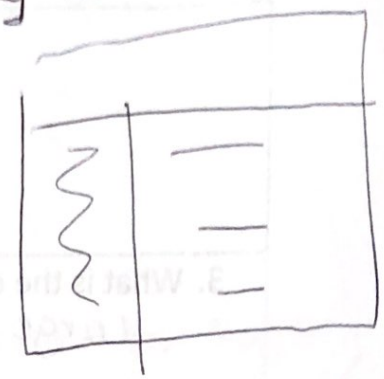
↳ Q = MCΔT



- No Neg. Temps. SI Session: Chapters 3 and 4

1. Describe the Kelvin scale:
   - K
   - 273 + °C
   - Freezing = 273K - water
   - Boiling pt water - 373K.

2. Define and give an example for the following:

term	definition	example
Temperature	• The measure of the intensity of the energy of the particles in a substance.	degrees C °F K.
Heat	Thermal energy, Form of energy that is transferred between samples of matter due to differences in temperature.	Heating Pad →
Calorie	Metric energy unit of Heat > The quantity of heat needed to raise 1g of water by 1°C.	
Joule	• SI unit for heat • energy needed to move 1kg, 1m at 1m/s acceleration.	Q = MCΔT
Specific Heat capacity		

gold = 0.128

	The amount of heat needed to raise 1g of a substance by 1°C	C

3. What is the difference between a large and small calorie?

Large = kilo Calorie - 1000 small calories
-Calorie

Small - 1 g to 1°C - 1/1000 of Calorie, calorie.

4. Specific heat problems:

a. A 12kg pot of water is heated from a temperature of 63 degrees K to 120 degrees K. Determine the heat capacity of the pot of water.

$Q = mC\Delta T$

$Q = (12kg)(4.18)(57)$

$Q = 2,859.12$ joules

$Q = ?$

$m = 12kg$

$C = 4.18$ g/K

$\Delta T = 120 - 63$

57°K

5. Define the following:

term	definition	example
Law of conservation of mass	• mass is neither Created nor destroyed	CampFire / Ash / Balloon

Law of definite proportions	States that a Chemical Compound will always contain exactly the same Proportions of	H_2O elements by mass.
Law of multiple proportions	If 2 elements form more than 1 compound between them, ratios of masses will always	PO_4H_2 be small whole numbers. 1:4:2
Atomic Mass Unit (amu)	• measure of mass for the element • 1/12th mass of Carbon-12 = 1	H = 1 amu ←

6. Who created the Atomic Theory, What does it state?

- Indivisible particles - called Atoms.
- John Dalton.
- 1) All elements are made up of atoms - cannot be created nor destroyed
- 2) All atoms in a given element are alike.
- 3) Compounds are formed when atoms combine in Fixed whole # ratios w/ atoms of different elements.

Law of def. Proportions →

4) When combined to Form a compound, there is a definite whole # ratio for each compound.

5) new matter Formed when a Chem. reaction occurs but no atoms are created or destroyed.

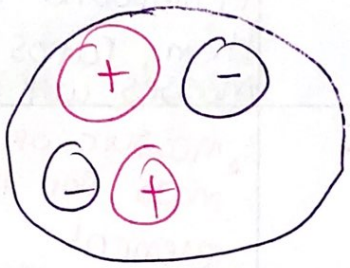
7. Who discovered the electron?

JJ Thomson.
- Plum Pudding model.

8. What was the plum pudding model, draw an example?

- model explained - inside positively Charged, Specks = electrons.

Proven-Wrong

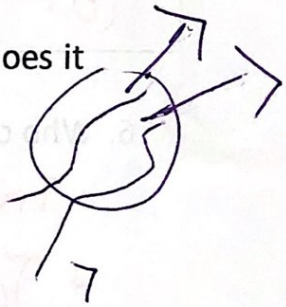


9. Who discovered the nuclear theory of an atom, what does it state?

- Ernest Rutherford.

> Gold Foil experiment.

- Most vol. of atom is empty space, nucleus = pos.



10. What are the 3 subatomic particles?

1) electron (-)
2) neutron (0)
3) Proton (+)

3) atoms are neutral
Proton = electrons.

1) most of atom's mass + pos charge are contained in nucleus

2) Most of the vol. of the atom is empty space - electrons dispersed