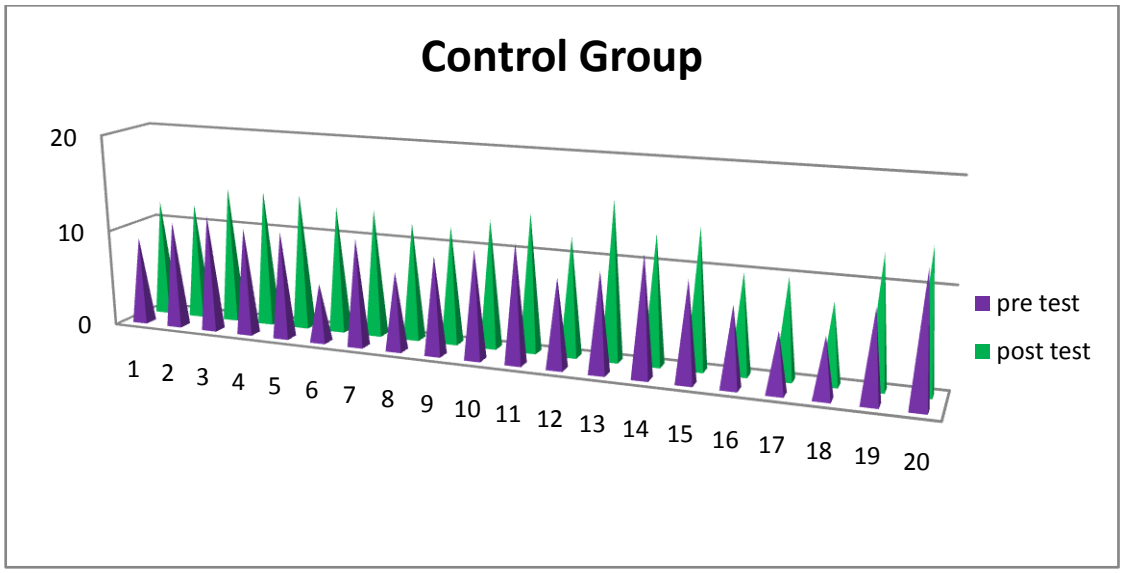
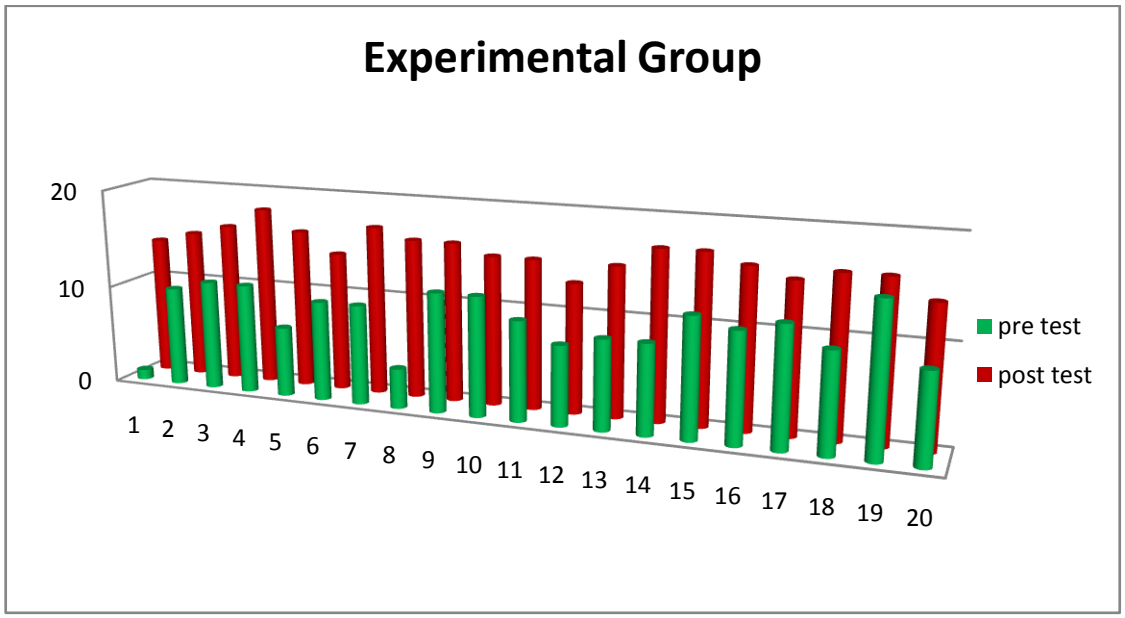
Graph - 1 Pre test - Post test Scores of the Control group



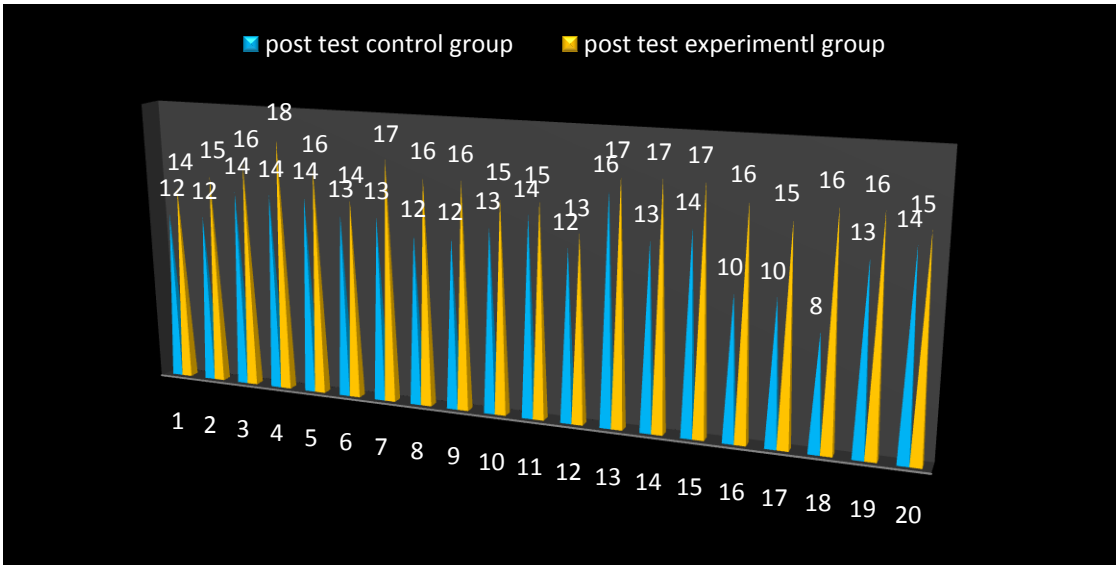
From the graph it can be observed that the scores of post test for the controlled group is higher than the scores of pre test.

Graph - 2 Pre test - Post test Scores of the Experimental Group



The graph indicates that the scores of post test for the experimental group is higher than the scores of pre test.

Graph - 3 Student wise Progresses in Post test of both the Groups (Experimental and Control Group)



From the graph it can be seen that the scores of post test for the experimental group is higher than the scores of post test for controlled group.

5.2.2. HYPOTHESIS TESTING

The analysis of data using t test is mentioned below in a tabular format.

Ho1 There will be no significant difference between the mean achievement scores of pre test and post test of the students in the control group.

This hypothesis was tested by applying‘t’ test

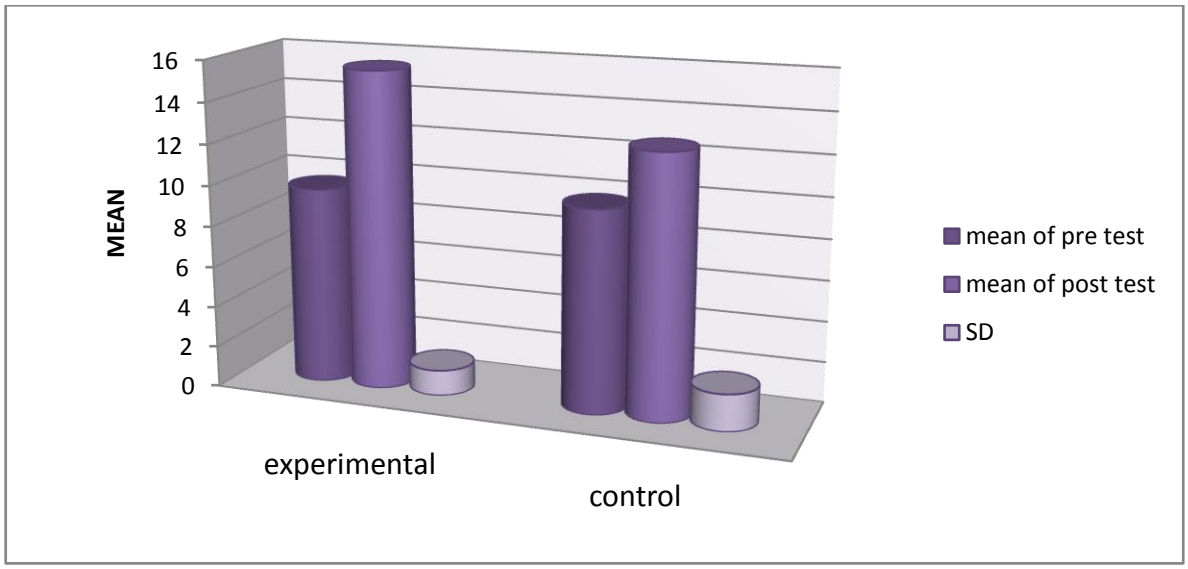
Table 4 Difference between pre and post test of the students control group

Group	Mean	SD	SDM	DF	‘t’ value cal	‘t’ value Table
Control group Pre test	**9.85**	**2.16**	**0.48**	**19**	**7.36**	**2.38**
Control group Post test	**12.7**	**1.82**	**0.40**			

** Significance 0.01 level

As it is observed that table value is less than calculated value. Hence the hypothesis stating “There will no significant difference between the mean achievement scores of

Graph - 4 Mean of pre test, post test and SD of experimental and control groups



From the graph it can be seen that the mean of post test for the experimental group is higher than the control group.

5.3 Analysis and Interpretation of the Opinionnaire

Here, researcher used an opinionnaire to find the views of teachers about the cartoon based programme**.**

Statement 1. Cartoons can used to teach science.

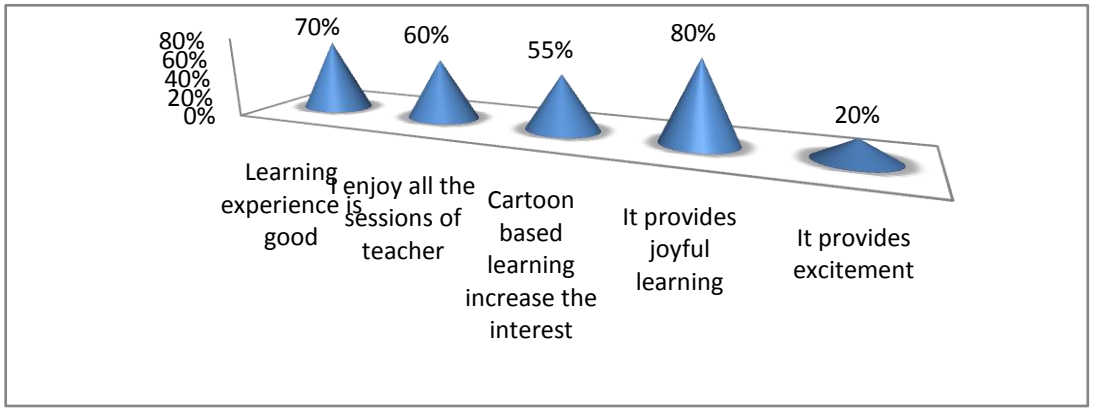
Strongly agree	Agree	Undecided	Disagree	Strongly disagree
2 40%	2 40%	1 20%	- 0.00%	- 0.00%

40% teachers strongly agreed, 20% science teachers agreed and 20% were undecided. Thus approx 80% teachers did agree with the statement that Cartoons can be used to teach Science.

Statement 2. Students will make noise and get distracted if cartoon are used for teaching.

Strongly agree	Agree	Undecided	Disagree	Strongly disagree
1 20%	2 40%	1 20%	1 20%	- 0.00%

Graph 5 Graphical representation of question 1



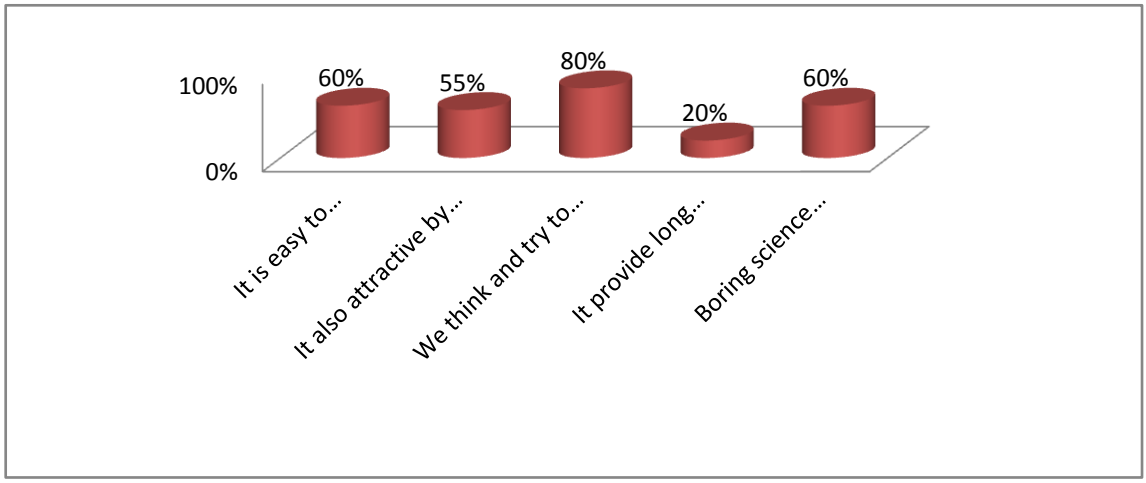
70% students said that their learning experience was good and enriching , 60% learners said that I enjoyed all the sessions, 55% said cartoons increased their interest in the subject , 80% said that it provided joyful learning experiences and 20% students said that it provided excitement while learning.

Q.2 Do you think you could learn better with cartoons? Why?

Table 8 Response on feedback form question 2

	Responses of students	**Percentage**
1	Yes	98%
2	It is easy to understand concept through cartoons	60%
3	It also attractive by seeing	55%
4	We think and try to learn	80%
5	It provide long lasting learning experience	20%
6	Boring science concept by cartoons gives us fun	60%

Graph 6 Graphical representation of question 2



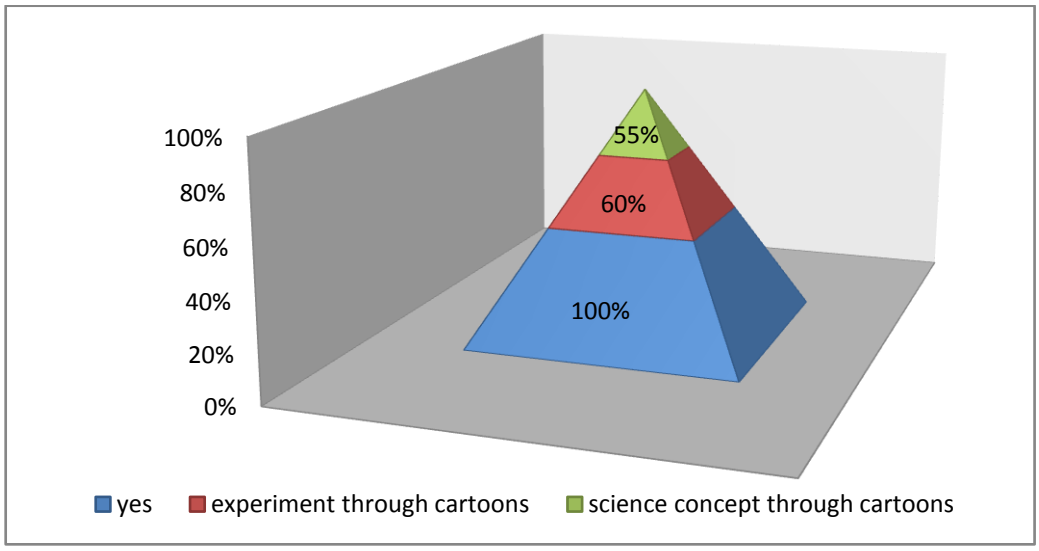
98% learners said that they learnt better with cartoons. 60% said that it seemed attractive, 60% said that it was easy to understand the concepts through cartoons and 80% students said that could think critically and learn concepts, 20% said that it provided long lasting learning experiences and 60% said that boring science concept could be made interesting.

Q.3 would you like to learn any science concept through cartoons in future? Please share your views.

Table- 9 Response on feedback form question 3.

Sr. No	Responses of students	Percentage
1	Yes	100%
2	I would like to understand experiments through cartoons	60%
3	I would like to learn refraction concept through cartoons	55%

Graph 7 Graphical representation of question 3



All the students said that they liked and would like to learn science through Concepts Cartoons.

Conclusion

From the above data analysis and interpretation it is evident that Cartoons add live and humour in the classroom. Moreover, it enables students to retain concepts and information for longer duration and leads to permanent learning.

The findings derived on the basis of the present chapter are depicted in the subsequent chapter.

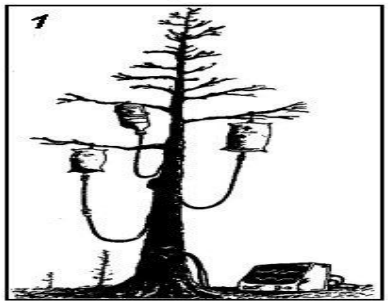
Task sheet 1

Name of Student: **Date-**

Name of School:

Standard: **Topic – Acid Rain**

<u>Instruction</u>: Observe the following cartoons and give answers in space provided below.

	
Pluies acides 	
	
L'agonie 	

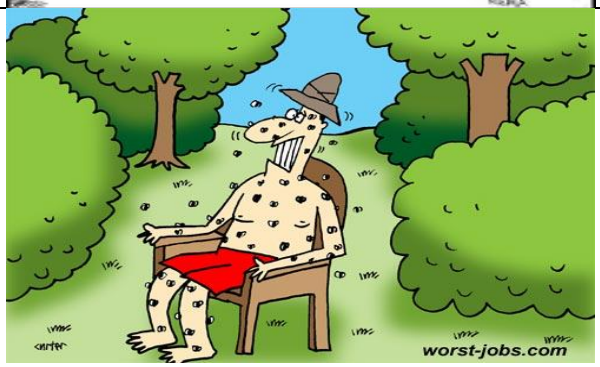
Task sheet 2

Name of Student: **Date:**

Name of School: **Topic -Diseases**

Standard:

<u>Instruction</u>: Observe the following cartoons and give answers in space provided below.

cartoons	Identify disease	Symptoms/causal organism
		
		
		
		

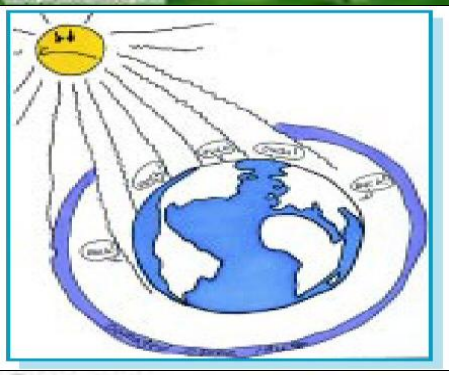
Task sheet 3

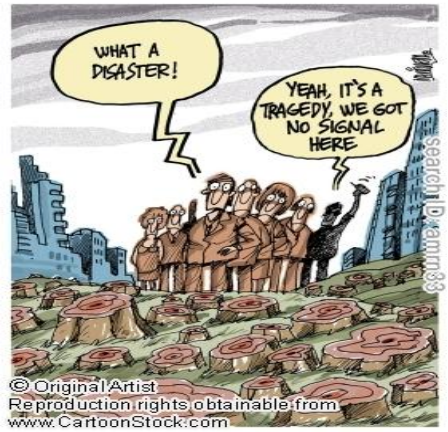
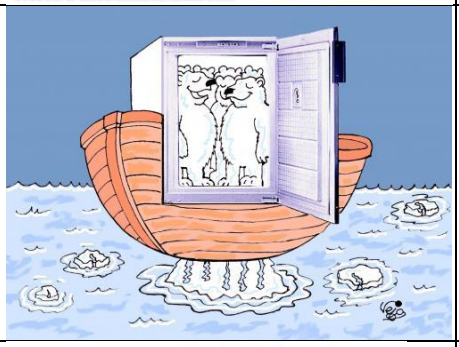
Name of Student:

Name of School: **Topic- Environmental issues**

Name of School:

<u>Instruction</u>: Observe the following cartoons and give answers in space provided below.

Cartoons	Causes	Effect
		
		
		

 WHAT A DISASTER! YEAH, IT'S A TRAGEDY, WE GOT NO SIGNAL HERE © Original Artist Reproduction rights obtainable from www.CartoonStock.com		
		
		

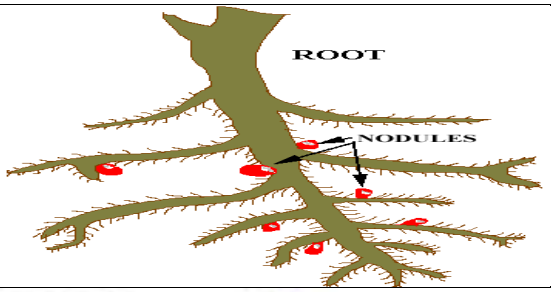
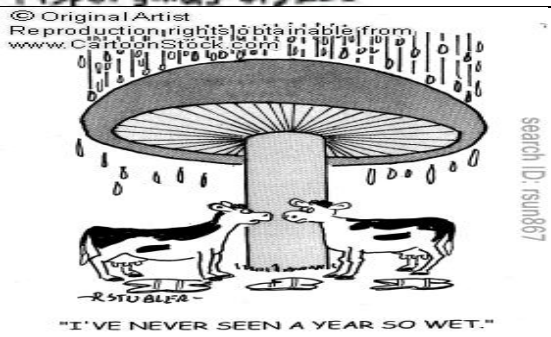
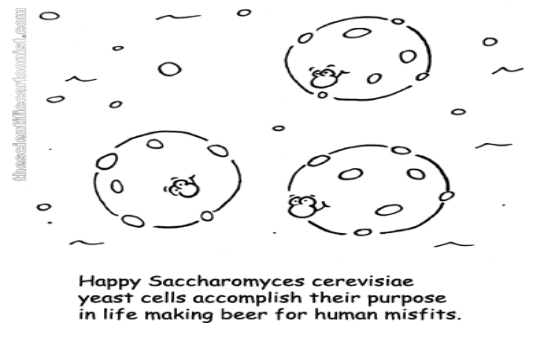
Task sheet 4

Name of Student - **Topic – Micro organism**

Name of School-

Standard-

<u>Instruction</u>: Observe the following cartoons and give answers in space provided below.

Cartoons	Uses of organism
	
	
	
	

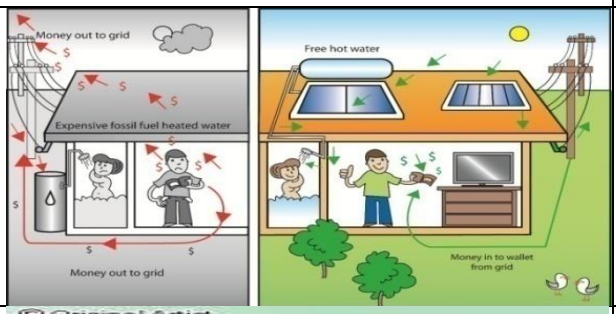
Task sheet 5

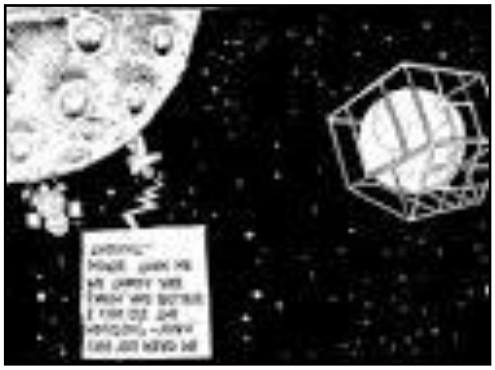
Name of Student - **Topic – Sources of energy**

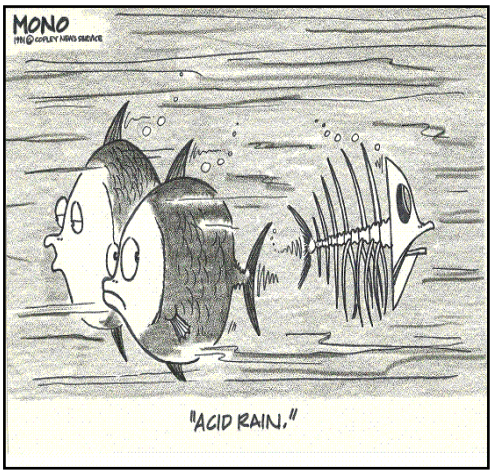
Name of School-

Standard-

Instruction – Observe the following cartoons, identify and describe the sources of energy.

Cartoons	Describe about source of energy
	
	
	
	




MONO
"ACID RAIN."


ARE WE PLAYING "THE FUTURE OF THE WORLD"?
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I'M SING-ING IN THE ACID RAIN, JUST SING-ING IN THE ACID RAIN...


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search ID: amm13
martirena

search ID: amrn71
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THEY ARE WORRIED ABOUT THE ECONOMY.
PIERO TONIN
© Original Artist
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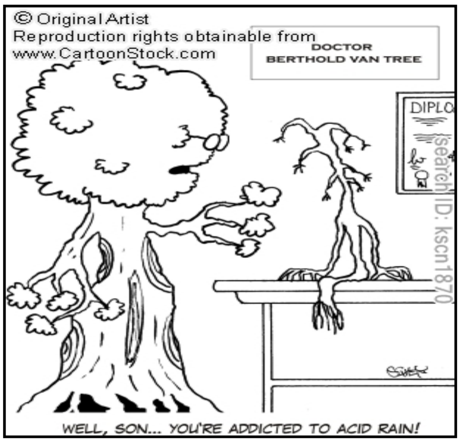

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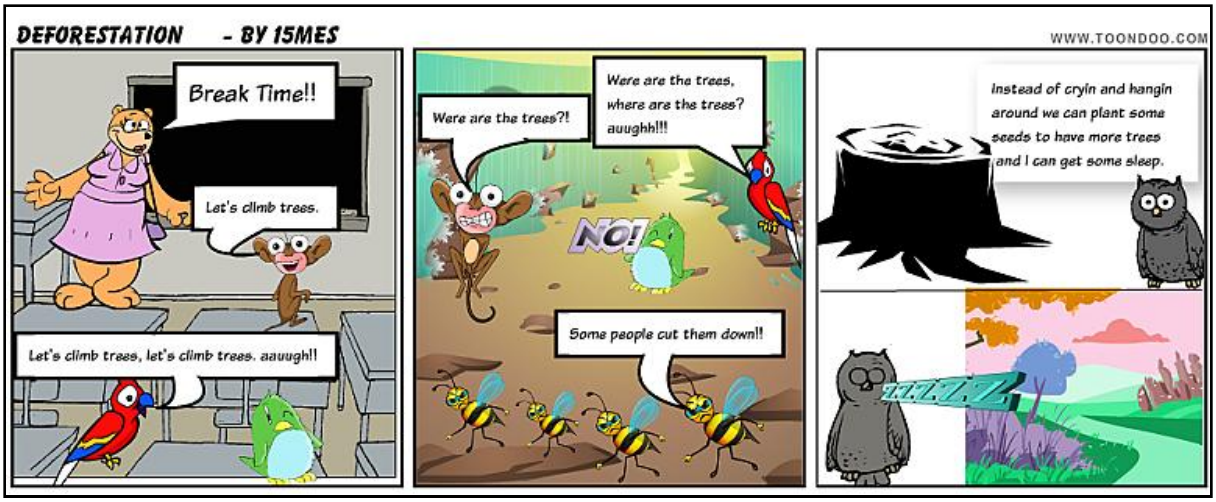
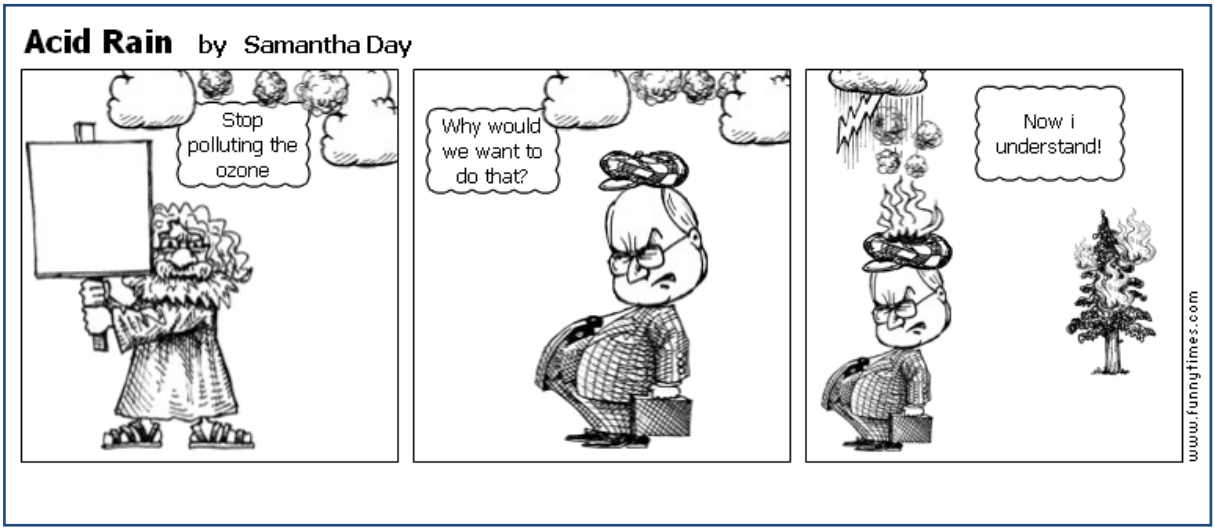
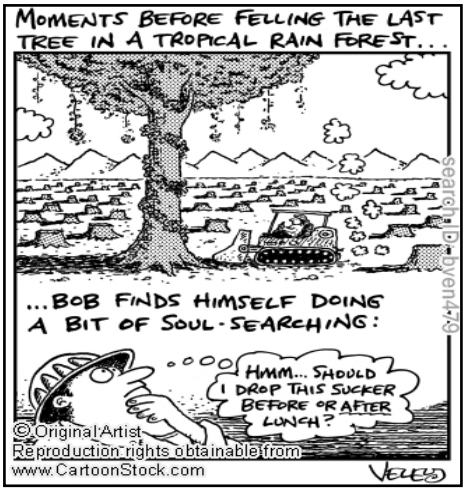
www.CartoonStock.com
DOCTOR BERTHOLD VAN TREE
search ID: kscn1870
WELL, SON... YOU'RE ADDICTED TO ACID RAIN!



DEFORESTATION - BY 15MES
WWW.TOONDOO.COM
Break Time!!
Let's climb trees.
Let's climb trees, let's climb trees. aauugh!!
Were are the trees?!
Were are the trees, where are the trees? auughh!!!
NO!
Some people cut them down!!
Instead of cryin and hangin around we can plant some seeds to have more trees and I can get some sleep.
ZZZZZ


Acid Rain by Samantha Day
Stop polluting the ozone
Why would we want to do that?
Now i understand!
www.funnytimes.com


MOMENTS BEFORE FELLING THE LAST TREE IN A TROPICAL RAIN FOREST...
...BOB FINDS HIMSELF DOING A BIT OF SOUL-SEARCHING:
HMM... SHOULD I DROP THIS SUCKER BEFORE OR AFTER LUNCH?
© Original Artist
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www.CartoonStock.com
VELEZ


THE DOWNSIZED FOREST.
© Original Artist
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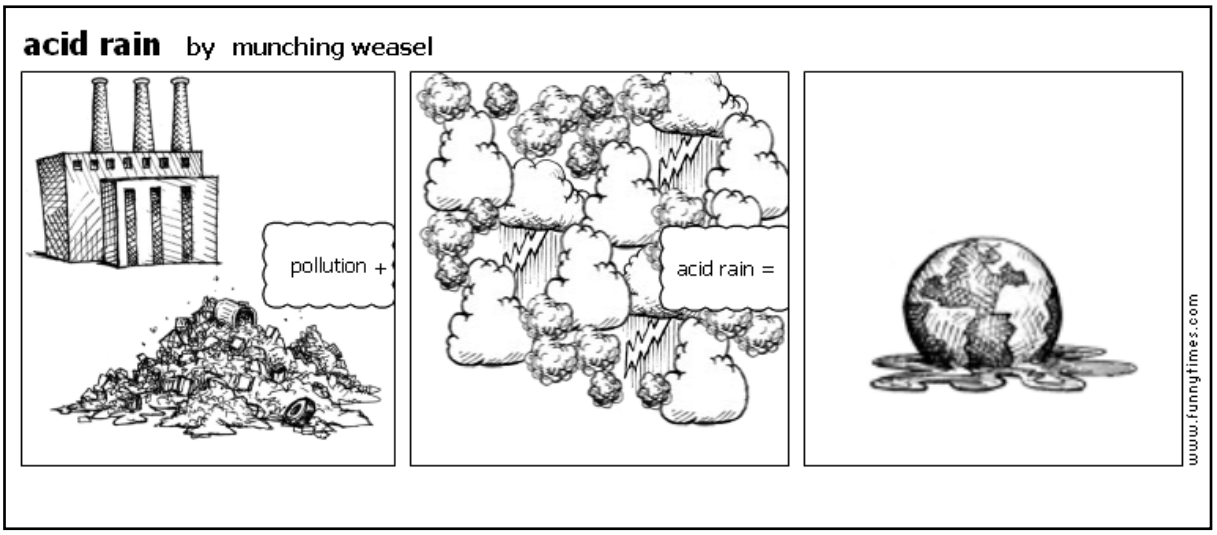
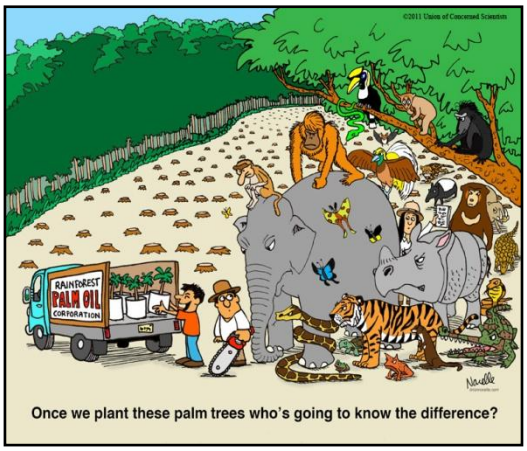

acid rain by munching weasel
pollution +
acid rain =
www.funnytimes.com


©2011 Union of Concerned Scientists
RAINFOREST
PALM OIL
CORPORATION
Once we plant these palm trees who's going to know the difference?


GOOD NEWS! I'VE GOT EMAILS HERE THAT PROVE GLOBAL WARMING'S A HOAX!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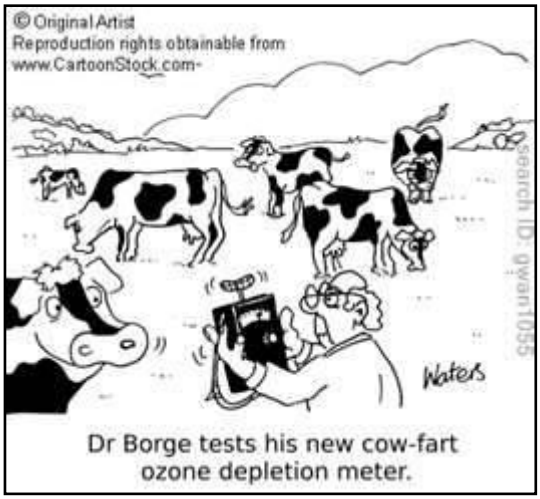
search ID: mwy974


www.BlackCommentator.com
Hungry!
I CAN'T BUY ANYTHING ANYMORE
THEN, SELL!


Global warming – plan B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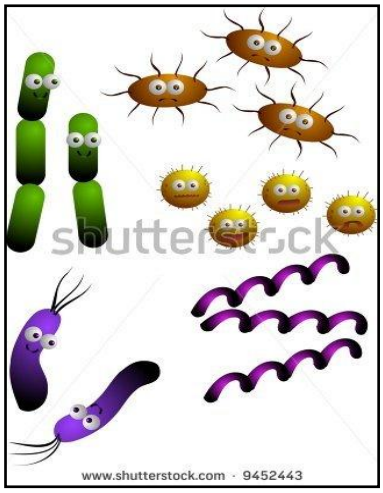
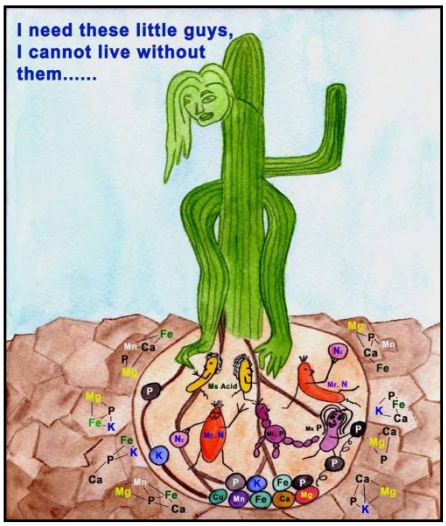
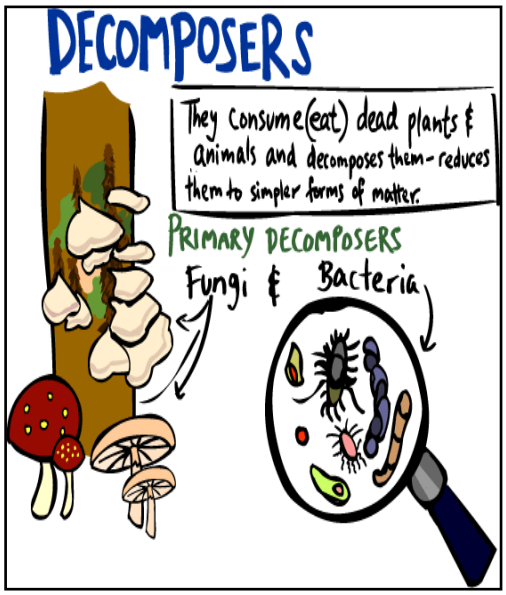
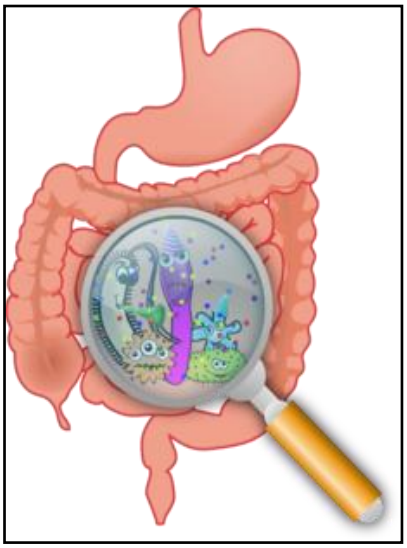
Waters
Dr Borge tests his new cow-fart
ozone depletion meter.


shutterstock
www.shutterstock.com · 9452443

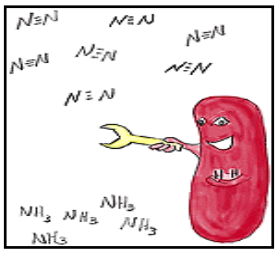

I need these little guys,
I cannot live without
them.....

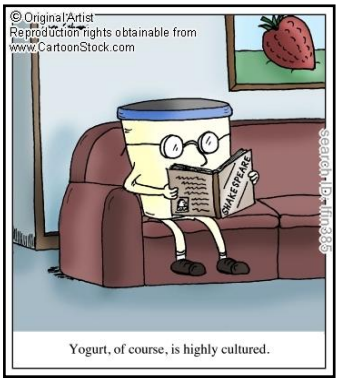

DECOMPOSERS
They consume(eat) dead plants & animals and decomposes them- reduces them to simpler forms of matter.
PRIMARY DECOMPOSERS
Fungi & Bacteria




Can't see
bacteria

XXX


N≡N
NH3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www.CartoonStock.com
searchID: lmn38s
SHAKESPEARE
Yogurt, of course, is highly cultured.


MOST WANTED
E. COLI


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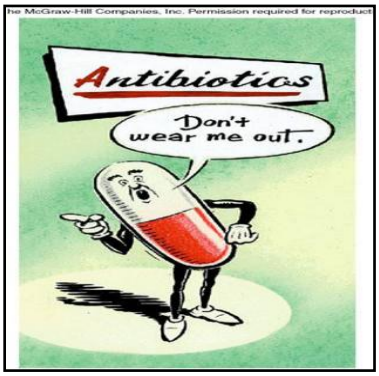
Map
You are here
NAD
search ID: mgm095
"That's weird, I don't recall a gerbal the last time we were here!"


Antibiotics
Don't wear me out.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BREAD
ORGANIC WHOLEMEAL
search ID: wpr0130
"That's our new roll model!"


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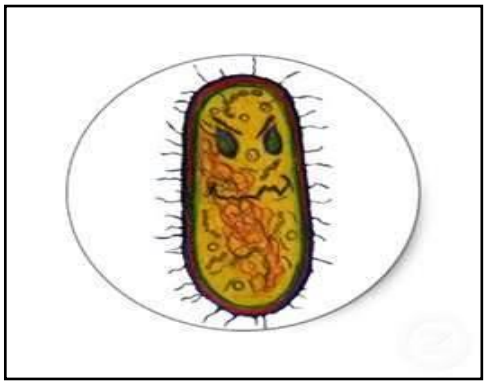
www.CartoonStock.com
By Stik
Jeez Daisy, it says here Australian boffins are using kangaroo stomach bacteria in cows to stop them farting methane!
Strewth!
search ID: dgm1943




NVEDALA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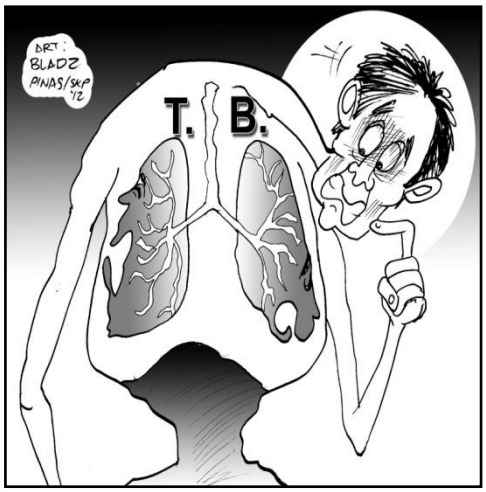
search ID: sat0393
"You had fair warning - the disc on his collar says he bites!"


ART: BLADZ PINAS/SKP '12
T. B.


FOX VACCINATOR
toonstudio.com.au © 2006 Lee Sheppard


AS BRANCO
"UNDER MY PLAN, ENERGY PRICES WILL NECESSARILY SKYROCKET" ~B.H.OBAMA
HIGH GAS PRICES?!.. LIKE THAT'S A BAD THING!
ENERGY PLAN
DOMESTIC OIL
GO GREEN!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Jake strikes crude oil.


GREEN JOBS
IT'S OUT OF GAS.
QUITTIN' TIME!!
EROEI


The good news is that I managed to install the wind turbine...
search ID: ahan66
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Genesis power
YES! ACE!! A SUPERB EXAMPLE OF RENEWABLE ENERGY.
AH, I CAN NEAR FEEL THE SPRAY ON MY FACE.
FLOW GAUGE
HIGH
OPTIMUM
LOW
SHUT DOWN


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www.CartoonStock.com
OLD ECONOMY
NEW ECONOMY
A toast to our minimal carbon footprint!
search ID: dbr1338
Brown.

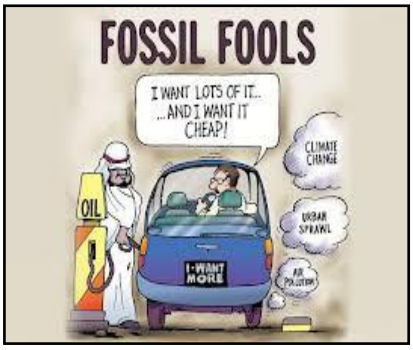
FOSSIL FOOLS
I WANT LOTS OF IT.. ...AND I WANT IT CHEAP!
CLIMATE CHANGE
URBAN SPRAWL
AIR POLLUTION
OIL
I WANT MORE

Image 1: Implementation of Post Test

Image 2: Students busy in writing Task sheet

Image 3: Explanation by the researcher on Content (Lecture method)