullivan

"Among those whom I like or admire, I can find no common denominator, but among those whom I love, I can: all of them make me laugh" – W.H. Auden

"Sympathy constitutes friendship; but in love there is a sort of antipathy, or opposing passion. Each strives to be the other, and both together make up one whole" – Samuel Taylor Coleridge

"True love comes quietly, without banners or flashing lights. If you hear bells, get your ears checked" – Erich Segal

“Love talked about can be easily turned aside, but love demonstrated is irresistible” – W. Stanley Mooneyham

DISASTER READINESS AND RISK REDUCTION

A. R.A. 10121 and P.D. 1566

Strengthening the Philippine Disaster Control, capability, and establishing the National Program on community preparedness.

Presidential Decree or P.D. 1566 was a presidential decree of Pres. Marcos, signed on June 11, 1978. A Presidential Decree can be removed without notice, which is why it was replaced by Republic Act or R.A. 10121 also known as the Philippine Disaster Risk Reduction and Management Act which was passed in 2010, 32 years since P.D. 1566.

The creation of R.A. 10121 is the repealing of P.D. 1566 into a law and created the NDRRMC or the National Disaster Risk Reduction and Management Council. The institutional innovations of R.A. 10121 were the establishment of permanent disaster management offices at all levels of local government in contrast to the disaster management councils before under P.D. 1566, but for economic expediency, was maintained at the barangay level.

The once National Disaster Coordinating Council was radically expanded under R.A. 10121 transforming it to the NDRRMC we now know, which was mandated by the law to supervise and lead not only in emergency management but also in the implementation of disaster-risk reduction through its “policy-making, coordinating, integration, supervision, monitoring, and evaluation” functions.

NDRRMC’s purpose is every time we experience a disaster, it is also under their care to return us into our normal course of life after the disaster.

One loophole of the NDRRMC is their emergency funds, where every time taxes had been paid, 0.5% goes to the emergency funds, which may build up over time.

B. Basic concept of hazards

Hazard

“Those elements of the physical environment, harmful to man and caused by forces extraneous to him” – Burton et. Al. 1978

"A source of potential harm or a situation with a potential to cause loss" - Standards Australis (2000)

“A natural event that has the potential to cause harm or loss” – Asian Disaster Preparedness Center (ADPC)

Hazard vs disaster

Hazard

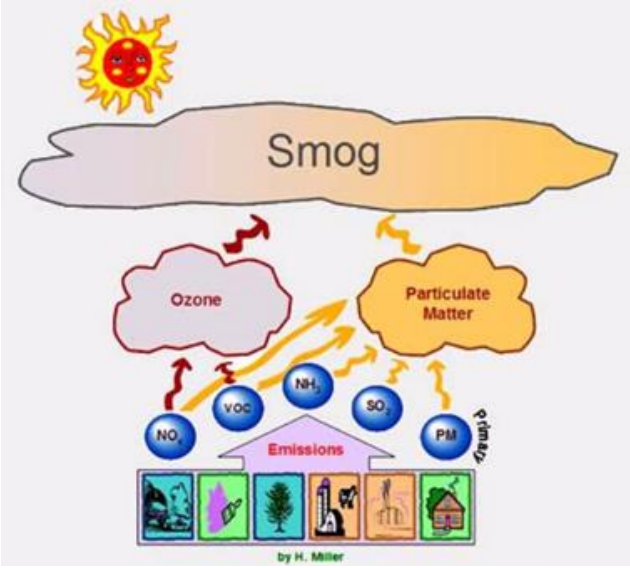
- A dangerous phenomenon, substance, human activity, or condition that may cause loss of life, injury or other health impacts, property damage, loss of livelihoods and services, social and economic disruption or environment damage

Disaster

- A serious disruption of the functioning of a community or a society involving widespread human, material, economic, or environmental losses and impacts which exceeds ability of the affected community or society to cope using its own resources

General classification of hazard

Natural hazards

- Purely natural in the environment
- 

Quasi-natural hazards

- Natural hazard but there is a participation of humans
- Smog: Fog with car exhausts
- Desertification: Process of poor farming practices, overgrazing, total draught of the land itself (has no way of getting, supplying, revitalizing itself with water), effect of human activity

Technological (human made) hazards

- Result of direct human activity

Types of hazards

Hydrometeorological hazard

- Hazard present in the environment whether by water or air

- Flash floods, tsunamis, etc.
- Meteorological: Lightnings, cyclones, tornadoes
- Hydrological hazard
- Atmospherical hazard

Geologic hazard

- Landslide, earthquake, shift of earth's crust, mudslides, rockslides

Biological hazard

- Type of hazards that affects the human body
- Red tide, pandemic

Technological hazard

- Hazard caused by technology
- Electric shock

C. Government agencies

DENR

- Department of Environment and Natural Resources
- Responsible on conserving, caring, managing, and developing the country's environment and natural resources

NEDA

- National Economic and Development Authority
- They are responsible for formulating, continuing, developing, and planning the country's economic policies and programs

NDRRMC

- National Disaster Risk Reduction and Management Council
- Responsible on planning and implementing disaster risk reduction programs in the country

MDRRMC

- Municipal Disaster Risk Reduction Management Council
- They are the localized version of NDRRMC in the municipal scale. They deal with the disasters in the municipality

DOH

- Department of Health
- Responsible on developing and implementing plans, standards, and guidelines int anything related to the public's health in the country

PHIVOLCS

- Philippine Institute of Volcanology and Seismology
- They are responsible on tracking and monitoring of tectonic activity, volcanic activity, and seismic activity in the country and warn the public before any geological disaster happens

PAGASA

- Philippine Atmospheric, Geophysical, and Astronomical Services Administration

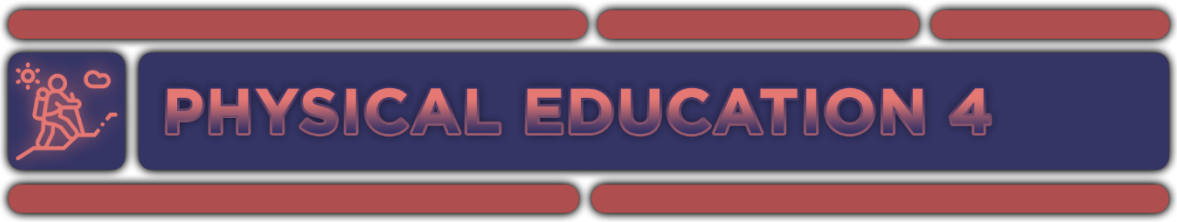
- They are responsible for tracking and monitoring the weather and to warn the public on storms and typhoons and other weather-related disaster like storm surges etc.

PNP

- Philippine National Police
- They are responsible on putting the country's law into action and enforcing them. They are the protectors of the people and deal with the crimes in the country. They are also responsible in maintaining peace and order and to ensure the safety of the public.

NHA

- National Housing Authority
- They are responsible on developing, implementing, and creating housing plans and programs to provide homes for the people. The housing projects are usually for relocated families or displaced people due to disasters.



PHYSICAL EDUCATION 4

A. Parts of a compass

Baseplate	Hard, flat surface on which the rest of the compass is mounted. It has rulers on its edges for measuring distances on maps. Its edge is straight and useful for laying lines on a map

Scales	Each edge of a compass may have different rulers for use with different map scales
Direction of travel arrow	Marked on the base plate. You point this the way you will be traveling
Magnifier	For seeing small map features better
Index pointer	Butt end of the direction-of-travel arrow. It ends right at the edge of the dial and is where you take degree readings
Dial	Ring around the housing that has degree markings engraved. You hold the dial and rotate it to rotate the entire housing
Declination marks	Use to orient the compass in an area with known declination
Orienting arrow	Marked on the floor of the housing. It rotates with the housing when the dial is turned. You use it to orient a compass to a map
Orienting lines	Series of parallel lines marked on the floor of the housing and on the base plate
Needle	Magnetized piece of metal that has one end painted red to indicate North. It sits on a fine point that is nearly frictionless so it rotates freely when the compass is held fairly level and steady
Housing	Main part of the compass. It is a round plastic container filled with liquid and has the compass needle inside
Bubble	A bubble of air in the housing liquid is useful for making sure you are holding the compass fairly level
Mirror	Lets you see the compass face and distant objects at the same time. Useful for emergency signaling
Sight	Improves aiming your compass at distant objects

There is a huge magnetic field around the earth. It is huge, but it is not very strong. The magnetized needle in a compass is aligned with this magnetic field. As the image below shows, the composition of the earth acts as a huge bar magnet sitting upside down in the middle of the planet. Since its South end is at the north pole and its North end is at the south pole, the North end of a compass needle is pulled north.

Your compass has to have a very light needle sitting on a pivot that has almost no friction. This is because the earth's magnetic field is weak and would not be able to turn the needle.

B. Leave No Trace

7 Principles of Leave No Trace

Plan ahead and prepare

- Avoid large group sizes that are noisy and crowd out other visitors
- Displacement of others at popular sites
- Noise
- Crowding
- Conflicts
- Heavy site impacts
- Waste concentration

Travel and camp on durable surfaces

- Avoid widening trails by hiking two or more abreast, creating new trails, and cutting switchbacks

Dispose of waste properly

Leave what you find

- Leave flowers for others to see. Picking them prevents formation of seeds vital to their reproduction and survival
- Do not remodel trails, pile rocks, or take them home

Minimize campfire impacts

- Proliferation and migration of campfire sites
- Scorch ground at pristine sites so it loses it "wildness"
- Use minimal amount of wood or camping stove

Respect wildlife

- Feeding wildlife (unintentional or intentional) attracting them to people and developed areas
- Damages their health
- Alters natural behaviors
- Exposes them to predators

Be considerate of other visitors

- Respect different users (birders, bikers, climbers)
- Be quite

- Be polite

Benefits of applying LNT

Better planning leads to safer trips and lighter packs

Prevents avoidable impacts, minimizes unavoidable impacts

Protects the quality of natural environments and recreation experiences

Avoids or minimizes the need for restrictive management regulation or use limitations

C. Aquatic Hazards

While drownings are the type of fatality most commonly associated with water emergencies, drownings are actually responsible for only about 1:20 water related deaths

Near-drowning and drowning emergencies

Near-drownings and drownings do not always occur in large bodies of water

An adult can drown in just a few inches of water

Near drowning is defined as survival, at least temporarily (24 hours), from near suffocation due to submersion

Do not get tunnel vision by associating the following symptoms with near-drowning emergencies

- Airway obstruction
- Cardiac arrest
- Shock
- Spinal/head injuries
- External/internal bleeding
- Hypothermia

Cause of drowning

- The major causes of drowning include the following
    - Getting exhausted in the water
    - Losing control and getting swept into water that is too deep
    - Losing a support (sinking boat)
    - Getting trapped or entangled in the water
    - Using drugs or alcohol before getting into the water
    - Suffering from a medical emergency while in the water
    - Using poor judgment while in the water
    - Suffering hypothermia
    - Suffering trauma
    - Having a diving accident
    - Panic

Diving emergencies

- Near-drownings can be additionally complicated in cases where diving is involved
- Always assume that a diver has sustained neck and spinal injuries

Safety measures when dealing with aquatic emergencies

- As an emergency medical responder, you must be aware of the following safety measures
    - You need to reach the patient, but you must do so with the utmost concern for your own safety
    - Many drowning victims of water-related emergencies can be saved by basic life support measures (suctioning airway, AR)
- Remember that water can conceal many hazards
    - Holes
    - Sharp drop-offs
    - Under water entanglements
    - Currents
- As an emergency medical responder, never go out into the water to attempt a rescue unless you meet all of the following criteria
    - You are a good swimmer
    - You are especially trained in water rescue techniques
    - You are wearing a personal floatation device
    - You are accompanied by other rescuers
- If the patient is responsive and close to shore, remember: reach, throw, row, go
- If no object is available or time is a factor, and the patient is close to you, you can use yourself to grab the patient, by laying down flat on your stomach and extending your arm or leg
- Make sure that you are secure, and you will not be pulled in. If the patient is too far, you must carefully throw out an object that will float.

Mammalian diving reflex

- When the face of humans has been submerged in cold water, a reaction occurs in the body where the body's metabolism slows down.

Deep-water diving emergencies

- A major complication of deep-water diving emergencies is in coma, which can result from an air embolism, or decompression sickness
- Air embolism is a blocking of blood vessels by an air bubble or cluster of air bubbles. During a dive, pressure on the diver's body increases as they descend. If the diver ascends rapidly while holding their breath, the lungs and alveoli become damaged, resulting in air bubbles entering the bloodstream
- Signs and symptoms of an air embolism are as follows
    - Shortness of breath
    - Dizziness
    - Nausea/vomiting
    - Frothy blood in the nose and mouth

- Treatment for deep water emergencies
    - If no signs of neck/spinal injury, position the patient on a board on their left side with their entire body inclined approximately 15 degrees (to force air and gas bubbles to stay in the abdomen)

Emergency care for aquatic emergencies

- Establish scene safety
- Establish ABBC's
- Remove the patient from the water as quickly and safely as possible
- If you suspect a spinal injury, maintain in-line stabilization and then secure the patient to a spine board before removing them from the water
- If you do not suspect a spinal injury, place the patient on their left side
- Provide high flow oxygen
- Watch for gastric distention
- Treat for shock
- Monitor vital signs
- Keep patient as calm as possible
- Reassurance

Remember

- A near-drowning patient can develop complication that leads to death as long as 72 hours after the incident.
- Perform CPR on all drowning victims, with absence of a pulse, CPR has to be continued until the patient arrives at the hospital

D. Hiking and trekking

Hiking vs. Trekking

- Hiking involves a long energetic walk in a natural environment on hiking trails or footpaths for a day or overnight. Trekking involves a long vigorous hike in wild natural environment for multiple days. It can be done off hiking trails.

Essential hiking safety tips

Consult a park ranger

- When deciding where to hike, your best bet is typically going to be a national or state park. They're staffed by rangers with a wealth of information about what you need to stay safe in that particular location

Bring at least one friend

- Make it a group activity to eliminate the risk of being stranded alone in a dire situation. You and your companions should discuss a few things before you set out, like how strenuous a hike you're all OK with, your general itinerary, and an emergency plan.

Create an itinerary and share it with someone outside of the group

- Draw up a rough plan that all members of your party agree upon well before you leave the trailhead. Include your starting point and time, destination, route, and anticipated finish time.
- When calculating timing, keep in mind that it can be really tough to predict how long a hike will take when on unfamiliar terrain.

Agree on an emergency plan

- Get the emergency hotline numbers in the vicinity. In case there is an accident, who will take care of the patient? If you can't transmit a message, which one of you will volunteer to go get help?

Prepare for the weather

- This goes beyond just checking the weather before your hike. Talk to the rangers or consult the park site to find out what inclement weather events are most likely at this time of year and how to stay safe in them.

Pack the 10 essentials

- First aid kit
- Navigation: map, compass, and GPS
- Sun protection: sunscreen, sunglasses, hat
- Insulation: jacket/raincoat, extra layers
- Illumination: flashlight, lantern, or headlamp
- Fire: matches, lighter, fire starters
- Repair kit: duct tape and multifunctional tool
- Nutrition: at least an extra day's supply of no-cook, nutritious food
- Hydration: water and/or means of water purification
- Emergency shelter: tent, space blanket, tarp, bivy (as in, emergency shelter for a sleeping bag)

Customize your first aid kit

- You can buy a premade first aid kit containing items like adhesive and elastic wrap bandages and antiseptic. This will help you deal with the most common hiking injuries, like scrapes, ankle rolls, and bug bites. You can find a first aid kit at a drugstore or online. You can also assemble your own with some tips from the Red Cross.

Buy proper hiking boots and socks

- Properly fitting footwear with good cushioning and grip is essential for avoiding issues like rolling an ankle due to improper support. It will also help you prevent one of the most painful hiking hindrances: blisters.

Protect yourself from the sun

- Your first line of defense here is good timing. To avoid the peak hours of sun and heat, most experienced hikers set out in the early morning or late afternoon. Also, heed the

weather report. If it's going to be 100 degrees and clear skies, it's not the best day for a four-hour trek through shade-free terrain.

Bring extra water or a purification system

- It is good to drink about one-half liter to one liter per hour while active outdoors. The exact amount you need will depend on the circumstances of your hike as well as your usual water intake.
- While you can bring all your water with you (especially on a short hike), if you want to save weight, find out if there will be places to refill your bottle with potable water and if there are any natural water sources along the trail. (If you're visiting a national or local park, the rangers or site should have this info.)

Stay on the trail

- For the sake of your own safety, the natural resources, other hikers, and a potential search party, "it is paramount that you stay on that trail,".

Go for a small trial hike before taking on a major one

- Some things are hard to figure out until you're actually out there such as, for example, that you probably could've done without that 16-ounce jar of peanut butter, because wow, your pack is way too heavy.

E. Camping

History of camping

Tents have been used for centuries - by Native Americans (wigwams), by Mongolian and Central Asian nomads (yurts), and by armies moving from battleground to battleground.

As a pastime, camping took off in popularity in the British Isles towards the end of the 19th century, as the Victorian era drew to a close. A fellow by the name of Thomas Hiram Holding, who was the author of the first known camper's handbook (1908), which detailed the essentials of camping, is regarded as the father of modern recreational camping.

Equipment

Tent, torch/flashlight/lantern, sleeping bag, lockable duffel bag (recommended), Therm-a-Rest/air mattress, Swiss Army knife, stove, whistle, lighter, hammer/mallet (to drive tent stakes into the ground), axe/saw/hatchet (for chopping firewood for campfire), ropes, tarpaulin (to protect against rain), food storage, cooler (to store drinks and fresh produce)

Tips

Out in the open, you'll come across denizens of the wilderness who might think you're trespassing on their territory, so do maintain a respectful distance. Come well prepared (see equipment), and ready for any emergency. Nature, in the form of the animal kingdom and the weather, does tend to spring some nasty surprises, so make sure you have your wits about you. And come equipped with bucketloads of patience!

Medical concerns

Bring a first-aid kit and insect repellant, along with some sunscreen and sanitizer. Don't forget to pack rations you might need in an emergency.

Ecological concerns

Campers are fortunate to have the sky as a roof, and the earth as a floor - don't take your environs for granted. Since camping is, by and large, pursued outdoors, it is important to not disturb the inhabitants of the area, and their habitats. When setting up camp, be ecologically sensitive to your immediate surroundings, intruding as little as possible on the flora and fauna of the area. And do not litter - bring trash bags to dispose of all rubbish.

Health benefits of camping

- Fresh air
- Socialization
- Improved mood
- Less stress
- Exercise
- Sunshine
- Good night's sleep
- Good food
- New challenges
- Meditation

Creating a camp fire without matches/lighters

1. Friction: Friction is the most common way of creating fire and requires you to rub wood together using a bow, plow or a hand drill.

2. Sparks: Using materials like rocks, flint, and a battery with wool is a standard way to create sparks that will start a fire.

3. Sun: Concentrating the sunlight to generate enough heat to make a fire is a less conventional method, but it can work if you have the right materials and weather conditions.

4. Chemicals: You can carry select chemicals that will combust when they are mixed. This is the least common method because of the hazards of having to take potentially combustible materials on the trail.

F. Benefits of outdoor recreation

- Improves your metal well being
- Best way to get Vitamin D
- Boosts self-esteem
- Promotes memory
- Stress-reduction effects
- Reduces anxiety
- Improves the quality of your sleep
- Boosts your immunity
- Helps burn some unwanted fat

CHRISTIAN LIVING EDUCATION

A. 5 characteristics of Christian faith

Total and absolute

- Already the Old Testament contrasted faith in man in whom there is no salvation with faith in the Lord who made heaven and earth, who shall reign forever. Only faith in God calls for total and absolute adherence Christ himself provides, especially in His Passion, Death, and Resurrection, the best example of this total and absolute commitment to God.

Trinitarian

- For us Christians, faith is our adherence to the Triune God revealed through Jesus Christ our Lord. It is our friendship with Christ and through Christ with the Father, in through Christ's witness to his father, in his teaching, preaching, miracles, and especially to his passion, death, and resurrection, we come to believe in Christ our savior, in the father, and in the Holy Spirit sent int our heart. Our faith as Catholics, then, consists in our own personal conviction and belief in God our Father, revealed by Jesus Christ, His own divine Son-made-man, and their presence to us through the Holy Spirit.

Loving, maturing, and missionary

- Our Christian Faith is truly life-giving and mature only through love, for "the man without love has known nothing of God, for God is love". And to be Christian, this love must be inseparably love of God and love of neighbor, like Christ's. It thus impels us to mission, to evangelize, by bringing others the Good News. Such a missionary spirit is the test of authentic faith because it is unthinkable that a person should believe in Christ's Word and Kingdom without bearing witness and proclaiming it in his turn. This means we are all called to share in Christ's own three-fold mission as priest, prophet, and king.

Informed and communitarian

- Believing all the words and teachings of Jesus and that these words are safeguarded for us by the Church
- People who believed in God and show faith when we accept the words of others
- We show faith when we readily obey the direction of those over us
- There are strong communitarian elements in many modern, historical, political, and religious belief systems.

Enculturated

- Enculturation is the term that Catholic leaders and theologians have used in recent decades to denote a process of engagement between the Christian Gospel and a particular culture. The term is intended conceptually both to safeguard the integrity of the Gospel and to encourage sensitivity to various cultural contexts. Enculturation as a theological notion has been specifically associated with John Paul II's strategy of evangelization, including what is known as the "new evangelization" that focuses on cultures that had traditionally been Christian but which are now not clearly so.

B. 3 essential dimensions of faith

Faith

- Strong belief in God or in the doctrines of a religion, based on spiritual apprehension rather than proof
- Faith is a way of life and it is about completely believing and trusting God and all of His plans for us
- Faith is vitally essential in our Christian life because it encompasses every part of an individual; his/her mind, will, and heart

3 dimensions of faith

- Believing (mind)
    - The first dimension of faith is the most basic one and this includes recognizing the truth about Jesus Christ. This dimension of faith entails us to deepen our personal knowledge and understanding of Him and his teachings to us
- Doing (will)
    - Faith is not only knowing but also doing our mission which is to follow, love, and serve God and our neighbors. The second dimension refers to our actions in what we uphold in our faith and our need for Christ's spirit in actualizing our faith. It is our commitment to obey what God has in store for us
- Entrusting/worshipping (heart)
    - Beyond believing and doing, faith is also entrusting oneself into God's hands. Faith, then, is from the loving, trusting, and hoping in the Lord that comes from God's own love flooding our hearts
    - This trusting faith "lives and grows through prayer and worship", personal heartfelt conversation with God that is the opposite of mindless, mechanical repetition of memorized formulas

C. Paradoxical characteristics of faith

What is paradox?

- Any person, thing, or situation exhibiting an apparently contradictory nature. A seemingly self-contradictory declaration but is in fact true.

What is faith?

- To have faith in God is to make a practical commitment – the kind involved in trusting God, or trusting in God.

Paradoxical characteristics of faith

- Certain, yet obscure
    - We believe yet we find it difficult to understand, we find it incomprehensible and vague due to "rational-scientific" ways of modern life
    - Faith is the foundation upon which we build our lives
        - Living by faith, without seeing (2 Cor 5:7)
        - God is more than what we can fully comprehend
        - God can never be reduced to being proven by scientific experiments
- Free, yet morally obliging
    - No one forces us to believe
    - God calls men to serve him in Spirit and in Truth

- Reasonable, yet beyond natural reason
    - Only rational beings can believe
    - Faith is a grace that enlightens our minds
    - "Unless you believe you shall not understand" – St. Augustine
    - "Jesus spoke to them saying 'I am the light of the world. Whoever follows me will not walk in darkness, but will have the light of life'" – John 8:12
- An act, yet a process
    - "For this is eternal life: to know you, the only true God, and the one you sent, Jesus Christ" – John 17:3
    - Being a follower means we gradually and perseveringly develop so it comes to touching every aspect of our lives throughout our whole lives
    - St. Paul says "Christ lives in me" (Gal 2:19)
- A gift, yet our doing
    - Faith is a gift because "no one can come to me unless the Father who sent me draws him" – John 6:44
    - St. Paul confirms this by saying "no one say Jesus is Lord except in the Holy Spirit" – 1 Cor. 12:3
    - Faith depends on God
    - "Consequently, faith comes from hearing the message, and the message is heard through the word about Christ" – Romans 10:17
- Personal, yet ecclesial
    - The Church who believes supports and nourishes our faith

- Our Church believes that God willed man to be saved not as individuals but as a people for God has always revealed himself in history to a community

D. Faith and Salvation

Faith

- Faith is complete trust in someone or something. In the context of religion, one can define faith as "belief in God or in the doctrines or teachings of religion". Religious people often think of faith as confidence based on a perceived degree of warrant, while others who are most skeptical of religion tend to think of faith as simply belief without evidence

Salvation

- Salvation is the state of being saved or protected from harm or a dire situation. In religion and theology, salvation generally refers to the deliverance of the soul from sin and its consequences
- Real faith is a force within us that by the power of Christ's Holy Spirit gradually works a transformation in our daily thoughts, hopes, attitudes, and values. In religious terms, we know that faith is necessary for salvation it is the "beginning of our salvation" (cf. Trent, ND 1935; CCC 161). For "without faith, it is impossible to please God" (Heb 11:6). From experience, we realize that faith brings us fuller life which can be described by three basic values: genuine personal maturity, freedom, and happiness

Maturity

- Maturity is the ability to respond to the environment being aware of the correct time and location to behave and knowing when to act, according to the circumstances and the culture of the society one lives in.
- Types of maturity
  - Mental maturity, social maturity, physical financial maturity, emotional maturity
- Spiritual maturity is achieved through becoming more like Jesus Christ. After salvation, every Christian begins the process of spiritual growth, with the intent to become spiritually mature.
- Faith is a growth in personal maturity because it helps us "put childish ways aside" (1 Cor 13:11). It develops a basic honesty in us before God and man by making us aware of the sacrifices demanded by authentic human love. It grounds our own self-identity in the fact that we are sons and daughters of the Father, redeemed by the Blood of Christ our Savior, and inspired by their indwelling Holy Spirit.
- 5 signs of maturity in Christ
  - Receiving the truths of the gospel as it was passed down to them.
  - Stop pointing out everyone else's sins, and start confessing their own
  - Watch their words, and know when NOT to speak.
  - Grow less dependent on themselves, and increasingly dependent on Christ.
  - Make every effort to build on their faith

Freedom

- Freedom, generally, is having the ability to act or change without constraint. Something is "free" if it can change easily and is not constrained in its present state.
- Types of freedom?
    - Freedom of association, freedom of speech, freedom from bondage and slavery, freedom to choose one's state in life, freedom of belief, freedom to express oneself.
    - Everyone has the right to Freedom of thought, conscience, and religion; this right includes freedom to change his religion or belief and freedom, either alone or in community with others and in public or private, to manifest his religion or belief, in
    - worship, teaching practice and observance
- Faith in Christ frees us from preferring "darkness rather than light" (Jn 3:19), "the praise of men to the glory of God" (Jn 12:43). Without faith in God, we are at the mercy of "carnal allurements, enticements for the eye, the life of empty show" so that "the Father's love has no place in us" (1 Jn 2:15-16). As Scripture warns us: "the world with its seductions is passing away, but the man who does God's will endures forever" (1 Jn 2:17)

Spiritual joy

- Joy is something or someone that makes you feel happy or gives you great pleasure
- Having joy includes feeling good cheer and a vibrant happiness. But joy, in its fuller, spiritual meaning of expressing God's goodness, involves more. It is a deep-rooted, inspired happiness. The Holy Bible says, "The joy of the Lord is your strength" (Neh. ...It tells us that real joy comes from God and is ours forever)
- In so liberating us, faith in Christ fosters the value of spiritual joy. So Mary proclaimed: "My soul proclaims the greatness of the Lord, and my spirit rejoices in God my Savior" (Lk 1:46-47). John the Baptist was "overjoyed" to hear Christ's voice "that is my joy, and it is complete" (Jn 3:29). Christ himself taught his disciples "so that my joy may be yours, and your joy may be complete" (Jn 15:11), a "joy no one can take from you" (Jn 16:22). For Christian Faith is our response to Christ's "Good News, " lived in the Spirit whose fruits are "love, joy, peace, patience, endurance, kindness, generosity, faith, mildness and chastity" (Gal 5:22).

Why faith is necessary for salvation?

- In Luke 17:5, "the apostles said unto the Lord, Increase our faith." Because faith key is to the element to a good relationship with God

E. Faith and three classic questions

Faith

- "These three aspects of our Christian Faith - believing, doing, prayerful trusting - respond to the three classical questions posed to every person in life, and to St. Augustine's famous triple definition of faith." (CFC 134)

What can I know?

- Christian faith responds that we can know God as Our Father and Christ as Our Lord (credere Deum/Christum). "Know that we belong to God . . . that the Son of God has come and has given us discernment to recognize the One who is true" (1 John 5:19-20). Pagkilala sa Ama, sa Anak at sa Espiritu Santo. (CFC 134)

What should I do?

- Is answered curtly by "Keep His commandments" (1 John 2:3), which means to "love in deed and truth and not merely talk about it" (1 John 3:18). This demands acting on the credibility of God's teachings in Christ as true and dependable (credere Deo/Christo). (CFC 135)

What may we hope for?

- Christian Faith celebrates in prayer and sacrament the unshakeable hope that "neither death nor life, neither angels nor principalities, neither the present nor the future, nor powers; neither height nor depth nor any other creature, will be able to separate us from the love of God that comes to us in Christ Jesus, our Lord" (Romans 8:38-39). In brief, this hope means to believe in God "with your whole heart, with your whole soul, and with all your mind" (Matthew 22:37), entrusting ourselves to Him in love (credere in Deum/Christum). (CFC 136)

F. Identity of the Filipino Catholic

Who is the Filipino?

- Filipinos are first of all, family-oriented. It is in the bosom of their family that Filipinos find security, stability and a sense of belonging.
- Secondly, the Filipinos' sense of hospitality leads them to be meal-oriented (salu-salo, kainan). Our traditional greeting even for strangers is: "Tuloy po kayo at kumain muna tayo."
- Thirdly, Filipinos are kundiman-oriented whose lyrics often talk of sufferings endured.
- Fourthly, Filipinos are bayani-oriented; we are natural hero-followers of the malakas leader.
- Finally, Filipinos are spirit-oriented as seen in our popular beliefs about spirits dwelling in homes, trees, persons.

Filipino Catholic

- Communion centered
    - We find meaning in our lives and learn to face the hunger and poverty around us in encountering Jesus as Eucharist in our parish community. "Around the table of the Lord."
- Sacrificing sanctify
    - As Filipino Catholics, because we have met Christ the Suffering Servant in his Passion, we can pray about sin and forgiveness, about justice and reconciliation, about the suffering and Passion of our own Filipino people today. We have the strength to offer ourselves as "bread broken for the world," together with Jesus, because we believe with unshakeable hope that the Crucified One is Risen from the dead, victorious over sin, death and the world.
- Faithfully
    - We Catholic Filipinos, resilient as the bamboo (kawayan) and sturdy as the narra, commit ourselves to Christ, our hero-king, in deep gratitude for the gift of faith and for being Filipino.

- Lastly, our world vision as Catholic Filipinos is gradually transformed by Christ's Spirit-in-the-world in our Church community.

G. Mary Model of Faith

Who is Mary?

- As Catholics, we turn to Mary, the Mother of God and our mother. Mary's journey with God was one of deep faith and great trust. She had a grace-filled openness to the mystery of God in her life. We are familiar with Luke's account of the Incarnation when the angel appeared to Mary and announced, "The Lord is with you." Mary fully grasped this message and was therefore able to believe. Because she was able to believe, she was able to respond in faith, "Behold the handmaid of the Lord, let it be done unto me according to your word." However, before Mary responded to God, the Scriptures remind us that Mary was confused and frightened, and was deeply disturbed by the angel's greeting. Mary was fully human. In spite of her faith, her belief, her love, she was still confused and disturbed. She struggled to say "Yes" to the Lord! She "pondered" these words in her heart.
- Pondering is not simply a question of "thinking" or of trying to master the realities of faith or mysteries of life. It is not a question of trying to control these realities or mysteries or reduce them to something our minds can handle. Rather, it is a question of letting the realities of faith be with us, to enter into us and reveal themselves to us. It is allowing ourselves to be molded by them, to allow God's will to become our will. It is fostering both an attitude and atmosphere of trust and openness in our lives.

What is Faith?

- FAITH means- belief, firm persuasion, assurance, firm conviction, faithfulness. Faith is confidence in what we hope for and the assurance that the lord is working, even though we cannot see it. Faith knows that no matter what the situation, in our lives or someone else's that the lord is working in it.
- Our Mother is a model of faith. "By faith, Mary accepted the Angel's word and believed the message that she was to become the Mother of God in the obedience of her devotion. Visiting Elizabeth, she raised her hymn of praise to the Most High for the marvels he worked in those who trust him. With joy and trepidation she gave birth to her only son, keeping her virginity intact. Trusting in Joseph, her husband, she took Jesus to Egypt to save him from Herod's persecution. With the same faith, she followed the Lord in his preaching and remained with him all the way to Golgotha. By faith, Mary tasted the fruits of Jesus' resurrection, and treasuring every memory in her heart, she passed them on to the Twelve assembled with her in the Upper Room to receive the Holy Spirit."
- We, like Mary, are asked to bring forth a Savior to a weary, hurting world. The mystical body of Christ is pregnant with hope and calls us to be a Christ-bearer to a world desperately in need. It is a world in waiting for our eager and decisive "Yes" to the Lord and our "Yes" to a life of faith, as we are sent forth to follow the example of Mary and follow in the Christ's footsteps.

H. Four marks of the Church

Just as Filipinos have general characteristics and qualities, so does the Church

We can trace these qualities from the Gospel according to John: (Jn 17: 21)

- We are one. That all may be one even as you, Father, are in me and I in you. I pray that they may be one in us

The oneness of the Church helps us understand how the Church becomes the sacrament of Christ

To distinguish itself from all other religious groups

Four criteria proclaimed in the Nicene Creed: One, Holy, Catholic, and Apostolic

The Church does not possess the four qualities herself

It is Christ who, through the Holy Spirit, makes the Church as one, holy, catholic, and apostolic

It is Christ who calls the Church to realize each of these qualities

The Church is one

- The Church is a mystery of unity
- The Church is one because of her founder, Jesus Christ, who reconciled all people to God
    - He has restored the unity of all in one people and one body
- Unity is the essence of the Church
    - The 'soul' of the church
    - It brings about that wonderful communion of the faithful and joins them together in Christ
- The most fundamental in the Church – our unity in faith, hope, and love
- Within the unity of one faith, tolerance is not enough. Respect, love, and acceptance for one another and the desire to come to a 'togetherness' is also needed
- It is Christ who, through the Holy Spirit, makes his Church one. And we are all called to live out this oneness.

The Church is holy

- Primarily, the church is holy because of her founder Jesus Christ
- To sanctify the Church, Jesus Christ, gave himself to her and sent His Spirit to her
- Holiness is the commitment to justice. It is transforming of the world according to God's plan through compassion, service, and unconditional love. It is seen through God's love
- Charity/love is the center of holiness
- Ang pagiging banal ay di nababatay sa pagiging laman ng simbahan ngunit nasa pang-araw-araw mong ugnayan sa Diyos
- All of us are called by Christ to holiness
- The Church is the Bride of Christ

The Church is Catholic/universal

- From the Greek word Kath'olou - "referring to the whole", universal, related to all, embracing
- Universal mission (Good news/kingdom of God)
    - All are called to belong to the people of God
    - The Good news is for everyone and the Kingdom of God is for the whole world
- Day of Pentecost
    - This event shows that the assembly had experienced God in all cultures and languages

- Church is endowed with the fullness of the means for Salvation – that is complete confession of faith, full sacramental life, and ordained ministry in apostolic succession
- Use of the word Catholic became divisive after
    - East-west Schism (11th century)
        - East became Holy Orthodox Church
        - West claim the Catholic Church
    - Protestant reformation (16th century)
        - Churches that broke with the papacy
    - Sectarian
- Catholicism is not based on a single theological tradition but includes a wide variety of theologies, spiritualities, liturgies and expressions of the Christian life
- Universality of the Christian faith should be manifested in the openness of the Christian churches
- Global good of all - able to live demands of justice, peace, equality, sharing of good and integrity of creation

The Church is apostolic

- Christ grounded her (the Church) permanently on the foundation of the Apostles (Eph 2:20)
- Apostolic in terms of succession in apostolic teaching and tradition
- The Church continues to be instructed, sanctified and guided by the apostolic tradition until Christ's return through their successors in the pastoral ministry, the bishops.
- Christ had formed the Apostles in a form of college or permanent assembly, over which he place Peter chosen from among them, as its head (CFC 1409)
- Vatican II
    - Non-Catholic Christians are also incorporated into the Body of Christ and thus, into the Church
- Non-Christian believers can be saved if
- However, Christians know the plan because
    - They received redemption
    - And revelation
- Mission of Christians is to proclaim the love of God in words and deeds and their life

I. Lent

What is Lent

- Lent is one of the five liturgical seasons in the liturgical year
- During this time the people of God are called to commemorate and reflect on the Lord's passion through spiritual preparation, conversion, and penance
- This Holy Season is an invitation to renew our baptismal call. To live as Sons and daughters of God and disciples of Christ, our Lord and savior

Meaning of Lent

- A Germanic word that means spring season
- The Latin equivalent is qudragesima, a word meaning forty days
- Spring is a time of change and renewal
- The winter is over life begins to grow again

- Lent is a spiritual spring, a time for spiritual growth and renewal

Fasting

- A form of penance that imposes limits on the kind or quantity of food or drink

Abstinence

- Refers to refraining from certain kinds of food or drink

J. Gifts and fruits of the Holy Spirit

7 gifts

- Wisdom
- Counsel
- Piety
- Wonder and awe
- Understanding
- Knowledge
- Courage

12 fruits

- Self-control
- Chastity
- Peace
- Patience
- Kindness
- Goodness
- Generosity
- Gentleness
- Faithfulness
- Modesty
- Love
- Joy

K. Creation and the church's Raison D'etre

1st Day

- Let there be light, and there was light
- God saw that the light was good; and God separated the light from the darkness. God called the light Day, and the darkness he called Night. And there was evening and there was morning, the first day. And God said, "Let there be a dome in the midst of the waters, and let it separate the waters from the waters." So God made the dome and separated the waters that were under the dome from the waters that were above the dome. And it was so.

2nd Day

- God called the dome Sky. And there was evening and there was morning, the second day.
- And God said, "Let the waters under the sky be gathered together into one place, and let the dry land appear." And it was so. God called the dry land Earth, and the waters that were

gathered together he called Seas. And God saw that it was good. Then God said, "Let the earth put forth vegetation: plants yielding seed, and fruit trees of every kind on earth that bear fruit with the seed in it." And it was so. The earth brought forth vegetation: plants yielding seed of every kind, and trees of every kind bearing fruit with the seed in it. And God saw that it was good.

3rd Day

- The earth brought forth vegetation: plants yielding seeds of every kind, and trees of every kind bearing fruit with the seed in it. And God saw that it was good. And there was evening and there was morning, the third day.
- And God said, "Let there be lights in the dome of the sky to separate the day from the night, and let them be for signs and for seasons and for days and years, and let them be lights in the dome of the sky to give light upon the earth." And it was so. God made the two great lights - the greater light to rule the day and the lesser light to rule the night- and the stars. God set them in the dome of the sky to give light upon the earth,

4th Day

- To rule over the day and over the night, and to separate the light from the darkness. And God saw that it was good. And there was evening and there was morning, the fourth day.
- And God said, "Let the waters bring forth swarms of living creatures, and let birds fly above the earth across the dome of the sky." So God created the great sea monsters and every living creature that moves, of every kind, with which the waters swarm, and every winged bird of every kind. And God saw that it was good.

5th Day

- God blessed them, saying, "Be fruitful and multiply and fill the waters in the seas, and let birds multiply on the earth." And there was evening and there was morning, the fifth day.

6th Day

- And to every beast of the earth, and to every bird of the air, and to everything that creeps on the earth, everything that has the breath of life, I have given every green plant for food." And it was so. God saw everything that he had made, and indeed, it was very good. And there was evening and there was morning, the sixth day.

7th Day

- Thus the heavens and the earth were finished, and all their multitude. And on the seventh day God finished the work that he had done, and he rested on the seventh day from all the work that he had done.

Raison D' etre

Raison d'être is a French phrase, which according to the Merriam-Webster dictionary is defined as "the thing that is most important to someone or something: the reason for which a person or organization exists."

Reason for your existence

- The Scriptures make it clear that God's glory is the ultimate purpose of our existence. To give God glory is to give Him honor and praise. We were created and we live to bring glory

to God. Everything else in life is secondary and pales in comparison to the central goal of bringing honor and praise to God with our lives.

- Whatsoever you do, NEVER lose sight of the fact that God is the essence of who you are and without Him, you are nothing! Everyone who is called by my name, whom I created for my glory. Isaiah 43:7 In order that we, who were first to put our hope in Christ, might be for the praise of his glory. Ephesians 1:12 The heavens declare the glory of God; the skies proclaim the works of his hands. Psalm 19:1 If the whole creation declares the glory of God, how much more then should we who are created in His image and likeness bring glory to Him (Genesis 1:27)

Fulfilling your purpose

- First and foremost, if you are not born-again, you need to yield your life to God by accepting Jesus Christ as LORD. Declare with your mouth that Jesus is Lord and believe in your heart that God raised him from the dead (Romans 10:9). To all who receive him, to those who believe in his name, he gives the right to become children of God (John 1:12). If you are not a partaker of the kingdom of God, you cannot bring glory to God.

To know God and make him known

- You were created to know God and to make Him known. For your heart to be on fire for Him so that you can set the world around you on fire for Him.
- You bring glory to God by spending time fellowshipping with Him in prayer and the Word, by obeying His commands and by being a faithful ambassador of the gospel of Jesus Christ. The more time you spend with God, the more you get to know Him. Then, you can be an effective minister of the gospel.

To praise and worship God

- You exist to praise and worship God. You bring glory to God when you praise Him. His praise should continually be on your lips irrespective of your circumstances. He chose you and called you to declare His praises. But you are a chosen people, a royal priesthood, a holy nation, God's special possession, that you may declare the praises of him who called you out of darkness into his wonderful light. 1 Peter 2:9 Whoever offers praise glorifies me. Psalm 50:23 (NKJV)

To walk in the fruit of the spirit

- You exist to walk in the fruit of the Spirit so that you may attract your world into the kingdom of God. Your life should so reflect Him that you act as a magnet drawing people to Him. This brings glory to God. This is to my Father's glory, that you bear much fruit, showing yourselves to be my disciples. John 15:8 You were created for Him to be the essence of who you are so that He becomes the essence of everything you do. Everything about you should point to God and glorify Him. The way you think, talk, treat people, act at work or school, dress-up, eat, etc etc. Every detail of your life should be for the glory of God. So whether you eat or drink or whatever you do, do it all for the glory of God. 1 Corinthians 10:31

REFERENCES AND EXTERNAL LINKS

Christian Living Education

Salvation history	https://youtu.be/EevRrWyBllY
Catholic View of Salvation	https://www.stmatthewdetroit.com/salvation-history.php
Salvation history	https://youtu.be/Jnm5wPdy_m4
Mother Teresa	https://youtu.be/teQb8eubFzg
Some parts included are from student reports.	
5 characteristics of Christian faith	Presented by John, Jake
3 dimensions of Faith	Presented by Gian
Paradoxical characteristics of faith	Presented by Carmella, Edizon
Faith and Salvation	Presented by Jaydee, Bencel
Faith and 3 classic questions	Presented by Rovic
Identity of the Filipino Catholic	Presented by Cassandra
Mary: Model of Faith	Presented by Jan
Gifts and virtues	Presented by Eurica, John
Creation and Raison D'Etre	Presented by Kurt

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