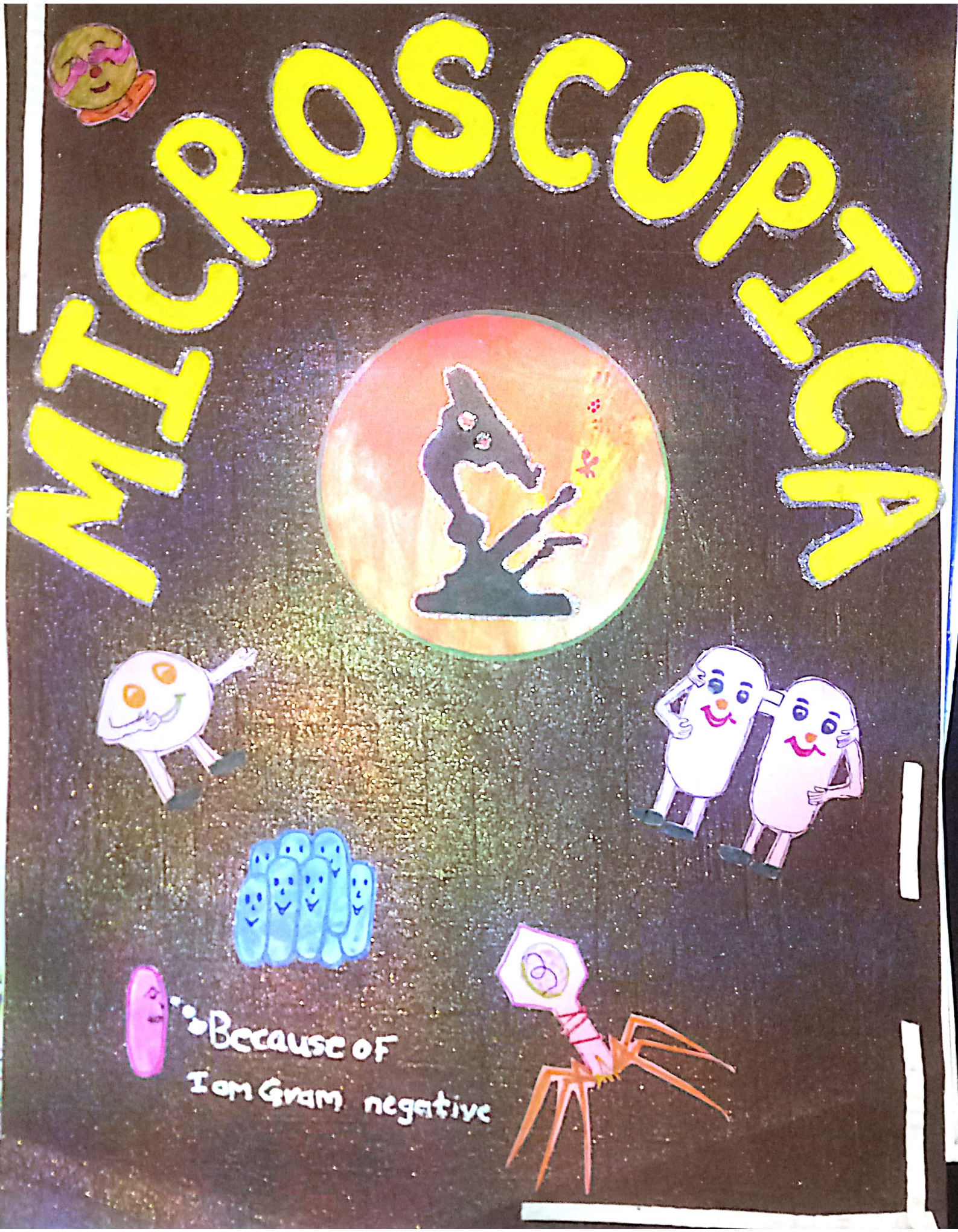
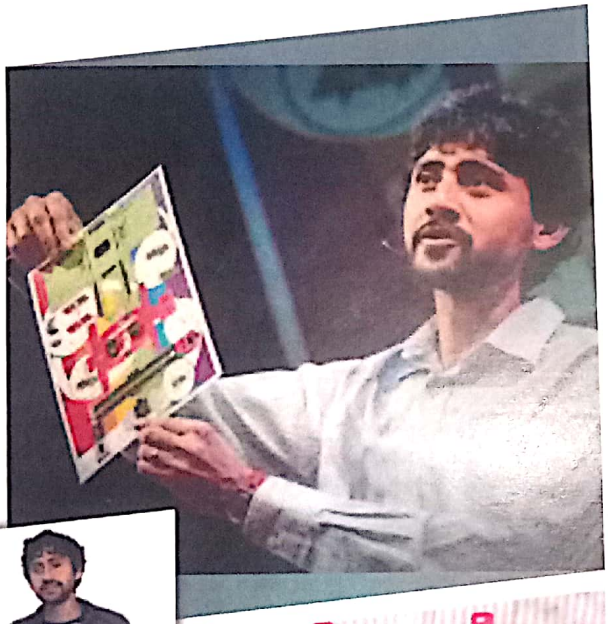
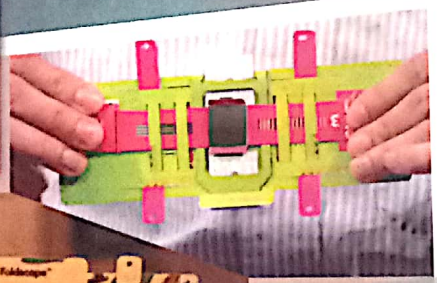
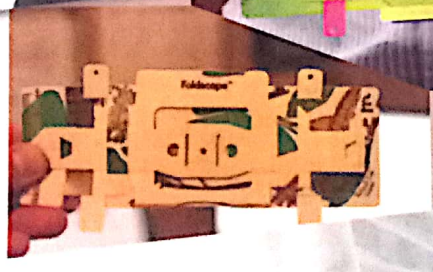


MANUS PAPER MICROSCOPE

2016-17







Brief

Invention :- **Foldscope** (Paper Microscope)

Inventor :- **Manu Prakash**
Scientist at Stanford University

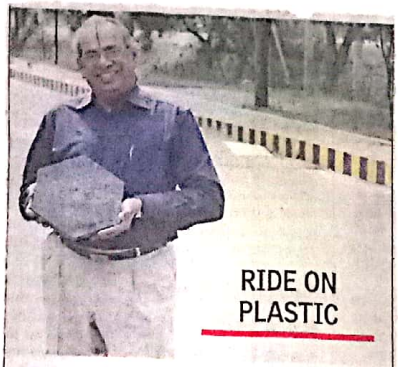
In 2014 Meerut born IIT Kanpur alumnus **Manu Prakash** devised a **Microscope** made up of paper that costs under **$ 1/-** called the **Foldscope** it can be printed on single sheet of paper and folded in to shape and used

What's Unique

Foldscope is cheap portable and can be used in science education as well as Medical diagnosis in **Rural** areas

TIMES OF INDIA | 24th, July 2016

Ride On Plastic



INVENTION: Plastic roads

INVENTOR: Dr R Vasudevan, dean, Thiagarajar College of Engineering in Madurai

Plastic is usually considered a bane, but a chemistry professor found a way to use old plastic to lay roads that last longer. In 2006, Vasudevan patented a road-laying process that involves sprinkling shredded plastic waste over hot gravel, coating the stones in a thin film of plastic, and then adding the plastic-coated stones to regular molten tar and laying the road.

WHAT'S UNIQUE: Lasts longer and brings down road-laying maintenance costs by 50% as plastic does not allow water to permeate into the road.

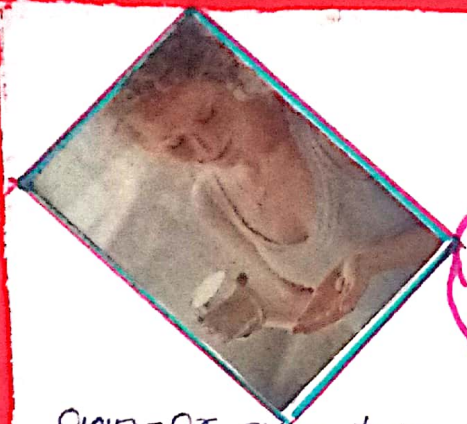
Introduction :-

The roads constructed using waste plastic popularly known as Plastic roads, are found to perform better compared to those constructed with conventional bitumen. A few trial roads have been paved successfully by combining waste plastic with bitumen. Plastic roads mainly use plastic carry bags, disposable cups, and bottles that are collected from garbage dumps as an essential ingrediant of the construction material. When mixed with hot bitumen, Plastics melt to form an oily coat over the aggregate and the mixture is laid on the road surface like normal tar road.

Advantages of Plastic Tar Road.

- Streangth of the road increased.
- Better resistance to water and Water stagnation.
- Maintainance cost of the road is almost nil.
- No leaching of roads.
- No effect of radiation like U.V
- Better soundness property.
- No stripping and have no potholes
- overall consumption of bitumen decreases.
- The road life period is subtantially increased.
- Increased load withstanding property.

FOUND: Way to fight antibiotic resistance



Los Angeles

Combinations of three different antibiotics can overcome bacteria's resistance to antibiotics even when none of the three drugs on their own-or even two of the three together-is effective, scientists have found. Each year, approximately 700,000 people die from drug resistant bacterial infections, They grew E.coli and treated with 1+2+3 antibiotics from 14 drugs combinations of drugs worked to kill the bacteria.

According to Pamela Yeh from University of California, Los Angeles (UCLA), graduate student helped to determine when adding a third antibiotic was produced new effects that two drugs could not achieve.

"Three antibiotics can Change the dynamic".

Not many scientists realise three drug combinations can have benefits. Different classes of antibiotics use different mechanisms to fight bacteria One class, includes amoxicillin, kill bacteria by preventing them from making cell walls, Another disrupts their tightly coiled DNA, third inhibits ability to make proteins. Combinations of 3 antibiotics might be more potent together.

The researchers combined techniques from biology and ~~gr~~ mathemathics to determine which groups of antibiotics would be most effective.

Combination of 3 Drugs increases effectiveness

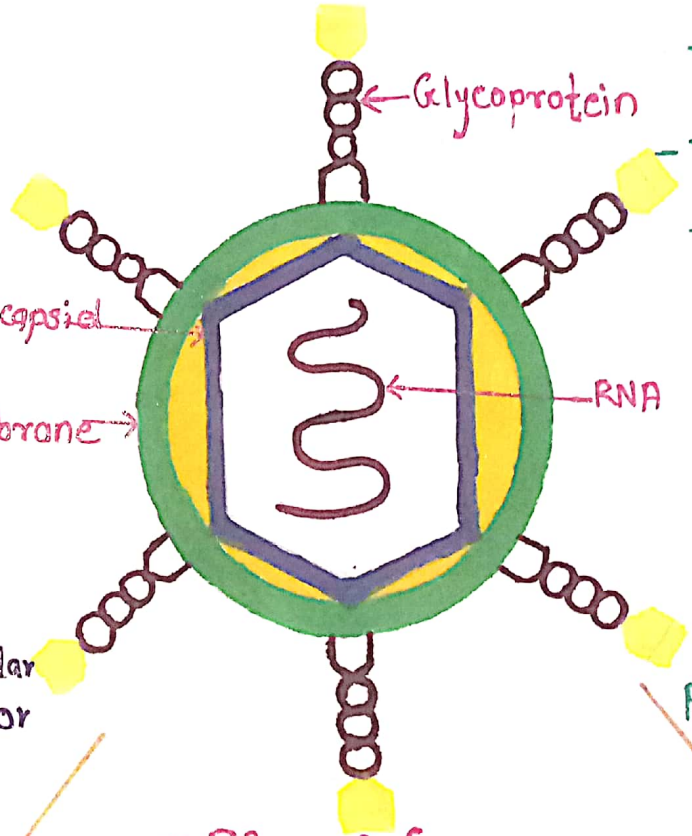
* Zika Virus *

* Morphology :-

- The virion is approximately 40 nm in diameter with surface projections that measure roughly 5-10 nm.
- Nucleocapsid is 25-30 nm in diameter surrounded by a host-membrane derived lipid bilayer.
  - Enveloped.
  - Icosahedral.
  - Contains envelope proteins E & M.

* Symptoms :-

- Fever,
- Rash, (exanthema)
- Joint pain,
- Headache,
- Red eyes, (Conjunctivitis),
- Muscle pain,
- Malaise.
- Symptoms are similar to that of dengue or chikungunya.



* Transmission :-

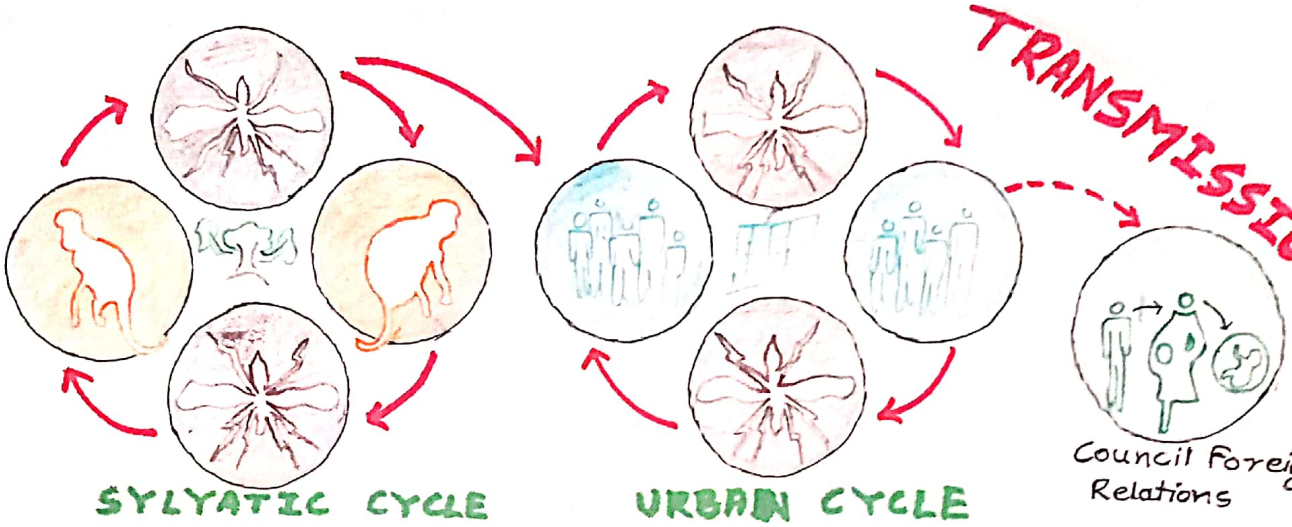
- Through Masquito bites,
- Through sex,
- Through Blood transfusion,
- Through laboratory exposure,
- From mother to child (during preganancy).

* Diagnosis & Treatment :-

- There is no specific medicine or vaccine for Zika virus.
- Drink Fluids to prevent dehydration.
- Take medicine such as acetaminophen (Tylenol®) or paracetamol to reduce fever & pain.
- Do not take aspirin & other non-steroidal anti-inflammatory drugs (NSAIDS) until dengue can be ruled out to reduce the risk of bleeding.
- Get Plenty of rest.

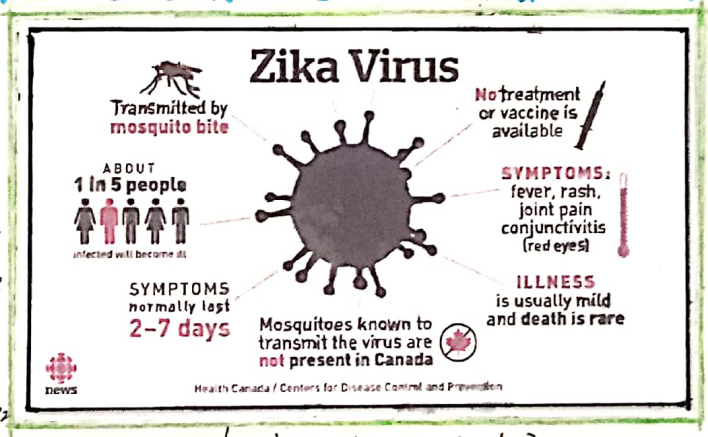
Zika Virus...

TRANSMISSION



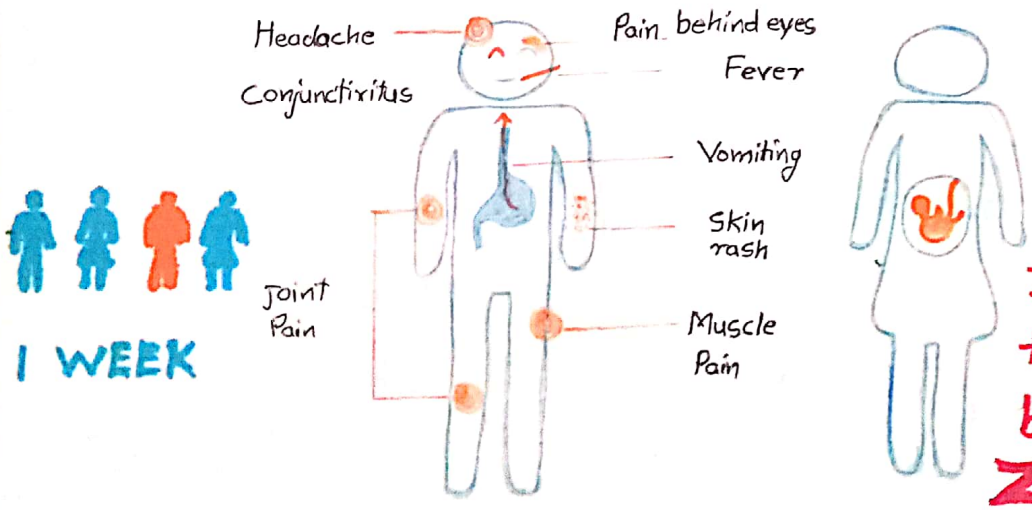
How Zika Virus Enters in Human Population...

Zika virus cases typically occur in tropical climates. Cases of Zika virus infection that result in hospitalization are uncommon.
Zika infection can spread from a mother to a fetus during pregnancy, to infant (microcephaly).



At present there is no treatment for the virus.
It is transmitted to people through the bite of an infected mosquito from Aedes genus.
Avoiding mosquito bites is a key aspect of Zika virus preventia

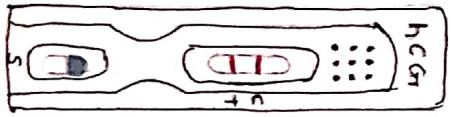
SYMPTOMS



It is a possibility that there is link between maternal Zika virus infection & infant microcephaly.

BIOSENSORS

Example of biosensor

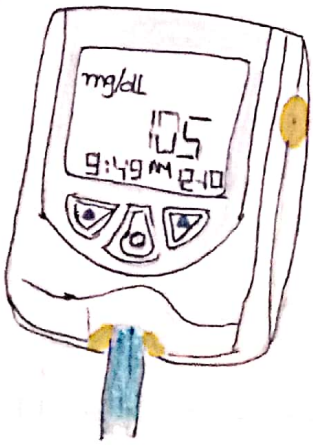


Pregnancy test

Detects the hCG protein in urine

Biosensors are analytical tools for the analysis of bio-material samples to gain an understanding of their bio-composition structure & fun^n by converting a biological response into a measurable response

Glucose monitoring device



[for diabetes patients]

Application

* Food Analysis
* Medical diagnosis
* Quality control
* Industrial process control.
* Drug development.
* Environmental field Monitoring

DNA FingerPrinting

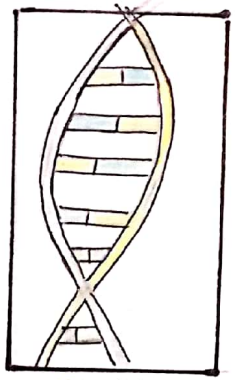
Like fingerprints DNA can link A suspect to A CRIME SCENE

1 Police collect traces of body tissue from the scene of crime, A smear of blood, or skin scraped off in a struggle.

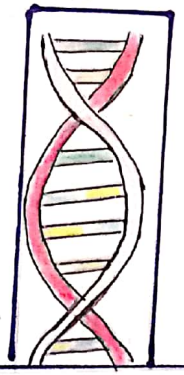
2 In a laboratory, the forensic scientist extract the DNA from these cells and compares it to DNA taken from A suspect.

DNA Record of convicted criminals will soon be kept to compare with DNA found at new crime scenes.

Fingerprint



DNA



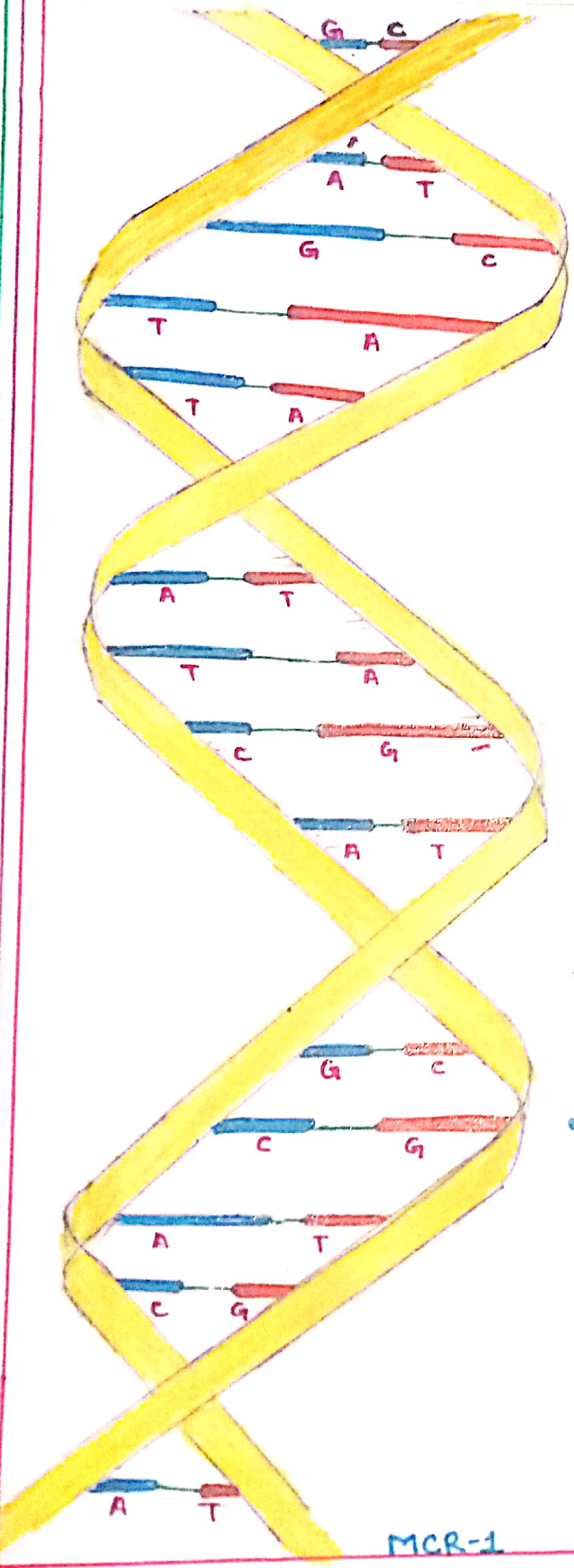
DNA is a molecule that determines How our bodies are built. It is found in all bodies tissues. And Everyone [Except identical twins] Has Unique DNA.

3 Identical DNA links the suspect to the crime scene.

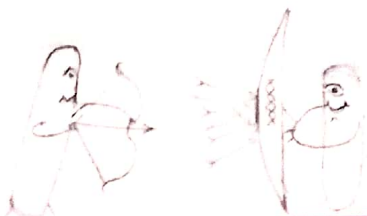
Do you think We are placing Too much trust in the integrity of Forensic Scientists???

ANTIBIOTIC RESISTANT GENE.....

Newly discovered gene that makes bacteria resistant to the most powerful antibiotics detected in Canada.



- The gene MCR-1, is notable because it produces a chemical that makes bacteria resistant to Colistin. Colistin is a most powerful antibiotic.
- MCR-1 was first reported in British medical journal The 'Lancet' in November last year. After chinese scientists discovered a numer of samples of the E.coli bacteria containing the MCR-1 gene on meat & hospital patients.
- It is noted that the gene is likely originated in farm animals. due to large amount of Antibiotics given to livestock in order to stop illness.
- MCR-1 gene has also been detected in bacteria samples gathered across the world, in Asia, Africa, & even in. U.K. & Now it is appeared in Canada.
- MCR-1 is unusual because it is found on a piece of free-floating DNA called a plasmid, rather than being tethered within a chromosome.
  This means that it can easily be swapped between bacteria, allowing them to resist the effects of antibiotics.
- Antibiotic resistant is a growing problem - through their increasing use (and misuse) in human & farm animals.
- However, microbiologists would like to see a total worldwide ban on antibiotics use on animals that are also used in humans, in order to counter the effects of growing resistance.



Application of DNA Fingerprinting

What is DNA Fingerprinting

- First described in 1985 by ALEC JEFFRETS as a method for identifying by their unique Pattern of DNA banding.
- First use of DNA Fingerprinting was in a 1985 immigration case in the U.K. identified a child being the offspring of a British citizen.

Forensic Applications.

- DNA Fingerprinting is the classic ex. of a forensic application. It is used most commonly for law enforcement & crime scene investigation.
- It is first used in 1987 to convict a rapist in England.
- other application
  - Endangered species [reduce Poaching]
  - Epidemiology [spread

What is DNA Fingerprinting:-

- A test to identify & evaluate genetic information (DNA).
- It is called fingerprinting since it is unlikely for 2 individuals to have the same DNA.
- only a small sample is usually Needed.

DNA Fingerprinting Real World Application:-

- crime scene
- Human relatedness
- Paternity
- Animal relatedness
- Arthropology studies
- Disease causing - organism
- food identification
- Human remains
- Monitoring transplants

Green tea as an effective antimicrobial for urinary tract infection caused by Escherichia Coli

Urinary tract infections (UTIs) is most common bacterial infection which defined as the presence of pathogenic microorganisms in Urinary tract.

UTIs is more common in adults than in children. Microorganisms causes UTIs are
1) E. coli - 80-90 %.
2) Proteus species - 10 %.
3) staphylococcus aureus - 1-5 %.

Green tea is derived from leaves of the Camellia sinensis plant. The main component in green tea responsible for various effects are polyphenols.

Treatment for UTIs:-
i) Drinking of water & Citrous fruit juice.
ii) The course of most antibiotic for 7 to 10 days.
iii) Drink two or three cups of green tea daily.

Benifits of green tea:-
i) improve blood circulation.
ii) Reduce risk of cancer.
iii) Help in loss of weight.
iv) Decrease blood cholesterol.
v) inhibits high blood pressure.
vi) Reduce blood glucose level.

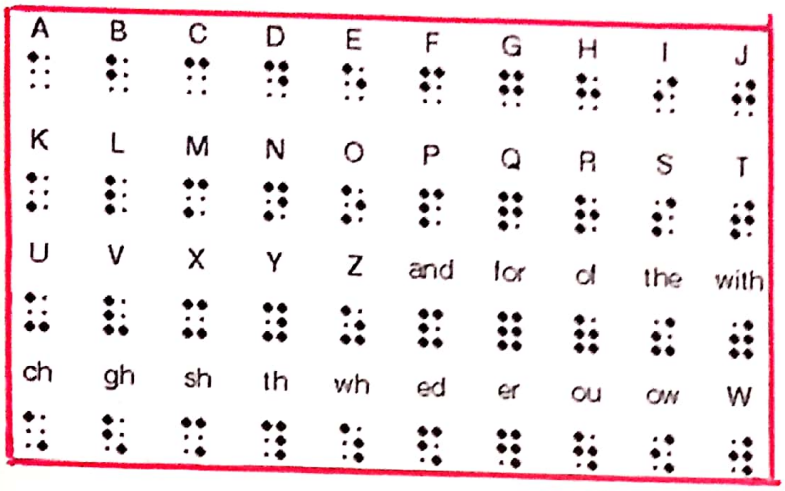
Symptoms of UTIs:-
i) Pain during urination.
ii) Blood in the urine.
iii) Pain in the lower abdomen.
iv) feeling of urination frequently.

lower urinary tract consist of bladder & urethra.

Upper urinary tract consist of kidney & ureters.

UTIs involve kidney, ureter, bladder or urethra.
i) Bladder - also called cystitis
ii) kidney - in one or both called pyelonephritis.
iii) Ureters - rare site of infection
iv) Urethra - called urethritis.

How Can Blind Work With Computer?

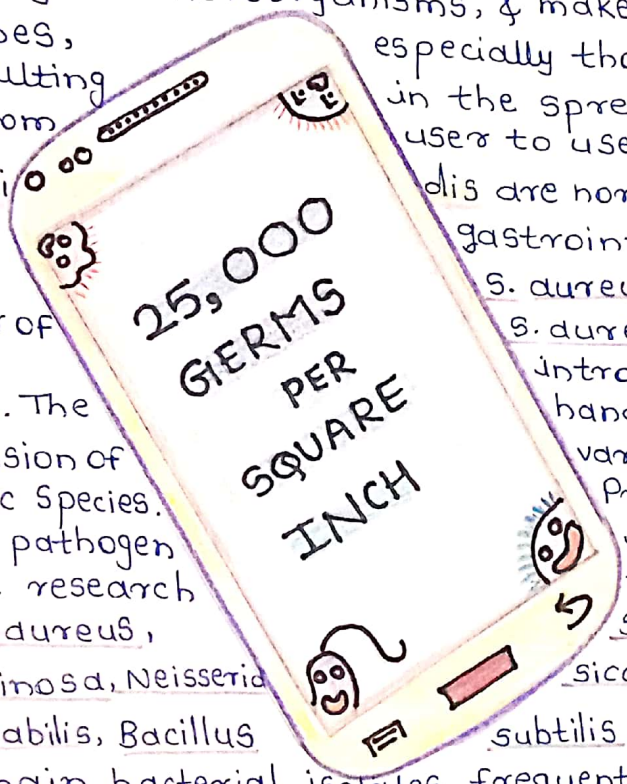


For reading on-screen texts the blind need a special reading line in Braille Script.

The computer converts text in electrical signals, which are then pressed upwards by corresponding points in the reading line. The blind can then feel the Braille. Or the text can be read aloud to them by a special speech program - they can also dictate in the same way.

YOUR MOBILE PHONE IS DIRTIER THAN YOU THINK :-

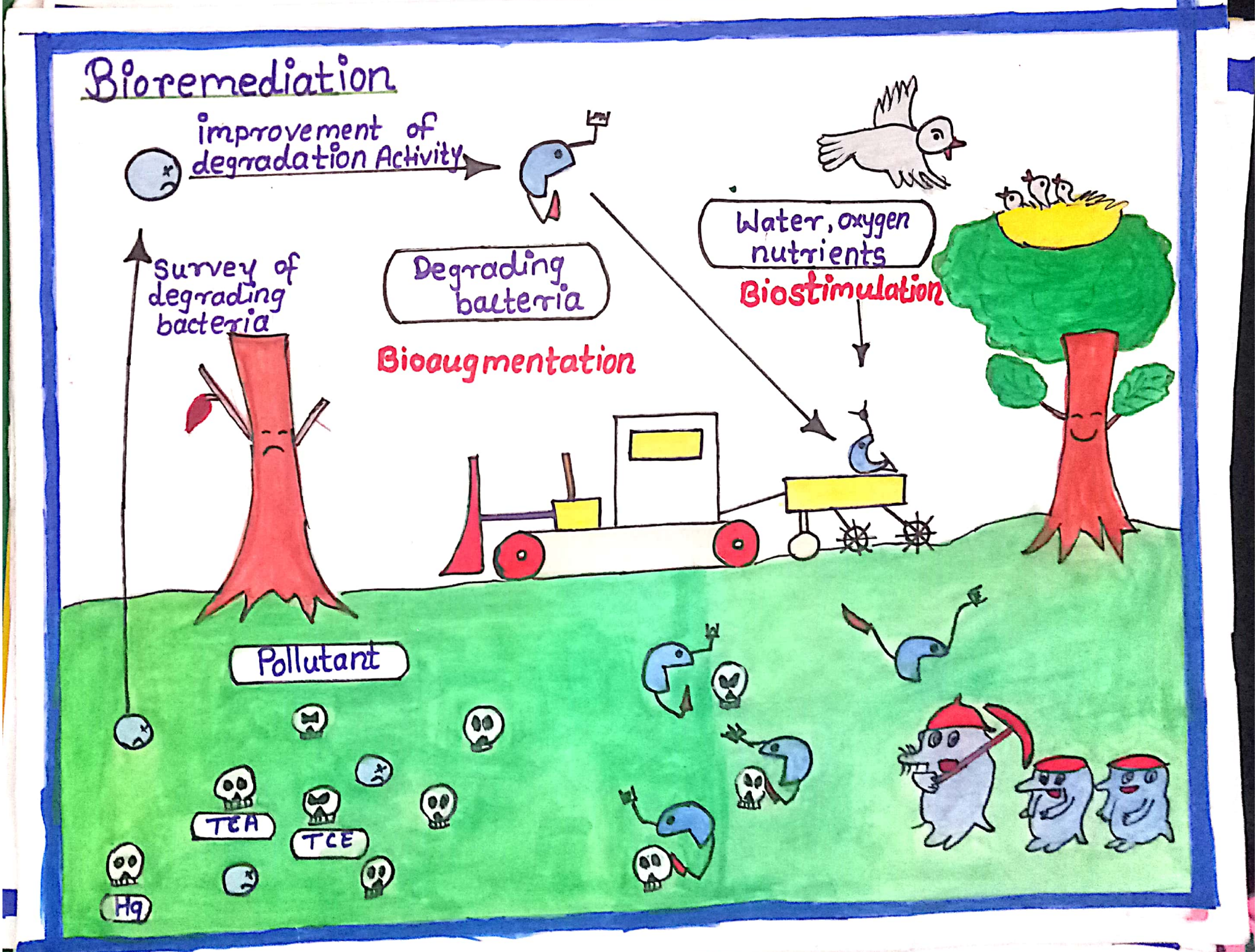
A Mobile is long-range portable electronic device for personal telecommunication. Because of the achievements & benefits of the mobile phone, it is easy to overlook its hazard to health; this is against the background that many users may have no regard for personal hygiene & the no. of people who may use the same phone. This constant handling of the phone by different users expose it to an array of microorganisms, & makes it a good carrier for microbes, especially those associated with the skin resulting in the spread of different microorganisms from user to user.



Staphylococci epidermidis are normal flora on skin, respiratory & gastrointestinal tracts. S. aureus occurs in human Nasal carriage of S. aureus is the hand The main reservoir of introduced into food from where it is hand serves as a major during preparation. The various microbes vehicle of transmission of Proteus mirabilis including the enteric species. it causes urinary is one of the most pathogen finding indicate tract infection. The research Staph. epidermidis that Staphylococcus aureus, sicca, Micrococcus Pseudomonas aeruginosa, Neisseria subtilis & Enterobacter Luteus, Proteus mirabilis, Bacillus aerogenes are the main bacterial isolates frequently associated with mobile phones.

cell phones carries 10 times more bacteria than toilet seats. With the advent of touch-screen phones, the same part of the phone you touch with your fingerprints is pressed right up against your face & mouth, upping your chances of infection.

The researchers found that 94.5% of the phones were contaminated with some kind of bacteria, many of which were resistant to multiple antibiotics.



Bioremediation

Bioremediation is a "treatment that uses naturally occurring organisms to break down hazardous substances into less toxic or non toxic substances."

- Technologies can be generally classified as,
  1. In situ – at the site
  2. Ex situ – away from the site
- Some examples of bioremediation related technologies are Phytoremediation, Bioventing, Bioleaching, Landfarming, Composting, Bioaugmentation, Bioreactor, Rhizofiltration, & Biostimulation.
- Microorganisms used to perform the function of bioremediation are known as 'Bioremediators'.
- It uses naturally occurring bacteria & fungi or plants to degrade or detoxify substances hazardous to human health & the environment. Such as bacteria like, Pseudomonas Putida, Dechloromonas aromatica, Nitrifiers & Denitrifiers fungi like, Biodegradation capacities of white rot fungi, Phanerochaete chrysosporium.
- The use of genetic engineering to create organisms specifically designed for bioremediation has great potential.
- Examples of Bioremediation, 1. To clean up oil spills, bacteria are introduced the area of the spill where they break down the hydrocarbons of the oil into carbon dioxide.
  2. Toxic metals, such as mercury can be converted into nontoxic forms, such as mercury, by bacteria.
  3. Many types of fungi, such as the common oyster mushroom, have the ability to digest petrolum hydrocarbons.

Advantages –

- Bioremediation a natural Process.
- Less expensive than other technologies that are used for clean-up of hazardous Waste.
- Bioremediation is useful for the complete destruction of a wide Variety of contaminant.
- Less manual Supervision.
- It can be used in some unique occasions.
- Transferring contaminants from one environmental medium to another.
- Bioremediation can be recovered & recycled.
- Bioremediation causes minimal disturbance to site Operations. & minimal exposure of public & site personnel.

Disadvantages –

- The process of bioremediation is slow. Time required is in day to months.
- Heavy metals are not removed.
- It does not remove all quantities of contaminants.
- For in-situ bioremediation site must have soil with high Permeability.
- Toxic by-products are produced.
- A Bioremediation is limited to those compounds that are biodegradable. Not all compounds are susceptible to rapid & complete degradation.
- Difficult to optimize. & Difficult to maintain enzyme concentration.

"Breast feeding Prevents Diabetes in Women."

Berlin:- Breastfeeding may be a Cost effective intervenation aimed at reducing the long term risk of developing type 2 diabetes among women Women with gestational diabetes Scientist have found

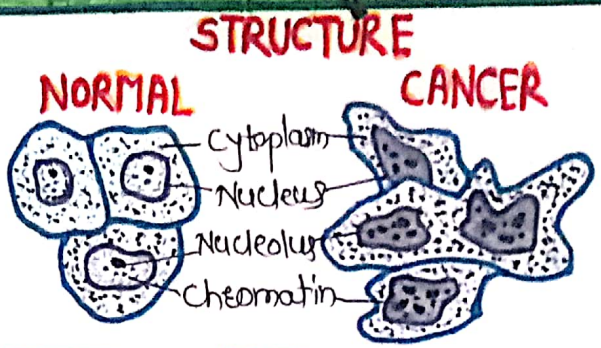
Researchers at the Helmoholtz zentrum Munchen in Germany studied the Metabolism of Women with gestational diabetes after giving birth

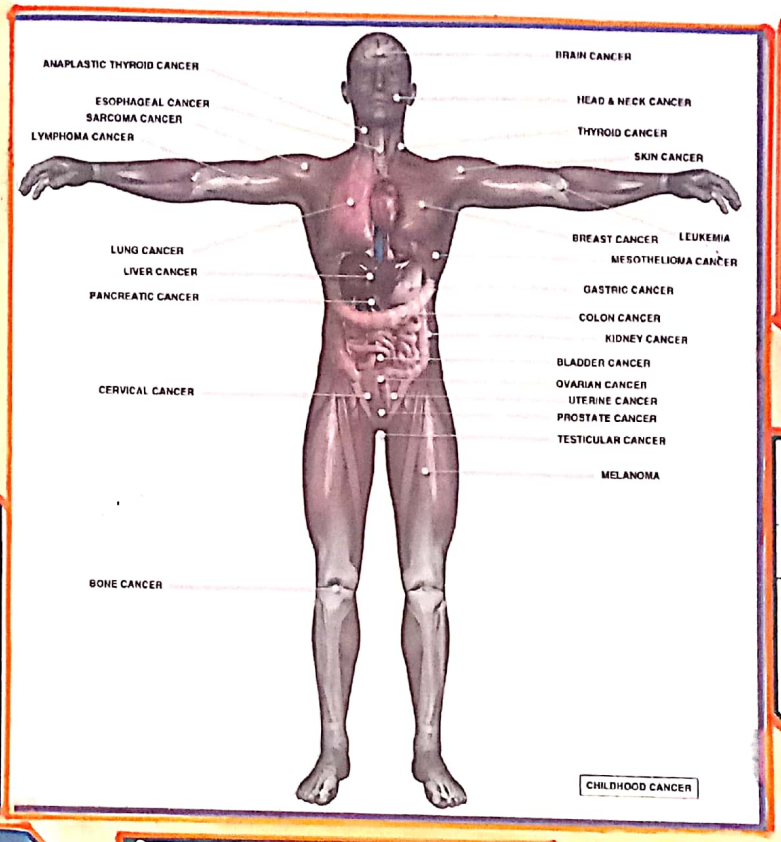
We observed that the Metabolites in Women Who had breast fed for More than three Months differed significantly from those Who had Shorter lactation periods "said first author **Daniela Munch** from the institute of diabetes Research

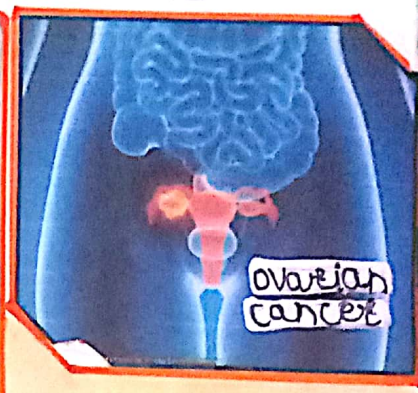
longer periods of lactation are linked to change in the production of phospholipids & to lower Conc^n of branched chain aminoacids in Mothers blood plasma Much said'

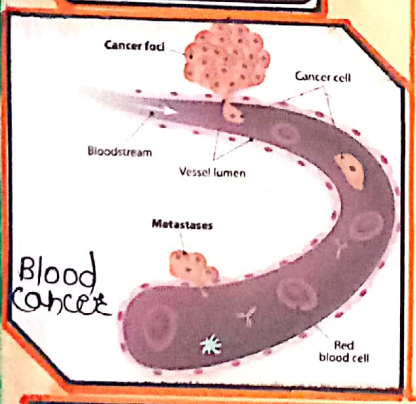
Various CANCER In Human Body.

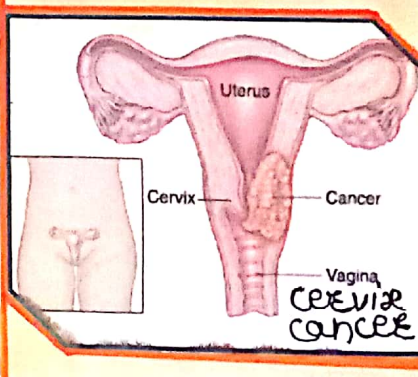
An abnormal growth of cells which tend to proliferate in an uncontrol way & in, some cases, to metastasize (spread) OR A disease caused by an uncontroled devi-sion of abnormal cells in part of body. is called as **CANCER**.

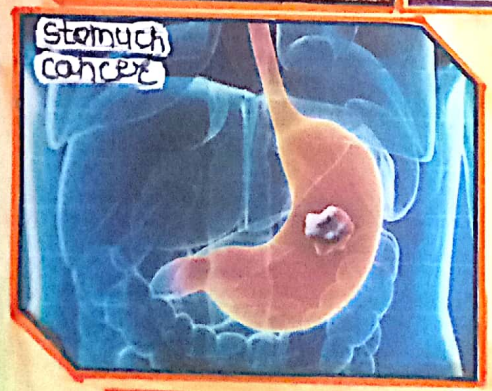


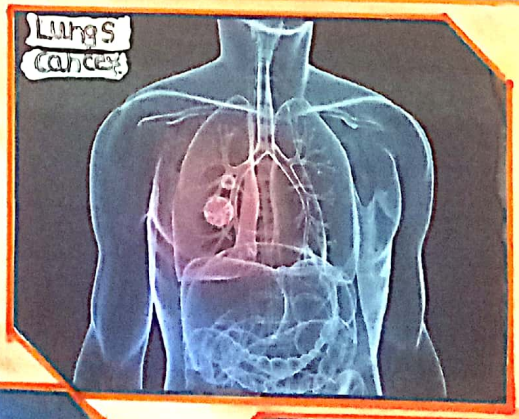


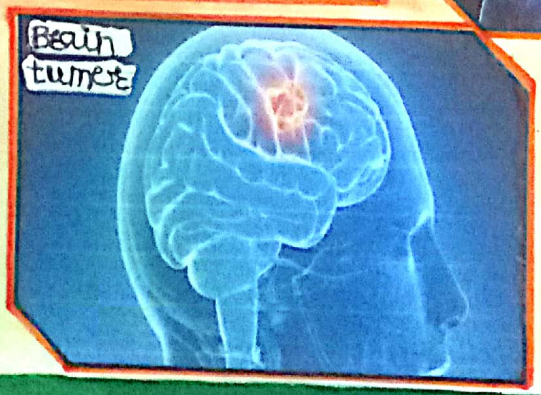


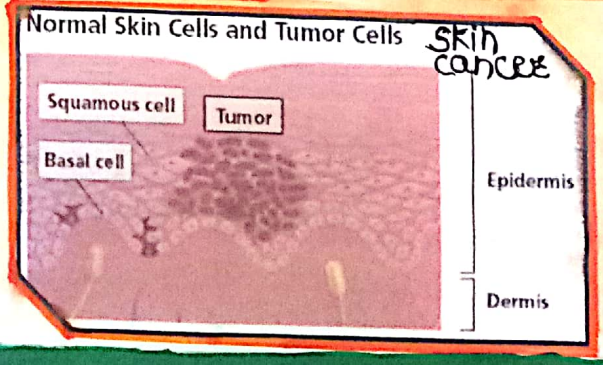








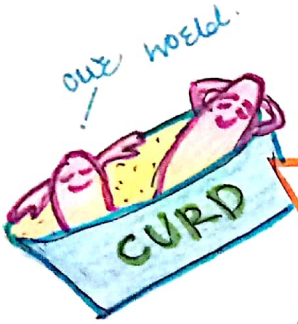




RECENT UPDATES

Breast feeding Prevents diabetes in women.

The Robot therapist to treat muscle strains.



Sleep next to a chicken, avoid Malaria...

Fecal transplants to help treat diabetes?

Red meat ups kidney failure risk.

Shock therapy returns to cure mental illness

Found: Way to fight antibiotic resistance.

Zika antibodies found, hope for vaccine soon.

खाद्यपदार्थ टिकवण्यासाठी निळा प्रकाश लाभदायी, जिवाणू नष्ट

नवे संशोधन । अन्न नासवणाऱ्या जिवाणूंची क्षमता होते कमी, थंड वातावरण फायद्याचे

वृत्तसंस्था । लंडन

खाद्य पदार्थ अधिक काळ टिकावेत म्हणून आजवर अनेक प्रयोग झाले. प्रामुख्याने रासायनिक प्रिझर्व्हेटिव्हचा वापर करण्याची एक प्रचलित पद्धत आहे. मात्र, आगामी काळात याचीसुद्धा गरज राहणार नाही. कारण, निळ्या प्रकाशात पदार्थ नासवणारे जिवाणू (बॅक्टेरिया) नष्ट करण्याची क्षमता असल्याचे एका संशोधनाअंती सिद्ध झाले आहे. यामुळे प्रिझर्व्हेटीव्हचा वापर न करता खाद्य पदार्थ कित्येक दिवस सुरक्षित राहू शकतील.

नॅशनल युनिव्हर्सिटी ऑफ सिंगापूरच्या संशोधकांनी निळ्या एलईडीचा वापर करून केलेल्या प्रयोगात असे आढळून आले की, हा निळा प्रकाश आगदी प्रिझर्व्हेटीव्हसारखेच कार्य करतो. साधारणतः खाद्यपदार्थावर उष्ण किंवा दमट वातावरणात विषाणूंमुळे जो परिणाम होतो तो निळ्या प्रकाशात ठेवलेल्या खाद्यपदार्थांवर होत नाही.

संशोधन क्रांतिकारी

नैसर्गिक खाद्यपदार्थांची मागणी व गरज पूर्ण करण्याच्या दृष्टीने हे संशोधन निश्चितपणे लाभदायी ठरणार आहे. निळ्या एलईडीमुळे बॅक्टेरिया तयार करणाऱ्या पेशीच नष्ट होतात.

यूक्त झून-म्यून, मुख्य संशोधक

थंड वातावरणात अधिक प्रभावी

: हा निळा प्रकाश थंड वातावरणात ठेवलेल्या खाद्य पदार्थांवर अधिक गुणकारी आहे. ४ ते १५ अंश सेल्सिअस तापमानात ठेवलेल्या पदार्थांवर हा निळा प्रकाश असेल तर विषाणू नष्ट होतात. ओंबट पदार्थांवरही निळा प्रकाश तेवढाच प्रभावी ठरतो. म्हणूनच फळांचे ताजे काप निळ्या प्रकाशात ठेवले तर त्याला बॅक्टेरियाची बाधा होत नाही.

हल्ली हवाबंद खाद्यपदार्थ जागभर मिळतात. अशा खाद्यान्नाची मागणीही खूप आहे. मात्र, बहुतांश खाद्य पदार्थांमध्ये ते टिकून राहावेत म्हणून रासायनिक प्रिझर्व्हेटीव्हजचा वापर केला जातो. यामुळे या खाद्य पदार्थांची नैसर्गिक चव व गुणधर्म कमी होतात. आगामी काळात ही चव कायम राहू शकते. त्यामुळे गियोरोहण किंवा दुर्गम भागात विषाणूंमुळे अन्नाची नासाडी टाळता येऊ शकेल. त्याचा उपयोग लष्करी मोहिमांमध्येही होऊ शकतो.

निळा एलईडी उपयुक्त

जिवाणूंच्या पेशींमध्ये प्रकाशकिरणांना शोषून घेण्याचा ज्वास गुणधर्म असतो. हे प्रकाशकिरण निळ्या रंगाचे असतील तर जिवाणूंमधील पेशींची क्षमता आपोआप कमी होत जाते आणि या पेशी नष्ट होतात. म्हणून फ्रिजमध्ये अशा निळ्या रंगाचा वापर केला तर पदार्थांचे आयुष्य वाढेल.

Vitamin B supplements may stall aging

London: Use of nutritional supplements for Vitamins B and its derivatives may serve as potential tools for delaying the aging process in humans and age related diseases such as diabetes, a new study suggests.

Scientists from Spanish National Cancer Research Centre, University of Valencia, and IMDEA Food from Madrid point to the use of pharmacological agents or nutritional supplements that increase NADPH levels as potential tools for delaying the aging.

More specifically, vitamin B3 and its derivatives are responsible for synthesis of NADPH precursors and are candidates for future studies. PTI

GOOD FOOD
GOOD LIFE

तपास

अमेरिकन फॉरेन्सिक सायंटिस्ट घटनास्थळावर मिळालेल्या मानवी शरीरावरील जीवाणूंचे विश्लेषण करून अपराध्यांचा शोध लावणार

अपराधांचा शोध घेण्याचा नवा आणि अनोखा प्रकार

मैंडी ओकलैंडर

बिल स्टीवर्ट अमेरिकेमध्ये फॉर्ट लाडरडेल पोलिस अधिकाऱ्याच्या हाताखालील पोलिस अधिकारी आहे. त्यांनी आपल्या २५ वर्षांच्या नोकरीमध्ये शेकडो खिडक्या, दरवाजांवरील पुरावे शोधले असतील. हातमोजे आणि अवजारांवरही बारकाईने नजर टाकली असेल. आता ते चोरांची भूमिका साकारून एका अस्वाभाविक वैज्ञानिक अध्ययनात भाग घेत आहेत. याद्वारे अपराधांचे रहस्य उघड होण्याचा प्रकार पूर्णपणे बदलू शकतो.

स्टीवर्ट आणि त्यांचा भागीदार छोट्या खिडकीतून एका घरात घुसतात. चोर अशा प्रकारेच घरात घुसतात. ते लाइट लावतात. कपाट आणि टेबलची उलथापालथ करतात. फ्रीजमधून पेय काढून पितात. तक्क्याच्या कव्हरमध्ये चोरीचे सामान ठेवतात. ते गेल्यानंतर अरगोन नॅशनल लॅबोरेटरीचे रिसर्च को-ऑर्डिनेटर जेराड हेम्पटन मार्सेल येतात. त्यांच्यासोबत एक टीम असते. ती टीम सर्व खोल्यांमध्ये जाऊन कापसाद्वारे चोरांनी सोडलेले पुराव्याचे नमुने टिपते.

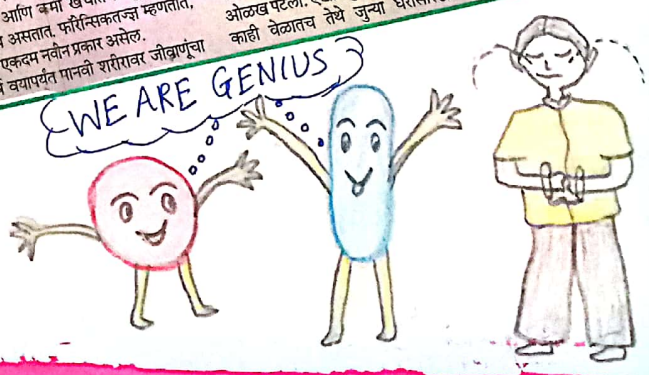
आतापर्यंत ही एका सामान्य पोलिस तपासासारखे वाटते. मात्र, असे नाही. ते डीएनए किंवा बोटांच्या ठशांचे विश्लेषण करत नाही. ते चोर, लुटारूंद्वारे सोडण्यात आलेल्या जिवाणूंचा शोध घेतात. विज्ञानाच्या नवीन संशोधनाचा निष्कर्ष आहे, प्रत्येक माणसाची वेगळी जीवाणू ओळख असते. तुम्ही जेथे जाता, तेथे आपल्या शरीरावरील सूक्ष्म जीवाणू सोडत जातात. वैज्ञानिक चोरांद्वारे सोडण्यात आलेल्या नमुन्यांची तुलना घरातील लोक आणि पाळीव मांजरीच्या नमुन्याशी करतील. त्यांनी त्यांचे नमुनेसुद्धा घेतले आहेत. दोन्ही नमुन्यांमध्ये फरक आढळल्यास सिद्ध होईल की, चोरी करणारी व्यक्ती वेगळी होती.

हा प्रकार योग्य असला तर घटनास्थळावर अनेक पुरावे उपलब्ध आहेत असा त्याचा अर्थ होतो. जे वर्तमान स्थितीत कठल्याही परीक्षणाशिवाय सोडून दिले जाते, अपराधतज्ज्ञ मानतात, फॉरेन्सिक सायन्सला पुरावे शोधण्यासाठी स्वस्त आणि वेगवान प्रकारांची गरज आहे. केस, फायबर किंवा रंगासारख्या गोष्टीतून मिळणारे पुरावे खर्चिक आणि चुकीचे असू शकतात. तर दुसरीकडे जीवाणूंसारखे पुरावे लवकर आणि कमी खर्चात मिळू शकतात आणि ते योग्य असतात. फॉरेन्सिकतज्ज्ञ म्हणतात, हा तपासाचा एकदम नवीन प्रकार असेल.

तीन वर्षे वयापर्यंत मानवी शरीरावर जीवाणूंचा एक लेप तयार होतो. तो जवळपास एकसारखा राहतो. वैज्ञानिक अभ्यासात संशोधकांनी स्मार्टफोन आणि की बोर्डवर मिळणारे जीवाणू आणि त्याचा वापर करणारे यांच्यात मेळ घालण्यात यश प्राप्त केले आहे. जनरल सायन्समध्ये प्रकाशित अभ्यासात संशोधकांनी सहा आठवड्यांपर्यंत सात कुटुंबांवर नजर ठेवली. घरात भेटलेल्या जीवाणूंतरेच त्यांची ओळख पटली. एखादे कुटुंब नव्या घरात गेल्यानंतर काही वेळातच तेथे जुन्या घरासारखे जीवाणू मिळतात हे आरगोन लॅबचे जॅक गिल्बर्ट आणि त्याच्या टीमला समजले.

जीवाणूवर आधारित पुराव्याना न्यायालयात आव्हानांना सामोरे जावे लागेल. अमेरिकन न्यायालयात डीएनएचे पुरावे स्वीकार करण्यासाठी बहा वर्षांचा वेळ लागला. खुनाच्या प्रकरणात मुख्य संशयित मामान्यतः मृताचे नातेवाइकच किंवा जवळील व्यक्ती असते. ग्रोवार्ड काउंटीच्या शेरीफ कार्यालयात सार्जंट स्टीवर्ट मोशेर म्हणतात, पत्नीच्या हत्येनंतर जर पती म्हणत असेल की, तो घटनेच्या वेळी शहराबाहेर होता तेव्हा तुम्ही काय कराल? कुठल्याही व्यक्तीच्या जीवाणूंचे छाप संबंधित ठिकाणी ४८ ते ७२ तासांपर्यंत असते. यामुळे पुरावे मिळविण्यात अडचणी येतील. काही न्यायिक तज्ज्ञ जीवाणू तंत्रज्ञानाचा उपयोग आणि विश्वसनीयतेवर संशय व्यक्त करतात. जर काही लोकांना जीवाणूंचे घटक सर्वाधिक प्रमाणात मिळतात. मात्र, ते एकसमान नाहीत, तर काय होईल. या प्रश्नांची उत्तरे शोधावी लागतील.

एका अभ्यासात अमेरिकन वैज्ञानिकांना स्मार्ट फोनवर मिळालेल्या जीवाणूंचे नमुने त्यांच्या मालकाच्या शरीरावरील जीवाणूंशी जुळत असल्याचे निष्पन्न झाले आहे.



Quiz

1) Most spoilage bacteria grow at ----.
A) acidic pH B) alkaline pH C) neutral pH D) any of the pH

2) The microbiological examination of Coliform bacteria in Foods preferably use ----.
A) MacConkey broth B) Violet Red Bile agar
C) Eosine Methylene blue agar D) all of these

3) Which of the following acid will have higher bacteriostatic effect at a given pH?
A) Acetic acid B) Citric acid C) Tartaric acid D) Maleic acid

4) Water activity can act as- ----
A) an intrinsic factor determining the likehood of microbial proliferation
B) a processing factor C) an extrinsic factor D) All of the above

5) What are the intrinsic factors for the microbial growth?
A) pH B) Moisture C) Oxidation-Reduction Potential D) All of these

6) Yeast & mould count determination requires- ----
A) Nutrient agar B) acidified potato glucose agar
C) MacConkey agar D) Violet Red Bile agar.

7) The time temperature combination for HTST pateurization of 71.1°c for 15 sec. is selected on the basic of ----
A) Coxiella burnetii B) E. coli C) B. subtilis D) C. botulinum

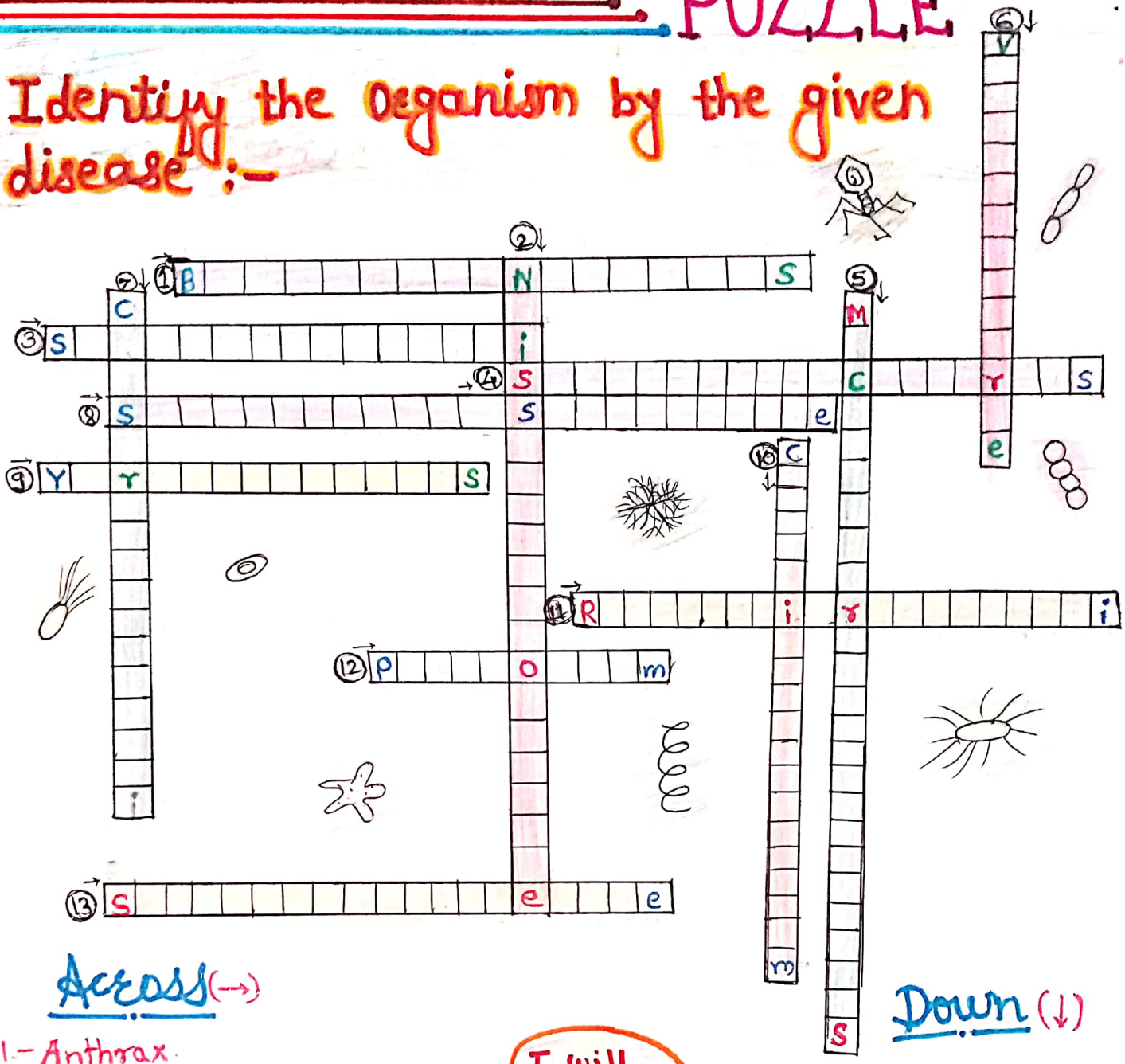
8) Aerobic Colony Count (ACC) is also known as- ----
A) Total Viable Count (TVC) B) Aerobic Plate Count (APC)
C) Standard Plate Count (SPC) D) All of these

9) Disease that breaks down body immune system ---
A) Cancer B) AIDS C) Dengue D) Enteric fever

10) Virus contain nucleic acid in the form of ---
A) DNA B) RNA C) Both A&B D) DNA / RNA

PUZZLE

Identify the organism by the given disease :-



Across (→)

1.- Anthrax
3 - Typhoid fever
4 - Wound infection
8.- Bacterial pneumonia
9 - Plague
11 - Rocky mountain
12 - Malaria
13.- Dysentry

Down (↓)

2) - Gonorrhea
5) - Tuberculosis
6) - cholera
7) - Tetanus
10) - Botulism (Food poisioning)