

# SCIENCE EXPO – 2019

## 1. PROJECT TITLE: DIALYSIS AND KIDNEY TRANSPLANTATION

Participants of the project
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**Dialysis** is a treatment that filters and purifies the blood using a machine. This helps to keep the fluids and electrolytes in balance when the kidneys can't do their job. **Dialysis** has been **used** since 1940s to treat people with kidney problems.

Dialysis is the process that helps for filtration of blood.

Dialysis is of two types. They are: 1. Hemodialysis 2. Peritoneal Dialysis

**1. Hemodialysis:** It is treated outside of the body. We all have arteries and veins. These arteries and veins are joined by a stunt; Blood from the veins and enters into a dialyzer. In the dialyzer blood is purified and the waste product goes out. Heparin helps for preventing the blood clotting. So, compressed air and heparin are supplied to dialyzer and it is supplied to arteries which distributes to all the parts of the body.

**2. Peritoneal dialysis:** In this process blood is cleaned inside the body. A special fluid is put into abdomen to absorb waste from the blood that passes through small vessels in the abdominal cavity. The fluid is then drained away. This type of dialysis is typically done at home.

If kidney diseases becomes very severe and crosses a point where there is not enough function to maintain the body, then we need either a transplant (or) dialysis.

**Symptoms:** Symptoms of kidney failure include nausea, fatigue, swelling and throwing up.

**Precautions to avoid dialysis:**

- Eat right food and loose excess weight
- Exercise regularly
- Don't smoke
- Avoid excess salt in your diet
- Talk to your healthcare team.

**1. PROJECT TITLE: DIALYSIS AND KIDNEY TRANSPLANTATION**



## 2. PROJECT TITLE: DNA FINGER PRINTING

Participants of the project
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DNA Finger Printing is a method used to identify an individual from a sample of DNA by looking at unique pattern in their DNA developed by “Allec Jeffereys”

Here one murder case is done; in this

1. Obtaining a sample from the case (Criminal) such as hair, blood, sperm, saliva, tissues, nails and fingerprint.
2. Collect the DNA from their sample.
3. Based on restriction fragment length polymorphism, by using restriction enzyme (Endonuclease), it cuts DNA at specific points along the strand with proteins and forms fragments.
4. Polymerase chain reaction (PCR) amplifies the desired fragments of DNA. It creates thousands of copies of the fragment by using Taq Polymerase Enzyme.
5. **Gel Electrophoresis:** Used to separate mixtures of DNA according to molecular size. The molecules are pushed by electric field through a gel like Agarose or Polycrylamide gel. The DNA fragments have a -ve charge, they will move to +ve end.
6. The gel is transferred to a Nylon membrane by a technique called “Southern Blotting”.
7. The radioactive DNA probe is formed.
8. The DNA probe binds to specific sequence of DNA on the membrane.
9. The radioactive probe is bound to the DNA pattern on the membrane.
10. The X-ray film is placed to detect the radioactive pattern which is known as “DNA Finger Print”

### Applications:

- To settle murder cases
- To trace the date of murder
- To settle disputed parentage: To settle some case where courts cannot decide who is the real mother / father of a child helps in diagnosis of inherited disorders.

### Genetic analysis:

- It is used in genetic analysis of various strains of agricultural crops and animals.

### To distinguish rapist:

- If the DNA print of Vagina matches with the DNA print of cased menit is confirmed that the person is involved in rape.
- Pedigree analysis



## 2. PROJECT TITLE: DNA FINGER PRINTING



### 3. PROJECT TITLE: SOLAR IRRIGATION

Participants of the project
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Now- a- days Global warming is one of the most dangerous problem the human population is suffering from. So to overcome that problem we had found many innovative ideas, among those Solar Irrigation is the best innovative idea.

**Process:** In this project, the main material we are using is ‘Solar Panel’ firstly, we have to place a solar panel so that sunlight directly falls on the panel and we can generate the power supply. The generated power (energy) can be used for various purposes like;

- We can use solar energy for pumping water from underground and it can be used for growing and cultivating crops.
- We can use solar energy for our own household needs.
- We can use solar energy for agricultural purposes
- Solar energy can be used in dairy farms for animal and the output we can get is fresh milk.
- Solar energy can also be used in “Poultry farm” for energy electricity”. The output we get from the poultry is “Eggs”
- We can use the same solar energy for transportation purpose too. So ladies during night time may not face any difficulty in moving on roads as the lights on the street lights are continuously glowing. Hence, we can use solar energy for different purposes:
- There is a major doubt in everyone’s mind that, how solar energy works during rains and during nights? So there is no need of feeling sad and bad for this problem. We can place a power saver. Power saver stores energy in it when the source is available. Then we can produce same kind of electricity and power supply in the ‘absence of sun’.
  - Benefits of Solar Energy:
    - Eco – friendly
    - No air pollution
    - No noise pollution
    - Save man power
    - No need of fuel (or) electricity
    - Low maintenance costs
    - Long lifetime
    - More production and more income
    - High quality of fresh fruits and vegetables
    - Solar power may be stored and can be used by farmers for their household activities.
    - Solar energy is a renewable resource

“Solar Power is a Technology, not a Fuel”

“Every second our sun produces enough energy to sustain “Earths” needs for 500,000 years”

Therefore, our motto is to make people aware of knowing about solar energy and trying to make it happen and make sure of using ‘Solar energy’. Use solar energy, and make your lives beautiful and help other generations for not facing any dangerous issues.



### 3. PROJECT TITLE: SOLAR IRRIGATION



#### 4. PROJECT TITLE: SILK PRODUCTION FROM BOMBYX MORI

Participants of the project
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- Life cycle of Silkworm: Each stage of worm is called Instar stages, time period between them called moulting (6-8 days). The 5<sup>th</sup> instar ripening stage larva is used in silk production.
- Process of silk production takes mostly approx 40 days. The steps include in the production are
  - **Hatching the eggs:** Tiny eggs of moth are incubated for about 10 days until they reach to larval stage.
  - **The feeding period:** Hatched larva are placed at a particular place for feeding of mulberry leaves. The feeding continues upto it reaches to large size.
  - **Spinning the Cocoon:** Worms are placed in Chitrikalu to obtain Cocoons, worms hit to the walls and they themselves develop a cocoon around their bodies.
  - **Recycling the filament:** The obtained cocoons are undergoes stifling process (boiling) to obtain silk threads from them
  - The larval stages, dies after boiling and they are not used further.
    - Hatching
    - Rearing
    - Formation of cocoons (Chitikalau)
    - Stifling (Boiling)
    - Spinning
    - Twisting + doubling
  - **Types of silks:**
    - Mulberry silk: Most common all over the world produced by silkworms 90% of Indians use Mulberry silk itself.
    - Tasar silk: Tasar silk (or) tussah silk it is produced by caterpillar it is copperish in colour they are used in interior purposes. Uniforms are made of tasar silk.
    - Eri silk: Creamy white coloured silk. It is produced without killing worms + by using castor oil plants.
    - Muga silk: It is golden coloured silk. It is mostly used in Assam for making of traditional clothes.
    - Types of silk threads: Crape, Organzine, Tram, Thrown singles.
    - At last sericulture: Cultivation of silk worm cocoons to obtain the filaments from them is called sericulture.
    - 2000-3000 cocoons are required to produce 500 gms. of silk.
    - Silk filament is much long about 1,300 m is length.



#### 4. PROJECT TITLE: SILK PRODUCTION FROM BOMBYX MORI



2<sup>nd</sup> Prize



Receiving 2<sup>nd</sup> Prize in Science Expo- 2019 by the  
Secretary & Correspondent Sri T. Srinivasu  
Project Mentor: Dr. A. Samba Naik



## 5. PROJECT TITLE: LIFE BEFORE BIRTH

Participants of the project
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Life begins at conception as a single, separate, living cell. Nothing new is added except oxygen and nutrition. Fertilization occurs when a sperm and ovum join to form a single cell, full of life and bearing the unique genetic imprint of a person who has never existed before. The DNA in the 46 chromosomes of that small cell contain full instructions about that new individual's sex, eye colour, foot size, brain capacity, and other physical traits.

**1<sup>st</sup> Month:** Chest, abdomen, heart are developed.

**I week: Implantation:** On about the sixth day, the growing baby attaches to the wall of the mother's uterus. That rich nutrient lining welcomes the tiny tenant, and soon the child is sending out the chemical signal that can be detected in a home pregnancy test. The fertilized egg grows a water like sac forms around it being filled with a fluid. This is called Amniotic fluid. It helps to grow the embryo and placenta also develops for the transfer of nutrition from mother to the baby Before the second week is over, the cells of the child's body will have already begun segregating themselves into the various layers that will give rise to the brain, nervous system, skin, digestive system, muscles, bones, and circulatory system

**3-4 weeks: A beating heart:** The baby's heart begins its first beats as early as 18 days after fertilization, often before the mother even suspects she is pregnant. Between the third and fourth weeks, the baby's head and spinal column become easily distinguishable, and arm buds appear. Legs will begin to appear days later. The umbilical cord forms, transporting oxygen and nutrients to the child.

**2<sup>nd</sup> Month:**

In this month the foetus is about 1.1 cm in length. Ears, eyelids and nose tips are present. Finger and toes are still developing.

**6 weeks: Brain waves:** The child's mouth and lips are apparent. The child begins his or her first movements. At six weeks, the baby has brain waves that can be measured with an electroencephalogram. At the end of the month the digestive tract and sensory organs began to develop.

**3<sup>rd</sup> Month:**

In this month a foetus has grown to 4 inches long and 1 ounce weight. Arms, fingers, feet and toes are completely formed. Baby can open and close the mouth. The baby has eyelids, fingernails, and fingerprints, and can grasp an object

**10-11 weeks: Organ systems in place:** The kidneys begin to form urine. All body systems are in place and active. Reproductive organs are developed. The baby has a skeletal structure, nerves, and circulation. The, baby is fully formed.

**12 weeks: Movements and characteristics:** Though too small to be felt by the mother, the baby reaches peak frequency of movement during the third month. The baby's sex can be visually determined, and the child's eyes, ears, and face begin to display distinctive characteristics.

**4<sup>th</sup> Month:**

By the end of the 4<sup>th</sup> month baby is 6 inches long and 4 ounces weight.

**14 weeks: A miracle of development:** In this month eyebrows and eyelashes, nails and hair are formed. Eye movements are seen Teeth become denser. Baby can suck her yawn, thumb, stretch and make face. The baby blinks the eyes. For a couple of weeks now, this baby has had all the body parts required to experience pain, including the nerves and spinal cord.

**16 weeks: Making his or her presence known:** The baby becomes large and active enough for the mother to feel movement of turns, kicks, and somersaults that at some point even become visible to the outside.

**5<sup>th</sup> Month:**

The baby is 10 inches long and 1 pound weight. A baby begins to feel a move and developing muscles. Hair begins to grow and shoulder, backbone is beginning to grow.

**20 weeks: Hearing mother's voice:** In the fifth and sixth months, the baby responds to music, sudden noises, and voices, especially that of his or her mother. Over the coming weeks, the baby will increase seven times in weight and nearly double in height.

**6<sup>th</sup> Month:**

End of the month the baby is 12 inches long and 2 pounds weight. Lungs develop and growth of the brain occurs. Skin is reddish, baby respond to the sounds with increasing the pulse.

**7<sup>th</sup> Month:**

14 inches long and 2 to 4 ponds weight. Baby will continue to mature and develop the body fat. She changes to +ve frequency,

**8<sup>th</sup> Month:**

Body is kicking more and the brain is rapidly developed. Lungs are immature. At the end of the month baby is 18 inches long and 5 pounds weight. Skin is smooth.

**9<sup>th</sup> Month:**

Baby continuous to grow, mature lungs are developed. It's time to delivery and also flexible. Antibodies flow from placenta and the body responds touch, light and sounds. The baby head is down towards the birth canal.

## 5. PROJECT TITLE: LIFE BEFORE BIRTH





## 6. PROJECT TITLE: INTEGRATED PEST MANAGEMENT

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Integrated Pest Management also known as Integrated Pest Control (IPC) is a broad based approach that integrate practices for economic control of pest. IPM works with the life cycle of pests to create an approach that prevents and control of pests. For examples like Dairy farm, poultry farm, aquaculture, Housing colony.

### Dairy farm:

- By timely vaccination and regular visit veterinary doctor would be mandatory.
- Milk can and van should be clean
- Farm should be hygiene
- Farm should be spacious
- Dairy farm is also called as white revolution
- Males are used for agriculture purpose

**Common Diseases in Dairy farm:** Cattle diseases are foot and mouth (viral), anthrax (bacterial), Rinderpest (cattle plague, viral)

### Poultry farm:

- Regular visit of veterinary doctor
- Providing clean and sufficient water
- Poultry should be cleaned regulatory
- Health hen lay eggs from February to August in some intervals.
- Hens are categorized unto layers (egg laying) and broilers (meat).

### Diseases in poultry farm:

- **Viral disease:** Ranikhet Diseases (New Castle Disease), Hepatitis, bird flu etc.

#### Bacterial Diseases:

- Fowl Cholera, Chronic Respiratory diseases, Salmoneuos etc.

#### Fungal Diseases:

- Aspergullois (Brooder, Pneumonia)

### Aquaculture:

- Pond should be dirtied
- Pond should be ploughed and distilled
- Eradication of aquatic weeds
- Use of weedicides
- Use of other fishes like grass crap, common crap to control aquatic weeds.
- Use of time to maintain  $P_H$  of water.
- Manuring of pond cattle during mixed with super phosphate and ground nut oil cake in 2:1:1 ratio
- **Common diseases:** cotton mouth diseases, tail and fin rot.

## 6. PROJECT TITLE: INTEGRATED PEST MANAGEMENT



## 7. PROJECT TITLE: COW DUNG BIOGAS PLANT

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**Chemical composition of Cow Dung:** It contains 1% of nitrogen, 1% of phosphorus and hydrogen 85% of Methane gas and 1% of Potassium.

**Uses of Cow Dung:** Cow Dung is useful for many purposes in ancient day cow dung is used to prepare some materials. The materials are used for cooking. We don't know what kind of substance makes for cooking. So we have to know that cow dung is used for producing Biogas.

### **How biogas is produced:**

Cow dung is taken into the storage tank from that then it is collected into anaerobic digester (absence of  $O_2$ ). Some kind of gas is evolved from the material present in the anaerobic digester. That gas is passed into biogas tank from that tank collected to biogas or gobar. It is useful for cooking purpose in houses

### **Storage tank:**

- It is useful for producing electricity
- It is useful for producing bio fertilizer used in agriculture purpose.
- Biogas is used in vehicles like CNG, lubricants (compressed natural tank) and provide heat.

**Conclusion:** In these natural process it is useful in many ways.



## 7. PROJECT TITLE: COW DUNG BIOGAS PLANT



## 8. PROJECT TITLE: SAVE THE SPARROWS

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From last decade 1992 Sparrows population is started to decline. They have been extensively hunted by China in 1995. The mobile emergent, the signal pollution has damaged the communication system of the birds. The bird Dodo has become extinct in early 20<sup>th</sup> century. So to save the danger species, we have to adopt the system of captivate breeding California condor has been breded and increased there population by 273 by 2005. Even Mauritius Kestrel has also been done by this method. So forest has also planned this type of breeding to save the sparrow. So they have started website of Citizen Sparrow programme to upload the population of the sparrow in nearby area.



## 8. PROJECT TITLE: SAVE THE SPARROWS





## 9. PROJECT TITLE: HOUSEHOLD VERMICOMPOST

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### Vermicomposting:

**Step 1:** Layer the bottom of the container with 1 inch of garden soil

**Step 2:** 1 inch of compost which helps to introduce the correct bacteria.

**Step 3:** Add kitchen scraps, (Vegetable, fruit scrap, egg shell &Neem leaves)

**Step 4:** Introduce earthworms that breakdown organic matter.

**Step 5:** To faster the process add the garden soil again

**Step 6:** Add compost which will help the mix to decompose quickly.

**Note:** Water will be sprinkled frequently.

### Natural Household compost:

**Step 1:** Layer the bottom of the container with 1 inch of garden soil.

**Step 2:** 1 inch of compost which helps to introduce the correct bacteria.

**Step 3:** Add kitchen scraps (Vegetable, fruit scrap, egg shell &Neem leaves)

**Step 4:** To faster the process add the garden soil again/

**Step 5:** Add compost which will help yo mix to decompose quickly.

**Note:** Water will be sprinkled frequently.

### **Uses:**

1. Agriculture
2. Horticulture
3. Garden Plants
4. Pots & Plants
5. Vegetable kitchen gardening
6. Hanging pot
7. Nursery plant propagation / grafting
8. Vermicompost increase the fruit, flower and improves plant quality, keep the soil healthy.

## 9. PROJECT TITLE: HOUSEHOLD VERMICOMPOST



## 10. PROJECT TITLE: APICULTURE

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- Study of Honey Bee is called “Melittology”
- The scientific name of honey bee is “ApisMellifera”

If the bee disappeared of the face of the earth, man would only have four years left to live

**-Albert Einstein**

Bees are pretty remarkable creatures. They pollinate crops, make delicious honey, and now bees are used to apply pesticides to crops to help ward off disease and increase yields.

### **Life Cycle of Honey Bee:**

#### **There are 3 types of honey bees**

- Queen
  - Drone
  - Worker
- Each lead different lives but they all start as eggs.
  - A single, long, white egg is found inside a small honey comb hole.
  - The larva looks like a small, white worm. They are fed on Royal Jelly, a special white fluid made by worker bees.
  - Towards the end of this stage, the bees cell is capped with wax. This allows the bee to enter the next stage of its life.
  - After 1-2 weeks, larvae enter the pupa stage. Inside the closed cell, the bee begins to pupate.
  - This is the process of transformation from a worm like larvae into a flying adult bee.
  - After complete transformation of bee it has a body, head and wings.

### **Honey making process:**

- The average worker bee makes 1/12<sup>th</sup> tea spoon of honey in her life time and it is not an easy task.
- **Step I:** Worker bees fly from their hive together nectar from flowers and blooming vegetation.
- **Step II:** Once enough nectar is collected, the bees bring it back to the hive.



- **Step III:** Nectar stored within their stomach is passed from one worker to the next until the water within it diminishes and deposited into honey comb wax cells.
- **Step IV:** Newly hatched worker bees vigorously flap their wings over the nectar causing the liquid inside the cells to slowly dehydrate. It will take one day.
- **Step V:** There are more than 300 varieties of flowers and blooms that honeybees can visit, which means the taste, color and smell will vary from honey to honey.

**Bee vectoring technology:**

As the bees exit the hive, they walk through the powder and carry it to the crops. When the bees land and shake to release pollen from the plant, the fungicide is dropped into the flower where it acts as a preventative measure against certain pests.

- Bee vectoring technology that harnesses the vary pollinators that can spread the pathogen to help to control it.
- In this technology bees are used to deliver a powder form of a beneficial fungus to blossoms.
- It acts as a competitor to decay pathogen.

It is a biological agent delivering a biological agent,” said Ashish Malik, President and CEO of BVT

**USES:** The benefit of the bee delivery system is that farmers can increase their crop yield while minimizing waste. By using bees to apply the bio pesticide, farmers don’t have to take a shotgun approach, spraying chemicals across their entire field. Additionally, BVT’s fungicide is naturally derived and needs no water for its application. The bio pesticide in BVT used does not harm the insects or impact their honey.

**Why will humans die without Bees:**

- Bees pollinate 70% of the around 100 crop species that feed 90% of the world.
- Bees are vital for the preservation of ecological balance and biodiversity in nature.
- Bees pollinate 80% of the world’s plant

## 10. PROJECT TITLE: APICULTURE



## 11. KBN HEALTH CENTRE

### BLOOD GROUPING, BLOOD PRESSURE AND BODY MASS INDEX

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The project's aim is to bring awareness about health care among students and public. Health refers to a state of complete emotional and physical well-being. The students brought awareness about health and they checked the blood pressure, Sugar levels, Body Mass index and blood group.

#### Health is necessary

- Not only to the absence of disease, but the ability to recover and bounce back from illness and other problems.
- Factors for good health include genetics, the environment, relationships, and education.
- A healthful diet, exercise, screening for diseases, and coping strategies can all enhance a person's health.

#### Blood grouping is done

- To generate awareness on Blood Donation and its significance in saving lives during emergencies.
- To save lives by making the timely availability of the required blood group
- Motivate the students and public on the beneficial aspects of blood donation and the harmful effects of collecting blood from paid donors.

**BMI:** It is Body mass index to know if the weight of the body is normal or not according to the height. For people above a healthy weight, losing five to ten percent of their weight



can lower blood pressure, improve cholesterol levels, and help protect against diabetes and cancer.

**The scale of BMI is:**

- Less than 18.5 = underweight
- 18.5 to 24.9 = healthy weight
- 25 to 29.9 = overweight
- 30 to 39.9 = obese

A high BMI (over 25) can affect the health and the risks include:

- high blood pressure
- thrombosis (blood clots)
- diabetes

**Blood pressure and Diabetes:** The students involved in the project also checked the blood pressure and sugar levels of the public

## 11. KBN HEALTH CENTRE

### BLOOD GROUPING, BLOOD PRESSURE AND BODY MASS INDEX



KBN Health Centre Project Team  
Members received III Prize by Secretary  
& Correspondent Sri T. Srinivasu  
Project Mentor: Sri T. Sambasiva Rao

## 12. NON- CONVENTIONAL ENERGY RESOURCES

<b>Participants of the project</b>
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### **Non-Conventional Sources of Energy:**

Non-conventional sources of energy are also called renewable sources of energy. They are Bio energy, solar energy, wind energy and tidal energy. Govt. of India has established a separate department under the Ministry of Energy called as the Department of Non-conventional Energy Sources for effective exploitation of non-conventional energy. The project's aim is to bring awareness about non-conventional sources of energy which is the need of the hour.

#### **1. Solar Energy:**

Energy produced through the sunlight is called solar energy. Solar photovoltaic cells are exposed to sunlight which converts sun light energy into electricity. In year 1999-2000, 975 villages were illuminated through solar energy. Solar energy is used for cooking, hot water and distillation of water etc.

#### **2. Wind Energy:**

This type of energy can be produced by harnessing wind power. It is used for operating water pumps for irrigation purposes. Approximately 2756 wind pumps were set up for this purpose. In seven states, Wind power operated power houses were installed and their installed capacity was 1000 MW. India has second position in wind power energy generation.

#### **3. Tidal Energy:**

Energy produced by exploiting the tidal waves of the sea is called tidal energy. Due to the absence of cost effective technology, this source has not yet been tapped.



#### **4. Bio Energy:**

This type of energy is obtained from organic matter.

**It is of two kinds:**

**(i) Bio Gas:**

Bio Gas is obtained from Gobar Gas by putting cow dung into the pits. Besides producing gas gobar gas is also converted into manure. It can be used for cooking, lighting and generation of electricity. 36.5 lakh bio gas plants had been established by the year 2015-16. They produce more than 325 lakh tonnes of manure. About 1898 large community bio gas plants have been established in the country.

**(ii) Bio Mass:**

It is also of a source of producing energy through plants and trees. The purpose of bio mass programme is to encourage afforestation for energy. So that fuel for the generation of energy based on gas technique and fodder for the cattle could be obtained, 56 MW capacity for the generation of bio mass energy has been installed.

#### **5. Energy from Urban Waste:**

Urban waste poses a big problem for its disposal. Now it can be used for generation of power. In Timarpur (Delhi) a power station of 3.75 MW capacity has been set up to generate energy from the garbage.

## 12. NON- CONVENTIONAL ENERGY RESOURCES



## 13. SCARY HOUSE

### Participants of the project

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Sana Begum, II CBZ, Roll No. 18933

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- Make it a fun and scary experience for all who enter its creaky doors and brush past the sticky spider webs.
- Remember that tension, distraction, empathy, story, suspense, threat, and familiarity all add to the terror of a situation.
- **Remember:** Clowns, dolls, and loud noises are always scary!
- **Something else to consider:** For very young guests, some kinds of scary might be just too much. Have a plan for downplaying the terror for the young ones. You might even design an emergency exit just in case your house is too haunted for the littlest visitors!

Narrative can help improve the experience by giving context for people's enjoyment.

### The Walls and Windows of Scary house are Decorated with

- Haunted portraits
- Hangings of banyan tree
- Photographs with blacked-out eyes
- Faces coming out of walls and mirrors or watching in the windows
- Spray-painted messages of doom, death, or insanity

### The Atmospheric Effects and Lighting

- Flickering lighting
- Red lighting
- Glowing eyes
- Jars of glowing or chemical substances
- Fog



## **Blood**

- Bloody limbs, bloody hair, eyes, and teeth
- Jars full of bloody teeth and what looks like fingernail clippings
- Bloody toothbrushes
- Bloody rags or bandages
- Bloody baby clothes
- Bloody tools

## **Bodies and Body Parts**

- Piles of skulls
- Hands poking out of unexpected places
- Heads in a jar

## **Classic Halloween Props**

- Spiders and scorpions hanging from the wall
- Chains
- Candelabras
- Evil pumpkins

Three students dressed as Ghosts created fear in the public. Narrative can help improve the experience by giving context for people's enjoyment.

### 13. SCARY HOUSE



Receiving Consolation Prize

Project: Scary House

Mentor: Dr. V. Subhashini



## 14. INTEGRATED POULTRY CULTURE SYSTEMS

<b>Participants of the project</b>
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- ❖ Much attention is being given for the development of poultry farming in India and with improved scientific management practices; poultry has now become a popular rural enterprise in different states of the country.
- ❖ Apart from eggs and chicken, poultry also yields manure, which has high fertilizer value.
- ❖ The production of poultry dropping in India is estimated to be about 1,300 thousand tons, which is about 390 metric tons of protein.
- ❖ Utilization of this huge resource as manure in aquaculture will definitely afford better conversion than agriculture.
- ❖ The application of poultry manuring in the pond provides a nutrient base for dense bloom of phytoplankton, particularly Nano plankton which helps in intense zooplankton development.
- ❖ In addition to phytoplankton and zooplankton, there is a high production of detritus at the pond bottom, which provides the substrate for colonization of micro-organisms and other benthic fauna especially the Chironomid larvae.
- ❖ The semi digested excreta of this fish forms the food of bottom feeders.
- ❖ Mixed culture of only Indian major carps can be taken up with a species ratio of 40 % surface, 30 % column and 30 % bottom feeders.

### **Use of poultry litter as manure**

- ❖ The fully built up deep litter removed from the poultry farm is added to fish pond as manure.
- ❖ The poultry droppings from the poultry farms is collected, stored it in suitable places and is applied in the ponds at regular instalments.
- ❖ Applied to the pond at the rate of 50 Kg/ha/ day every morning after sunrise.
- ❖ The application of litter is differed on the days when algal bloom appears in the pond. This method of manurial application is controlled.

### **a. Housing of birds**

- ✓ In integrated fish-cum-poultry farming the birds are kept under intensive system. The birds are confined to the house entirely.
- ✓ The intensive system is further of two types - cage and deep litter system.
- ✓ The deep litter system is preferred over the cage system due to higher manurial values of the built up deep litter.
- ✓ The litter is regularly stirred for aeration and lime used to keep it dry and hygienic.
- ✓ In about 2 months' time it becomes deep litter, and in about 10 months' time it becomes fully built up litter. This can be used as fertilizer in the fish pond.
- ✓ The fowls which are proven for their ability to produce more and large eggs as in the case of layers, or rapid body weight gains is in the case of broilers are selected along with fish.
- ✓ The poultry birds under deep litter system should be fed regularly with balanced feed according to their age.
- ✓ The birds are usually kept as layers up to the age of 18 months. Each bird lays about 200 eggs/yr.

### **c. Harvesting:**

- Some fish attain marketable size within a few months.
- Keeping in view the size of the fish, prevailing rate and demand of the fish in the local markets, partial harvesting of table size fish is done.
- After harvesting partially, the pond should be restocked with the same species and the same number of fingerlings depending upon the availability of the fish seed.
- Final harvesting is done after 12 months of rearing. Fish yield ranging from 3500-4000 Kg/ha/yr and 2000-2600 Kg/ha/yr are generally obtained with 6 species and 3 species stocking respectively.
- Eggs are collected daily in the morning and evening. Every bird lays about 200 eggs/year.
- The birds are sold after 18 months of rearing as the egg laying capacity of these birds decreases after that period.
- Pigs can be used along with fish and poultry in integrated culture in a two-tier system. Chick droppings form direct food source for the pigs, which finally fertilise the fish pond.



## 14. INTEGRATED POULTRY CULTURE SYSTEMS



## 15. PROJECT TITLE: CLASSICAL CONDITIONING

<b>Participants of the project</b>
B. Sridevi, II CBZ, Roll No. 18902
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Pavlov's dog experiments played a critical role in the discovery of classical conditioning. This discovery had a major impact on our understanding of how learning takes place as well as the development of behavioural psychology.

### **Pavlov's Dog: A Background**

Ivan Pavlov was a noted Russian physiologist who went on to win the 1904 Nobel Prize for his work studying digestive processes. It was while studying digestion in dogs that Pavlov noted an interesting occurrence: The dogs would begin to salivate whenever an assistant entered the room.

In his digestive research, Pavlov and his assistants would introduce a variety of edible and non-edible items and measure the saliva production that the items produced. Salivation, he noted, is a reflexive process. It occurs automatically in response to a specific stimulus and is not under conscious control. However, Pavlov noted that the dogs would often begin salivating in the absence of food and smell. He quickly realized that this salivary response was not due to an automatic, physiological process.

Based on his observations, Pavlov suggested that the salivation was a learned response. The dogs were responding to the sight of the research assistants' white lab coats, which the animals had come to associate with the presentation of food. Unlike the salivary response to the presentation of food, which is an unconditioned reflex, salivating to the expectation of food is a conditioned reflex.

Pavlov set out to provoke a conditioned response to a previously neutral stimulus. He opted to use food as the unconditioned stimulus, or the stimulus that evokes a response naturally and automatically. The sound of a bell was chosen to be the neutral stimulus. The dogs would first be exposed to the sound of the bell, and then the food was immediately presented.

After several conditioning trials, Pavlov noted that the dogs began to salivate after hearing the bell. The previously neutral stimulus had become what is known as a conditioned stimulus that then provoked a conditioned response (salivation).

In addition to forming the basis of what would become behavioral psychology, the classical conditioning process remains important today for numerous applications, including behavioral modification and mental health treatment, including treating phobias, anxiety and panic disorders.



**15. PROJECT TITLE: CLASSICAL CONDITIONING**



## 16. RIVER CLEANING BOAT

### Participants of the project

G. Suma, II CBZ, Roll No. 18943

V. Suma Devi, I CBZ, Roll No. 19925

The less economical and effective time saving machine was river cleaning boat. By this we can obtain the energy source by solar power and we can collect the floating waste material on the river by net. At a time more waste will be collected than by using man power and this will help to clean the sewage of the under water. Indian rivers have been highly polluted to clean them more the 50,000 cores have been spent. By using this type of technology we can remove waste in more effective manner.





## **17. PROJECT TITLE: BREATH ANALYSIS INDICATOR & SLEEP AWAKE INDICATOR**

<b>Participants of the project</b>
P. Priyanka, Jr. Bi.Pc.
B. Pushpak, Jr. Bi.Pc.
P. Jyothi, Jr. Bi.Pc.

**Introduction:** The main theme of this project is to “avoid Accidents” and prevent from “Alcohol Drinking”.

### **Breath Analysis indicator:**

If a person is alcoholic and enter into the vehicle, the vehicle would not move and this indicator makes a buzzer sound to alert the passenger and prevent them from danger.

### **Sleep awake Indicator:**

Due to lack of sleep (or) night travelling the driver gets sleep and within fraction of seconds the accidents takes place. This sleep awake indicator detects the person and makes a buzzer sound to alert him, so road accidents can be prevented.

## 17. PROJECT TITLE: BREATH ANALYSIS INDICATOR & SLEEP AWAKE INDICATOR



## 18. ENDANGERED ANIMALS

An endangered species is a population of organisms which are at risk of becoming extinct because they are either few in numbers or threatened by changing environmental or predation parameters. Animals can get endangered or extinct naturally, or from human reasons. It can happen naturally from natural competition, or from natural disasters.

Natural competition is when species compete for food and/or living spaces. An example of an animal species affected by this is the mussel. Natural disasters can wipe out or endanger a whole species. An example of an animal species affected by a natural disaster was the dinosaur. If the theory is true, the meteor that crashed down to the earth wiped out the whole species. We have contributed to animals getting endangered too. The pollution that we create damages many animals' habitats. An example of an animal that has been affected by our pollution is the sea turtle. Over hunting is also a huge threat.

The Bengal tiger is a *Panthera tigris tigris* population native to the Indian subcontinent. It is threatened by poaching, loss, and fragmentation of habitat, and was estimated at comprising fewer than 2,500 individuals by 2011.

The *Indian vulture* (*Gyps indicus*) is an Old World *vulture* native to *India*, Pakistan and Nepal. Vulture has been listed as Critically Endangered on the IUCN Red List since 2002, as the population severely declined. Indian vultures died of renal failure caused by diclofenac poisoning.

Loris is a small, nocturnal primate. It prefers to inhabit thick, thorny bushes and bamboo clumps where it can evade predators and also find insects, which is the main diet. These animals are about 25 cm long and have long, thin arms. They weigh around 275 grams. They have a small, vestigial tail. Their most prominent feature is the pair of two large, closely set, brown eyes. Being arboreal, they spend most of their life on the trees. Though their movements are slow, they can climb up fast to the tree top when threatened. They either hunt on their own or in pairs. They are known to be very social at dusk and dawn, interacting with others of their own.

Slender lorises are an endangered species accorded the highest protection under Indian law. While they continue to be threatened by poaching for superstition and the illegal pet trade, the gravest danger they face in a city is habitat destruction.

## 18. ENDANGERED ANIMALS

