TELANGANA TRIBAL WELFARE RESIDENTIAL COLLEGE FOR WOMEN
RAJANNA SIRICILLA
DEPARTMENT OF ZOOLOGY

# TEACHING LEARNING PRACTICES FOR THE AY-2022-23

# STUDENT SEMINAR

Activity:- Student Seminar
Date :- 31/08/2022

Student Seminar on Structure of the Cell

**Introduction**:
The seminar on the structure of the cell was held and aimed to develop into the intricate details of cellular composition and organization. The seminar provided a platform for students to explore the fundamental unit of life, the cell, and its various structural components.

**Objectives**:-

- Enhance Subject Knowledge:
  Provide students with an in-depth understanding of specific topics within the seminar's theme.
  Expose students to recent advancements, research, and trends related to the subject matter.

- Develop Presentation Skills:
  Enable students to develop and refine their public speaking and presentation skills.
  Teach students how to effectively communicate complex information to an audience.

## Methodology adopted:

**Learning with visual demonstrations and practical examples.**

## Teaching-Learning Methods Involved

The seminar employed several innovative teaching-learning methods, detailed below:
**Active Learning**
Active learning involves students engaging with the material through discussions, problem-solving, case studies, and other interactive activities. In this seminar:

**Student Presentations:** Students actively researched and prepared their topics, facilitating deeper understanding and retention.

**Q&A Sessions:** Encouraged critical thinking and on-the-spot analytical skills as students answered questions from their peers and faculty.

Real-World Applications: Students related their theoretical knowledge to real-world scenarios and contemporary issues regarding the COVID-19 pandemic.

Reflective Practice: Presenters reflected on their research process and learning outcomes, which was shared during their presentations.
Blended Learning

Blended learning combines traditional classroom methods with digital and online media. In this seminar:

Online Resources: Students utilized online databases and resources for their research, integrating digital literacy into the learning process.

Problem-Based Learning (PBL)
PBL is a student-centered pedagogy in which students learn about a subject through the experience of solving open-ended problems. In this seminar:

**Key Points Discussed:**

**Cell Membrane**: The outer boundary of the cell, regulating the passage of substances in and out of the cell, maintaining its integrity.

**Cytoplasm**: The gel-like substance filling the cell, housing various organelles and serving as a medium for cellular activities.

**Nucleus**: The control center of the cell, containing genetic material (DNA) and governing cellular functions.

**Organelles**: Detailed discussions on organelles such as mitochondria (energy production), endoplasmic reticulum (protein synthesis), Golgi apparatus (protein modification and sorting), and lysosomes (waste disposal).

**Conclusion:**
The seminar provided a comprehensive overview of the structure of the cell, highlighting its complexity and functionality. Understanding cellular structure is crucial for unraveling the mysteries of life processes and holds significant implications for various fields, including medicine and biotechnology.

# STUDENT SEMINAR

Activity: Student Seminar

Date:- 23/09/2022

Title: Student Seminar Report on Chromosomes

**Introduction**:
The student seminar on "Chromosomes" was conducted to delve into the fundamental aspects and recent advancements in the field of genetics. The seminar aimed to provide a comprehensive understanding of chromosomes, their structure, function, and significance in genetics and human health.

## Methodology Adopted:

**Student Discussions:-**

Discussions are an essential aspect of seminars, offering a platform for in-depth discussions and diverse perspectives on specific topics. . The moderator plays a crucial role in guiding the conversation and ensuring that the discussion remains focused and engaging. Students are highly interactive, allowing audience members to pose questions and share their views, promoting a dynamic exchange of ideas.

**Group Activities**

Group activities are another essential component of a successful seminar, fostering teamwork, collaboration, and networking among participants. These activities aim to break the ice, encourage interaction, and promote a sense of camaraderie among attendees.

**Q&A Sessions**

Q&A sessions are a fundamental element of seminars that allow participants to engage in direct and interactive discussions with speakers or panelists. These sessions provide a valuable opportunity for attendees to seek clarification, share their insights, and delve deeper into the topics presented during the seminar

**Key Points Covered:**
**Chromosome Structure:** The seminar began with an overview of chromosome structure, highlighting the organization of DNA into chromatin, the role of histones, and the condensation of chromatin into chromosomes during cell division.

**Types of Chromosomes:** Different types of chromosomes, including autosomes and sex chromosomes, were discussed. The variations in chromosome number among species, such as diploid and haploid sets, were also explored.

**Chromosome Mapping and Evolution:** The seminar delved into chromosome mapping techniques, including karyotyping, fluorescence in situ hybridization (FISH), and comparative genomic hybridization (CGH), and their applications in studying genetic diseases and evolutionary relationships.

**Conclusion**:
The seminar concluded with a reflection on the significance of chromosomes in understanding inheritance, evolution, and human health. It highlighted the interdisciplinary nature of chromosomal research and the need for continued exploration to unravel the complexities of the genome.

Overall, the student seminar on chromosomes provided a platform for intellectual exchange, fostering a deeper appreciation for the role of chromosomes in shaping life and driving scientific innovation

Case Studies: Students presented case studies on various aspects of COVID-19, such as its impact on mental health, economy, and healthcare systems.
Solution Proposals: Students proposed solutions and strategies to address the challenges posed by the pandemic.

# FIELD TRIP

Study of Bird Nesting Behavior at Local Crop Field
Date of Visit: 17/11/2022

Location:
Crop Field, thangallapally

Participants:
K.DEEPTHI

B.MEENA

K.AKHILA

G.PREETHI

M.Z.C 2nd year students
Objectives:

- To observe and document the nesting behavior of birds in an agricultural setting.
- To understand the impact of agricultural activities on bird nesting habits.
- To identify species of birds that are utilizing the crop field for nesting.
- To engage students in hands-on field research.

Methodology:

**Experiential Learning**
Experiential learning involves learning through experience and reflection. The seminar provided:

**Observation Points:** Three strategic observation points were set up around the field to

monitor different bird species and their nesting sites.

**Tools used :** Binoculars, cameras, notebooks,
Species Identification: Birds were identified using field guides and mobile apps.


Observations:
Species Observed:
Parrots [Psittaciformes]
Crows[corpus splendens]

Cuckoo [cuculus canorus]

Weaver bird [ Ploceus philippinus]

House sparrows [ Passer domesticus]

2. Nesting Sites:

Parrots :- They use hollowed out trees or logs for nests. They do construct a nest within the hole, but require a physical structure in which to build.

Crows:- rows will nest in an astounding array of places, from the eaves of skyscrapers to the crooks of well concealed tree limbs. House Crow is tree nester and the nests are normally placed on tree about 10-12 m average height off ground. The House Crow establish their nests in local environment on various types of trees mainly on Eucalyptus oblique (Safada), Ziziphus sp. (Beeri), Saraca asoca (Ashoka), Azadirachta indica (Neem), and Syzygium cumini (Jamun) tree, but occasionally on electric power transmission lines tower and mobile towers etc. as artificial nesting site

Cuckoo:-brood parasites, cuckoos do not raise their own young, instead laying eggs in the nests of other birds, which raise the chick thinking it is one of their own.

Weaver bird:- They use a variety of plant materials to build their nests, including strips of grass, leaves, twigs and roots. A weaver bird has a strong, conical beak, which it uses to cut

blades of grass that it will use in nest–building. It can tie real knots in nest material with its beak and its feet.

Passer domesticus:-House sparrows use a broad range of materials for nest building, including feathers, grass inflorescences, stalks and roots of plants, barks, threads, strings, and pieces of paper and wool

Behavioral Notes:
Ploceus philippins:- Baya Weaver Ploceus philippinus is a highly social and gregarious bird of the family Pleistocene that has been recently listed as 'Least Concern' by the IUCN Red List of Threatened Species. In India, four species of genus Ploceus are reported to date.

Psittaciformes:-The behaviour of parrots differs from type to type. Some of them are strong and have direct flight whereas most of the species spend their time perching or climbing. Parrots sometimes walk in a rolling gait manner too

Cuculus canorus:- Cuckoos court multiple mates during the mating period in April. As brood parasites, cuckoos do not raise their own young, instead laying eggs in the nests of other birds, which raise the chick thinking it is one of their own. The nests of dunnocks, meadow pipits and reed warblers are favourites
Impact of Agricultural Activities:

Positive Impacts: The presence of tall grasses and open spaces provided suitable nesting habitats for various bird species. The diversity of insects due to crop farming attracted insectivorous birds.
Negative Impacts: Tractor movements and farming equipment posed risks to ground-nesting birds like Killdeer. Pesticide use was a concern for the health and safety of the birds and their chicks.
Student Engagement:
Students participated actively in observations and data recording. They were particularly fascinated by the Killdeer's distraction displays and the aerial prowess of the Barn Swallows. The experience provided practical insights into the challenges and strategies of bird nesting in agricultural landscapes.

Conclusion:
The field trip was successful in achieving its objectives. The observations highlighted the adaptive behaviors of birds in utilizing agricultural fields for nesting. However, it also underscored the need for mindful farming practices to mitigate negative impacts on avian life. Future studies could focus on long-term monitoring and the effects of specific agricultural interventions on bird populations.

## Student Seminar

**Date:- 22/11/2022**
**Name of the Student:- sindhu**

**Life science 2 nd year**

OBJECTIVES:-
Student seminar allow the student to expand their knowledge and stay current with the subject that they are studying.they know what they have to do for their better future in their studies.

### Methodology adopted:

**Learning with visual demonstrations and practical examples.**

### Teaching-Learning Methods Involved
The seminar employed several innovative teaching-learning methods, detailed below:

**Active Learning**
Active learning involves students engaging with the material through discussions, problem-solving, case studies, and other interactive activities. In this seminar:

**Student Presentations:** Students actively researched and prepared their topics, facilitating deeper understanding and retention.

**Q&A Sessions**: Encouraged critical thinking and on-the-spot analytical skills as students answered questions from their peers and faculty.

**Collaborative Learning**
Collaborative learning emphasizes teamwork and collective problem-solving. The seminar's discussion panel allowed:

Peer Feedback: Students provided constructive feedback to each other, promoting a deeper understanding of the subject matter.

**Group Discussions**: Facilitated collaborative learning and diverse perspectives on the topics discussed.

Real-World Applications: Students related their theoretical knowledge to real-world scenarios and contemporary issues regarding the COVID-19 pandemic.

Reflective Practice: Presenters reflected on their research process and learning outcomes, which was shared during their presentations.
Blended Learning

EXPLANATION:-
A seminar is given by MZC second year name Mss. sindhu she explained about " SYCON CANAL SYSTEM".Se has given a good explanation about the topic with a neat labelled diagram she started the session by introducing her self and explained types o0f canal systems

## VIRTUAL LAB ON ELECTROPHOROSIS

**DATE:- 02/12/2022**

Title: Report on Virtual Lab Session: Electrophoresis
Second-Year Degree Students

Introduction

Provide a brief overview of the virtual lab session on electrophoresis.
-Mention the purpose of the session and its relevance to the curriculum for second-year degree students.

**Objectives**

- Outline the specific objectives of the virtual lab session, such as:
- Understanding the principles of electrophoresis.
- Familiarizing students with the equipment and materials used in electrophoresis.
- Practicing electrophoresis techniques in a virtual environment.

**Teaching Learning Methodology Adopted**

Methodology

**Online Resources:** Students utilized online databases and resources for their research, integrating digital literacy into the learning process.

Describe how the virtual lab session was conducted, including:
Platform or software used for the virtual lab.
Equipment and materials simulated or demonstrated during the session.
Step-by-step procedure followed during the session.


Topics Covered

List the main topics covered during the virtual lab session, such as:
Principles of electrophoresis.
Types of electrophoresis techniques e.g., agarose gel electrophoresis, SDS-PAGE.
Application areas of electrophoresis in research and diagnostics.

**Discussion**

Summarize key findings and observations from the virtual lab session.
Discuss any challenges faced during the session and how they were addressed.
Encourage students to ask questions and participate in discussions about the principles and applications of electrophoresis.

**Feedback**

Collect feedback from students regarding their experience with the virtual lab session.

Highlight any positive feedback received and areas for improvement identified by students.

Conclusion

Summarize the overall effectiveness of the virtual lab session in achieving its objectives.

Emphasize the importance of hands-on experience and practical skills development in understanding complex scientific concepts like electrophoresis.

## TEACHING THROUGH PPT

Title: Teaching through PowerPoint- Meiosis Explained

Date: 28/03/2023

Introduction:

In today's dynamic educational landscape, leveraging multimedia tools such as PowerPoint presentations has become integral to effective teaching and learning. This report encapsulates the experience and outcomes of a PowerPoint-based class session on the topic of Meiosis..

Objectives:

- To elucidate the process of meiosis, including its stages and significance.
- To facilitate student engagement and comprehension through visual aids and interactive content.
- To foster critical thinking and conceptual understanding of meiosis and its implications in genetics and reproductive biology.

## METHODOLOGY ADOPTED

**Blended learning** ;- combines traditional classroom methods with digital and online media. In this seminar:

PowerPoint (PPT) classes can vary depending on the goals of the class, the level of expertise of the participants, and the instructor's preferences. Here's a general outline of a methodology that could be used:

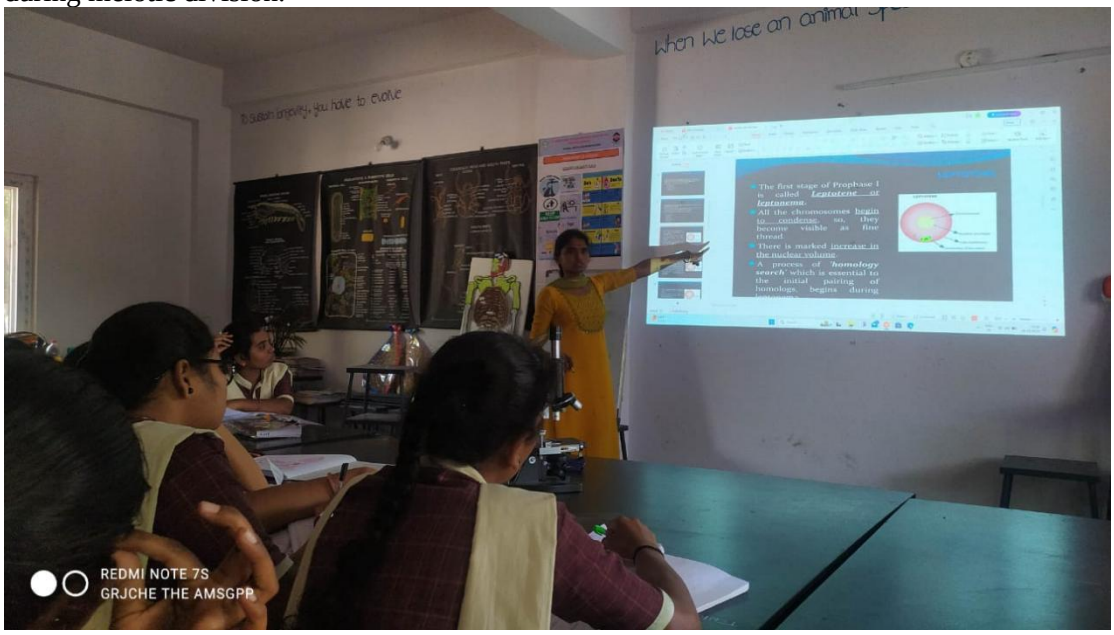
**Q&A and Review:** Reserve time at the end of the class for questions and answers, as well as a review of key concepts covered throughout the session.

**Session Highlights:**

**Interactive Introduction:** The session commenced with an interactive introduction, wherein students were prompted to recall their knowledge of cell division and its significance. This served as a foundation for introducing the concept of meiosis and its distinct role in sexual reproduction.

**Visual Representation:** A series of visually-rich PowerPoint slides were employed to elucidate the stages of meiosis, including Prophase I, Metaphase I, Anaphase I, Telophase I, and subsequent stages of Meiosis II. Color-coded diagrams and animations were used to

illustrate the intricate processes of chromosome alignment, crossing over, and segregation during meiotic division.




**Comparative Analysis:** To enhance understanding, a comparative analysis between mitosis and meiosis was presented, highlighting the similarities and differences in their mechanisms, outcomes, and biological significance. This facilitated a deeper comprehension of the unique features and adaptive advantages of meiotic division in generating genetic diversity.

**Outcomes and Conclusion:**
The PowerPoint-based class session on meiosis proved to be highly effective in achieving its objectives of elucidating complex biological concepts, fostering student engagement, and promoting active learning. Feedback from students indicated a significant improvement in their understanding of meiosis and its implications in genetics and reproductive biology. The interactive and visually-rich nature of the presentation facilitated retention and comprehension, while the incorporation of real-world examples and clinical correlations enhanced relevance and applicability. Overall, the use of PowerPoint as a teaching tool proved instrumental in creating an enriching and immersive learning experience for students, thereby exemplifying its efficacy in modern pedagogy.

## LEARNING USING ONLINE RESOURCES

Title: Enhancing Learning Through Online Resources: A Focus on YouTube Video Classes on Cellular Biology

Introduction:
The advent of online resources, particularly platforms like YouTube, has revolutionized the way individuals access educational content. This report examines the efficacy of using YouTube video classes as a learning tool, with a specific focus on the topic of cellular biology. Learning using online resources can be incredibly rewarding and effective. Here are some objectives you might consider:

**Objectives** :-

- ❖ Skill Development: Identify specific skills you want to acquire or improve upon, such as programming languages, graphic design, or public speaking.

- ❖ Knowledge Expansion: Explore new subjects or deepen your understanding of existing ones, whether it's history, science, literature, or philosophy.

- ❖ Personal Enrichment: Pursue hobbies or interests, like learning a musical instrument, mastering a new language, or exploring creative writing.

- ❖ Critical Thinking: Develop your ability to evaluate information critically, discern credible sources, and separate fact from opinion.

**Teaching Learning Methods Involved:-**

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**Visual Learning**: Cellular biology involves complex structures and processes that can be better understood through visual aids. YouTube videos often utilize animations, diagrams, and live demonstrations to elucidate concepts, enhancing comprehension and retention.

**Variable Production Values**: Not all YouTube videos maintain the same production quality, which can impact the effectiveness of the learning experience. Selecting high-quality channels with clear explanations and well-designed visuals is essential.


Effective Use:

**Accurate Content**: Identify reputable YouTube channels and playlists curated by educators or institutions specializing in cellular biology to ensure access to accurate and reliable information.

**Active Engagement**: Encourage learners to actively engage with the material by taking notes, pausing to reflect on key concepts, and participating in discussions or online forums.

**Conclusion**:
YouTube video classes offer a valuable and accessible resource for learning cellular biology and other complex subjects. By leveraging the platform's diverse content, visual aids, and interactive features, learners can enhance their understanding and appreciation of cellular processes. However, careful selection of content, active engagement, and supplementation with other resources are crucial for maximizing the effectiveness of online learning experiences.

# TEACHING LEARNING PRACTICES
# FOR THE
# AY-2021-2

2

## STUDENT SEMINAR

### ACTIVITY:-STUDENT SEMINAR

Date:- 28/09/2021

OBJECTIVES:-

Student seminar allow the student to expand their knowledge and stay current with the subject that they are studying.they know what they have to do for their better future in their studies.

EXPLANATION:-

A seminar is given by MZC second year name D.Lavanya she explained about "HEART OF SCOLIODON".Se has given a good explanation about the topic with a neat labelled diagram she started the session by introducing her self and explained structure of the scoliodon heart.type of heart about the circulation and finally how it is functioning

Motivational Talks: Ms B. Akhila shared her views on Inspirational talks of reputed institutions served as motivational catalysts, instilling confidence and determination among attendees.

**Feedback:-**

This sessions was really helpful to the students they enjoyed a lot and given a good response to the student teacher.she was inspired other student to comeforword to give seminar.

# VIRTUAL LAB ON ELISA

TITLE:- virtual lab experiment on the topic of Enzyme-Linked Immunodeficient Assay (ELISA) .

Introduction: This section provides background information on ELISA, its significance in biochemistry and immunology, and the specific objectives of the virtual lab experiment. The objectives of a virtual lab on Enzyme-Linked Immunosorbent Assay (ELISA) typically include:

**OBJECTIVES**:-

- Practical Application of ELISA Techniques: Learn how to perform various types of ELISA assays, such as direct, indirect, sandwich, and competitive ELISA, virtually.

- Interpretation of Results: Practice interpreting ELISA results, including understanding absorbance readings, calculating concentrations, and determining the presence or absence of specific antigens or antibodies.

- Applications of ELISA: Explore the wide range of applications of ELISA in various fields, including clinical diagnostics, biomedical research, food safety testing, environmental monitoring, and drug discovery.

- Critical Thinking : Develop critical thinking skills by analyzing experimental design, troubleshooting issues, and interpreting results to draw meaningful conclusions.

**METHODOLOGY ADOPTED**

**Experimental Learning:** Walk participants through the process of setting up the virtual ELISA experiment. This may involve arranging microplate wells, adding samples and reagents, incubating the plate, washing steps, and performing the enzyme-substrate reaction.


**Materials and Methods:** A detailed description of the materials used in the virtual lab, including any software or online platforms, as well as the step-by-step procedures followed during the experiment.

**Discussion**: Analysis and interpretation of the results, including any patterns or trends observed, as well as comparisons to theoretical expectations or known standards. This section may also address any limitations of the virtual lab experiment and suggest areas for future research.

Conclusion: A summary of the key findings of the experiment, including their implications and relevance to the broader field of study.

## TEACHING THROUGH PPT

Title: Understanding the Cell Cycle: A Fundamental Journey into Cellular Dynamics
DATE:- 12/01/2022
Introduction:
The cell cycle is a fundamental process governing the growth, development, and reproduction of all living organisms. In this PowerPoint presentation, we delve into the intricacies of the cell cycle, exploring its phases, regulatory mechanisms, and significance in both normal cellular function and disease.

**Objectives**:
- To familiarize students with the stages of the cell cycle.
- To explain the regulatory checkpoints and key molecules involved in cell cycle control.

- ❖ To highlight the importance of the cell cycle in various biological processes.
- ❖ To discuss implications of cell cycle dysregulation in diseases like cancer.

**METHODOLOGY ADOPTED**

**Blended learning** ;- combines traditional classroom methods with digital and online media. In this seminar:

PowerPoint (PPT) classes can vary depending on the goals of the class, the level of expertise of the participants, and the instructor's preferences. Here's a general outline of a methodology that could be used:

**Using Visual Elements:** Teach participants how to use visual elements like charts, graphs, Smart Art, and multimedia to enhance their presentations. Provide examples of when and how to use each type of visual element.

**Animation and Transitions:** Introduce animation and transition effects and explain how they can be used to add interest and emphasis to slides. Caution against overusing these effects, which can distract from the content.

**Slide Master:** Explain the concept of the Slide Master and demonstrate how it can be used to create consistent formatting and branding across all slides in a presentation.

**Q&A and Review:** Reserve time at the end of the class for questions and answers, as well as a review of key concepts covered throughout the session.


Content:

Overview of the Cell Cycle
Definition and significance.
Phases: G1, S, G2, and M phase.

Regulatory Mechanisms
Cell cycle checkpoints: G1/S, G2/M, and metaphase.
Cyclins and cyclin-dependent kinases (CDKs).
Tumor suppressor genes (e.g., p53) and oncogenes (e.g., Ras).

Cell Cycle Phases in Detail
- G1 Phase: Cell growth and preparation for DNA synthesis.
- S Phase: DNA replication.
- G2 Phase: Preparation for mitosis.
- M Phase: Mitosis (nuclear division) and cytokinesis (cytoplasmic division).

Significance of the Cell Cycle
- Growth and development.
- Tissue repair and regeneration.
- Reproduction.

Cell Cycle Regulation and Disease
- Cancer: Uncontrolled cell proliferation.
- Role of cell cycle regulators in cancer development.
- Therapeutic implications.

Conclusion:
Understanding the cell cycle is crucial for comprehending the basic principles of biology and the underlying mechanisms of various diseases. By grasping the intricacies of cell cycle regulation, students can appreciate the significance of maintaining cellular homeostasis and the potential implications of its dysregulation in pathological conditions.

## FIELD TRIP

### Field Visit to Study Ecosystem

### Activity :- Field Visit to Study Ecosystem

Date :- 16/03/2022

Title: Field Visit Report: Investigating Pollution in Pond Ecosystems

**Introduction**:
The field visit aimed to assess the extent and impact of pollution on pond ecosystems. Led by degree students specializing in Environmental Science, the expedition focused on understanding the sources of pollution, its effects on aquatic life, and potential mitigation strategies.

**Objectives**:
- ❖ To identify sources of pollution in pond ecosystems.
- ❖ To assess the water quality parameters and their deviation from acceptable standards.

- ❖ To evaluate the impact of pollution on aquatic biodiversity and ecosystem health.
- ❖ To propose recommendations for pollution mitigation and ecosystem restoration.

**TEACHING METHODS PRACTICED:-**

**Experiential Learning**

Experiential learning involves learning through experience and reflection. The seminar provided:

**Concrete Experience:**

Start with a hands-on experience or activity that exposes learners to a real-world situation or problem.

This could involve simulations, experiments, fieldwork, case studies, role-playing, or any other activity that allows learners to engage directly with the subject matter.


**Activities and Observations:**

Water Quality Assessment :-

- Conducted on-site measurements of water parameters such as pH, dissolved oxygen (DO), turbidity, and nutrient levels.
- Collected water samples for laboratory analysis to determine concentrations of pollutants such as heavy metals, pesticides, and organic matter.
- Compared results with established water quality standards to assess pollution levels.


**Biological Assessment :-**

- Surveyed aquatic flora and fauna diversity, noting any signs of distress or pollution-induced abnormalities.


- Conducted macroinvertebrate sampling to assess water quality and ecosystem health based on indicator species presence and abundance.
- Documented observations of dead or diseased organisms as potential indicators of pollution impacts.

Source Identification :-

- Engaged with local stakeholders to identify potential sources of pollution, including agricultural runoff, industrial discharge, and urban waste.
- Conducted site inspections to visually assess point and non-point sources of pollution, such as sewage outfalls and litter accumulation.

**Conclusion**:
The field visit highlighted the pervasive influence of pollution on pond ecosystems, jeopardizing their ecological integrity and threatening biodiversity. The findings underscore the urgent need for concerted efforts to address pollution sources and implement effective management strategies to restore and protect these vital aquatic habitats.

## PROJECT WORK

**TITLE**:- Collection of Butterfly Species at TTWRDC Women Rajanna Siricilla College
**Date**:- 02-04 to 12-04-2022
**Student Names:-**
A. Arnitha
B. Sandya
B.Sumalatha
A. Swathi

Introduction
The aim of this project was to identify and document the butterfly species found at the Telangana Tribal Welfare Residential Degree College (TTWRDC) for Women in Rajanna Sircilla. This research contributes to the understanding of local biodiversity, the ecological roles of butterflies, and conservation efforts.

**Objectives**
- To identify and catalog butterfly species present in the college campus.
- To study the habitat preferences and seasonal variations in butterfly populations.
- To raise awareness about the importance of butterflies in the ecosystem.

**Methodology Adopted:-**

**Concrete Experience:**
Start with a hands-on experience or activity that exposes learners to a real-world situation or problem.
This could involve simulations, experiments, fieldwork, case studies, role-playing, or any other activity that allows learners to engage directly with the subject matter.

**Reflective Observation:**
After the experience, provide time for learners to reflect on what they observed, felt, and learned during the activity.
Encourage them to analyze their experiences critically, consider alternative perspectives,

and identify patterns or themes.

**Active Experimentation:**

Encourage learners to apply their newfound understanding and insights to practical situations or problems.

Provide opportunities for them to test hypotheses, explore solutions, and experiment with different approaches.

Support learners in taking risks, making decisions, and learning from the outcomes of their actions.

**Application to Real-World Contexts:**

Emphasize the relevance of the learning experiences to real-world contexts and encourage learners to apply their knowledge and skills in practical settings.

Provide opportunities for learners to engage in authentic projects, internships, or community-based initiatives where they can apply their learning to address real-world challenges.

Identification:Butterflies were identified using standard field guides and online resources.
Data Recording: Each sighting was recorded with details including date, time, location, and weather conditions.

Results

The study identified a diverse range of butterfly species across different families. Notable species included:

1. Papilionidae (Swallowtails):

Common mormon [Papilio polytes]

Lesser jay [Graphium evemon]

2. Nymphalidae (Brush-footed butterflies):
   - Common Crow (Euploea core)

Blue Tiger (Tirumala limniace)

Towny coster [Acraea evemon]

Analysis

Habitat Preferences: Butterflies were most abundant in garden areas with flowering plants, suggesting a strong preference for nectar sources. Open fields with grasses also supported a variety of species.

Seasonal Variations: The highest diversity and abundance were observed during the post-monsoon season (August to October), correlating with peak flowering periods and availability of host plants.

Discussion:-

The presence of diverse butterfly species indicates a healthy ecosystem and highlights the importance of maintaining green spaces within the campus. Butterflies serve as pollinators and bioindicators, reflecting the overall health of the environment.


Conservation Recommendations

Habitat Management:

Maintain and expand garden areas with native flowering plants to provide nectar and host plants.

Awareness Programs:

Conduct workshops and seminars to educate students and staff about the ecological importance of butterflies.

Monitoring Programs:

Establish long-term monitoring to track changes in butterfly populations and assess the impact of conservation efforts.

Conclusion

The project successfully identified a rich diversity of butterfly species within the TTWRDC Women Rajanna Sircilla College campus. Continued efforts in habitat management and awareness can enhance biodiversity conservation and promote ecological education.

**TEACHING USING DIGITAL CLASS -PPT**

**Title**: Understanding the Cell Cycle: A Fundamental Journey into Cellular Dynamics
**Date**:- 20/04/2022
**Introduction**:
The cell cycle is a fundamental process governing the growth, development, and reproduction of all living organisms. In this PowerPoint presentation, we delve into the intricacies of the cell cycle, exploring its phases, regulatory mechanisms, and significance in both normal cellular function and disease.

**Objectives**:
- To familiarize students with the stages of the cell cycle.
- To explain the regulatory checkpoints and key molecules involved in cell cycle control.
- To highlight the importance of the cell cycle in various biological processes.
- To discuss implications of cell cycle dysregulation in diseases like cancer.

## Teaching Methods Involved

**Blended learning** ;- combines traditional classroom methods with digital and online media. In this seminar:

PowerPoint (PPT) classes can vary depending on the goals of the class, the level of expertise of the participants, and the instructor's preferences. Here's a general outline of a methodology that could be used:

**Using Visual Elements:** Teach participants how to use visual elements like charts, graphs, Smart Art, and multimedia to enhance their presentations. Provide examples of when and how to use each type of visual element.

**Animation and Transitions:** Introduce animation and transition effects and explain how they can be used to add interest and emphasis to slides. Caution against overusing these effects, which can distract from the content.

**Content**:

Overview of the Cell Cycle
  Definition and significance.
  Phases: G1, S, G2, and M phase.


Regulatory Mechanisms

Cell cycle checkpoints: G1/S, G2/M, and metaphase.
Cyclins and cyclin-dependent kinases (CDKs).
Tumor suppressor genes (e.g., p53) and oncogenes (e.g., Ras).

Cell Cycle Phases in Detail

G1 Phase: Cell growth and preparation for DNA synthesis.
S Phase: DNA replication.
G2 Phase: Preparation for mitosis.
M Phase: Mitosis (nuclear division) and cytokinesis (cytoplasmic division).

Significance of the Cell Cycle

Growth and development.
Tissue repair and regeneration.
Reproduction.

Cell Cycle Regulation and Disease

Cancer: Uncontrolled cell proliferation.
Role of cell cycle regulators in cancer development.
Therapeutic implications.

Conclusion:

Understanding the cell cycle is crucial for comprehending the basic principles of biology and the underlying mechanisms of various diseases. By grasping the intricacies of cell cycle regulation, students can appreciate the significance of maintaining cellular homeostasis and the potential implications of its dysregulation in pathological conditions.

# TEACHING LEARNING PRACTICES
# FOR THE AY-2020-21

# WORLD ENVIRONMENTAL DAY

**Title: Online World Environmental Day Programme.**

IN Collaboration with dept of Zoology, Botany, and Microbiology Departments Amidst the COVID-19 Outbreak

**Date**: 05/06/2020

**Introduction**:
In response to the challenges posed by the COVID-19 pandemic, the Zoology Department in collaborated with the Botany and Microbiology Departments to organize an Online World Environmental Day Programme. The aim was to commemorate World Environment Day while adhering to social distancing guidelines and leveraging digital platforms to engage participants.

**Objectives** :-

- Raise Awareness: Increase public awareness about the importance of the ozone layer and the role it plays in protecting life on Earth from harmful ultraviolet (UV) radiation.
- Promote Action: Encourage individuals, communities, and policymakers to take actions that contribute to the protection of the ozone layer.

**Teaching Learning Methodology :-**

**Supplementary Learning**

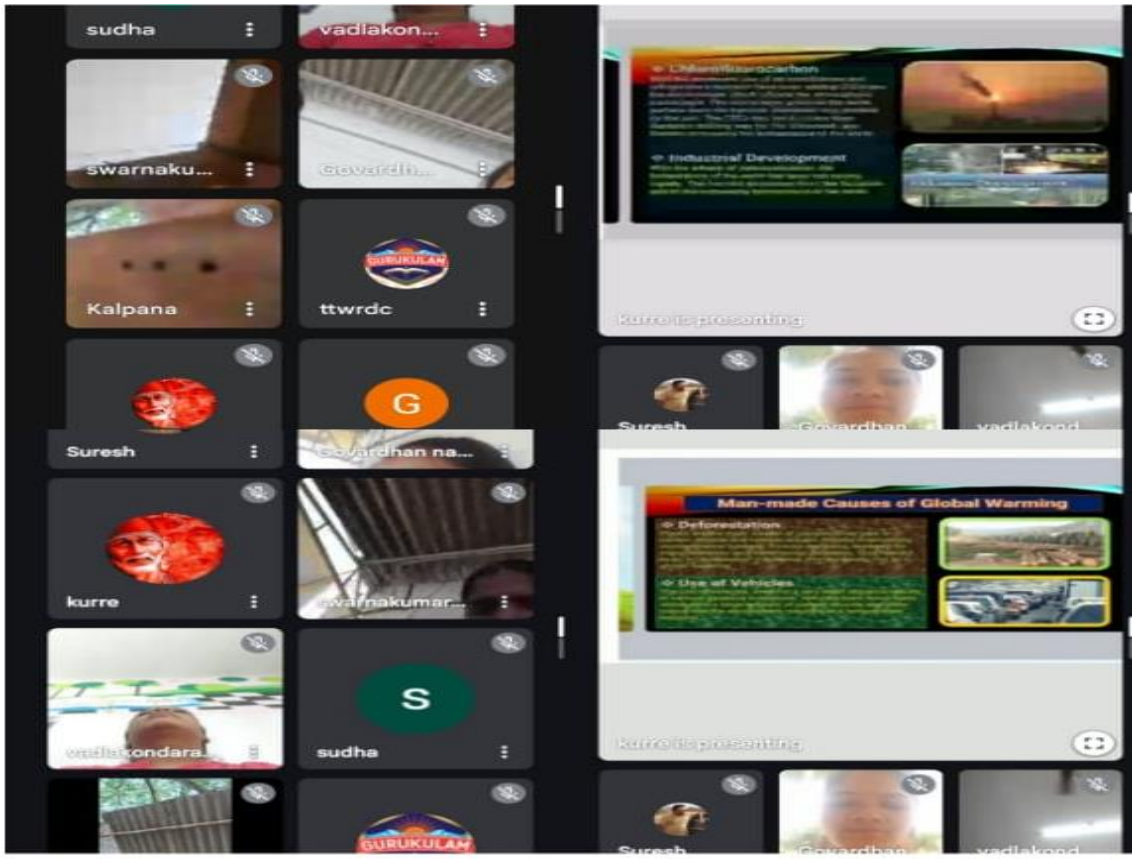
Guest Lectures:Invite industry experts, professors from other institutions to deliver guest lectures on specialized topics, providing students with diverse perspectives.

**Event Overview**:
The Online World Environmental Day Programme was conducted through Various online platforms such as Zoom, Microsoft Teams, and social media channels. The event comprised a series of webinars,, and interactive sessions designed to raise awareness about environmental conservation and sustainability.

**Collaborative Efforts:**
The collaborative effort between the Zoology, Botany, and Microbiology Departments ensured a comprehensive approach to addressing environmental issues. Each department brought its expertise to the table, enriching the programme with diverse perspectives and insights.


**Highlights of the Programme:**

**Webinars**: Webinar conducted to the students ， to deliver keynote speeches and conduct interactive sessions on topics such as biodiversity conservation, climate change mitigation, and sustainable practices.




**Speeches**: Invited Students gave speeches conducted to empower participants with the knowledge and skills to take action in their communities. Their idea covered areas such as organic farming, waste management, and renewable energy.

Student Engagement: Students from the participating departments actively contributed to the programme by organizing quizzes, poster competitions, and online campaigns to raise awareness about environmental issues among their villages

**Outcomes and Impact:**
The Online World Environmental Day Programme in collaborative efforts of the Zoology, Botany, and Microbiology Departments facilitated interdisciplinary learning and fostered a sense of collective responsibility towards environmental stewardship. Participants expressed newfound awareness and commitment to adopting sustainable practices in their personal and professional lives.

**Conclusion**:
The Online World Environmental Day Programme, organized by the Zoology, Botany, and Microbiology Departments in collaboration successfully raised awareness about environmental conservation and inspired action towards a more sustainable future.

## VIRTUAL LAB

Virtual Lab :- Fish Specimens

**Introduction**:-

In response to the challenges posed by the COVID-19 pandemic, traditional laboratory activities have been adapted to virtual environments to ensure the continuity of education. This report details the virtual lab session on fish specimens conducted for degree students, providing an overview of the objectives, methodology, findings, and student feedback.

**Objectives**:-

- Familiarizing students with the anatomical features of different fish species.
- Introducing students to the diversity of fish morphology, habitat, and behavior.
- Demonstrating techniques for fish specimen examination and identification.
- Providing students with an interactive learning experience to complement theoretical knowledge.


# 7 July 2021

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Shorts

Youtube link: https://youtu.be/B23kdVdG3x8?si=k8wiGiSdVnr3oAq5

**Teaching Methodology:-**

**Communication**:Students were notified about the virtual lab session and provided with instructions for accessing the online platform.
Materials: Digital resources, including high-resolution images and videos of fish specimens, were made available to students prior to the session.

**Live Demonstrations**:Live demonstrations of fish dissections and specimen examinations were conducted, allowing students to observe techniques in real-time.

Student Engagement:
The virtual lab session facilitated active student participation, with students actively engaging in discussions and interactive activities.
The use of multimedia resources enhanced student comprehension and retention of complex anatomical concepts.

Learning Outcomes:
Students demonstrated improved understanding of fish anatomy, diversity, and adaptations as evidenced by their participation in discussions and completion of assignments.
The virtual lab session effectively complemented theoretical learning and provided students with a practical learning experience despite the limitations of physical labs.

Student Feedback

Appreciation for the interactive nature of the session and the use of multimedia resources.
Acknowledgment of the instructor's expertise and ability to effectively deliver content in a virtual environment.

Conclusion

The virtual lab session on fish specimens provided degree students with a valuable opportunity to explore and learn about fish anatomy, diversity, and adaptations in a virtual environment. Despite the challenges posed by the COVID-19 pandemic, the session successfully engaged students, facilitated learning outcomes, and received positive feedback from participants. Moving forward, continued efforts to enhance interactivity, accessibility, and practical learning experiences in virtual labs will further enrich the educational experience for students.

# WORLD OZONE DAY

**Title**: Online Ozone Day Celebration: A Collaborative Endeavor by the Departments of Zoology, Botany, and Microbiology Amidst the COVID-19 Pandemic

**Date**: 16/09/2020

**Introduction**:
In light of the ongoing challenges posed by the COVID-19 pandemic, the Department of Zoology collaborated with the Departments of Botany and Microbiology to organize an Online Ozone Day Celebration. The event aimed to commemorate International Day for the Preservation of the Ozone Layer while adapting to the constraints imposed by the pandemic through virtual platforms.

**Teaching Learning Methodology :-**

**Supplementary Learning**

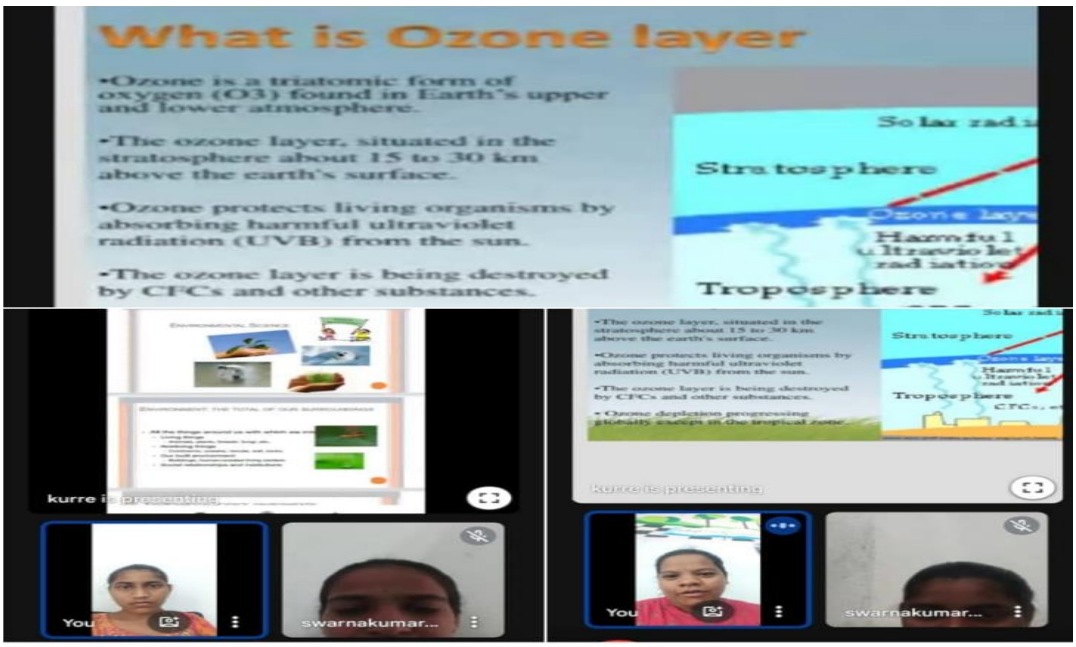
Guest Lectures:Invite industry experts, professors from other institutions to deliver guest lectures on specialized topics, providing students with diverse perspectives.

**Event Overview:**
The Online Ozone Day Celebration took place on 16/09/2020, utilizing various digital platforms such as Zoom, Google Meet, and social media channels. The programme consisted of a series of virtual activities, including webinars, and educational sessions, designed to raise awareness about ozone depletion and its implications for the environment and human health.


**Collaborative Efforts:**
The collaboration between the Departments of Zoology, Botany, and Microbiology facilitated a multidisciplinary approach to addressing ozone depletion and its associated challenges. Leveraging the expertise of each department, the programme offered comprehensive insights into the science behind ozone depletion, its ecological impacts, and potential mitigation strategies.

**Highlights of the Programme:**

**Webinars**: Webinar conducted to deliver keynote addresses and conduct informative sessions on topics such as the chemistry of the ozone layer, the effects of ozone depletion on biodiversity, and international efforts to combat ozone depletion.



**Student Presentations:** Students from the participating departments has shared their knowledge related to ozone depletion and environmental conservation. This platform provided a valuable opportunity for young researchers to contribute to the discourse on ozone protection.

**Outcomes and Impact:**
The Online Ozone Day Celebration witnessed active participation from attendees, including students, faculty members. The collaborative efforts of the Departments of Zoology, Botany, and Microbiology facilitated knowledge exchange, networking opportunities, and collective action towards ozone protection and environmental stewardship

**Conclusion**:
The Online Ozone Day Celebration, organized by the Departments of Zoology, Botany, and Microbiology in collaboration exemplified the resilience and adaptability of academic institutions in the face of unprecedented challenges. By harnessing digital technologies and interdisciplinary collaboration, the programme successfully raised awareness about ozone depletion and inspired collective action towards a more sustainable and ozone-friendly future.

## Virtual Celebration of World Health Day

Title: Virtual Celebration of World Health Day: Nurturing Wellness in Challenging Tims

**Date: April 7, 2021**

Introduction:
Amidst the ongoing challenges posed by the COVID-19 pandemic, the celebration of World Health Day took on a new dimension as communities around the world adapted to virtual platforms to promote health and well-being. our college students came together virtually to commemorate World Health Day and reaffirm their commitment to prioritizing health in the face of adversity.

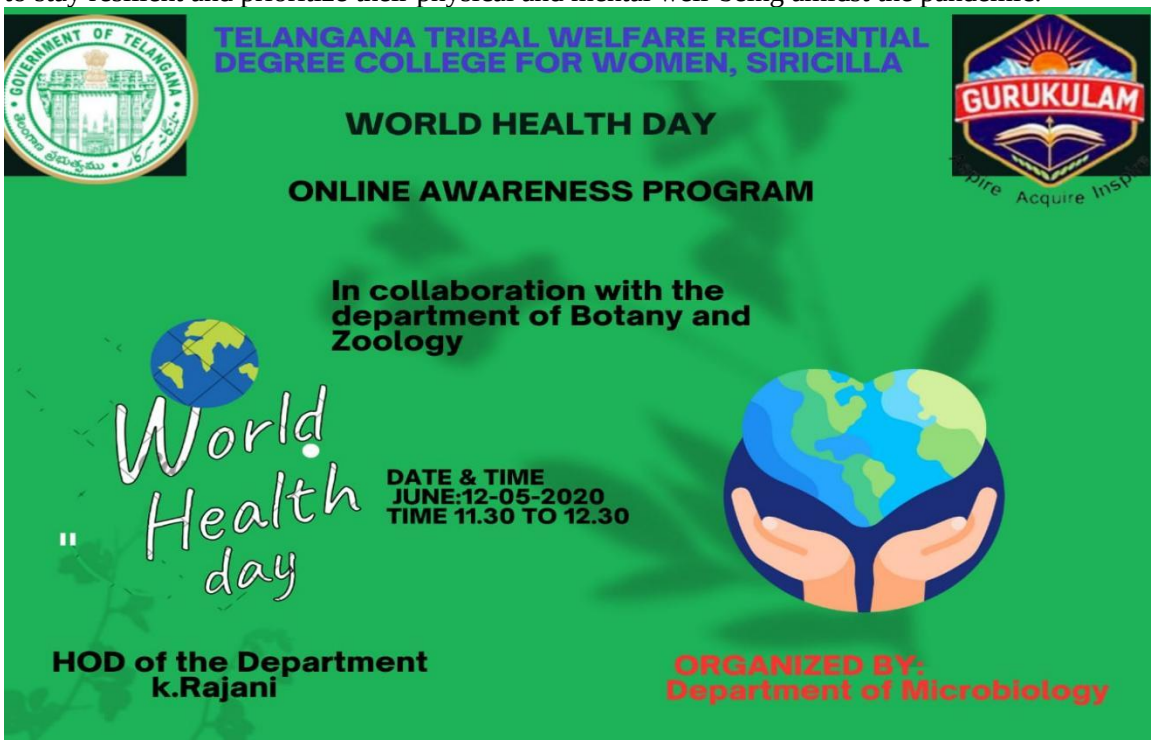
**Teaching Learning Methodology :-**

**Supplementary Learning**

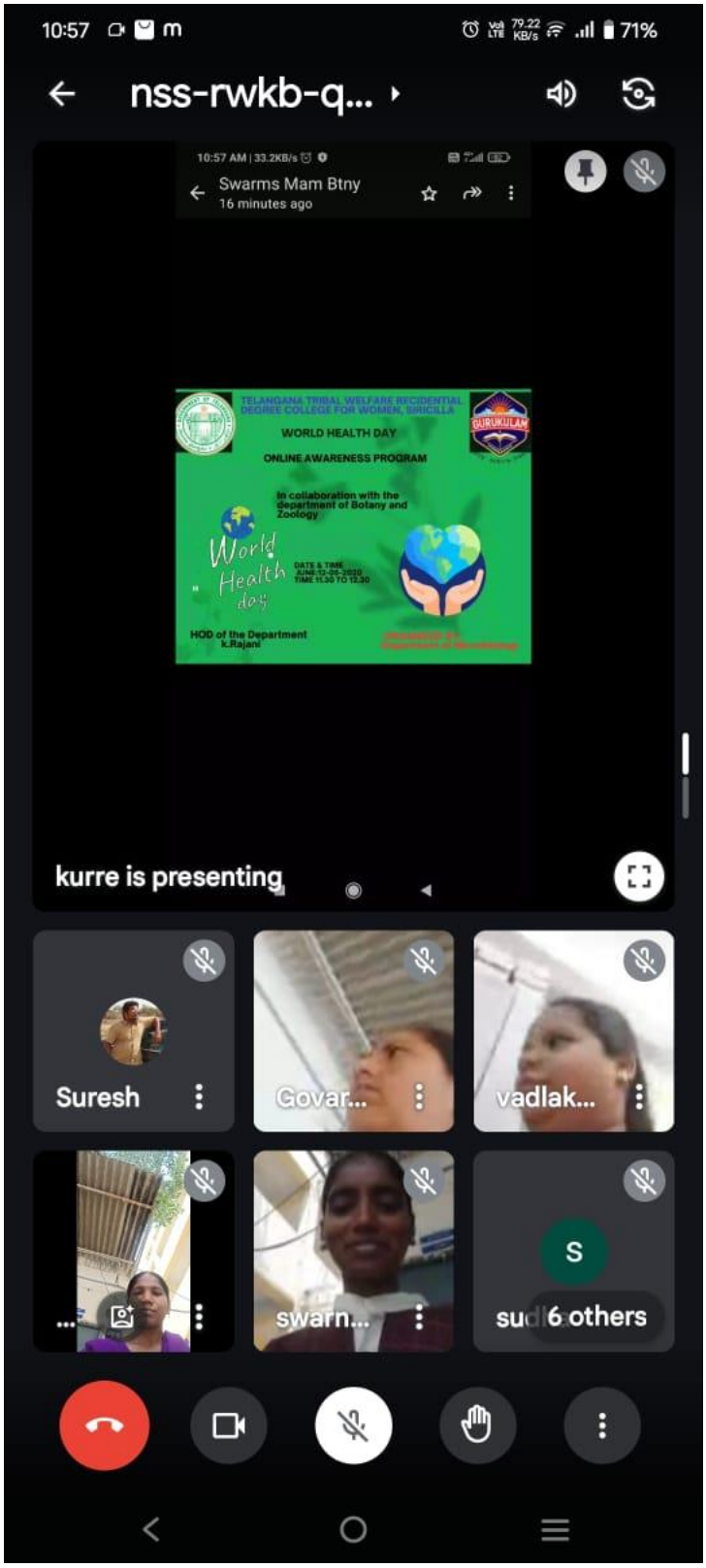
Guest Lectures:Invite industry experts, professors from other institutions to deliver guest lectures on specialized topics, providing students with diverse perspectives.

**Event Highlights:**

Virtual Inaugural Address: The day commenced with a virtual inaugural address delivered by the college administration, highlighting the significance of World Health Day and the importance of collective action to address global health challenges. Students were encouraged to stay resilient and prioritize their physical and mental well-being amidst the pandemic.




Educational Webinars: A series of educational webinars were organized to disseminate information about key health topics relevant to the COVID-19 pandemic. Experts from the fields of public health, medicine, and psychology delivered presentations on topics such as preventive measures against COVID-19, mental health coping strategies, and the importance of vaccination.




Fitness and Wellness Sessions: Virtual fitness and wellness sessions were conducted to promote physical activity and stress relief among students. Yoga and meditation sessions, led by certified instructors, provided students with practical tools to manage stress, enhance resilience, and maintain overall well-being during these challenging times.

**Interactive Discussions:** Interactive discussions and Q&A sessions were facilitated to engage students in dialogue about health-related concerns and questions. Students had the opportunity to share their experiences, seek advice, and exchange tips for staying healthy and resilient amidst the pandemic.

Health Challenges and Competitions: Health challenges and competitions were organized to encourage students to adopt healthy behaviors and lifestyles. Challenges such as step-count challenges, healthy recipe contests, and mindfulness challenges motivated students to prioritize their health and well-being in a fun and interactive way.

Outcomes and Conclusion:
The virtual celebration of World Health Day at our college provided students with a platform to come together, learn, and reaffirm their commitment to health and well-being amidst the challenges posed by the COVID-19 pandemic. Through educational webinars, fitness sessions, interactive discussions, and community engagement initiatives, students were empowered with knowledge, skills, and resources to prioritize their physical and mental health. As we navigate these uncertain times, the spirit of resilience, solidarity, and commitment to health promotion fostered during World Health Day will continue to guide students in their journey towards a healthier and more resilient future.

## VIRTUAL CLASS ON TRANSCRIPTION

**TITLE**:- Virtual Class on "Transcription" Conducted by P. VEENA Due to COVID-19
**Date**:- 09/05/2021

**Introduction**

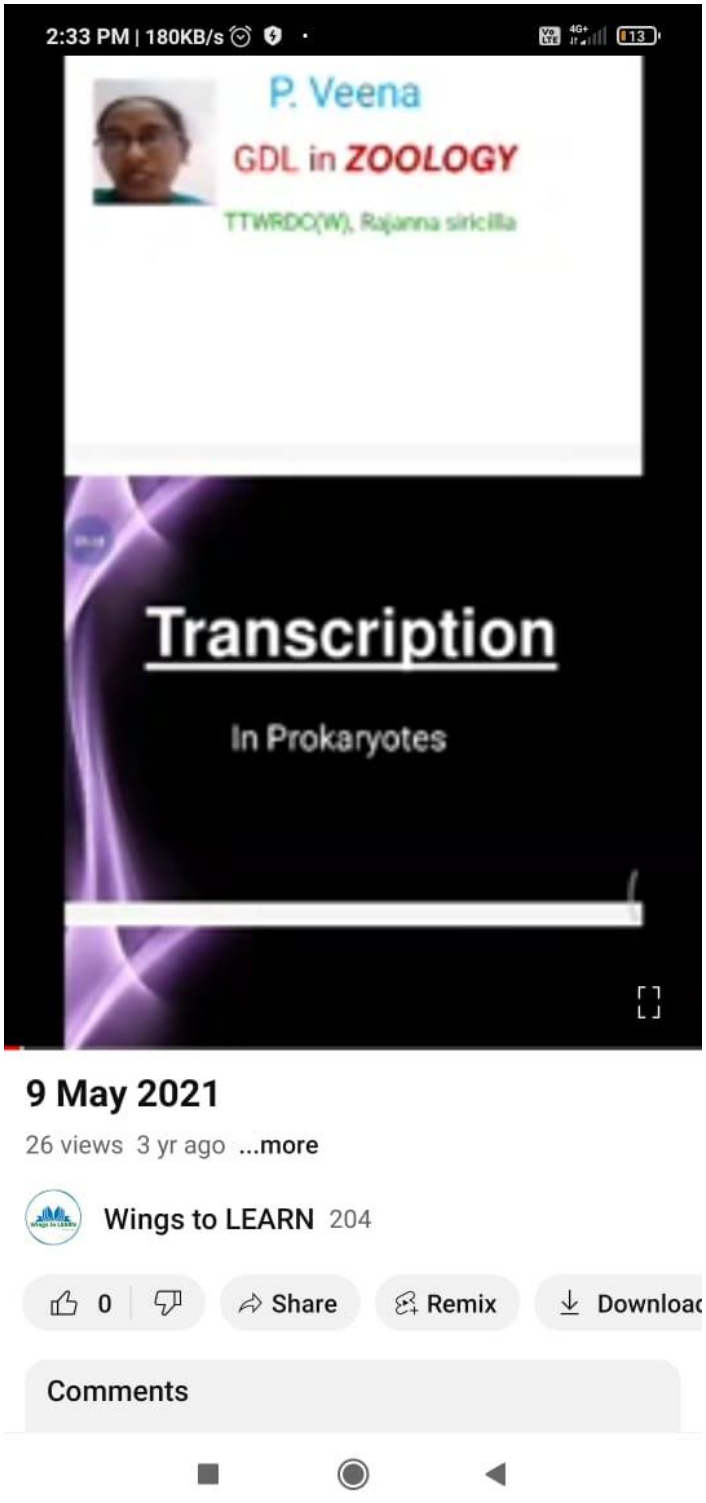
In response to the COVID-19 pandemic, traditional classroom settings have been adapted to virtual environments to ensure the continuity of education. Conducted a virtual class on the topic of "Transcription"
**Objective:-**

The primary objective of this virtual class was to provide students with an in-depth understanding of the biological process of transcription, including its mechanisms, significance, and regulation in cells.

**Teaching Methodology Involved:-**

**Enable Live Streaming:**
Verify your account to enable live streaming capabilities.
Set up live streaming settings, including latency, chat options, and moderation tools.

**Mechanism of Transcription:**
Detailed explanation of the initiation, elongation, and termination phases.
Role of RNA polymerase and transcription factors.
Regulation of Transcription:
Discussion on how transcription is regulated in cells.
Examples of transcriptional regulation mechanisms, including promoters, enhancers, and silencers.
Real-World Applications:
Insights into how understanding transcription aids in medical and biotechnological advancements.




**Technical Challenges:**
Some students faced connectivity issues, which were addressed promptly by providing alternative access methods, such as dial-in numbers and recorded sessions.

**Participant Feedback**

**Clarity**: The lecturer's clear explanation and use of visual aids were highlighted as beneficial.

Convenience: The virtual format allowed students to attend the class from the safety of their homes.

## Conclusion

The virtual class on "Transcription" conducted by P. Veena successfully adapted to the challenges posed by the COVID-19 pandemic, ensuring the continuation of quality education. The use of interactive teaching methods and real-time feedback mechanisms enhanced student engagement and learning outcomes. Moving forward, incorporating student feedback will further improve the effectiveness of virtual classes.

**You tube class Link:- https://youtu.be/WCgmgr3bI70?si=BXUtNaWNlkS6k-4e**

# TEACHING LEARNING PRACTICES
# FOR THE
# AY-2019-20

ACTIVITY :- STUDENT SEMINAR
DATE:-14/07/2019

introduction:-
Student seminar held to bring good communication skills in students and also to improve their knowledge on their area of interest and to explore their knowledge.
**Objectives**:-

- Enhance Subject Knowledge:
  Provide students with an in-depth understanding of specific topics within the seminar's theme.
  Expose students to recent advancements, research, and trends related to the subject matter.

- Develop Presentation Skills:

  Enable students to develop and refine their public speaking and presentation skills.
  Teach students how to effectively communicate complex information to an audience.

## Methodology adopted:

**Learning with visual demonstrations and practical examples.**

## Teaching-Learning Methods Involved

The seminar employed several innovative teaching-learning methods, detailed below:

**Active Learning**

Active learning involves students engaging with the material through discussions, problem-solving, case studies, and other interactive activities. In this seminar:

EXPLANATION:-

A seminar was given by first year student name B. akila she was explained about the “JAM” entrance test how to prepare for JAM exam.


FEED BACK:-

The seminar proved to be an invaluable resource for students preparing for the JAM entrance exam. By offering expert guidance, subject-specific insights, and practical tips, it equipped participants with the tools and knowledge necessary to excel in this highly competitive examination. The event fostered a conducive learning environment, encouraging collaborative learning and personal growth among aspirants

# Field Trip

## Activity :- Field Trip

Topic :- Collection and characterization of insects
Date :- 13/11/2019

Introduction:
The field trip was organized for degree life science students with the objective of collecting insects for characterization. The trip aimed to provide hands-on experience in insect taxonomy, ecology, and conservation.

**Objectives :-**

- Enhance Understanding of Entomology:
  Provide students with a practical understanding of entomology, the study of insects.
  Enable students to identify various insect species and understand their characteristics and behaviors.

- Develop Field Research Skills:
  Teach students how to use field equipment such as nets, traps, and identification guides effectively.
  Develop students' abilities to collect, preserve, and document insect specimens properly.

- Promote Observation and Analytical Skills:
  Encourage students to observe insects in their natural habitats, noting behaviors, interactions, and ecological roles.

**Teaching Learning Methodology:-**

**Inquiry-Based Learning:**
**Encourage Exploration:** Allow students to explore the natural environment independently, guiding them to observe and collect insect specimens that pique their interest.

**Guided Instruction:** Provide step-by-step guidance on insect identification, specimen handling, and preservation techniques, ensuring students understand and follow best practices.

**Field Work:**
The field trip commenced early in the morning to maximize insect activity. Equipped with nets, jars, and magnifying glasses, students explored various habitats including forests,

grasslands, and wetlands. The collection focused on diverse insect orders such as Coleoptera, Lepidoptera, Diptera, and Hymenoptera.

**Insect Collection:**
Students meticulously collected specimens using ethical and sustainable practices, ensuring minimal disturbance to the ecosystem. Emphasis was placed on documenting the collection site, habitat characteristics, and associated flora.

**Identification and Characterization:**
Upon returning to the laboratory, students sorted and identified the collected specimens using taxonomic keys, field guides, and microscopy techniques. They characterized the insects based on morphological features, behaviour, and ecological roles.

Data Analysis and Interpretation:
Collected data were analyzed to assess insect diversity, abundance, and distribution patterns across different habitats. Students gained insights into the importance of insects as bioindicators of ecosystem health and functioning.

**Educational Outcomes:**
The field trip provided invaluable experiential learning opportunities, enabling students to:

- Develop practical skills in insect collection, handling, and identification.
- Understand the ecological significance of insects in various ecosystems.
- Appreciate the complexities of insect diversity and adaptation.
- Apply scientific methods to characterize and study insect communities.

**Conclusion**:
The field trip for insect collection proved to be an enriching and educational experience for degree life science students. It fostered a deeper understanding of insect biology, ecology, and conservation, while also instilling a sense of stewardship towards the natural world.

# TEACHING LEARNING PRACTICES
# FOR THE
# AY-2018-19

**Title**: Understanding Cloning Vectors: Tools for Genetic Engineering

**Introduction**:-
- Define cloning vectors and their significance in genetic engineering.
- Brief history of cloning vectors and their development.

**Objectives**:-

❖ Enhance Subject Knowledge:
Provide students with an in-depth understanding of specific topics within the seminar's theme.
Expose students to recent advancements, research, and trends related to the subject matter.

❖ Develop Presentation Skills:
Enable students to develop and refine their public speaking and presentation skills.
Teach students how to effectively communicate complex information to an audience.

## Methodology adopted:

**Learning with visual demonstrations and practical examples.**

## Teaching-Learning Methods Involved

The seminar employed several innovative teaching-learning methods, detailed below:

**Active Learning**

Active learning involves students engaging with the material through discussions, problem-solving, case studies, and other interactive activities. In this seminar:

Types of Cloning Vectors

Plasmids
- Structure and function.
- Advantages and disadvantages.
- Examples of commonly used plasmids.

**Bacteriophages**
- Characteristics and applications.
- Examples of bacteriophage vectors.

**Cosmids**
- Structure and applications.
- Comparison with other vectors.

Yeast Artificial Chromosomes (YACs
- Overview and utility in cloning large DNA fragments.
- Challenges and considerations.

**Features of Cloning Vectors**
Origin of Replication (ORI)
Importance in replication.
Types of origins.

**Selectable Markers**
Purpose and types.
Commonly used selectable markers.

Cloning Strategies and Techniques

Insertion of DNA Fragments
Restriction enzyme digestion and ligation.
PCR-based cloning.

**Transformation**
Introduction of vectors into host cells.
Methods and optimization.

**Screening and Selection**

Methods for identifying recombinant clones.
Importance of proper screening.

**Objectives**

- Functional analysis of genes.
- Biotechnology and Industry

- Ethical and Regulatory Considerations
- Discussion on the ethical implications of cloning vectors.
- Regulatory frameworks governing the use of cloning technology.

Conclusion

Summary of key points.
Importance of cloning vectors in genetic engineering and biotechnology.