ANDHRAKESARI COLLEGE OF EDUCATION

(Recognized by the GOVT. of A.P. & NCTE Affiliated to Acharya Nagarjuna University)

Cheruvukommupalem Road , Pelluru (Post) , ONGOLE,
Prakasam (District), Andhrapradesh– 523272

SEMESTER – 2

S2P – COURSE – (I – V)

SCHOOL SOCIETY RELATED ACTIVES CARRIED FORWARD

PRACTICUM : ACTIVIES / PROJECT / RECORD

Name of the student Teacher : ----------

Roll No : ----------Reg.No :----------

Certificate

This is to certify that Mr./Mrs./Kum. KATAKAN KRISHNAVENI

Class No ------------------------------ Regd No. Y18ED31132 has completed the required activities regarding to School society Related Activity practicum towards the fulfillment of B.Ed course work stipulated by the Government of Andhrapradesh and approved by Acharya Nagarjuna University.

carried forward.

This Record is assessed.

Signature of the Lecturer

INDEX

School, Society Related Activities carried Forward (I-V)

(1)

Activity-1

Prepare a list of values to convert a man into right person.

Introduction:-

What is meant by values?

Values plays an important role in every one's life. Person who having good values are given respect in this society. By explaining of different types of values in home, school there is a chance for the students to attain confidence and respect from the society.

"Study of values" is an instrument designed by Werner and Lingde to know about the values of a person. By this we know what value is given importance by a person. According to Spenger values that are required to learn for children are following they are.

1. Moral values
2. Social values
3. Economical values
4. Scientifical values
5. Religional values
6. political values
7. Human values.

Values – Definitions:

⇒ "An opinion & interest expressed by the people towards an issue & a bearing in enjoyment".
– Education Dictionary.

⇒ "the concepts that are related to ~~an~~ which is important and which is not at the same time which is desirable and which is not desirable are values".

⇒ "the goals of a man are values".
– Brubechar

⇒ Concepts like personality development and devotional development that are related to a person are values – Ross.

Values - Division:

Values are divided in to different types by Socialistic Scientists that are.

1. Social values:- the relation between a person and Society and the relation between a person and person and values are called social values. they are related are Social Law.

Eg:- Co-operation, Adjustment, Brotherhood etc..

2. political Values:-

Equality, Liberity, freedom, equal law which are announced as Constitutional inspirees that are called political values

3. Hereditary Values:

Truth, peace, Love, devotion, Excuse, Simplicity, dare etc-- are Hereditary values.

4. Devotional Values:- thinking of God, Moksha and Humanity are Devotional values.

5. Complete Values: The abilities that are related to satisfying the temporary desires of a person are complete values.

6. Emotional Values: Dare, Risk, Heroism, Patience, etc- are the Emotional values

7. Mental Values:

Strong desire and unpathality are mental values

Importance of values in a person's life.

⇒ Values evalculate the talent of a person

⇒ Values made enjoyable life of a person.

⇒ Values reflect the behaviour of a person towards another person.

⇒ By values person attains respect in society

Goals:-

Truth: All of the values Truth value is great. The man that are reached closly to god by only close to truth.

Peace:

The tradition of India is peaceful. No harm that caused to others by our thoughts, words, activities is our peace.

Law:

Law means our duty. If we follow rule rule will save us.

Suggestions that are given to students to inculcate good values.

⇒ Humanity and excuse towards others.

⇒ Respect towards elders.

⇒ Moral values are have to attained towards Customs and traditions.

⇒ Helping to People who are in problems.

⇒ The work done by us doesn't interupt the peaceful life.

Suggestions that are given to students:-

⇒ Parents given limited freedom to students beyond unlimited.

⇒ All the members of family having good behaviour towards children.

⇒ Parents are become rolemodel to their children.

Suggestions that are given to Teachers:-

⇒ Make the students to participate in Co-curricular activities to attain Scientifical Values and Dare etc..

⇒ Teacher should be an inspiring person to students.

⇒ To increase the knowledge about society and environmental conservation Teacher has to take students for field trips, educational tours etc..

What we learnt?

⇒ Importance of values in a persons life.

⇒ Values With Out a life is like a flower with Out smell.

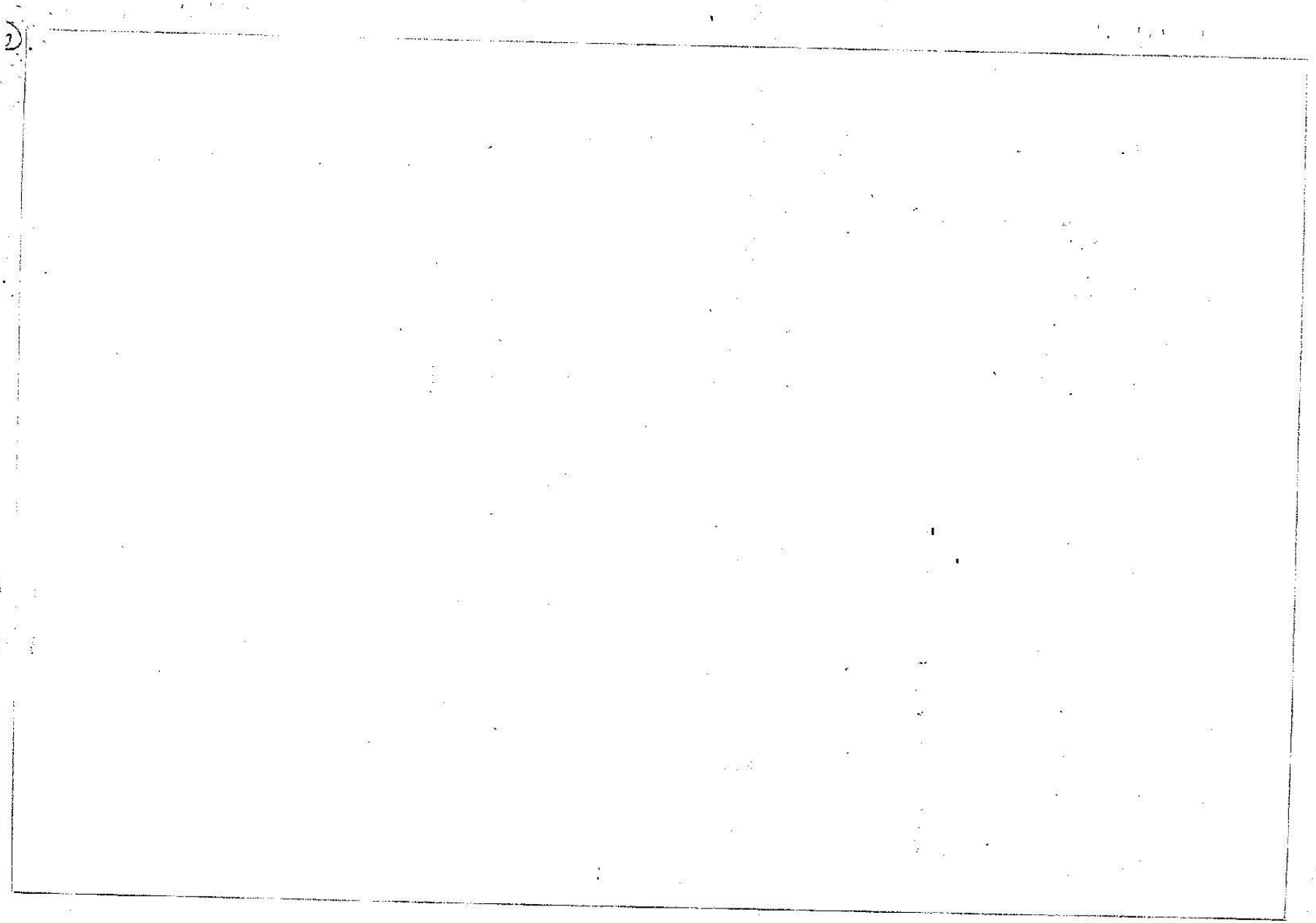
⇒ Values helps person's life from damages.

⇒ Values presente. a man in society as a highly dweloped personality

Conclusion:-

Values prepared students as a good citizen and edeucationalist to the society. and increases the responsibilities that are done by a person towards his/her country, society and family.

By all the issues we learnt that values are produced a lot of impact in a man's life by to attain complete personality development.



Activity-II

Visit a Balawadi centre / NGO centre for orphans / street children homes and prepare a detailed report on the care taken by these centres.

Balawadi Centre

Introduction:

A country's development is depends upon Human resources development. The results that are not come perfectly according to our efforts if we cannot concentrate on right time to development of Human resources the motivations that are caused in early childhood to personality development. As the Part of Integrated child Development scheme (ICDS) govt started Balawadi centres in 1972.

For the first time On 2nd October 1972 it was started at "Kambadur" in

Anantpur district.

For every 1000 members of population it needs one Anganwadi centre. Supervisor is appointed for every 25 Anganwadi centres.

A plan is prepared with the topics early childhood educational programmes, Healthy food during 2009-10. In this plan there should be programms during 11 months.

Education, Health, Food Campaigns are also Organised here.

Goals of Angawadi centre:

⇒ To increase the nourishness and health standard of children below 6 years.

⇒ To lay foundation strong of a children in physical and mental stage.

⇒ To decrease the infant mortality rate.

Preliminary information - Anganwadi centre.

I visited a anganwadi centre in the Part of my B.ed studying in Andhrakesari College of Education, Ongole

The following details are.

The place where Anganwadi is located : Gaddalaguta

Code no :- 80

establishment year :- 1980

No. of Students at starting :- 40
No. of students at present :- 20
Name of the organiser :- M. Shobharani.

The no. of students who are ~~below~~ 3-6 years in a Anganwadi centre.

3-4 years students = boys 8 + girls 6 = 14

4-5 years students = 4 + 2 = 6

மொத்தம் 12 + 8 = 20

Programms of an Anganwadi centre

Programms	Uses
1. Giving related diet.	for 6 months to 6 years children and pregnant ladies.
2. Vaccination	for infants and Pregnant ladies.
3. Primary Healthcare	for pregnant ladies, children.
4. Health checkups	"
5. Early childhood education	for 3-6 year children

(15)

Time table

S.No	day	9.00 9.20	9.20 9.40	9.40 - 10.00	10.00 10.50	10.50 11.00	11.00 11.20	11.20 11.30	11.30 12.00	12.00 12.15	12.15 1.00	1.00 2.30	2.30 2.50	2.50 3.00	3.00 4.00
1.	Monday	Students	Prayer	good	ready to	Indoor	Story	Games	Introduction	Lunch	Lunch	Sleep	Rhymes	Snacks	School
2.	Tuesday	teacher		Habits	School	&	time	of	of a	break	break	time	by		ready
3.	Wednesday	Teacher student	Snacks	Conversation	Programm	outdoor		freedom	book				teacher		Prayer
4.	Thursday	Conversation			Games	games			Scientific						aim
5.	Friday				with				knowledge						
6.	Saturday				freedom										

All the programms from monday to saturday is organised according to Timetable.

Conclusion:- By Anganwadi centres all the facilities Provided for 3-5 year children, pregnant ladies in the issues of Health and food.

It is a duty of officers to implement the schemes correctly that are provided by government and which are apt for them.

All the persons should take their responsibility of own country will be in become a dueloped country.

Activity – III (I C T) (15)

Explain Internet Services and Protocals and take any subject of your choice from School Curriculum and locate the Web Addresses (URLs) from internet make a list and submit.

Introduction:

A Computer is an electronic device that manipulates information or data. It has the ability to store, retrieve and process data. You can use a computer to type documents, send email, and browse the internet. You can also use it to handle spreadsheets, accounting, database management, Presentations, games and more.

Charles Babbage is called the "Father" of Computer. The first mechanical computer designed by Charles Babbage was called Analytical Engine. It uses read only memory in the form of punch cards.

Computer is electronic Device which is capable of receiving information in a particular form and of performing a sequence of operations in accordance with predetermined set of rules to produce a result in the form of information.

Networking:

A computer network is a group of computers that shares information across wireless or wired Technology. Computer networks used to only be available for corporations but they are affordable for small businesses and individuals.

Computer networking requires two computers, a protocal and the hardware to connect them.

A group of two computers a more computing machienes or devices connected via a form of communication Technology is called network.

Objectives of the Activity

→ To get familiarity with the concepts of Internet, networking and other terms.

→ To present the information about the concept of internet, internet services and protocals.

→ To present the list of URLs for referening the topics of a subjects in school curriculum.

Internet Services

Internet services allows us to access huge amount of information such as text, graphics, sound and softwaare over the internet.

The Internet services are available in various forms like. E-mail, Telnet, News groups, Internet Relay Chat (IRC), Mailing lists, Internet Telephony (VOIP) — FTP (File Transfer protocal, Archie, Gopher, WWW, Vedio conferencing, Web services etc.

Internet: Internet is a means of Connecting a Computer to any other computer anywhere in the world via dedicated routers and servers such as texts, graphics, voice, Vedio, Computer programmes etc.

The internet grew out of Advanced Research Projects Agency's Wide Area Network (Then called ARPANET) established by the US Department of Defence in 1960s for collaboration in military research among business and government laboratories.

① E-mail: Email (electronic mail) is the exchange of Computer Based stored messages by tele communication

Some Email messages are usually encoded in ASCII text. Email was one of the first uses of the internet and is still the most popular use. A large percentage of the total traffic over the internet is e-mail.

Email can also be exchanged between online service provider users and in networks other than the internet, both public and private.

② Telnet: It is used to log on to a remote Computer that is attached to internet.

Telnet lets you log into a remote computer as you would if you were there. So many commands that you would be able to run from the remote Computer if you were sitting in front of it, you would be able to run from the computer you logged in from.

③ News Groups: Offers a forum for people to discuss topics of common interests. News groups are organized into subject heirarchies with the first few letters of the news group name indicating the major subject category and sub categories are: - news

recreation, Society, Science, Computers and soforth. Users can seperate control and data connections between existing news groups, respond to previous posts and create new groups.

④ Internet Rely Chat : (IRC)

It allows the people from all over the world to communicate in real time.

⑤ Mailing Lists: These are used to organize group of internet users to share common information through e-mail.

⑥ Internet Telephony : (VOIP) It allows the internet users to talk across internet to any PC equipped to receive that call. It is also called as Voice Over Internet Protocal.

⑦ FTP - (File Transfer Protocal):

It enables the users to transfer files.

FTP is a standard network protocal used for the transfer of computers files from a server to a client using the client-server model on a computer network.

FTP build on a client-server model architecture and uses seperate control and data connections between the client and the server.

⑧ Arche : It's updated database of public FTP sites and their content. It helps to search a file by its name

(9) Gopher: It is used to search, retrieve and display documents on remote sites.

Gopher is another tool of internet to browse the required information for the client. It is a menu based programme that enables you to browse information without knowing the material located.

(10) WWW: It is known as WB. It offers a way to access documents spread over the several servers over the internet. These documents may contain texts, graphics, audio, vedio, hyperlinks etc.

(11) Video Conferencing: It is also known as teleconferencing and is a method of communicating by two-way video and Audio transmission with help of telecommunication technologies.

Internet Protocals

What are protocals?

When two humans converse, they may have to use the same language but they generally understand each other without having to adhere to rigid rules of grammar.

Computers on the other hands, have to have everything explicitly defined and structured. Therefore standard methods of transmitting and processing various kinds of information are used and these methods are called "protocals"

Computer protocals are - TCP/IP, Pop, SMTP, HTTP, FTP, UDP, ICMP, IPX, SPX and PPP.

① TCP: It is fully known as Transmission Control protocal. TCP is the means for creating the packets, putting them back together in the correct order at the end, and checking to make sure that no packets got lost in Transmission, If necessary, TCP will request that a packet be resent.

② IP: Internet Protocal is the principal communication protocal in the internet protocal suite for relaying datagrams across network boundaries. Its routing function enables inter-networking. The IP suite is therefore often reffered to as TCP/IP.

③ POP: The most common protocal used by PCs for receiving mail Post Office Protocal (POP). It is now in version 3 so it is called POP3. Email contents and clients require an address for a POP3 server before they can read mail.

④ SMTP: Email requires its own set of protocals and there are a variety, both for sending and for receiving mail. The most common protocal for sending mail is Simple Mail Transfer protocal.

⑤ HTTP: HyperText Transfer protocal is used to transfer the data confine with HTML. A HTML page is transmitted over the web in a standard way and format known as HyperText ~~Markup~~ Transfer Protocal this protocal uses TCP/IP to manage the web Transmission.

⑥ FTP: File Transfer protocal lives up to its name and provides a method for copying files from over

(7) UDP - Another member of the TCP/IP suite is User Datagram protocal (UDP). This protocal is used together with IP when small amounts of information are involved. It is simpler than TCP and lacks the flow control and error-recovery function of TCP.

(8) ICMP: A different type of protocal is Internet Control message Protocal. It defines a small number of messages used for diagnosting and management purposeses. It is also used by ping and Traceroute.

(9) IPX: IPX is a network layer protocal (layer 3 of the OSI model) while SPX is a transport layer Protocal (layer 4) of the OSI model. The SPX layer sits on top of the IPX layer and provides connection-oriented services between two nodes on the network.

SPX is used primarily by client-server applications.

(10) PPP: Point to Point protocal is a data link (layer 2) protocal used to establish a direct connection between two nodes. The PPP is most commonly used data link protocal. It is used to connect the Home PC to the server of ISP via a modem.

PPP defines the format of the frame to be exchanged between the devices.

PPP provides error detection

11. IMAP:

Interactive Mail Access Protocal is a more powerful protocal for reading mail. This protocal allows also uses TCP to manage the actual Transmission of mail.

An Isp (Internet Serice Protocal) is a Company that provides individuals and other Companies access to the Internet and other related services such as website building and virtual hosting. Internet - Definition.

The internet grew out of the advanced research projects Agency's wide Area Network is called ARPANET, established by the Department of defence in 1960s for Collaboration in Millitory research among business and government labbratories.

Learning outComes:

1. I have got familiarity with the Concept of Internet, networking and other related terms.
2. I have learned about the internet services and internet protocals
3. I have learned to present the report on how we can use internet services for refering the subject matters.

Activity – IV (Mathematics)

POWER POINT PRESENTATION

Name of the student:

Teacher :

Roll no :

Subject: Mathematics

Class: vii

Topic :Exponents and Powers

Exponents and Powers

- The distance from the sum to earth is 1,49,600,000,000 m.
- The earth has approximately 1,353,000,000.Cubic km of sea water.
- We have written these kinds of number using Exponents.

Example :- 1,40,00,00,000m.

$=1.4 \times 10^9$ m.

We read 10^9 as 10raised to the power of 9.

Base ← 10^9 → Exponent

Observe the pattern:

6 Raised to the power of 1 $=6^1$

$=6$

6 Raised to the power of 2 $=6^2$

$=6.6$

(we read 6 squares)

6 Raised to the power of 3 $=6^3$

$=6.6.6$

=(6 cube)

6 Raised to the power of 4 $=6^4$

$=6.6.6.6$

=(6 power 4)

Generally ,

This we can say that axaxaxaxaxa.....'m' times $=a^m$ where 'a' is the base and 'm' is the exponent.

Ex:- 1) $5x^2$

Base: x

Exponent:2

2) $(5x^2)$

Base:5 x

Exponent:2

Read the following:-

(a) $x\frac{5}{4}$ **(b) 6(2 x-3)**

Sol:- (a)co-efficient $-\frac{5}{4}$

(b)co-efficient – 6.

2) In $8x^4$ write coefficient , base, exponent?

Sol:- coefficient -8

Base $-x$

Exponent -4

3)$5.x.x.x.y.y.y.y$ Write in the exponential form?

Sol:- $5.x.x.x.y.y.y.y = 5.x^3.y^4$

$=5x^3y^4$

Powers with negative exponents:

Diameter of the sun = 1,40,00,00,000 m.

$=1.4\times10^{9}$m

- Avogadro number $=6.023\times10^{23}$
- Thickness of hair $=0.000005$m.

Observe of following examples:-

$10^{3}=10\times10\times10=1000$

$10^{2}=10\times10=100=1000/10$

$10^{1}=10=100/10.$

$10^{0}=1=10/10.$

$10^{-1}=?$

We observe in the above pattern $10^{-1}=1/10$

Similarly $10^{-2}=1/10\ /\ 10 = 1/10 \times 1/10 = 1/100=1/10^{2}$

$10^{-3}=1/100 / 10 = 1/100\times 1/10 = 1/1000=1/10^{3}.$

From the above examples:

$$1/10^{n}=10^{-n} \text{ (or) } 1/10^{-n}=10^{n}$$

We observe the following pattern.

1) $8=2\ x2x2= 2^{3}$

2) $8/2=4=2(2)=2^{2}$

3) $4/2=2=2^{1}$

4) $2/2=1=2^0$

5) $1/2 =2^{-1}$

6) $1/2^2 = 2^{-2}$

For any non –zero integer `a` and any integer ` m` $a^{-m} = 1/a^m$

Where a^{-m} is the multiplicative inverse of a^m

$$a^m \times a^{-m} = a^{m+(-m)} = a^o = 1$$

Properties of exponents:

1) $a^m x a^n = a^{m+n.}$
2) $(a^m)^n = a^{mn.}$
3) $(ab)^m = a^m x b^{m.}$
4) $a^m/a^n = a^{m-n.}$
5) $(a/b)^m = a^m/b^m$
6) $a^0 = 1$
7) $a^n = 1/a^{-n}, a^{-n} = 1/a^n$

Examples:-

1) If 'x'=5 **then find the value of** x^3 **?**

Sol:- $x^3 = x.x.x$

$=5.5.5$

=1.25

2) Observe $(5x)^2$,$5x^2$

Sol:- In $5x^2$----Base x

Exponent 2

$(5x)^2$-----Base $5x$

Exponent 2

3) **A) 5/4 x B) 6(2 x-3) Find co efficient**

Sol:- 5/4 x=coefficient is 5/4

6(2 x-3)= coefficient is 6

Observe the following Examples:

$5^3x5^2=(5x5x5x)x(5x5)$

$=(5x5x5x5x5)$

$=5^5=5^{5+3}$.

$= (-2/3)3x4$

$= (-2/3)^{12}$

Based on all the above we can say that

$(a^m)^n=a^m \times a^m \times a^m$ ----------n times

$= a^{m+m+m}$----------n times

$= a^{mn}$

For any non-zero integer `a' ,and integers m and n $(a^m)^n=a^{mn}$

Exponents of a product:

$\neq 0, b\neq 0$, if m is a positive integer

Then $(ab)^m = a^m \times b^m$

Observe the following examples:

$(3x2)^5 = (3x2) \times (3x2) \times (3x2) \times (3x2) \times (3x2)$

$=(3x3x3x3x3) \times (2x2x2x2x2)$

$= 3^5 \times 2^5$

Similarly $(ab)^m$ =(ab) x (ab) x (ab) x --------x (ab) ----- m times

= (axaxaxa------a) x (bxbxbxbxb----b)---- m times

$= a^m \times b^m$

Therefore $(ab)^n = a^m b^m$

$a^m b^m = (ab)^m$. In all conditions it is true.

Bases are equal then, dividing exponents:

$a^m/a^n = a^{m-n}$ if m>n and $a^m/a^n = 1/a^{n-m}$ if m<n

For `d' a non -zero integer `a' and integers `m' and `n'.

$a^m/a^n = a^{m-n}$ if m>n and $a^m/a^n = 1/a^{n-m}$ if n>m

Observe the following examples :

$6^4/6^2 = 6x6x6x6/6x6 = 6^2 = 6^{4-2}$

$(-4)^5/(-4)^8 = (-4)x(-4)x(-4)x(-4)x(-4)/(-4)x(-4)x(-4)x(-4)x(-4)x(-4)x(-4)x(-4)$

$= 1/(-4)x(-4)x(-4) = 1/(-4)^3 = 1/(-4)^{8-5}$

If m>n ,(a is not equal zero) $a \neq 0$

We write m = (m-n) + n

$a^m/a^n = a^{n+(m+n)}/a^n = a^n x a^{m-n}/a^n = a^{m-n}$

If n>m, n is n = (n-m)+m we write in this form.

$a^m/a^n = a^m/a^{(n-m)+m} = 1/a^{n-m}$

(Note : according to the first exponent law.)

If $a^m/a^n = a^{m-n}/a^{(n-m)+m}$,m>n and m<n

Division of base, exponent.

That means $(a/b)^m = a^m/b^m$ positive integer

Observe the following examples

$(4/5) = 4/5 \times 4/5 \times 4/5 = 4x4x4/5x5x5 = 4^3/5^3$

$$(x/y)^5 = \frac{x}{y}\frac{x}{y}\frac{x}{y}\frac{x}{y}\frac{x}{y} = \frac{xx\,xx\,xx\,xx\,x}{yx\,yx\,yx\,yx\,y} = \frac{x5}{y5}$$

Generally ,$(a/b)^m$ = a/b x a/b x ------x a/b (m times)

= axaxax-----a (m times) / bxbxbx---b(m times)

=a^m/b^m

$$(a/b)^m = a^m/b^m$$

Zero exponents

In the earlier discussion we have seen that

$2^0 = 1$

$3^0 = 1$

Similarly we can say

$4^0 = 1$

$5^0 = 1$ and so on

Thus, for non zero integer `a'

$$a^0 = 1$$

Activity IV (Social Science)

Identify any village / ward / colony and make social survey and find out the literacy rate, Adult education Programmes, electricity and municipal water facility and Toilets etc. description Report.

Introduction:- I know about the water facility, Toilet facility near Our place in the part of B.Ed studying in G.V & A.D.S.L college of education

Goals:

1) To know about the water facility of the ward
2) To know all the related items of the ward
3) About electricity.
4) Toilet facility.
5) Needs and facilities of the wards.
6) To know about information of everyone.
7) to know the position of the ward.

S.No	family	Age	literates	illiterates	water facility	Toilet facility	Electricity.
1)							
1.	K. Bramara kumari	55	7th class		Municipal water facility is available	Yes	Yes
2.	K. Kasi Viswanath	39	Inter				
3.	K. Pushpalatha	34	B-Ed				
4.	K. Vanisri devi	11	V class				
5.	K. Bhaskar Sri Kashyap	6	I st class				
2)							
1.	A. Venkateswarlu	58	degree		Tap system water facility	Yes	Yes
2.	A. Chenchamma	52	4th				
3.	A. Venkata Ritvika	4	Nursery				
3)							
1)	P. Ramachandra Rao	49	10th class		Municipal water facility	Yes	Yes

2)	P. Padmaja	40	B.A	Yes	Yes	yes	
3)	P. Karthik	18	Engineering				
4)	P. Manikanta	16	Inter				
2f)							
1)	B. Sujatha	33	Inter				
2)	B. Sai	15	9th				
3)	B. Kiran	12	6th				
3)							
1.	Venkata lakshmi	32	V				
2.	K. Sangaiah	40		illiterate			
3.	K. Srinivasulu	19	V				
4.	K. Vijayalakshmi	16	10		Yes	yes	Yes

5-	K. Sandhya Rani	14		Illeterate			
6.	K. Yessamma	12	4th class				
6)	N. Seshaiah	75	B.A				
6) 2)	N. Leelavathi	72	10th		Yes	Yes	Yes
7) 1)	M. prakash	42	M.A				
2)	M. Nirmala	35	B.A		Yes	Yes	Yes
3)	M. Ramani	11	V				
8) 1)	N. Koteswara Rao	30	8th				
2)	N. Roopa udayalakshmi	25	10th		Yes	Yes	Yes
3)	N. Teja Sri	8	II				
4)	N. Gowtham	5	L.K.G				
9) 1)	K. Venkateswarlu	49	10th				
2)	K. Rammanamma	40	—		Yes	Yes	Yes

10)						
1)	P. Sreenu	45	10th			
2)	P. Jayamma	40		yes	yes	yes
3)	P. Nagemma	23	8th			
4)	P. Chakravarthi	18	Inter			
5)	P. Hemanth	13	8th			
11)						
1)	N. Ajay Baby	49	B.A, B.Ed			
2)	N. Tulasi latha	39	M.S.C.P.H.d	yes	yes	yes
3)	N. Bhuvana Sai	9	III class			
12)						
1)	S Lakshmi	48	B.A			
2)	S. kala	20	Engineering.			
3)	S. Kiran	21	Engineering	yes	yes	yes
13)						
1)	V. Lalithamma	70	6th			
2)	V. Ramu	45	degree	yes	yes	yes

4)						
1)	B.V. Subba Rao	40	C.A			
2)	B. Padma	32	10th	yes	yes	yes
3)	B. Sreelatha	14	7th			
5)						
1)	CH. Subba Rao	50	degree			
2)	CH. Ramadevi	35	Inter			
3)	CH. Poorna Teja	21	B.tech	yes	yes	yes
4)	CH. Karthik		B.tech			

Preliminary Information:-

Literates:- There are 171 members in Our Ward.

illiterates:- There are 13 members illitterates in our world.

Electricity facility:- All families are having electricity facility. Street lights are also available.

Water facility:- All families enough having water facility except 2 families.

Toilet facility:- All are having own Toilets

Maintainance of Road:- Maintainence of Road is neat and clean.

Learning Outcomes:-

* By this Survey we I know all the needs of all the families.
* Facilities of Toilets and water.

Conclusion:- I Surveyed the ward needs and facilities of ward in the part of B.Ed studying in Andhra kesari College of Education.

1. Surveyed the 2-p colony ~~of~~ manganuru donke. to know the needs and facilities of the ward.

Activity - IV (Biological Science)

Visit a Organisation of your choice like zoological garden (or) Botanical garden (or) Agriculture based factory (or) foodpark and prepare a detailed report.

Report on Agriculture based factory:-

Introduction:-

First milk factories were started at Ahmedabad. father of white Revolution "Vargees kuriyan". the Producers of milk factories provide milk for venders. the venders gave money on their Interest. For relative price the prodeecers of milk factories join togethes and created a small group. this group is arranged in all states, districts, villages.

Preliminary Information:

I visited ongole dairy in the part of B.Ed studying in Andhrakesari college of Education

Named as Ongole dairy:

On 16/9/1987 late. Sri. Nandamuri Taraka RamaRao layed a foundation state and named as Ongole dairy.

Chairman of milk dairy of ongole is Challa srinivasa Rao.

1. Capacity of dairy – 3,50,000 Ltr/ perday.
2. milk powder production – 30 metric tons/perday.
3. milk packets production – 55,000 litres/perday.
4. cheese produce – 20 metric tons per day.
5. Capacity of pasteurisation – 3-5 lakh litres per day.
6. ways of milk collection – 82.
7. producers of milk – 30,150
8. Association groups – 708.

Present collection of milk – 95 thousand litres

Selling of milk – 55 thousand litres.

The Share of Ongole dairy – 15%.

Dairy's Contribution towards farmers:

1) feed for animals
2) Mineral mixture
3) Medicines of animals.
4) Insurance for animals,
5) 50% of subsidy
6) Insuranced animals at present - 22,612.
7) Medicines are provide on 10% subsidy.

Scientific resources:

Health of dairy animals, feed and mineral mixture at started. dwelopment Programme is important. By this programm - every year 1.90 crore amount is collected By this 50 lakhs was given as subsidy.

Uses:

* If the policy holders dies 40,000 was given to their family.
* If the policy holders dies due to an accident 85,000 was given to their family.
* If he became an divyang in any accident he can get 25,000.
* To develop animals they produce oxes.
* Best feed produced for the development of feedy animals

Special schemes implemented by ongole diary:

1) Animal welfare scheme:

If an animal dies due to an accident the price of the animal should be given to the holder.

2) Health development programme for milk animals were produced for their welfare.

Conclusion:

I visited the Agriculture based factory of ongole milk dairy in the part of studying B.Ed in Andhrakesari college of Education. I observed and prepared a detailed repost on the programms that are going in the factory about resources, Production of milk, milkpowder, cheese... and the programms that are organised by the dairy farm.

Activity - 5

Pedagogy of English

Activity Title : Analyze the tasks given at the end of any one Unit in the Textbook and Check their relevance to cognitive, affective domains.

Introduction to - Bloom's Taxonomy

The Chief aim of Education is to bringout a useful change in the personalities of the students. In order to find out wether the expected change is occured in the personality of the student, we have to evaluate it. Fo this objectives are required but it would be better if they are arranged in different ~~dominas~~. domains

For classifying the objectives of Education The college examiners gathered together in the meeting held in American Psychological Association, Boston-1948 and the committee devided the objectives into three categories namely..

1. Cognitive Domain
2. Affective Domain
3. Psycho-motor Domain.

Dr. Benjamin S. Bloom Confined to Cognitive Domain, David R. Krathwohl confined to Affective Domain and Elizabeth Simpson and R.H. Dhave importantly develop the psycho-motor Domain.

Finally all these Educational objectives are Considered as Bloom's Taxonomy of Educational objectives.

Bloom's Taxonomy - 1956

Cognitive Domain	Affective Domain	Psycho-motor Domain
1. Knowledge	1. Receiving	1. Imitation
2. Comprehension	2. Responding	2. Manipulation
3. Application	3. Valuing	3. Precision
4. Analysis	4. Organisation	4. Articulation
5. Sythesis	5. Characterisation of Values	5. Naturalisation
6. Evaluation		

Description of the Original Taxonomy - 1956

Cognitive Domain :-

1. Knowledge : Knowledge is defined as the remembering of previously learned material. This involves the recall of specifics and universals, the recall of wide range of materials, specific facts, methods, processes, or Recall of Patterns, structures etc.,

Action Verbs Describe Learning outcomes: Choose, Copy, define, describe, find, group, identify, indicate, label, list, locate, match, name, pick, point to, quote, recall, recite, select, sort, state, tell, underline, write, what, when, who.

2. Comprehension :- Comprehension is defined as the ability to grasp the meaning of material, communicating an idea, translating material to another form, summerizing material, understanding facts and principles.

Action Verbs : Compare, Comprehend, Conclude, Contrast, demonstrate, explain, expand, illustrate, outline, predict, rephrase ..

3. Application : It is the ability refers to use learned material in new situation and in concrete situation.

and solving problems, Demonstrating Correct usage, applying rules, methods and principles to solve the problem.

Action Verbs demonstrate Learning out Comes:

apply, Construct, classify, develop, organize, solve, test, use, utilize, wield.

④ Analysis: It refers to the ability to breakdown material into its components parts so that organizational structure may be understood.

Action Verbs demonstrate Learning outcomes:

analyze, assume, breakdown, classify, Compare, Contrast, discriminate, distinguish, devide, examine, inspect, reason, seperate, search, study etc.

⑤ Synthesis: It refers to the ability to put parts together to form a new whole, Formulating new patterns, abstract relationships, creating new things, etc.

Action Verbs demonstrate Learning outcomes:

builds, create, combine, Construct, develop, derive, form, formulate, generate, modify, make up, plan, rearrange, reconstruct, suggest, revise, write etc.

⑥ Evaluation: Evaluation is concerned with the ability to judge the value of material for a given purpose.

Action words demonstrate Learning outcomes:

appraise, accept/reject, assess, Conclude, critisize, decide, determine, evaluate, interpret, Justify, Judge, select etc.

Affective Domain

① Receiving: Refers to receiving the information, understanding and internalize it. by listening it attentively.

Action words demonstrate Learning outcomes:

Ask, Choose, describe, follow, give, identifies, locate, names,

Points to, selects, replies.

(2) Responding: Refers not only to receiving and understanding of the concept but also participating in a productive Activity.

Action verbs demonstrate Learning outcomes:

answers, assist, complies, discuss, greet, labels, practice, read, present, recite, tell, reports, writes.

(3) Valuing: refers to abiding by some values and also, refers to developing attitudes.

Action words demonstrate Learning outcomes:

Completes, describes, explains, follows, justifies, Proposes, reads, reports, shares, studies etc.

(4) Organization: Refers to developing values for the and also establishing relations among them. It is about bringing together values, resolving conflicts between them.

Action words demonstrate Learning outcomes:

arranges, alters, Combines, Completes, generalizes, integrates, modifies, orders, relates, prepares, synthesizes.

(5) Characterisation of Values: This is the ultimate and higher value or objective in the affective domain.

Action verbs demonstrate Learning outcomes:

Acts, displays, influences, Performs, questions, revises, serves, Uses, Verifies etc.

Objectives of doing this Activity:

(1) To Know the domains and objectives in various domains.

(2) To get familiarity with the tasks given at the end of the unit.

(3) To analyse the task given at the end of a unit in the English Reader and find the relevance with cognitive & affective domains.

Analysing Activities at the end of V Unit from Class - 7th and Checking their relevance with Cognitive & affective domains :- A Trip To Andaman

Division	Activity	Relevance with Cognitive domain	Relevance with Affective domain
Comprehension	I Answering the questions from prose lesson	- Student tries to listen/ read the questions and to comprehend so it has relevance with - 'Comprehension'	- The pupil responds to the question and tries to answer them so it has relevance with 'Responding'
	II - Tick the correct answer.	- The pupil tries to choose/ recognize the correct answer among choices, has its relevance with - 'Knowledge'	- Student selects the right option from choices, it has relevance with 'Receiving'
Vocabulary	I. Find antonyms for the words write sentences for each word. (from text)	- As student trips and locates the antonyms for words. it has relevance with - Knowledge.	- As students practices writing sentences using Antonyms of words, it has relevance with 'Responding'
	II Fill in the blanks with appropriate forms of words given in brackets.	- As the pupil tries to complete the blanks or with appropriate forms of words, it has relevance with - ~~'Valuing'~~ Application.	- As tries to complete the blanks. it has relevance with - 'Valuing'

Divisions	Activity	Relevance with Cognitive domain	Relevance with Affective domain
Grammar	II. Reading sentences from Passage, Pick out phrasal verbs from a dictionary and use them in your sentences.	- As they pick out phrasal verbs it has relevance with 'Knowledge'. - As they use them in their own sentences it has relevance with - 'application'	—
	I. Read sentences taken from the lesson - simple past. II Past Continous Tense	- As student studies and analyses the information it has relevance with - 'Analysis.'	- As studies and follows the concepts and rules, it has relevance with - 'Receiving'
	Fill in the blanks with appropriate forms of the verbs given in brackets.	→ It has relevance with 'knowledge' as student selects one from Choices.	→ The student responds and fills the blanks.
	Work in pairs: Narrate what your family members were doing yesterday when you reach home after school.	→ As student applies the rules, it has relevance with - 'Application.'	→ As student reports what happend, it has relevance with - Responding

Division	Activity	Relevance with Cognitive domain	Relevance with Affective domain
Writing	- Arranging sentences in proper sequence using connectors.	- As student tries to re-arrange the sentences, it has relevance with 'Synthesis'	- As student uses connectors and try to combine and arrange the sentences it has relevance with 'organization'
	II Describing a place you have visited recently and writing a letter about it to your friend.	→ As student tries to describe a place it has relevance with - 'Knowledge'	→ As student describes and shares experience it has relevance with - 'Valuing'
Study Skills	Write briefly in your own words the best and most uncomfortable time to visit Port Blair. Give reasons.	→ As student compares the data in the table and concludes, it has relevance with - 'Comprehension'	→ As student tries to explain reasons, it has relevance with - organizes (generalizes).
Listening & Speaking	Listening to story - 'Gulliver in Lilliput' and answer the questions.	→ As students try to listen attentively and 'Comprehend' the information it has relevance with - Comprehension	

Division	Activity	Relevance with Cognitive domain	Relevance with Affective domain
5. Reading Project	Take a few important places, collect few pictures and paste them on a big chart and add a write up to it.	- As the student tries to demonstrate the information it has relevance with - 'Comprehension.'	- As the student shares information, it has relevance with - Valuing

Analysis and Reporting :

As the Bloom's Taxanamy suggest there are three categories of objectives in the field of education to attain. The activities that are given at the end of unit are checked in keeping view that their relevance with mainly Cognitive and affective domain.

The activities given in the unit are having their relevance with Cognitive and affective domains, as the objectives and their specifications through their nature.

Activity - V (Physical Science)

J. J. Thomson

From Wikipedia, the free encyclopedia

Sir Joseph John Thomson OM PRS[1] (/ˈtɒmsən/; 18 December 1856 – 30 August 1940) was an English physicist and Nobel laureate in physics, credited with the discovery and identification of the electron; and with the discovery of the first subatomic particle.

In 1897, Thomson showed that cathode rays were composed of previously unknown negatively charged particles, which he calculated must have bodies much smaller than atoms and a very large value for their charge-to-mass ratio.[2] Thomson is also credited with finding the first evidence for isotopes of a stable (non-radioactive) element in 1913, as part of his exploration into the composition of canal rays (positive ions). His experiments to determine the nature of positively charged particles, with Francis William Aston, were the first use of mass spectrometry and led to the development of the mass spectrograph.[2]

Thomson was awarded the 1906 Nobel Prize in Physics for his work on the conduction of electricity in gases.[3] Seven of his students, including his son George Paget Thomson, also became Nobel Prize winners either in physics or in chemistry.[4] His record is comparable only to that of the German physicist Arnold Sommerfeld.

Contents

Education and personal life

Joseph John Thomson was born 18 December 1856 in Cheetham Hill, Manchester, Lancashire, England. His mother, Emma Swindells, came from a local textile family. His father, Joseph James Thomson, ran an antiquarian bookshop founded by a great-grandfather. He had a brother two years younger than he was, Frederick Vernon Thomson.[3] J. J. Thomson was a devout Anglican.[6][7][8]

His early education was in small private schools where he demonstrated outstanding talent and interest in science. In 1870 he was admitted to Owens College in Manchester at the unusually young age of 14. His parents planned to enroll him as an apprentice engineer to Sharp-Stewart & Co, a locomotive manufacturer, but these plans were cut short when his father died in 1873.[5]

He moved on to Trinity College, Cambridge, in 1876. In 1880 he obtained his Bachelor of Arts degree in mathematics (Second Wrangler in the Tripos[9] and 2nd Smith's Prize).[10] He applied for and became a Fellow of Trinity College in 1881.[11] Thomson received his Master of Arts degree (with Adams Prize) in 1883.[10]

In 1890, Thomson married Rose Elisabeth Paget, daughter of Sir George Edward Paget, KCB, a physician and then Regius Professor of Physic at Cambridge at the church of St. Mary the Less. They had one son, George Paget Thomson, and one daughter, Joan Paget Thomson.

Thomson was a reserved yet devout Christian.[12]

Career and research

Overview

On 22 December 1884 Thomson was appointed Cavendish Professor of Physics at the University of Cambridge.[2] The appointment caused considerable surprise, given that candidates such as Richard Glazebrook were older and more experienced in laboratory work. Thomson was known for his work as a

Sir J. J. Thomson
OM PRS

Born	Joseph John Thomson December 18, 1856 Cheetham Hill, Manchester, England
Died	30 August 1940 (aged 83) Cambridge, England
Citizenship	British
Nationality	English
Fields	Physics
Institutions	Trinity College, Cambridge
Alma mater	Owens College University of Cambridge (BA)
Academic advisors	John Strutt (Rayleigh) Edward John Routh
Notable students	Charles Glover Barkla Charles T. R. Wilson Ernest Rutherford Francis William Aston John Townsend J. Robert Oppenheimer Owen Richardson William Henry Bragg H. Stanley Allen John Zeleny Daniel Frost Comstock Max Born T. H. Laby Paul Langevin Balthasar van der Pol Geoffrey Ingram Taylor Niels Bohr George Paget Thomson
Known for	Plum pudding model Discovery of electron Discovery of isotopes Mass spectrometer invention First m/e measurement Proposed first waveguide Thomson scattering Thomson problem Coining term 'delta ray' Coining term 'epsilon radiation' Thomson (unit)
Notable awards	Smith's Prize (1880)

mathematician, where he was recognized as an exceptional talent.[12]

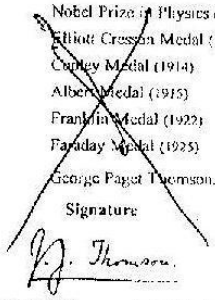
He was awarded a Nobel Prize in 1906, "in recognition of the great merits of his theoretical and experimental investigations on the conduction of electricity by gases." He was knighted in 1908 and appointed to the Order of Merit in 1912. In 1914 he gave the Romanes Lecture in Oxford on "The atomic theory". In 1918 he became Master of Trinity College, Cambridge, where he remained until his death. Joseph John Thomson died on 30 August 1940; his ashes rest in Westminster Abbey, near the graves of Sir Isaac Newton and his former student, Ernest Rutherford.[14]

One of Thomson's greatest contributions to modern science was in his role as a highly gifted teacher. One of his students was Ernest Rutherford, who later succeeded him as Cavendish Professor of Physics. In addition to Thomson himself, eight of his research assistants (Francis William Aston, Charles Glover Barkla, Niels Bohr, Max Born, William Henry Bragg, Owen Willans Richardson, Ernest Rutherford, Charles Thomson Rees Wilson) and his son won Nobel Prizes in physics or chemistry. His son won the Nobel Prize in 1937 for proving the wave-like properties of electrons.

Royal Medal (1894)
Hughes Medal (1902)
Nobel Prize in Physics (1906)
Elliott Cresson Medal (1910)
Copley Medal (1914)
Albert Medal (1915)
Franklin Medal (1922)
Faraday Medal (1925)

Children: George Paget Thomson

Signature



Early work

Thomson's prize-winning master's work, *Treatise on the motion of vortex rings*, shows his early interest in atomic structure.[3] In it, Thomson mathematically described the motions of William Thomson's vortex theory of atoms.[13]

Thomson published a number of papers addressing both mathematical and experimental issues of electromagnetism. He examined the electromagnetic theory of light of James Clerk Maxwell, introduced the concept of electromagnetic mass of a charged particle, and demonstrated that a moving charged body would apparently increase in mass.[13]

Much of his work in mathematical modelling of chemical processes can be thought of as early computational chemistry.[2] In further work, published in book form as *Applications of dynamics to physics and chemistry* (1888), Thomson addressed the transformation of energy in mathematical and theoretical terms, suggesting that all energy might be kinetic.[13] His next book, *Notes on recent researches in electricity and magnetism* (1893), built upon Maxwell's *Treatise upon electricity and magnetism*, and was sometimes referred to as "the third volume of Maxwell".[3] In it, Thomson emphasized physical methods and experimentation and included extensive figures and diagrams of apparatus, including a number for the passage of electricity through gases.[13] His third book, *Elements of the mathematical theory of electricity and magnetism* (http://catalog.hathitrust.org/Record/001985977) (1895)[15] was a readable introduction to a wide variety of subjects, and achieved considerable popularity as a textbook.[13]

A series of four lectures, given by Thomson on a visit to Princeton University in 1896, were subsequently published as *Discharge of electricity through gases* (1897). Thomson also presented a series of six lectures at Yale University in 1904.[3]

External video

The Early Life of J.J. Thomson: Computational Chemistry and Gas Discharge Experiments (https://www.youtube.com/watch?v=WH-U_tjC3zT0), Profiles in Chemistry, Chemical Heritage Foundation

Discovery of the electron

Several scientists, such as William Prout and Norman Lockyer, had suggested that atoms were built up from a more fundamental unit, but they envisioned this unit to be the size of the smallest atom, hydrogen. Thomson in 1897 was the first to suggest that one of the fundamental units was more than 1,000 times smaller than an atom, suggesting the subatomic particle now known as the electron. Thomson discovered this through his explorations on the properties of cathode rays. Thomson made his suggestion on 30 April 1897 following his discovery that cathode rays (at the time known as Lenard rays) could travel much further through air than expected for an atom-sized particle.[16] He estimated the mass of cathode rays by measuring the heat generated when the rays hit a thermal junction and comparing this with the magnetic deflection of the rays. His experiments suggested not only that cathode rays were over 1,000 times lighter than the hydrogen atom, but also that their mass was the same in whichever type of atom they came from. He concluded that the rays were composed of very light, negatively charged particles which were a universal building block of atoms. He called the particles "corpuscles", but later scientists preferred the name electron which had been suggested by George Johnstone Stoney in 1891, prior to Thomson's actual discovery.[17]

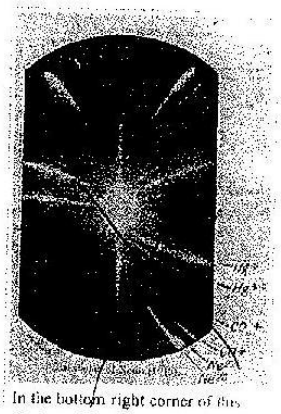
In April 1897, Thomson had only early indications that the cathode rays could be deflected electrically (previous investigators such as Heinrich Hertz had thought they could not be). A month after Thomson's announcement of the corpuscle, he found that he could reliably deflect the rays by an electric field if he evacuated the discharge tube to a very low pressure. By comparing the deflection of a beam of cathode rays by electric and magnetic fields he obtained more robust measurements of the mass to charge ratio that confirmed his previous estimates.[18] This became the classic means of measuring the charge and mass of the electron.

Thomson believed that the corpuscles emerged from the atoms of the trace gas inside his cathode ray tubes. He thus concluded that atoms were divisible, and that the corpuscles were their building blocks. In 1904 Thomson suggested a model of the atom, hypothesizing that it was a sphere of positive matter within which electrostatic forces determined the positioning of the corpuscles.[2] To explain the overall neutral charge of the atom, he proposed that the corpuscles were distributed in a uniform sea of positive charge. In this "plum pudding" model the electrons were seen as embedded in the positive charge like plums in a plum pudding (although in Thomson's model they were not stationary, but orbiting rapidly).[19][20]

Isotopes and mass spectrometry

In 1912, as part of his exploration into the composition of the streams of positively charged particles then known as canal rays, Thomson and his research assistant F. W. Aston channelled a stream of neon ions through a magnetic and an electric field and measured its deflection by placing a photographic plate in its path.[5] They observed two patches of light on the photographic plate (see image on right), which suggested two different parabolas of deflection, and concluded that neon is composed of atoms of two different atomic masses (neon-20 and neon-22), that is to say of two isotopes.[21][22] This was the first evidence for isotopes of a stable element; Frederick Soddy had previously proposed the existence of isotopes to explain the decay of certain radioactive elements.

J.J. Thomson's separation of neon isotopes by their mass was the first example of mass spectrometry, which was subsequently improved and developed into a general method by F. W. Aston and by A. J. Dempster.[2]



In the bottom right corner of this photographic plate are markings for the two isotopes of neon: neon-20 and neon-22.

Experiments with cathode rays

Earlier, physicists debated whether cathode rays were immaterial like light ("some process in the aether") or were "in fact wholly material, and ... mark the paths of particles of matter charged with negative electricity", quoting Thomson.[18] The aetherial hypothesis was vague,[18] but the particle hypothesis was definite enough for Thomson to test.

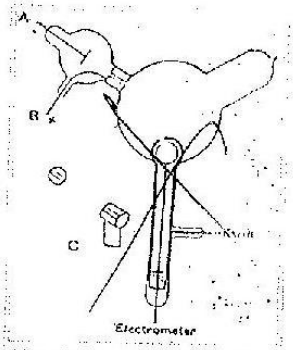
Magnetic deflection

Thomson first investigated the magnetic deflection of cathode rays. Cathode rays were produced in the side tube on the left of the apparatus and passed through the anode into the main bell jar, where they were deflected by a magnet. Thomson detected their path by the fluorescence on a squared screen in the jar. He found that whatever the material of the anode and the gas in the jar, the deflection of the rays was the same, suggesting that the rays were of the same form whatever their origin.[23]

Electrical charge

While supporters of the aetherial theory accepted the possibility that negatively charged particles are produced in Crookes tubes, they believed that they are a mere by-product and that the cathode rays themselves are immaterial. Thomson set out to investigate whether or not he could actually separate the charge from the rays.

Thomson constructed a Crookes tube with an electrometer set to one side, out of the direct path of the cathode rays. Thomson could trace the path of the ray by observing the phosphorescent patch it created where it hit the surface of the tube. Thomson observed that the electrometer registered a charge only when he deflected the cathode ray to it with a magnet. He concluded that the negative charge and the rays were one and the same.[16]

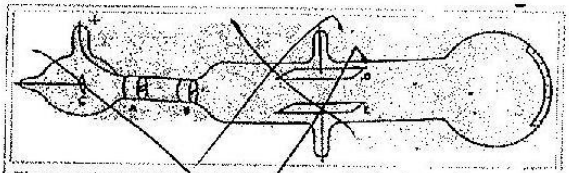


The cathode ray tube by which J.J. Thomson demonstrated that cathode rays could be deflected by a magnetic field, and that their negative charge was not a separate phenomenon.

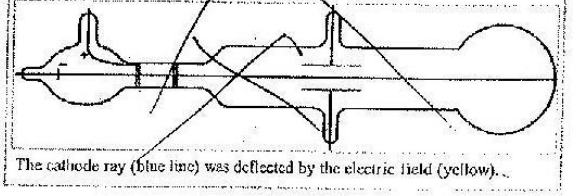
Electrical deflection

In May–June 1897, Thomson investigated whether or not the rays could be deflected by an electric field.[5] Previous experimenters had failed to observe this, but Thomson believed their experiments were flawed because their tubes contained too much gas.

Thomson constructed a Crookes tube with a better vacuum. At the start of the tube was the cathode from which the rays projected. The rays were sharpened to a beam by two metal slits – the first of these slits doubled as the anode, the second was connected to the earth. The beam then passed between two parallel aluminium plates, which produced an electric field between them when they were connected to a battery. The end of the tube was a large sphere where the beam would impact on the glass, created a glowing patch. Thomson pasted a scale to the surface of this sphere to measure the deflection of the beam. Note that any electron beam would collide with some residual gas atoms within the Crookes tube, thereby ionizing them and producing electrons and ions in the tube (space charge); in previous experiments this space charge electrically screened the externally applied electric field. However, in Thomson's Crookes tube the density of residual atoms was so low that the space charge from the electrons and ions was insufficient to electrically screen the externally applied electric field, which permitted Thomson to successfully observe electrical deflection.



Thomson's illustration of the Crookes tube by which he observed the deflection of cathode rays by an electric field (and later measured their mass to charge ratio). Cathode rays were emitted from the cathode C, passed through slits A (the anode) and B (grounded), then through the electric field generated between plates D and E, finally impacting the surface at the far end.

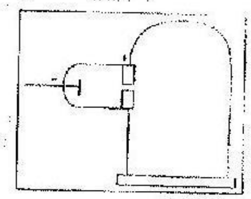


The cathode ray (blue line) was deflected by the electric field (yellow).

When the upper plate was connected to the negative pole of the battery and the lower plate to the positive pole, the glowing patch moved downwards, and when the polarity was reversed, the patch moved upwards.

Measurement of mass to charge ratio

In his classic experiment, Thomson measured the mass-to-charge ratio of the cathode rays by measuring how much they were deflected by a magnetic field and comparing this with the electric deflection. He used the same apparatus as in his previous experiment, but placed the discharge tube between the poles of a large electromagnet. He found that the mass to charge ratio was over a thousand times *lower* than that of a hydrogen ion (H^+), suggesting either that the particles were very light and/or very highly charged.[18] Significantly, the rays from every cathode yielded the same mass-to-charge ratio. This is in contrast to anode rays (now known to arise from positive ions emitted by the anode), where the mass-to-charge ratio varies from anode-to-anode. Thomson himself remained critical of what his work established, in his Nobel Prize acceptance speech referring to "corpuscles" rather than "electrons".



Thomson's calculations can be summarised as follows (notice that we reproduce here Thomson's original notations, using F instead of E for the electric field and H instead of B for the magnetic field).

The electric deflection is given by $\Theta = Fel/mv^2$ where Θ is the angular electric deflection, F is applied electric intensity, e is the charge of the cathode ray particles, l is the length of the electric plates, m is the mass of the cathode ray particles and v is the velocity of the cathode ray particles.

The magnetic deflection is given by $\varphi = Hel/mv$ where φ is the angular magnetic deflection and H is the applied magnetic field intensity.

The magnetic field was varied until the magnetic and electric deflections were the same, when $\Theta = \varphi$ and $Fel/mv^2 = Hel/mv$. This can be simplified to give $m/e = H^2l/F\Theta$. The electric deflection was measured separately to give Θ and H, F and l were known, so m/e could be calculated.

Conclusions

> As the cathode rays carry a charge of negative electricity, are deflected by an electrostatic force as if they were negatively electrified, and are acted on by a magnetic force in just the way in which this force would act on a negatively electrified body moving along the path of these rays, I can see no escape from the conclusion that they are charges of negative electricity carried by particles of matter.
>
> — J. J. Thomson[18]

As to the source of these particles, Thomson believed they emerged from the molecules of gas in the vicinity of the cathode.

> If, in the very intense electric field in the neighbourhood of the cathode, the molecules of the gas are dissociated and are split up, not into the ordinary chemical atoms, but into these primordial atoms, which we shall for brevity call corpuscles; and if these corpuscles are charged with electricity and projected from the cathode by the electric field, they would behave exactly like the cathode rays.
>
> — J. J. Thomson[24]

Thomson imagined the atom as being made up of these corpuscles orbiting in a sea of positive charge; this was his plum pudding model. This model was later proved incorrect when his student Ernest Rutherford showed that the positive charge is concentrated in the nucleus of the atom.

Other work

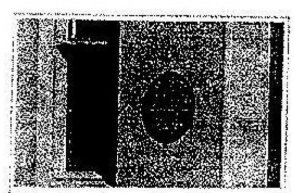
In 1905, Thomson discovered the natural radioactivity of potassium.[25]

In 1906, Thomson demonstrated that hydrogen had only a single electron per atom. Previous theories allowed various numbers of electrons.[26][27]

Awards and honours

Thomson was elected a Fellow of the Royal Society (FRS)[1][28] and appointed to the Cavendish Professorship of Experimental Physics at the Cavendish Laboratory, University of Cambridge in 1884.[2] Thomson won numerous awards and honours during his career including:

- Adams Prize (1882)
- Royal Medal (1894)
- Hughes Medal (1902)
- Nobel Prize for Physics (1906)
- Elliott Cresson Medal (1910)
- Copley Medal (1914)
- Franklin Medal (1922)



Plaque commemorating J. J. Thomson's discovery of the electron outside the old Cavendish Laboratory in Cambridge

Thomson was elected a Fellow of the Royal Society[1] on 12 June 1884 and served as President of the Royal Society from 1915 to 1920.

Posthumous honours

In 1991, the thomson (symbol: Th) was proposed as a unit to measure mass-to-charge ratio in mass spectrometry in his honour.[29]

J J Thomson Avenue, on the University of Cambridge campus, is named after Thomson.[30]

In November 1927, J.J. Thomson opened the Thomson building, named in his honour, in the Leys School, Cambridge.[31]

References