EFFECTIVENESS OF FOLKLORE BASED LEARNING PACKAGE IN SCIENCE ON SCIENTIFIC CREATIVITY AMONG PRIMARY SCHOOL STUDENTS

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MASTER OF EDUCATION

By

C. V. THARA SOWMYA PRIYA

Reg. No: 10123MED0557

Under the Guidance and Supervision of

Dr. S. DEVIKA

CENTRE FOR RESEARCH AND DEVELOPMENT

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C.V. THARA SOWMYA PRIYA,

M.Ed. Student,

N.V.K.S.D. College of Education,

Attoor, Kanniyakumari District.

DECLARATION

I, ***C.V.THARA SOWMYA PRIYA (Reg. No.10123MED0557)*** hereby declare that this dissertation ***"EFFECTIVENESS OF FOLKLORE BASED LEARNING PACKAGE IN SCIENCE ON SCIENTIFIC CREATIVITY AMONG PRIMARY SCHOOL STUDENTS"*** submitted by me for the degree of Master of Education is the result of my original and independent research work carried out under the guidance of ***Dr.S. DEVIKA***, Assistant Professor of Education, N.V.K.S.D. College of Education and it has not been submitted elsewhere for the award of any degree, diploma and fellowship of any other university or institution.

Place: Attoor

Date: C V THARA SOWMYA PRIYA

Dr. S. Devika,
Assistant Professor in Education,
N.V.K.S.D. College of Education,
Attoor, Kanniyakumarı District.

CERTIFICATE

This is to certify that this dissertation entitled, *"EFFECTIVENESS OF FOLKLORE BASED LEARNING PACKAGE IN SCIENCE ON SCIENTIFIC CREATIVITY AMONG PRIMARY SCHOOL STUDENTS"* submitted for the M.Ed. Degree by C.V.Thara Sowmya Priya is a record of research work done by her under my guidance and supervision. It is further certified that the work is an original one and free from all kind of duplication.

Place: Attoor

Date: **Dr.S.DEVIKA**

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CHAPTER I

INTRODUCTION

"Folklore is the thing that fills the vacuum created by a lack of knowledge"

By Aaron Mahnke

Education is considered as a tool for shaping the young generation. It refers to the discipline that is concerned with methods of teaching and learning in schools or school like environments. Education is the transmission of knowledge, skills and character traits and it manifests in various forms. Through education student start to learn something new to them. Learning is relatively a permanent change which can take place in anywhere without any planning. Learning help students in attaining various skills. Students prefer different learning techniques, strategies and approaches for their learning process. Effective learning is possible only through the better learning experiences. *(Munna & Kalam, 2021).* This lead to the usage of Folklore in educational contexts. It shifts the learning environment from challenging to enjoyable. It encourages students and increases their interest in the subject. They also learn best when they are faced with objectives, targets, and successes. The Folklore learning is an educational approach that seeks to motivate students by using different learning environments. The goal is to maximize enjoyment and engagement by capturing the interest of learners and inspiring them to continue learning.

Folklore refers to the traditional beliefs, customs, stories, songs, and practices of a culture or community, passed down orally through generations. It is a vital part of human expression and cultural identity, serving as both a mirror and a blueprint of the society it originates from. Folklore can include myths, legends, fairy

tales, fables, proverbs, rituals, and even superstitions. Unlike written literature, which is often created by known authors, folklore emerges anonymously from the collective experiences and creativity of a community. It reflects the values, fears, aspirations, and historical experiences of a people, often evolving over time to adapt to changing circumstances while preserving the core essence of the tradition.

Different cultures have rich folklore traditions. For example, in European folklore, tales of witches, dragons, and fairies are common, while African folklore includes stories about animals with human traits, such as Anansi the spider, used to teach moral lessons. Native American folklore often features nature spirits and creation stories that explain the origins of the world and human life. Indian folklore includes a blend of mythology from the Ramayana and Mahabharata, folk heroes, and regional legends, highlighting both moral teachings and the complex interplay between good and evil. These stories are not just for entertainment; they are a means of education, socialization, and cultural preservation. Folklore also provides insight into how different societies understand their place in the world, how they interpret natural phenomena, and how they deal with universal human themes such as love, death, bravery, and justice.

Further studies begin in the yearly 19th century. The first folklorists concentrated exclusively upon rural peasants preferably uneducated and few other groups relatively untouched by modern ways (example gypsies). Their aim was to trace preserved archaic customs and beliefs to their remote origins in order to trace the mental history of mankind. In Germany, *Jacob Grimm* used the Folklore to illuminate Germanic religion of the dark ages. In Britain, *Sir Edward Tylor, Andrew Lang* and others combined data from folklore to reconstruct the beliefs and rituals of prehistoric man.

Folklore in modern usage an academic discipline, the subject matter which comprises some of traditionally derived, orally or imitatively transmitted literature or material, culture and custom of subcultures within predominantly literate and technologically advanced society (*Ajith kumar, 2023)*.

According to *Aybenyega Etal* (2017) providing oral story-telling and other Folklore Based Learning Package helps the children to develop their reflective thinking, so that their learning efficiency will be increased. Learning Science through various types of Folklore Based Learning helps the students to attain better understanding of the subject knowledge. Thus, learning science through Folklore Based Learning improves Science learning ability.

The study of Folklore will help to utilize environmental and ethnic resources in our education. They will become conscious about the strength of folk language and its real strength in expressing scientific terms with greater accuracy. To make educational process livelier and to conduct it in an atmosphere of freedom and joy, we can make use of our traditional wealth-the folk literature to a great extent. The judicious selection and use of Folk literature in educational process will give pupils chances to express themselves spontaneously through-various kinds of activities and mental operations.

Science is a systematic subject that builds and organizes knowledge in the form of testable explanations and predictions about the universe. It is both a body of knowledge and a process through which we gain that knowledge. From the smallest particles of matter to the vastness of space, science explores the mysteries of the natural world using observation, experimentation, and reasoning. It is a dynamic field that constantly evolves, driven by curiosity, creativity, and the desire to solve

real-world problems. Science is deeply embedded in our daily lives; it includes the technology we use, the medicine we depend on, the food we consume, and the environment we inhabit. Through scientific understanding, we can improve our quality of life, make informed decisions, and contribute to a sustainable future.

Science learning, on the other hand, refers to the process through which individuals acquire scientific knowledge and develop scientific thinking. This learning can occur formally in schools and universities or informally through experiences, media, museums, and everyday observation. Effective science learning does not just involve memorizing facts but emphasizes understanding concepts, developing critical thinking skills, and engaging in scientific practices like questioning, experimenting, analyzing data, and drawing conclusions. Inquiry-based learning, hands-on experiments, and real-life applications are key approaches to making science meaningful and exciting. In classrooms, teachers play a vital role in creating a learning environment that encourages curiosity, supports exploration, and fosters a growth mindset. Science learning also nurtures essential skills such as problem-solving, communication, and collaboration, which are valuable in all aspects of life and work.

Science helps build a strong foundation and can spark interest in future careers in STEM (Science, Technology, Engineering, and Mathematics) fields. Moreover, science learning supports responsible citizenship, enabling people to evaluate information, recognize misinformation, and make evidence-based choices. As technology becomes more integrated into society, the ability to understand and apply scientific concepts becomes a vital skill for navigating modern life. Science learning empowers individuals to think critically, act responsibly, and participate meaningfully in a complex world. By promoting curiosity, encouraging exploration,

and emphasizing evidence-based reasoning, science education can inspire the next generation of thinkers, innovators, and problem-solvers.

Science can foster scientific creativity by encouraging curiosity, critical thinking, and a problem-solving mindset. Scientific Creativity thrives in environments that value open inquiry, where questioning established ideas and exploring new possibilities are welcomed. Through education that emphasizes experimentation, observation, and the scientific method, individuals learn to approach problems systematically while also thinking outside the box. Collaboration across disciplines, access to diverse perspectives, and freedom to explore unconventional ideas further enhance creativity. Technological tools and research infrastructure also provide the means to test innovative theories and turn abstract ideas into concrete discoveries. Ultimately, Science nurtures creativity by pushing the boundaries of what is known and inspiring the pursuit of new knowledge through imagination, evidence and innovation.

Folklore in Science learning refers to the traditional beliefs, myths, or cultural stories that influence how people understand scientific concepts. These ideas are often passed down through generations and may not be scientifically accurate, but they can shape perceptions and learning. In science education, Folklore is important to identify and address the traditional concepts because they can interfere with a clear understanding of scientific principles. Teachers can use them as starting points for discussion, helping students compare cultural beliefs with scientific evidence. This approach not only improves scientific literacy but also respects cultural backgrounds, making science learning more inclusive and relatable.

Folklore Based Learning Package revolves around interaction with peers, so students are active participants in the learning process and thereby help to build in the inter- personal and interactive skills among them. The use of Folklore Based Learning Package makes teachers find it easy to teach and enjoy working with it. It can be used in collaboration with other teaching strategies so that it can be very effective.

The development of Scientific Creativity through Folklore Based Learning Package helps the student to solve problems creatively and innovatively. Folklore Based Learning Packages may contribute to cultivating students higher level thinking skill and develop their Scientific Creativity. Folklore Based Learning Package concerns more on process rather than the result. To make the Folklore Based Learning Package an effective process it should be applied for the whole learning process from the beginning of goal setting to till the end of final action plan. This process helps the learners to develop new skills, attitudes and also a new way of thinking. When students start to learn through the approach of Folklore, it helps the learners a new platform which makes them to express them own innate abilities and also makes them to move forward for future learning.

NEED AND SIGNIFICANCE OF THE STUDY

The present educational system demands the teacher to employ variety of knowledge, methods, skills and strategies to meet the individual difference among the learners. In most of the classes the students remain passive listeners and rote learning is fostered. There is a paradigm shift towards the adoption of innovative learning strategies including Folklore Based Learning Package in learning where the students are expected to be active participants in the teaching learning process

(Anupma Shah, 2009). Helping students to develop Scientific Creativity is a frequently cited goal of science educators. [The National Science Teachers-NSTA]. In its 1980 position statement, it advocated that science teachers help students learn and think logically; specifying that "school laboratory and field activities should emphasize not only the acquisition of knowledge but also Scientific Creativity *(Esther Suneela, 2019)*.

Science education is the base of human knowledge. It helps us to figure out the fundamental principles and rules, that rule the world. Science helps us understand the complexity of being human from the details of life in science *(Korosec H, 2020)*. Increasing the student's level of knowledge through Folklore Based Learning Package improves the Cognitive and affective components of student's behavior to live in a sustainable life *(Kiran Singh Sirah,2024)*

Research findings *(Joelly E Jackson 2022)* shows that Folklore Based Learning Package enhances the learning skills of the students. It also provides opportunity to exchange and share knowledge in groups which contribute to effective learning.

The significance of this research is that, investigator try to develop Folklore Based Learning Package for 5^{th} standard students for teaching science will help the students to develop Scientific Creativity.

STATEMENT OF THE PROBLEM

Learning science is still considered as a problem to students because learners did not try to understand and experience the concepts and theories. The current state of Science education faces a challenge in fostering Scientific Creativity among students. Traditional teaching methods often fall short in cultivating a deep

understanding of Scientific Creativity. With the awareness that students are captivated by stories that endure in their memories, the researcher implemented folklore tales and songs to create a more inviting atmosphere for learning Science. Studying through Folklore Based learning can boost scientific creativity by promoting imaginative thought and supporting diverse perspectives on understanding the world.

The investigator is making attempt to develop Scientific Creativity through Folklore and intends to conduct a study titled *"EFFECTIVENESS OF FOLKLORE BASED LEARNING PACKAGE IN SCIENCE ON SCIENTIFIC CREATIVITY AMONG PRIMARY SCHOOL STUDENTS".*

OPERATIONAL DEFINITIONS OF KEY TERMS

Effectiveness:

In this study Effectiveness means the outcome that occur as the consequence of teaching through Folklore Based Learning Package that brings desirable changes in the Scientific Creativity, in Science among 5th standard Primary school students.

Folklore Based Learning Package in Science:

In the present study, Folklore Based Learning Packages refers to learning the contents such as Our Environment, Animals and Air from science text book through selected Folklores that enhances Scientific Creativity in Science of 5th standard primary students.

Scientific Creativity:

In this study 'Scientific Creativity' is the test scores obtained by the students in the Scientific Creativity test that measures originality, word, expressional fluency,

ideational fluency, figural redefinition and symbolic redefinition of Scientific concepts.

Primary School Students:

In this study Primary students refers to the students studying in 5th standard students of Yettacode Nursery and Primary School following state syllabus of Tamil Nadu**.**

Objectives of the Study

1. To test the Effectiveness of Folklore Based Learning Package in Science on Scientific Creativity among Primary School Students.
2. To prepare Scientific Creativity Test for 5th standard students
3. To find out the significant difference in the pre-test mean scores of Scientific Creativity of Experimental group and Control group.
4. To find out the significant difference in the post- test mean scores of Scientific Creativity of Experimental group and Control group.
5. To find the significant difference in the mean adjusted post-test scores of Scientific Creativity of Experimental group and control group while taking pretest as covariate.

Hypotheses of the study

1. There exists no significant difference between the Experimental and Control group with regard to pretest mean scores of Scientific Creativity.
2. There exists significant difference between the Experimental and Control group with regard to post-test mean scores of Scientific Creativity.
3. The Folklore Based Learning Package in Science on Scientific Creativity is effective for Primary School Students.

4. There exists significant difference between the adjusted post-test mean scores of Scientific Creativity of the Experimental group and control group while taking pre test as covariate.

METHODOLOGY IN BRIEF

Method Adopted:

Experimental method is used for the present study.

Experimental Design:

The Pre-test, Post-test, non-equivalent group design was used for the present study.

Population

Population for the present study consists of all the primary students following state board syllabus of Tamil Nadu during the academic year 2024-2025.

Sample

The study is conducted on a sample of 84 students studying in 5^{th} standard of Yettacode Nursery and Primary School, Kanniyakumari District.

Variables

Independent variable : Folklore Based Learning Package in Science

Dependent variable : Scientific Creativity Test

Tools used

1. Folklore Based Learning Package in Science

2. Scientific Creativity Test (prepared by Thara Sowmya Priya and Devika,2025)

Statistical Techniques

In the present study the following statistical techniques were used for the analysis and interpretation of the collected data.

1. t-test
2. Paired t- test
3. ANCOVA.

Delimitation of the study:

1. The experimental study is delimited to the geographic area of Kanniyakumari District only.
2. The sample of study is delimited to 84 students only.
3. The experimental study is limited to select science topics only.
4. The experimental study is delimited to only 20 working days.

Organization of the report

The present study is reported in five chapters.

CHAPTER I

It deals with the introduction, need and significance of the study, statement of the problem, operational definition of the key terms, objectives of the study, hypothesis of the study, methodology and delimitations of the study.

CHAPTER II

It deals with the theoretical overview of the study, related studies and critical review of related studies.

CHAPTER III

It deals with the methodology of the present investigation, details of the sample, detail of the tools, experimental procedure and statistical techniques used.

CHAPTER lV

It includes the details regarding the analysis and interpretation of the collected data.

CHAPTER V

It deals with the study in retrospect, findings, conclusion, educational implication of the study and suggestions for the further research in this area of study.

CHAPTER - II

CHAPTER II

REVIEW OF RELATED LITERATURE

1. Theoretical Overview
2. Review of Related Studies
3. Critical Review

CHAPTER 2

Review of Related Literature

In the field of education, as in other fields too, the researcher needs to acquire upto date information about the what has been thought in the particular area from which he or she intends to take up a problem for research. Mertens (2010) reports that review of literature establishes historical perspectives on the intended research and provide visions of the researches to develop a conceptual framework for the research. The researcher who intends to solve new problems in education should necessarily know the important aspects, studies and methods adopted by other researchers in solving their problems and also what findings have emerged out of such studies.

Review of Related Literature is an essential aspect of a research report. It has helped the investigator in the intellectual understanding of the problem under study. It helps the researcher to find what is already know what others have attempted to find out, what methods of attempt have been promising or disappointing and what problems remain to be solved. Effective research must be based upon past knowledge and helps to eliminate duplication of what has been done and provides helpful suggestions for significant investment.

In the words of Lehman (1991) the review of related literature may assist the researchers by pointing out defects in existing research. The review of related literature involves the systematic identification, location and analysis of documents containing information related to the research problem (Gay,1986).

Review of literature has a major role in shaping the research problem because it helps to understand the subject matter better and also helps in conceptualizing the

research problem precisely and make it more relevant to that particular field. Analyzing of past research records helps to eliminate the risk of duplication. It also helps to get more and more information from the perception of other researchers about the same subject area.

Best John. W (2004) defined review of literature as “A summary of the writings of recognized authorities and of previous research provides evidence that the researcher is familiar with what is already known and what is still unknown and untested. Since effective research is based upon past knowledge, this step helps to eliminate the duplication of what has been done and provide useful hypotheses and suggestions for significant investigation."

As the present study was intended to find out the Effectiveness of Folklore Learning Package for enhancing the Scientific Creativity of Primary School Students, an attempt was made to review available research literature in connection with Folklore and Scientific Creativity. The investigator has gone through the studies related to the areas of Folklores and they were presented in the following headings.

Section A: Theoretical overview of the variables concerned.

Section B: Review of related studies.

Section C: Critical review.

Section A

Theoretical overview:

The theoretical overview serves the dual tasks of reflecting the theoretical knowledge by the investigator so as to conduct1 the study as well as to provide information on the theoretical framework behind the present study. Any study

requests a strong theoretical basis because it is very necessary to identify the theoretical back ground before which the study is conducted. It is on the basis of this theoretical arrangement that the researcher makes it a point to link the present study with the body of existing theory so as to avoid a theoretical isolation. It also serves as a sort of explanation to the findings of the study and further adds to the clarity and precision.


FOLKLORE

FOLKLORE

Folklore refers to the collection of traditional beliefs, customs, stories, songs, and practices of a community, often passed down orally from generation to generation. It encompasses a wide range of cultural expressions and serves as a way to preserve and transmit cultural heritage. The term folk suggests people belonging to different group who share a common factor, language, religion, culture and traditions. Hence the knowledge of such kind of traditions and culture is known as folklore.

DEFINITION:

Traditionally, folklore refers to the oration of narratives in the form of a story. It encompasses many forms of creative expression such as folk art, folk song and dance, legends, myths, children's rhymes, and proverbs. Folklore serves to teach about and preserve the culture of the folk (people) of which it speaks. Folklore is passed down from generation to generation and is kept active by the people in the culture. It is not formal or elite.

"According to the Oxford Dictionary, folklore consists of the traditional beliefs, customs, and stories of a community, passed through the generations by word of mouth. This corpus is the subject of the discipline of folklore. “

Folklore refers to traditional beliefs and stories originally preserved through the act of storytelling and subsequently recorded in writing. Folk literature can be in the form of documented poems, proverbs, idioms, stories, songs, myths, riddles, and other artful forms of knowledge passed down from generation to generation.

NATURE:

Folklore is the creation of the ordinary illiterate people. It is normally the creation of an individual but sometimes it may be the creation of a group such as some songs and proverbs. Though it is the creation of an individual or a group, with the passage of time, it becomes the property of a large number of people, and then it appears as Folklore. Folklore is normally orally born, nourished and transferred from one generation to the next. With the passage of time, it has emerged as the property of the whole mankind. Orally it travels from one country to another. Folk literature whether it may be oral or written, transmits from one generation to other. One of the most important natures of Folklore is that, it is simple. The commoner's narrations assume a variety of forms, but its very essence is simplicity. Folklore has two aspects- its material aspect such as traditional implement, and its artistic aspect such as folk song, folk tale etc. Folklore is the outcome of the human mind imbued with creative feelings. Since ancient time, two faculties of the human mind have been responsible for the creation, preservation and transmission of folklore: They are

1. The creative idea and urge

2. Aesthetic and artistic impulse.

Traditional learning was inspired by those two to help creation of folklore. The field of folklore expanded as the experience of man became broader and deeper. The knowledge in folklore is the result of experience of not a person, but of the community or the society at large. It may be called as the wisdom of the people or the learning of the community. The individual earns knowledge through experience and when experience and knowledge are combined together, they voice the same

feelings which becomes the feelings of the society. American scholar Francis Gummeri (1879) viewed that folklore is the creations of the community.

Levi Bruhl (1927), refers folklore as "the collective representation of thought". Folklore is dynamic in the sense that, with the social and cultural change as an important part of culture, it also accepts some changes to suit the new situation. Folklore is timeless and is as much a part of the present as it is of the past. Folklore is made up of informal expressions passed around to become recurrent in form and context, but changeable in performance. The greatest quality of the folk literature is its unwritten form. It is orally created and memory dependent. Almost all the researchers call folk literature as oral literature. So, this literature is universal and eternal. Thus, the folk literature is dealing with the charming simplicity.

The three characteristics of folklore that draw our attention are the body of knowledge, mode of thought and kind of arts that are drawn as reflection from culture. Apart from these, two other factors are also important to determine its characteristics:

a) Folklore requires to be collected through fieldwork.

b) Its study has to be fundamentally based on traditional heritage.

Folklore can be verbal, partly verbal or customary and non -verbal or material culture. Folklore in modern usage, is an academic discipline in which the subject matter of which comprises the sum total of traditionally derived and orally or imitatively transmitted literature, material culture and custom of subcultures within predominantly literate and technologically advanced societies, wholly or mainly non literate societies belonging to the disciplines of ethnology and anthropology. In popular usage, the term folklore is sometimes restricted to the oral literature tradition.

TYPES OF FOLKLORE

There are many ways for cultures to express their beliefs through folklore. Some populations use song and dance to tell their stories, while others tell larger-than-life stories about mythical heroes. Some types of folklores are,

FABLES AND FOLKTALES

Traditional stories about common people are the basis for most forms of folklore. These folktales generally feature a character, either human or animal, who

acquires an important lesson through adherence to, or often through the disregard of, cultural norms.

FAIRY TALES

Fairy tales are folk tales that include elements of fantasy stories, such as royalty and magic. Several early collections of fairy tales include stories published by the Brothers Grimm in Germany and Hans Christian Andersen in Denmark. They are often told to children as early introductions to social rules and expectations.

MYTHOLOGY

Many cultures explain everyday phenomena with tales of mythological figures. They range from stories about Greek Gods, French pourquoi tales, and American tall tales. Typically find legendary characters doing extraordinary things in these types of folk tales.

FOLK SONGS

Cultures often put their stories from folklore to traditional music. They range from everyday stories of common folk to heroic tales told in ballad form.

FOLK DANCE

In a cultural festival or wedding, sometimes there may be a folk dance. They are traditional dances taught to each new generation in a specific culture. These dances often require large groups of people and are performed at community gatherings and special events.

PROVERBS

Proverbs are one or two-sentence expressions that reinforce a society's morals and beliefs. They are meant to guide behavior within a culture. Some cultures use proverbs as adages or maxims.

FOLK ART

Art created in a traditional medium by an ordinary people is folk art. These artists are not professionally trained, but instead rely on traditions passed down by folk artists before them. The items they create can be displayed as artwork or used for everyday purposes.

THE MELTING POT

Societies that include many different cultures, incorporate aspects of traditional folklore into citizens everyday lives. When done in a respectful manner, these adoptions honor the traditions of other cultures. This type helps to learn about the difference between cultural appreciation and cultural appropriation.

PUPPETRY

Puppetry is a form of theatre or performance that involves the manipulation of puppets – inanimate objects, often resembling some type of human or animal figure, that are animated or manipulated by a human called a puppeteer. Such a performance is also known as a puppet production. The script for a puppet production is called a puppet play. Puppeteers use movements from hands and arms to control devices such as rods or strings to move the body, head, limbs, and in some cases the mouth and eyes of the puppet. The puppeteer sometimes speaks in the voice

of the character of the puppet, while at other times they perform to a recorded soundtrack.

There are many different varieties of puppets, and they are made of a wide range of materials, depending on their form and intended use. They can be extremely complex or very simple in their construction. The simplest puppets are finger puppets, which are tiny puppets that fit onto a single finger, and sock puppets, which are formed from a sock and operated by inserting one's hand inside the sock, with the opening and closing of the hand simulating the movement of the puppet's "mouth". A hand puppet or glove puppet is controlled by one hand which occupies the interior of the puppet and moves the puppet around. Punch and Judy puppets are familiar examples. Other hand or glove puppets are larger and require two puppeteers for each puppet. Japanese Bunraku puppets are an example of this. Marionettes are suspended and controlled by a number of strings, plus sometimes a central rod attached to a control bar held from above by the puppeteer. Rod puppets are made from a head attached to a central rod. Over the rod is a body form with arms attached and controlled by separate rods. They have more movement possibilities as a consequence than a simple hand or glove puppet.

Puppetry is a very ancient form of theatre which was first recorded in the 5th century BC in Ancient Greece. Some forms of puppetry may have originated as long ago as 3000 years BC. Puppetry takes many forms, but they all share the process of animating inanimate performing objects to tell a story. Puppetry occurs in almost all human societies where puppets are used for the purpose of entertainment through performance, as sacred objects in rituals, as symbolic effigies in celebrations such as carnivals, and as a catalyst for social and psychological change in transformative arts.

Puppetry is a very ancient art form, thought to have originated about 4000 years ago. Puppets have been used since the earliest times to animate and communicate the ideas and needs of human societies. Some historians claim that they pre-date actors in theatre. There is evidence that they were used in Egypt as early as 2000 BC when string-operated figures of wood were manipulated to perform the action of kneading bread. Wire controlled, articulated puppets made of clay and ivory have also been found in Egyptian tombs. Hieroglyphs describe that walking statues were being used in ancient Egyptian religious dramas. Puppetry was practiced in ancient Greece and the oldest written records of puppetry can be found in the works of Herodotus and Xenophon, dating from the 5th century BC.

India has a long tradition of puppetry. In the ancient Indian epic Mahabharata, there are references to puppets. Another ancient reference to puppetry is found in Tamil classic ‘Silappadikaaram’ written around 1st or 2nd century B.C. Kathputli, a form of string puppet performance native to Rajasthan, is notable and there are many Indian ventriloquists and puppeteers. The first Indian ventriloquist, Professor Y. K. Padhye, introduced this form of puppetry to India in the 1920s and

his son, Ramdas Padhye, subsequently popularised ventriloquism and puppetry. Almost all types of puppets are found in India.

STRING PUPPETS

India has a rich and ancient tradition of string puppets or marionettes. Marionettes with jointed limbs controlled by strings allow far greater flexibility and are therefore the most articulated of the puppets. Rajasthan, Orissa, Karnataka and Tamil Nadu are some of the regions where this form of puppetry has flourished. The traditional marionettes of Rajasthan are known as Kathputli. Carved from a single piece of wood, these puppets are like large dolls that are colorfully dressed. The string puppets of Orissa are known as Kundhei. The string puppets of Karnataka are called Gombeyatta. Puppets from Tamil Nadu, known as Bommalattam, combine the techniques of rod and string puppets.

SHADOW PUPPETS

Shadow puppets are an ancient part of India's culture and art, particularly as the Keelubomme and Tholubommalata of Andhra Pradesh, the Togalugombeyaata in Karnataka, the Charmabahulinatya in Maharashtra, the Ravana chhaya in Odisha, the Tholpavakoothu in Kerala and the Tholbommalatta in Tamil Nadu. Shadow puppet play is also found in pictorial traditions in India, such as temple mural painting, loose-leaf folio paintings, and the narrative paintings. Dance forms such as the Chhau of Odisha is literally the "shadow". The shadow theatre dance drama is usually performed on platform stages attached to Hindu temples, and in some regions, these are called Koothu Madams or Koothambalams. In many regions, the puppet drama play is performed by itinerant artist families on temporary stages during major temple festivals. Legends from the Hindu epics Ramayana and the

Mahabharata dominate their repertoire. However, the details and the stories vary regionally.

During the 19th century and early parts of the 20th century of the colonial era, Indologists believed that shadow puppet plays had become extinct in India, though mentioned in its ancient Sanskrit texts. In the 1930s and thereafter, states Stuart Blackburn, these fears of its extinction were found to be false as evidence emerged that shadow puppetry had remained a vigorous rural tradition in central Kerala mountains, most of Karnataka, northern Andhra Pradesh, parts of Tamil Nadu, Odisha and southern Maharashtra. The Marathi people, particularly of low caste, had preserved and vigorously performed the legends of Hindu epics as a folk tradition. The importance of Marathi artists is evidenced, states Blackburn, from the puppeteers speaking Marathi as their mother tongue in many non-Marathi speaking states of India.

According to Beth Osnes, the tholubommalata shadow puppet theatre dates back to the 3rd century BC, and has attracted patronage ever since. The puppets used in a Tholubommalata performance, states Phyllis Dircks are "translucent, lusciously multicolored leather figures four to five feet tall, and feature one or two articulated arms". The process of making the puppets is an elaborate ritual, where the artist families in India pray, go into seclusion, produce the required art work, then celebrate the "metaphorical birth of a puppet" with flowers and incense.

The Tholupavakoothu of Kerala uses leather puppets whose images are projected on a backlit screen. The shadows are used to creatively express characters and stories in the Ramayana. A complete performance of the epic can take forty-one nights, while an abridged performance lasts as few as seven days. One feature of the Tholupavakoothu show is that it is a team performance of puppeteers, while other shadow plays such as the wayang of Indonesia are performed by a single puppeteer for the same Ramayana story. There are regional differences within India in the puppet arts. For example, women play a major role in shadow play theatre in most parts of India, except in Kerala and Maharashtra. Except in Odisha, mostly the puppets are made from tanned deer skin, painted and articulated. Translucent leather puppets are typical in Andhra Pradesh and Tamil Nadu, while opaque puppets are typical in Kerala and Odisha. The artist troupes typically carry over a hundred puppets for their performance in rural India.

ROD PUPPETS

Rod puppets are an extension of glove-puppets, but are often much larger and supported and manipulated by rods from below. This form of puppetry now is found mostly in West Bengal and Orissa. The traditional rod puppet form of West

Bengal is known as Putul Nautch. They are carved from wood and follow the various artistic styles of a particular region. The traditional rod puppet of Bihar is known as Yampuri.

GLOVE PUPPETS

Glove puppets are also known as sleeve, hand or palm puppets. The head is made of either cloth or wood, with two hands emerging from just below the neck. The rest of the figure consists of a long, flowing skirt. These puppets are like limp dolls, but in the hands of an able puppeteer, are capable of producing a wide range of movements. The manipulation technique is simple and the movements are controlled by the human hand, the first finger inserted in the head and the middle finger and the thumb in the two arms of the puppet. With the help of these three fingers, the glove puppet comes alive.

The tradition of glove puppets in India is popular in Uttar Pradesh, Orissa, West Bengal and Kerala. In Uttar Pradesh, glove puppet plays usually present social themes, whereas in Orissa such plays are based on stories of Radha and Krishna. In Orissa, the puppeteer plays a dholak (hand drum) with one hand and manipulates the

puppet with the other. The delivery of the dialogue, the movement of the puppet and the beat of the Dholak are well synchronised and create a dramatic atmosphere. In Kerala. The traditional glove puppet play is called Pavakoothu.

SCOPE OF FOLKLORE:

Folklore encompasses the customs, games, beliefs, festivals and some practices which human societies have owned through tradition from generation to generation; the literature, performing and non-performing arts, paintings, Sculptures, arts and crafts; and their related mechanism and designs, which have been handed on by tradition of the societies from previous generations through word of mouth or traditionally by normal means; the patterns of houses, fences, tools, and many other material being used by the societies, as well as those materials, their traditional manufacturing techniques and architect.

Architectural designs are the human societies have inherited from their forefathers; the medicines and other objects invented through experimentations and traditional scientific method which passed on as heritage to the societies through generations. The process of creation, making, designing and construction of these elements as well as their substance in the societies, has been in operation since ancient times and in a similar manner their transmission, diffusion, creation of variants, reshaping and renewal have also been a continuous phenomenon since long past. Some of these elements were handed down through the oral tradition, some through the written method, practice and imitation, some through observation, but all have been the products of tradition. The process of their transmission is still vague in the present-day societies and this will remain so in the future to come.

Folklore-based measures of historical attitudes are robust predictors of contemporary values and economic choices. Folks who grew up listening to stories where tricksters often fail to deceive their victims are more trusting and prosperous today. Groups with oral traditions rich with heroes who successfully tackle challenging situations tend to display more appetite for risk and appear more entrepreneurial. Societies whose folklore portrays women as less dominant, more submissive, and more likely to engage in domestic affairs than men tend to relegate their women to inferior roles in their communities, both historically and today. These patterns hold across countries, second-generation immigrants, and ethnic groups, suggesting that folklore may be one of the vehicles by which norms are intergenerationally transmitted.

Folklores have been a part of our culture for millennia. They were used to transmit information and assist the people in comprehending and remembering various concepts. It includes science teaching as well. They serve as both a fun and educational medium. However, it now bridges these two media and progresses as a 'Transformer.' The inclusion of folklores activities in education was found to boost intellect and memory; enhance creative thinking and imagination; more manageable of self-control and emotions; ensure social and interaction; allow practice in focusing; language and communication; improve physical and mental health and connected spirituality and moral values. Most significantly, these activities teach them life skills that they can apply in their daily lives. In conclusion, folklore activities improve life skills, learning experience, growth, and knowledge among children. Folk lores are indeed one of the learning instruments that can provide unique and enjoyable experiences for children.

SCIENTIFIC CREATIVITY:

Scientific creativity is an ability of conducting creative science experiments by finding out and solving creative science problems and science activities. Knowledge of science and creative vision of an individual have become two important quality parameters in the contemporary society, which is highly technical as well as complex. In this context fostering creativity in science education is also becoming more and more important. As a consequence, investigation of creativity in science education leads to scientific creativity.

Creativity has the scope to be investigated in the context of learning. Guilford, one of the pioneers in the field of scientific research on creativity, also emphasized on cultivation of creativity among school children. In spite of emphasis given by Guilford on the relationship between creativity and learning, much of the researches of the first half of the century have studied creativity of eminent persons.

NATURE OF SCIENTIFIC CREATIVITY

First scientific explanation of creativity is given by Guilford. He explained the construct of creativity in general, in relation to the model of structure of intellect (SI – model). According to Guilford, creativity is mostly associated with divergent production leading to a number of solutions of a particular problem unlike 'convergent production' where information leads to one single appropriate answer. Guilford related divergent thinking to certain well known ability factors namely fluency (ability to produce a number of valid responses), and elaboration (ability to construct complex object on the basis of simple construct) Though later on, Guilford included two other abilities -redefinition and sensitivity to problem belonging to convergent production and evaluation category of intellectual operation respectively.

TECHNIQUES TO DEVELOP SCIENTIFIC CREATIVITY

Encourage originality

Encourage independent thinking

Build basic skills

Encourage acquisition of knowledge

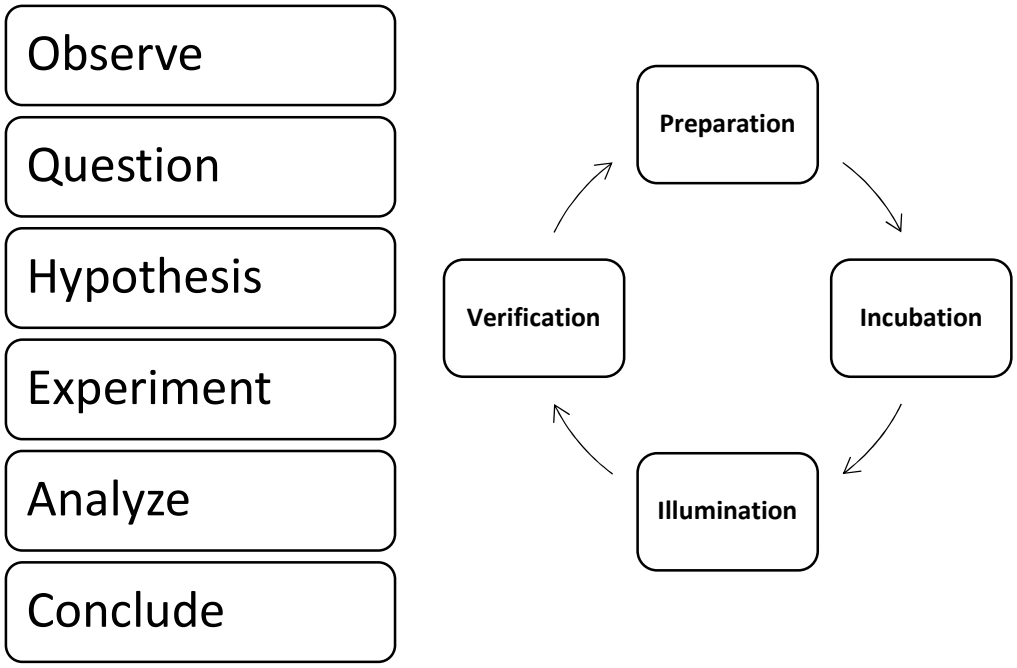
Ask challenging questions

Stimulates and reward curiosity and exploration

Adopt proper reinforcement technique

Scientific Creativity is the cornerstone of innovation and progress in research, enabling scientists to think beyond conventional frameworks and discover groundbreaking solutions. Enhancing Scientific Creativity is not solely about intelligence or deep knowledge; it also involves fostering a mindset that embraces curiosity, open-mindedness, and the ability to draw connections between seemingly unrelated ideas. Collaborative environments foster the exchange of ideas, often sparking creative insights. One of the fundamental ways to enhance Scientific Creativity is by nurturing a strong sense of curiosity. Curiosity acts as the driving force behind inquiry and experimentation. Enhancing Scientific Creativity is a multifaceted endeavor that requires deliberate effort and supportive environments.

SCIENTIFIC METHOD THROUGH CREATIVE PROCESS



Schematic illustration showing the incorporation of creative thinking into the scientific method.

SCIENCE IN SCHOOL CURRICULUM

Modern age is the age of science. Science is considered as an important subject in school curriculum because the man's future depends to a large extent on scientific advances and development of productive activity. The primary goal of education should be the intellectual development of the individual with its accelerating importance of the society. Science has become an increasingly important part of general emphasis on intellectual activity.

Man's place in the universe is changing drastically, as a result technology and advancement made in scientific research. Science has now become a compulsory subject in the school curriculum because of its multifarious value in the society.

In the 20th century folklorists succeed their goal of establishing folklore as a science. The emphasis of establishing folklore as a science, much progress was made in establishing a framework, from which folklorists could pursue their collection efforts and compare and share their results.

FOLK TALE AND SCIENCE EDUCATION

Currently, in Europe and America stories that embody narratives are advocated as a way to teach about humanity through school science. Martin and Brouwer (1991) mention that stories used by, teachers to enliven lessons tend to help students enlarge their images and reactions and can promote students' participation in lessons because stories can simply and imaginatively illustrate natural objects and phenomena. The authors point out that stories give students opportunities to envision subtle dimensions of science and understand the interactions of science with culture. Stories are a way to tie what is important in school science to the realities outside of school. Egan in 1988 points out that learners can construct a worldview with a complicated reality through stories, based on their various experiences, and that make curricular contents easy to understand. In 1986 he demonstrates the concept of "heat using a story form in elementary school science with myths, such as "Prometheus stole a fire" and "The god Sol, his son, and Hephaestus," The content of these myths is not necessarily correct according to scientific concepts. However, Egan believes that myths reflect humans' views on nature and are therefore, useful as a pathway for students to approach concepts. Enfield and Mathew (2012) propose a model science lesson using picture books, arguing that the lesson excites students' imaginations and enhances their motivations to think about scientific concepts, which means that stories are an effective method for inquiry and understanding of the natural world. To summarize these studies, using stories in science lessons

promotes children's interests in nature and motivates them to learn about nature. Stories also expands their imagination for and reaction to the natural world. Regarding studies of story and science in Japan, Nakamura (2002) states that stories that embody narratives are based on complex and diverse human activities. He proposes that the narrative-oriented approach in science education means:

1. The approaches create and provide contexts and situations of scientific practice, and in the approaches, scientific knowledge and contents of science curriculum are sequenced on and connected with the contexts and the situations;
2. The approaches introduce the reality and authenticity of science and the aspects of science that cannot well-understand logically; and
3. By taking the approaches, the experiences about science are classified, communicated, shared with others, and reinterpreted and understood.

Watanabe and Yamazaki in 2011 develop teaching materials for earth science education using the story "Bivouacs of the great scholar Naranoki" by Kenji Miyazawa, a famous Japanese children's author. The story is set in Iwate Prefecture, northern Japan, and it includes content on volcanoes, rocks and minerals, and those objects' muttering. The teaching materials use the muttering to convey situations and changes for long time of the underground we cannot see and feel. The authors point out that personified explanations of scientific phenomena help to heighten students' interests in and familiarity with natural phenomena and to motivate them to learn about nature. Stories help children experience nature, which they cannot do logically, as well as classify, reinterpret and understand their experiences with science. Therefore, using stories in science education provides a new perspective on improving students' interest in and attitudes toward nature as well as enhancing their

motivation to learn about nature. Highlighting the use of fairy tales as a story in science lessons, Adams (2006), in her paper entitled “Science shorts: Tangling with hair,” introduced an experiment to measure the strength of pupils’ hair, referring to a scene in which a princess escapes a tower by using her long hair. Tan and Wong (2007), in their paper “Did the beanstalk really reach the sky? Using fairy tales to teach science,” verified the growth of a soybean tree that appears in a scene in Jack and the Beanstalk. These studies revealed that using fairy tales in science education has been effective in promoting pupils’ interest in and motivation to learn about nature. However, very few studies have been conducted on the use of folk tales as a story in science education until now. Miyahashi (2009) states that folk tales transmitted indigenous knowledge necessary to various local communities before educational institutions like schools were founded; folk tales have been used for education since the old days. They draw a wide world that cannot be bound by divided sciences, such as natural, cultural, and social science, so that they vividly reflect views on nature and the society of people who lived in that time. Therefore, using folk tales in science education presents students in modern society with various views on nature, and improves not only their interest and motivation to learn about nature but also their attitude toward nature.

Currently, there are a few studies focused on using folk tales in science education. Miyahashi and Saiki (2004) investigate 3,407 stories included in the series of “Japanese folk tales” and reveal the natural phenomena in which Japanese people are interested. They observe that 717 stories reflecting people’s interest in nature account for 21% of the whole, and that most folk tales relating to natural phenomena are based on Biology and Earth Science. Specifically, 67% are based on Biology (50% on animal characteristics and behaviors and 17% on plants/fungi) and

23% on Earth Science (13% on origins and features of volcanos, lakes, ponds, seas, etc.; 7% on weather; 1% on astronomical phenomena; 1% on geological features and extinct organisms; and 1% on documents of earthquakes, volcanos, floods, and tsunamis). Highlighting the literature in English, Meyers (2005) examines the Effectiveness of folk tales in Space Science and scientific explanations for third to sixth grade pupils, who viewed program modules from the "Sky Teller Project" by Lynn Moroney and the Lunar and Planetary Institute of Houston, Texas. This project was designed to provide high quality science programming in astronomy and space science in order to stimulate interest in science. Her study evaluates the interest evoked by the programs may examining attitudes and responses to the programs. The audience consisted of over 3,500 pupils in eight locations in the United States. Because few quantitative studies have been conducted to examine the use of stories in science education, the development of an instrument to assess pupils' attitudes toward science and stories forms a major part of this research. She shows that during the final stage of testing, the revised instrument and methods detected a significant increase in positive attitude toward science after the presentations using folk tale in space science. Therefore, using folk tales not only promotes children's interests in nature and motivations to learn about it, but also enhances their attitudes toward the relationship between people and nature.

The integration of folklore to develop scientific creativity in learning Science

The integration of folklore to develop scientific creativity, in science education can provide a comprehensive and engaging learning experience for students.

Folklore can help contextualize scientific concepts within a cultural framework, making learning more relevant and relatable. Traditional stories and practices can illustrate historical understandings of natural phenomena, bridging the gap between indigenous knowledge and modern science. Folklore can capture students' imagination, making the subject matter more engaging and memorable. Stories and myths can serve as intriguing entry points into complex science topics, fostering curiosity and a deeper interest in the subject. Studying folklore can reveal how different cultures interact with their environment and organisms, offering insights into ethno biology and conservation practices. It promotes respect for indigenous knowledge systems and biodiversity, emphasizing the importance of preserving both cultural and biological heritage.

Scientific Creativity in Science Education

Encouraging scientific creativity helps students develop critical thinking and problem-solving skills essential for scientific inquiry. Creative thinking enables students to approach problems from multiple angles, leading to innovative solutions and advancements in science. A creative mindset fosters innovation, which is crucial

for scientific breakthroughs and advancements. Students who are encouraged to think creatively may contribute to novel research, experimental designs, and the development of new technologies in Science. Creativity in science often involves integrating knowledge from different disciplines, promoting a holistic understanding of biological systems. This interdisciplinary approach can lead to a more comprehensive grasp of science, enhancing students' ability to tackle complex biological problems.

SECTION B

REVIEW OF RELATED STUDIES

Gupta, S. (2020) conducted a study on Folk literature and its pedagogical significance in the Indian context. The objectives of the study is to explore the role of folk literature in enhancing educational practices in Indian schools. Qualitative research was adopted for the study. The findings of the study concluded that Folk literature promotes critical thinking, language development, and cultural awareness among students.

Kumar, R. (2021) conducted a study on The Role of Folklore in the Development of Creative Thinking Among Indian Students. The objectives of the study is to explore how folk tales contribute to creative thinking skills in students. Experimental design was adopted for the study. The findings of the study concluded that Students exposed to folk tales demonstrated improved problem-solving and creativity.

Sharma, P. (2019) conducted a study on Folklore and Its Integration in School Curriculums in India. The objectives of the study was to analyze how folklore

is integrated into the Indian school curriculum and its impact on learning. Case study approach was adopted for the study. The findings of the study concluded that there is a lack of sufficient integration of folklore into the curriculum, though it is beneficial for cultural learning.

Singh, A. (2020) conducted a study on The Use of Folklore in Promoting Multicultural Education in India. The objectives of the study was to explore the role of Indian folklore in promoting multicultural education in diverse classrooms. Qualitative approach was adopted for the study. The findings of the study concluded that Folklore is an effective tool for promoting multicultural values and bridging cultural divides in classrooms.

Deshmukh, N. (2018) conducted a study on Folk narratives and their role in shaping moral education in India. The objectives of the study was to examine how folk narratives shape the moral values of Indian children. Qualitative research was adopted for the study. The findings of the study concluded that Folk narratives foster empathy, respect, and integrity among children, serving as a moral compass.

Mehta, L. (2022) conducted a study on The Impact of Folklore-Based Learning on Language Acquisition Among Rural Indian Children. The objectives of the study was to assess how folklore-based learning supports language acquisition in rural schools. Mixed-method was adopted for the study. The findings of the study concluded that Folklore enhances vocabulary, listening, and speaking skills in rural children.

Reddy, S. (2023) conducted a study on Folklore and Its Influence on Gender Sensitization in Indian Education. The objectives of the study was to explore how

folklore can be utilized to teach gender equality and sensitization. The findings of the study concluded that Folk stories featuring strong female characters contributed to positive gender perceptions in students.

Joshi, D. (2021) conducted a study on Integrating Folklore into STEM Education: A Case Study from Maharashtra. The objectives of the study was to investigate how folk knowledge can be integrated into STEM (Science, Technology, Engineering, and Mathematics) education. Case study approach was adopted for the study. The findings of the study concluded that the Integration of folklore with STEM education leads to better contextual understanding and relevance for students.

Nair, M. (2017) conducted a study on The Role of Folk Music and Dance in Experiential Learning in Indian Schools. The objectives of the study was to explore how folk music and dance influence experiential learning and student engagement. Qualitative research was adopted for the study. The findings of the study demonstrated that Folk music and dance foster hands-on learning experiences, helping students connect theory to practice.

Patel, V. (2020) conducted a study on Folklore in Education: A Pedagogical Tool for Community Development in Rural India. The objectives of the study was to examine how folklore-based education serves as a tool for community development in rural areas. The findings of the study demonstrate that Folklore-based education helps in community cohesion, promotes local culture, and improves literacy levels.

P. M. Matshidze. (2021) conducted a study on Folklore and Education: Bridging Cultural Gaps in the Classroom. The objective of the study was to explore how folklore can be used to bridge cultural gaps and promote learning. Qualitative case study approach was adopted for the study. The result of the study concluded that the integration of folklore in classrooms helps students relate to their cultural heritage while developing a deeper understanding of multicultural perspectives, increased cultural awareness, critical thinking, and engagement with cultural texts.

J. K. Smith. (2020) conducted a study on Folklore as a Tool for Language Development in Early Education. The objective of the study was to assess the effectiveness of folklore stories in enhancing language development in young learners. Experimental design was adopted in the study. The findings of the study demonstrated that Children exposed to folklore showed significant improvements in vocabulary, storytelling, and creative writing, and also enhanced language skills and storytelling abilities.

A. S. Richards. (2019) conducted a study on The Role of Folklore in Teaching Moral Values to Children. The objective of the study was to examine how folklore can be used to teach moral values in primary education. Qualitative method was adopted for the study. The findings of the study demonstrated that Folklore-based teaching significantly contributed to students understanding of ethics, respect, responsibility, development of moral reasoning and ethical behavior.

M. C. Hernandez. (2022) conducted a study on Folklore and Creative Expression in High School Curricula. The objective of the study was to explore how folklore can foster creativity in high school students. Mixed methods approach was adopted for the study. The findings of the study demonstrated that Students enhanced

creative thinking and artistic expression when incorporating folklore into their projects.

L. M. Perez. (2018) conducted a study on Incorporating Folklore into Science Education: Enhancing Conceptual Understanding. The objective of the study was to determine how folklore can enhance conceptual understanding in science education. Experimental design was adopted for the study. The findings of the study demonstrated that Students exposed to folklore-based teaching showed that improved understanding of scientific concepts, particularly those related to nature, stronger conceptual grasp of scientific principles and critical thinking skills.

K. A. Brown. (2023) conducted a study on Folklore in Mathematics: Developing Problem-Solving Skills. The objective of the study was to explore the impact of folklore on students' mathematical problem-solving abilities. Mixed method approach was adopted for the study. The result of the study concluded that the use of folklore in mathematics helped students approach problems creatively, leading to higher engagement and success in solving complex tasks improved problem-solving skills and mathematical creativity.

N. T. Williams. (2020) conducted a study on Folklore, Identity, and Learning: A Cultural Perspective. The objective of the study was to explore the role of folklore in strengthening cultural identity and its impact on learning outcomes. Phenomenological approach with in-depth interviews was adopted for the study. The findings of the study demonstrated that students who engaged with folklore reported stronger connections to their cultural identity, which positively affected their learning motivation and academic performance. This paper made the implication that students enhanced cultural pride, self-esteem, and academic engagement.

F. A. Gamboa. (2021) conducted a study on The Impact of Folklore on Critical Thinking Skills in Secondary Education. The objective of the study was to investigate whether folklore narratives can enhance critical thinking skills in secondary school students. The findings of the study demonstrated that students who studied folklore demonstrated a notable improvement in their ability to analyze, evaluate, and synthesize information, improved critical thinking and argumentation skills.

S. M. Johnson. (2019) conducted a study on Folklore as a Medium for Storytelling in Digital Education. The objective of the study was to explore the integration of folklore in digital storytelling platforms and its impact on student learning. The result of the study concluded that the incorporation of folklore into digital storytelling projects enhanced students' narrative construction and digital literacy skills. Folklore based learning enhanced storytelling, digital literacy, and engagement with technology.

D. L. Turner. (2022) conducted a study on Folklore and Social Studies Education: A Case Study in Community Engagement. The objective of the study was to investigate the role of folklore in teaching social studies and its potential for community engagement. The findings of the study demonstrated that Folklore facilitated deeper engagement with community history and social studies content, promoting civic engagement and social responsibility, increased community engagement and understanding of social studies concepts.

C. B. Lee. (2019) conducted a study on Integrating Folklore into Global Education Curricula. The objective of the study was to explore how folklore can be integrated into global education curricula to promote intercultural understanding.

Survey method was adopted for the study. The findings of the study demonstrated that Incorporating folklore into global education curricula helped students develop greater intercultural empathy and understanding. Also enhanced intercultural competence and global awareness.

R. J. Thompson. (2020) conducted a study on The Use of Folklore in Environmental Education: A Path to Sustainable Learning. The objective of the study was to investigate how folklore can be used in environmental education to promote sustainability. Qualitative method was adopted for the study. The findings of the study demonstrated that Folklore stories with environmental themes inspired students to engage more deeply with sustainability issues, increased awareness and commitment to environmental sustainability.

B. E. Williams. (2021) conducted a study on Folklore and Conflict Resolution: Integrating Traditional Stories into Social Learning. The objective of the study was to examine the role of folklore in conflict resolution and its impact on social learning. The findings of the study demonstrated that Folklore-based conflict resolution programs were successful in teaching empathy and peaceful negotiation skills.

E. F. Carter. (2022) conducted a study on Folklore and History Education: A Tool for Promoting Historical Thinking. The objective of the study was to assess how folklore can be used to promote historical thinking in middle school education. Experimental design was adopted for the study. The findings of the study demonstrated that Students who engaged with folklore stories displayed improved historical analysis and critical thinking about past events.

J. A. Garcia. (2023) conducted a study on Teaching Geography Through Folklore: A Cultural Approach. The objective of the study was to explore how folklore can enhance geographical education and promote a cultural approach to teaching geography. The findings of the study demonstrated that Integrating folklore into geography lessons helped students better understand geographical concepts in a cultural context. Folklore based learning Improved geographical knowledge and appreciation of cultural diversity.

K. R. Clark. (2021) conducted a study on Using Folklore to Teach Empathy in the Classroom. The objective of the study was to investigate the role of folklore in developing empathy among elementary school students. Experimental design was adopted for the study. The findings of the study demonstrated that Exposure to folklore stories helped students develop stronger empathy and understanding of others' perspectives, social skills, and emotional intelligence.

H. J. Martin. (2019) conducted a study on The Role of Folklore in Teaching Social Skills in Early Childhood Education. The objective of the study was to explore how folklore can be used to teach social skills to young children. The findings of the study demonstrated that Children exposed to folklore stories demonstrated better social interaction, sharing, and conflict resolution skills.

W. L. Johnson. (2020) conducted a study on Folklore as a Tool for Teaching Diverse Perspectives in History. The objective of the study was to investigate how folklore can provide diverse perspectives in history education. The findings of the study demonstrated that Students who studied folklore narratives from different cultures developed more understanding of history, historical perspectives and critical analysis of historical narratives.

D. P. Silva. (2022) conducted a study on The Benefits of Folklore in Promoting Lifelong Learning Skills. The objective of the study was to evaluate how folklore can promote lifelong learning skills in secondary students. Survey method was adopted for the study. The findings of the study demonstrated that Folklore-based activities promoted independent learning, creativity, critical thinking and lifelong learning abilities among students.

E. W. Hill. (2023) conducted a study on Integrating Folklore in Art Education: Fostering Creative Learning. The objective of the study was to examine the role of folklore in fostering creativity in art education. Qualitative research method was adopted for the study. The findings of the study demonstrated that Students who incorporated folklore into their art projects displayed greater originality and cultural awareness in their work. It was believed that Folklore based learning enhanced students' creativity, cultural awareness, and artistic skills.

J.P. Guilford (1967) conducted a study on The Nature of Human Intelligence. The objective of the study was to develop a model of human intelligence, emphasizing divergent thinking in creativity. The findings of the study highlights the importance of divergent thinking in creative problem-solving.

Ugur Akpur(2023) conducted a study on Creativity and Academic Achievement: A Meta-Analysis Study. The objective of the study was to investigate the impact of creativity on academic achievement. The findings of the study demonstrated that the medium effect size indicating a positive impact of creativity on academic achievement of student.

Arya and Maurya (2016) conducted a study on Relationship Between Creativity and Academic Achievement of School-Going Children. The objective of the study was to explore the relationship between creativity and academic achievement. The findings of the study demonstrated that Positive relationship between creativity and academic achievement among school going children

SECTION-C

Critical Review

The studies reviewed were very much useful for the investigator to find out the prevailing position of Folklore in the present scenario. The studies revealed that folklore can be used as an effective method for teaching different subjects. The studies revealed that folklore-based teaching will lead to meaningful learning, acquisition of knowledge, retention of facts, develop intellectual capabilities, reducing the fear of course content, integrating subject matter, drawing connection between concepts, developing communication skills, developing positive attitude towards science and promoting interaction among students as well as teachers.

The studies were on the importance of Folklore Based Learning with its positive and negative aspects. Deshmukh (2018), Sharma (2019), Gupta (2020), Matshidze's (2021) studies are on the effectiveness of Science learning through Folklore. The studies of Gamboa (2021), Johnson (2019), Williams (2021), Clark (2021) and Carter (2022) revealed that Folklore facilitates better learning. Hence learning through Folklore will be more effective in teaching and learning.. The review of related studies helped the investigator to develop her own objectives, to select suitable tools, in analysis and in the interpretation of data.

In order to find out the effectiveness of Folklore Based Learning, to develop Scientific creativity in Science the investigator made an attempt to study "Effectiveness of Folklore Based Learning in Science on Scientific Creativity Among Primary School Students".

CHAPTER - III

CHAPTER III

METHODOLOGY

1. Procedure of Tool Development
2. Method Adopted
3. Tools Used
4. Population
5. Sample Used
6. Statistical Techniques Used

CHAPTER 3

METHODOLOGY

Methodology refers to the systematic and theoretical analysis of methods used in a field of study. It encompasses the overarching strategy and rationale of a research project, detailing the specific techniques, procedures, and principles employed to achieve a defined goal. In essence, it's a blueprint for how research is conducted, ensuring validity and reliability of results. The goal of research is to find, create, and validate knowledge. It is a conscious effort to gather data, analyze it, organize it, and pursue it-hopefully with success. The suitability of the method employed determines the precision and sufficiency of the research findings. The word 'method' in research refers to a number of sequential procedures or a tactics employed in the analysis of a subject with specific goals. A methodology is a thorough explanation of the procedures and techniques utilized to conduct a research project. According to Kothari (2009), " Research methodology, is a strategy to systematically answer the research challenges." it might be considered a Science that studies how scientific research is conducted.

Research methodology is the foundational framework that guides a researcher in planning, structuring, and executing their study. It involves a systematic process of identifying a problem, formulating objectives, choosing an appropriate research design, and collecting and analyzing data to derive meaningful conclusions. The essence of research methodology lies not only in gathering data but going through well-structured steps that ensure the research outcomes are valid and reliable. As Zora Neale Hurston aptly said, "Research is formalized curiosity. It is

poking and prying with a purpose." This curiosity, when guided by a methodological approach, enables researchers to produce knowledge that can influence theory, practice, and policy. Research methodology does not only concern what tools or techniques are used but also why and how they are employed in the process. It ensures the entire research journey is systematic and purposeful, right from the identification of the problem to the interpretation and presentation of results.

An important aspect of research methodology is the research design, which acts as a blueprint for how the study is conducted. The methodology extends beyond academic rigor, it builds trust and validity in research outcomes. The goal of research is not only to solve problems but also to gain knowledge. A robust methodology enables the pursuit of knowledge to be systematic, ethical, and impactful. Research methodology is more than a set of rules, it is a structured process that turns curiosity into credible, useful, and ethical findings that can inform decision-making and advance human understanding.

This chapter has been presented under the following headlines,

A. Procedure of tool development

B. Research Design: Plan and Procedure

Section-A

PROCEDURE OF TOOL DEVELOPMENT

This section deals with the procedure of tool development

Tool 1: Procedure for the development of Folklore Based Learning Package for learning Science

Tool 2: Procedure for the development of Scientific Creativity Test

Tool 1: Procedure for the development of Folklore Based Learning Package for learning Science

Folklore Based Learning package is planned and prepared by the investigator to find out its effectiveness in Folklore Based Learning Package of 5th standard by using Experimental Design. For this the investigator wanted to study the comparison between traditional method of learning Science through the control group and the learning and practicing Science through the application of Folklore-Based Learning Package in Experimental group.

The development of a folklore-based learning package involves a systematic and interdisciplinary approach. Firstly relevant folklore stories, traditions, and cultural narratives were identified through fieldwork, interviews with elders, and literature reviews. These stories must have potential links to scientific principles, such as natural phenomena, traditional medicine, agriculture, or environmental understanding. The scientific concepts embedded in these folk narratives are analyzed and aligned with the school curriculum. After selecting appropriate folklore, contents were integrated with the scientific explanations within the narrative structure, ensuring age-appropriateness and pedagogical value. The package is then designed to include interactive elements such as activities, experiments, illustrations, and questions to encourage critical thinking and conceptual clarity. The draft package is validated by subject experts and teachers, and cultural scholars for both scientific accuracy and cultural sensitivity. Finally, the material is piloted in classrooms, and feedback is collected for revisions before final

implementation. This approach promotes contextual learning, cultural relevance, and deeper student engagement in Science education.

Folklore Based Learning Package for Science Education is a multi-stage process that requires careful planning, collaboration, and creativity. It merges cultural heritage with scientific inquiry, promoting a holistic and inclusive learning experience. By rooting Science in familiar narratives, investigator can bridge traditional knowledge systems and modern scientific thinking, making Science more accessible, engaging, and meaningful for learners from diverse background.

The development process comprises several key stages including,

Need assessment

Content selection

Instructional design

Material development

Implementation and

Evaluation.

Need assessment

The initial phase is the needs assessment, here investigator identified the target learners demographic, existing scientific understanding, cultural background, and learning challenges. This step involves collecting data through surveys, interviews, and classroom observations to determine the learners' familiarity with both Science and local folklore. Collaboration with community elders, storytellers, and cultural historians is essential at this point to gather authentic folklore materials.

These stories are then analyzed for their thematic relevance and educational potential.

Content selection

The next phase is content selection and alignment with curriculum standards. The selected folklore narratives are mapped into Science topics from the existing curriculum to ensure educational relevance. The investigator integrated the scientific ideas embedded or symbolized in the folklore and prepare to explain these ideas through inquiry-based activities. The goal is not to treat folklore as a factual source of scientific knowledge but as an engaging entry point that stimulates curiosity and critical thinking. This stage also involves identifying key learning outcomes, skills, and competencies that the package aims to develop.

Instructional design

The third phase is instructional design, where the actual structure of the learning package is outlined. Using instructional model such as (Introduction, Focused Explanation, Reporting and reshaping, Integration and Evaluation) investigator created a learning sequence that incorporates storytelling, guided questioning, interactive discussions, and hands-on experiments. Each unit or lesson begins with a folklore story or folk song, followed by activities that encourage students to explore the scientific concepts embedded in the story or song. Folklore Based Learning Package are crafted to include objectives, materials, procedures, and assessment strategies.

Material development

In the material development stage, the actual learning package is produced. This includes printed materials like story books, work sheets, activity guides, visual aids, and digital resources such as animations or audio recordings of folklore. Local languages and illustrations are often used to make the content relatable and inclusive. The package may also include teacher manuals that guide investigator in delivering the lessons effectively. Culturally sensitive, pedagogically sound, and scientifically accurate materials are selected. Collaboration with local artists, linguists, and investigator enriches the content and ensures authenticity. Moreover, inclusive design principles are applied to accommodate learners with different needs and learning styles.

Implementation

Once the materials are developed, the package undergoes pilot testing or implementation in a real classroom setting. The implementation phase focuses on observing how students interact with the content, participate in activities, and construct scientific knowledge. Feedback is collected from students, teachers, and observers through questionnaires, interviews, and classroom recordings. This feedback is crucial for identifying gaps in the instructional flow, difficulties in understanding, and suggestions for improvement.

Evaluation

The final stage is evaluation and revision, where the effectiveness of the learning package is assessed based on predefined criteria such as student engagement, knowledge retention, conceptual clarity, and cultural appreciation. Pre-

tests and post-tests and performance tasks may be used to assess learning outcomes. Based on the data gathered during implementation, the package can be revised to enhance clarity and effectiveness with educational goals.

The instructional sequence for teaching the topic Science using Folklore Based Learning Package was adapted based on the above steps. The experimental teaching using State Board Science text book were started with phase I.

Phase 1: Introduction

Introduction of the topic as a whole. Teacher explains about Our Environment, Animals, Air from the Science text of 5^{th} standard by showing related materials. Teacher then gives an explanation about the Science elaborately to the students of 5^{th} standard.

Phase II: Focused Exploration

The teacher divided the whole class into two groups. Then the teacher assigns individual topics to each member of the group. The same is repeated to other groups also. Teacher then asks questions to each student of group to

1) Name some biotic factors

2) Define Ecology,

3) What is Air pollution?

Students do brain storming in their group and report their finding to the whole group

Phase III: Reporting and Reshaping

The teacher facilitates the students to discuss about the selected topic from Science of 5th standard. Students then discuss with the group and starts learning.

Phase IV: Integration and Evaluation

The student group connects various information generated by the individual member, addresses new topic posed by the instructor.

One of the Folklore Based Learning Package is given below as model.

FOLKLORE BASED LEARNING PACKAGE

Name of the Teacher	:	C V THARA SOWMYA PRIYA
Name of the School	:	Yettacode Nursery and Primary School
Class	:	5th
Subject	:	Science
Unit	:	Air
Topic	:	Air pollution
Method used	:	Folklore Based Learning Package (Folktale)
Duration	:	45 mins
Date	:	21-01-2025

CONTENT ANALYSIS

Terms	:	Industries, hydrocarbons, burning, mining, pesticides.
Facts	:	a) Environment is everything that is around us. b) Physical environment and Biological environment are the two types of environment. c) Physical environment includes all non-living things like land, Water and air. d) Biological environment includes the living things such as plants and animals.

e) Air is important for all living organisms.

Concept : Air pollution is the contamination of the air we breathe.

LEARNING OBJECTIVES:

After learning the topic students will be able to:

1. Understanding the type of environment.
2. Classify physical and biological environment.
3. Students visualize mental images of the effects of air pollution.
4. Observe adjustment of humans with their habitat and changes in the environment.
5. Students express their personal feelings about Air pollution.

Teaching Materials:

1. Text book
2. White board or projector
3. Video of the Folktale

Learning Outcome:

1. Identify the concept of Air pollution.

2. Explain the different causes of air pollution.

3. To know about the effects of air pollution.

4. Understand the various challenges in Air pollution.

5. Understand about remedial meas~ures of air pollution

PHASE I **INTRODUCTION**

Folktale

Teacher played the below Folktale for ease of understanding the Science subject.

Once upon a time, in a bustling metropolis, there lived a young girl named Mayo. She loved playing with her friends in the park, watching the birds fly overhead, and feeling the warm sun on her face.

But as time passed, Mayo began to notice a change in her city. The air grew thick and hazy, making it hard to breathe. The once-clear skies turned a murky grey and the birds flew away in search of cleaner skies.

Mayo's parents, who worked in the city, would come home exhausted, complaining of headaches and coughs. The doctors said it was due to the poor air quality.

One day, Mayo decided to take matters into her own hands. She gathered her friends and formed a group called the "Clean Air Crusaders." Together, they set out to educate their community about the dangers of air pollution.

They organized rallies, created posters, and even met with the city's leaders to demand change. Mayo and her friends encouraged people to use public transport, carpool, or bike to work. They also promoted the use of masks and air purifiers.

Slowly but surely, the city began to transform. The government implemented stricter emission controls, and the citizens made a conscious effort to reduce their carbon footprint.

As the air quality improved, Mayo noticed the return of the birds, and the skies cleared up. Her parents' health began to improve, and they could once again enjoy the outdoors with their daughter.

Mayo realized that even small actions could make a big difference. She continued to spread awareness about air pollution, inspiring others to join the fight for clean air.

The city's transformation served as a reminder that collective action can lead to significant positive change. Mayo's story spread throughout the land, inspiring others to take up the cause and fight for a cleaner, healthier environment.

Phase	Teacher-Students Activity	Response
Phase-1 (Introduction) Teacher explains about the Air pollution from the text through Folklore method. Teacher gives an explanation about various species elaborately.	***Teacher***: Did you like the story? ***Students:*** Yes ***Teacher***: Why did you like the story? ***Students***: This is an eye opener to air pollution. ***Teacher***: Very good. You have got the essence of this. Though, we have to manage all getting warned against air pollution. ***Students***: Yes ***Teacher***: What is Air pollution? ***Students***: Air pollution is contamination of the indoor or outdoor environment by any chemical, physical or biological agent that modifies the natural characteristics of the atmosphere. ***Teacher***: What are the causes of air pollution? ***Students***: Major reasons for air pollutions are as follows. Fossil fuels Agricultural activities Waste disposal ***Teacher***: Describe the effects of air pollution 1. Respiratory problems 2. Cardiovascular problems 3. Neurological problems 4. Environmental problems ***Teacher***: What are the control measures of air pollution. ***Students***: Transition to clean energy, Increase energy efficiency Implement emission controls Promote sustainable transportation Implement waste management.	Students recall the concepts of Air pollution.

Phase II Focused explanation (Presentation)	The instructor separates the class into two groups and assign different topics to each group. She then poses the following question to each student within the groups. 1. What is air pollution? 2. What are the different causes for air pollution? 3. What are the effects of air pollution? 4. What are the remedial measures to control air pollution? Students discuss among them in this group and report their findings.	Students read and analyses the concept of Air pollution.
Phase III Reporting and reshaping	The teacher makes the students to discuss about Air pollution, its causes and effects. Teacher explains about different types of air pollutants. They are: 1. Particulate matter 2. Nitrogen oxides 3. Carbon monoxide 4. Sulphur-dioxide Teacher describes about the control measures of air pollution. Teacher concluded that air pollution can be controlled by the following methods: 1.Transitioning to clean energy sources such as solar and wind power can reduce air pollution. 2. Increasing energy efficiency can reduce air pollution by reducing the amount of energy needed.	Students discuss with the group and starts group work

	3. Implementing emission controls such as scrubbers and filters can reduce air pollution. 4. Promoting sustainable transportation such as walking, cycling, and using public transportation can reduce air pollution. 5. Implementing waste management practices such as recycling and composting can reduce air pollution. Then the teacher, re-narrates the story again and helped the students reinforce the concept of Air pollution once again.	

Tool 2: DEVELOPMENT OF SCIENTIFIC CREATIVITY TEST

A draft Scientific Creativity test in Science was prepared by the investigator with the help of the guide. It was based on the work, selected preparation of Folklore Based Learning Package for teaching Science from 5th standard Science text book. The purpose of the test for the present study was to find out the Scientific Creativity in Science among 5th standard students. (Scientific Creativity test in Science (draft) prepared by the investigator is given as **Appendix-B**).

Scientific Creativity test in Science was constructed and validated by using systematic procedure. The major steps followed in the construction of the test are as follows.

1. Planning of the test
2. Item Writing
3. Item Editing

4. Item Arrangement
5. Preliminary Try out
6. Draft form of the test
7. Pilot Study
8. Scoring
9. Item Analysis
10. Item selection
11. Final Format

PLANNING OF THE TEST

Scientific Creativity Test in Science prepared by the investigator aimed at measuring the Scientific Creativity of 5th standard Primary School Students. In order to develop a test on Scientific Creativity, the investigator made a thorough literature review. The measurement of thinking abilities is involved in Creativity. In the present test, investigator made use of six dimensions namely originality, word, expressional fluency, Ideational fluency, Figural redefinition, and Symbolic redefinition. The investigator planned to construct relevant items for each selected factor.

ITEM WRITING

Writing of suitable item is one of the important steps in the construction of any research tool. For this the investigator collected materials on different aspects of creativity and prepared items. The respondent has to select one response out of the given responses.

ITEM EDITING

Item Editing was done with the help of research supervisor in order to check the ambiguity, irrelevant items, spelling errors, misconceptions and redundancy. As per the suggestions of the research supervisor irrelevant and ambiguous items were removed and certain items were modified.

ITEM ARRANGEMENT

All the items were grouped, ordered and located in a random manner in order to arouse interest and to maintain attention for responding.

DRAFT FORM OF THE TEST

The first draft was prepared by printing the items with the provision to mark responses. It was printed in English. Necessary instructions and general data sheet for the respondents were also printed. Draft form of the test consisted of 100 items.

PRELIMINARY TRY- OUT

The test was tried out on 5^{th} standard Primary School Students in order to find out the accuracy and relevancy of each statement. This helps the investigator to modify certain items which were vague and questionable. After that minor changes were made out in the language and sentence construction in some of the items.

PILOT STUDY

A pilot study is a scaled-down prototype of the final data collection process and it started on November 13, 2024 till November 18, 2024. The investigator visited six schools for this purpose.

SCORING

The Scoring key was prepared for each item and its corresponding marks. For each correct solution a score of one was assigned and for wrong response zero score was given.

ITEM ANALYSIS

The investigator used the method of difficulty index and discriminative power method for item analysis. For this method, the answer scripts of students in the final draft try out conducted were arranged in the descending order from the top score to bottom score, 27% of the answer script from the top was designated as upper group and 27% of the script in the bottom designated as lower group.

$$\text{Difficulty Index} = \frac{R_H + R_L}{N_1 + N_2}$$

The average difficulty index was taken as 0.5 and anything less than that is termed as 'Difficult' and those higher than 0.5 was termed as 'Easy'.

Discriminating power of a test item was the ability to discriminate the high achievers from the low achievers. In a good test, number of high achievers, who answers the test item correctly would be very high and the number in the low achieving group would be less. Discriminating power of the test item could be found out by using the formula,

$$\text{Discriminating Power} = \frac{R_H - R_L}{N}$$

Where,

R_H= Number of correct response in the upper group

R_L= Number of correct response in the lower group

N= Number of students in the group

ITEMS SELECTION

Items having difficulty index between 0.2 to 0.5 and discriminating power between 0.4 to 0.8 were selected for the final test. The details of the item selection were given in the table.

DETAILS OF ITEMS SELECTED IN THE SCIENTIFIC CREATIVITY TEST IN SCIENCE.

Item No	Score per Question	Upper	Lower	Di	DP	Selected Item
1	62	39	23	0.57	0.30	-
2	48	35	13	0.44	0.41	*
3	58	44	14	0.54	0.56	-
4	59	40	19	0.55	0.39	-
5	49	35	14	0.45	0.39	-
6	57	44	13	0.53	0.57	-
7	55	40	15	0.51	0.46	-
8	48	34	14	0.44	0.37	-
9	60	43	17	0.56	0.48	-
10	58	41	17	0.54	0.44	-

11	47	35	12	0.44	0.43	*
12	54	41	13	0.50	0.52	*
13	62	42	20	0.57	0.41	-
14	49	35	14	0.45	0.39	-
15	54	42	12	0.50	0.56	*
16	59	39	20	0.55	0.35	-
17	48	35	13	0.44	0.41	*
18	52	40	12	0.48	0.52	*
19	59	39	20	0.55	0.35	-
20	48	33	15	0.44	0.33	-
21	54	41	13	0.50	0.52	*
22	57	39	18	0.53	0.39	-
23	46	34	12	0.43	0.41	*
24	51	39	12	0.47	0.50	*
25	58	40	18	0.54	0.41	-
26	43	34	9	0.40	0.46	*
27	52	39	13	0.48	0.48	*
28	58	40	18	0.54	0.41	-
29	46	34	12	0.43	0.41	*

30	51	41	10	0.47	0.57	*
31	60	40	20	0.56	0.37	-
32	45	34	11	0.42	0.43	*
33	54	39	15	0.50	0.44	*
34	59	40	19	0.55	0.39	-
35	45	34	11	0.42	0.43	*
36	50	38	12	0.46	0.48	*
37	62	40	22	0.57	0.33	-
38	45	34	11	0.42	0.43	*
39	50	38	12	0.46	0.48	*
40	58	40	18	0.54	0.41	-
41	45	34	11	0.42	0.43	*
42	53	39	14	0.49	0.46	*
43	57	40	17	0.53	0.43	-
44	48	35	13	0.44	0.41	*
45	51	37	14	0.47	0.43	*
46	57	40	17	0.53	0.43	-
47	43	35	8	0.40	0.50	*
48	50	36	14	0.46	0.41	*

49	62	40	22	0.57	0.33	-
50	44	33	11	0.41	0.41	*
51	48	36	12	0.44	0.44	*
52	61	40	21	0.56	0.35	-
53	45	32	13	0.42	0.35	-
54	46	36	10	0.43	0.48	*
55	59	40	19	0.55	0.39	-
56	42	31	11	0.39	0.37	-
57	51	36	15	0.47	0.39	-
58	58	40	18	0.54	0.41	-
59	44	33	11	0.41	0.41	*
60	49	36	13	0.45	0.43	*
61	64	41	23	0.59	0.33	-
62	43	31	12	0.40	0.35	-
63	48	36	12	0.44	0.44	*
64	63	40	23	0.58	0.31	-
65	43	31	12	0.40	0.35	-
66	50	35	15	0.46	0.37	-
67	61	41	20	0.56	0.39	-

68	42	32	10	0.39	0.41	*
69	44	33	11	0.41	0.41	*
70	59	42	17	0.55	0.46	-
71	38	28	10	0.35	0.33	-
72	48	35	13	0.44	0.41	*
73	59	41	18	0.55	0.43	-
74	43	28	15	0.40	0.24	-
75	44	33	11	0.41	0.41	*
76	61	41	20	0.56	0.39	-
77	39	29	10	0.36	0.35	-
78	45	32	13	0.42	0.35	-
79	54	39	15	0.50	0.44	*
80	40	27	13	0.37	0.26	-
81	46	32	14	0.43	0.33	-
82	59	39	20	0.55	0.35	-
83	37	27	10	0.34	0.31	-
84	44	30	14	0.41	0.30	-
85	53	38	15	0.49	0.43	*
86	41	26	15	0.38	0.20	-

87	41	31	10	0.38	0.39	-
88	54	38	16	0.50	0.41	*
89	37	27	10	0.34	0.31	-
90	46	30	16	0.43	0.26	-
91	50	39	11	0.46	0.52	*
92	36	24	12	0.33	0.22	-
93	39	27	12	0.36	0.28	-
94	56	39	17	0.52	0.41	-
95	26	22	4	0.24	0.33	-
96	40	28	12	0.37	0.30	-
97	48	35	13	0.44	0.41	*
98	28	19	9	0.26	0.19	-
99	34	26	8	0.31	0.33	-
100	48	32	16	0.44	0.30	-

Note: - * represented selected items.

Final Format

Out of 100 items in the final tryout 40 items were selected for the final test. The final format of the test includes all the selected items arranged in order with necessary instruction. The response sheet for the tool is also presented separately.

Establishing Reliability and Validity

Reliability of the test

The term reliability refers to the extent to which a test is internally consistent and the extent to which it yields consistent results on testing and retesting. A reliable test is a trust worthy test. It is the accuracy or precision of measuring instrument. Reliability is an important consideration in which it may be useful as an indicator of 'goodness or quality in research. (Opie. 2004) According to John W Best (1978), "A test is reliable to the extent that it measures accurately and consistently from one another"

Reliability is the consistency of the scores obtained by the same individual on different occasions or with different set of equivalent items. In the present investigation, the reliability co-efficient was found out by Split-Half method. Split-half method is the method that measures the degree of internal consistency by checking one half of the result of a set of test items against the other half. The test was carried once and split into two equal halves often by odd-even items and correlated the result to establish the split-half reliability. For finding the reliability, the test was given to 100 samples of five schools.

Validity of the test

According to Babbie (1989), ‘Validity refers to the extent to which an empirical measure adequately reflects the real meaning of the concept under consideration’ The judgment that an instrument is measuring what it is supposed to

is primarily based upon the logical link between the questions and the objectives of the study. Each question on the research instrument most have a logical link with an objective.

The establishment of this link is called Face validity**.** It is equally Important that the items and questions cover the full range of the issue or attitude being measured. The assessment of the items of an instrument in this respect is called Content Validity. The validity of the test is defined as the accuracy with which the test measures what it is supposed to measure.

For this study the investigator used face validity and content validity. For this study, testing the face and content validity the Scientific Creativity test was submitted to three subject experts and they expressed their opinion about the suitability of the items and relevancy of the content area. It was said to have adequate face and content validity.

SECTION-B

RESEARCH DESIGN, PLAN AND PROCEDURE

The various aspects of the method followed in the present investigation are discussed under the following heads such as Method adopted, Research design, Plan and procedure, Tool used, Administration of tools, procedure adopted and Statistical techniques used.

a) Method Adopted

The present study is an attempt to determine the Effectiveness of Folklore Based Learning in Science on 5th standard primary school students. Experimental method of research was used for the study.

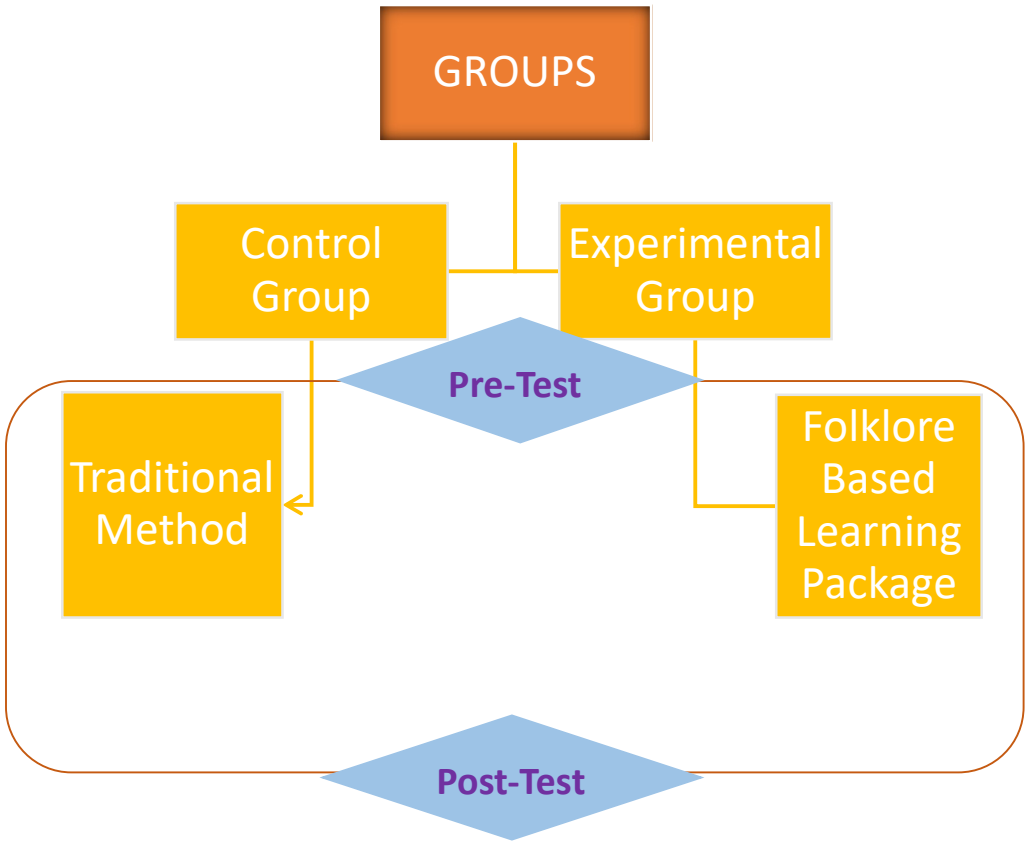
b) Experimental Design Selected

In order to conduct an experimental study, an appropriate experimental design has to be selected. An experimental design is a plan or strategy of an investigation conceived in order to solve the research problem. In the words of Best and Kahn (1999) an experimental design is the print of the procedure that enables the researchers to test his hypothesis by searching valid conclusion about relationship between independent and dependent variables.

An experimental design can be selected based on factors like the nature and purpose of the experiment, the type of the variables to be manipulated, nature of the data, the facilities or conditions available for conducting the experiment and the competence of the experiment. Pretest, posttest, non-equivalent parallel group design was used for the study. It is administratively difficult for the investigator to arrange equivalent groups by matching students as it may disturb the daily routine class work. These difficulties can be overcome by conducting the experiment in normal classroom group which are normally non-equivalent groups with the help of some statistical technique. It was thus decided by the investigator to conduct the experiment in non-equated classroom groups. The design that was adopted for the present study was the pretest, posttest, non-equivalent parallel group design.

Figure 3.1

Pretest post- test, non-equivalent groups design



Variables of the Study

Variables can be referred to as the conditions or characteristics manipulated, controlled or observed by an experimenter (Best 2010).

If the hypotheses and its deduced consequences are well conceived, two factors can be precisely identified. They are,

1. Independent Variable
2. Dependent Variable

1. Independent Variable

The manipulated variable in the process of experimentation is known as the independent variable. It is subjected to the direct control of the experimenter who can cause it to vary in any desire direction.

In this study the experimental group is taught by using Folklore Based Learning Package. Control group is not administrated with any intervention programme. The control group is taught by the normal traditional method of teaching.

2. Dependent Variable

The basis on which the effectiveness of the experimental or independent variable is studied is known as the dependent variable.

Here in this study, Scientific Creativity is the dependent variable.

EXPERIMENTAL PROCEDURE

The steps involved in the experimental procedure are detailed below.

1. Administration of pre-test

   Scientific Creativity test in Science based on the selected topics from the 5^{th} standard Science text book to both the groups.

2. Experimentation

   a. Treatment with Folklore Based Learning Package (Experimental Group)

   b. Traditional Method (Control Group)

3. Administration of post-test

Scientific Creativity test in Science based on the selected topics from the 5th standard book text to both the groups.

Administration of Pre-test

Prior to the treatment the investigator conducted a pre-test to identify the prior knowledge of both the experimental and control group students. The scores obtained for the pre-test from the students are subjected to statistical analysis.

Experimentation

After conducting the pre-test on experimental and control group, the experimental group was treated by using Folklore Based Learning Package and control group was treated by using traditional method of teaching.

a. Experimental Group-Administration of Folklore Based Learning Package

The investigator selected Yettacode Nursery and Primary School, Yettacode for conducting the experimental study. The experimental group consisted of 44 students. The experimental treatment was conducted for 20 days after getting prior consent of the school authority. Experimental group was taught through Folklore Based Learning Package. For this, the investigator prepared an instructional Package based on Folklore Learning for the selected Science topic of 5th standard.

The investigator prepared instructional material based on Folklore Based Learning Package for enhancing selected Science topic of 5th standard.

b. Control Group-Traditional method

The control group was taught with the traditional method which was followed in the school. The control group consisted of 40 students.

Administration of Post-test

After completing twenty days schedule for the experiment treatment a post test was administered to both the students of experimental and control groups. It was aimed to assess the effects of treatment based on post-test compared to the pre-test. The same Scientific Creativity test which was used for the pre-test was administrated for the post-test.

The Sample Selected for the Study

A sample is a small proportion of a population selected for observation and analysis. The careful observation of the sample enables the observer to draw inferences about the population from which it was selected in the following manner.

a. Selection of the Sample

b. Selection of Group

a. Selection of the Sample

The investigator selected 5th standard students for conducting the experimental study.

b. Selection of Group

The study was conducted on 84 students from 5th standard of Yettacode Nursery and Primary School, Yettacode . Two divisions from the 5th section were selected. 5th B as experimental group and 5th A as control group. The experimental 5th B was taught through Folklore Based Learning Package and control group 5th A was taught through the conventional method followed in the school.

Statistical techniques used

Statistical techniques are very important for any research. The relevant statistical techniques help the investigator to analyze and interpret the data meaningfully in the study. The pre-test and post-test scores of the Scientific Creativity Test of the experimental and control group were consolidated for statistical analysis. Since the main aim of the study was to develop a Folklore Based Learning package and find out its effectiveness in learning Science, it was necessary to find out the significant difference between the two means scores of control and experimental group. The test of significance for difference between the means were analyzed to decide whether there was significant difference between the means of the two groups under comparison.

The experiment was conducted using un-equated groups. So the technique of analysis of co-variance (ANCOVA) was applied for analysing data. In the present study the investigator used the following statistical techniques.

1. t -test (test of significance)
2. Paired t-test
3. ANCOVA (Analysis of co-variance)

Test of Significance (t- test)

Test of significance is used to compare the mean scores obtained by two groups on a single variable (Garrett 2004). It is used for finding the significant level of difference between two groups of population. From the mean and standard deviation, t values can be calculated. If the obtained t value is 2.58 and above, then level of significance is of 0.01, If the t value is between 1.96 and 2.58 significant level is 0.05, and if the t value is below 1.96 the level is not significant.

$$t = \frac{m_1 \sim m2}{\sqrt{\frac{\sigma^1_2}{N_1} \frac{\sigma^2_2}{N_2}}}$$

Where,

m_1 = mean of the first sample

m_2 = mean of the second sample

σ_1= standard deviation of first sample

σ_2= standard deviation of second sample

N1= Total number of frequency of first sample

N2 -Total number of frequency of second sample

4. ANCOVA

Garret (1981) stated that through co-variance of analysis, one is able to effect adjustment in final of terminal scores which will allow difference in some initial variables. Analysis of covariance represents an extension of the method of analysis of variance to allow a correlation between initial and final scores.

Personal Data Sheet:

The personal sheet was framed to collect the necessary details related to students. Based on the back ground variables selected for the study, the information sheet was constructed. It was constructed separately and collected along with the other tool. The present study collected the details regarding their medium of instruction, academic discipline, educational qualification from all the students. A copy of the personal data sheet was given in **Appendix-E**.

CONCLUSION:

Methodology of the present study consists of research design, variables used in the study, tools used and statistical techniques adopted. The system of methodology occupies a vital position in diverse research endeavors. The research cannot effectively operate without this component, as the methodology outlines the process for conducting formal research and describes the research variables and procedures in detail. The Investigator implemented the most suitable and effective strategy for conducting this study, while remaining within the established limitations. It helped the investigator to explore the diverse stands of the study and adequately measure them so as to satisfy the requirement.

CHAPTER - IV

CHAPTER IV

ANALYSIS AND INTERPRETATION OF DATA

1. Data Analysis
2. Tenability of Hypothesis
3. Discussion of Results

CHAPTER IV

ANALYSIS AND INTERPRETATION OF DATA

Analysis and interpretation are central steps in the research process. Therefore an essential part of research is the analysis of the data. This analysis must be carried in relation to the research problem. The goal of analysis is to summarize the collected data in such a way that they provide answer to the question that triggered the research. Interpretation is done in the research for giving the broader meaning of research findings. According to Francis Rummel, "The analysis and interpretation of involve the objective material in the possession of the researcher and his subjective reaction and desires to derive from the data the inherent meaning in their relation to the problem". The data may be adequate, valid and reliable to any extent, it does not serve any worthwhile purpose unless it is carefully edited, systematically classified and tabulated, scientifically analysed, intelligently interpreted and rationally concluded.

Analysis means categorizing, ordering, manipulating and summarizing of data. Interpretation takes the results of analysis, makes inferences, pertinent to the research relations studied and draws conclusions about these relations. Interpretation of the data is necessary to explain and to find meaning of the data. The analysis is a critical assessment of the accumulated materials, in the light of the objectives of the investigation and its possible bearing on logical findings.

The major objective of this investigation was to test the Effectiveness of Folklore Based Learning Package in Science on Scientific Creativity among Primary

School Students. Two parallel non-equivalent groups-one group (experimental) consisting 44 students and another group (control group) consisting of 40 students were selected for the experiment.

A pre-test was conducted prior to the experimental study and then the experimental group was subjected to teaching with Folklore Based Learning Package while the traditional method was given to the control group. After the experiment a post-test was administered to both the group. The scores that were obtained by the students in the pre-test and post-test were recorded and analyzed using relevant statistical techniques. The statistical analysis of data pertaining to the effect of independent variables (Folklore Based Learning package) and dependent variable (Scientific Creativity) was done. In this study the analysis was done using statistical techniques t-test, paired t-test and ANCOVA.

The analysis of data was computed and the result was done through the SPSS software. The analysis of the data and the interpretation of the results are presented under four sections.

Section I:

Comparison of significant difference between the Experimental and Control group with regard to pretest mean scores of Scientific Creativity.

Section II :

Comparison of significant difference between the Experimental and Control group with regard to post-test mean scores of Scientific Creativity.

Section III :

Effectiveness of Folklore Based Learning Package in Science on Scientific Creativity among 5th standard Primary school students.

Section IV : Comparison of significant difference between the adjusted post-test mean scores of Scientific Creativity of the Experimental group and control group while taking pre test as covariate.

PART-1

PERFORMANCE OF STUDENTS IN EXPERIMENTAL AND CONTROL GROUPS BEFORE EXPERIMENTAL TREATMENT

Pre-Test Analysis

The pre- test was conducted to both the experimental and control groups and the pre- test scores obtained by the students of both the groups were tabulated. For the obtained pre-test scores of the control and experimental groups, means, standard deviation and t-test were calculated. The values of various statistical calculations are given as follows

Comparison of significant difference between the Experimental and Control group with regard to pretest mean scores of Scientific Creativity.

H_01 Null Hypothesis

There exists no significant difference between the Experimental and Control group with regard to pretest mean scores of Scientific Creativity.

Table 4.1

Summary of Mean, Standard deviations and t-value of Folklore Based Learning Package under students of Experimental and Control group at Pre-test level**.**

Group	Mean	SD	N	Mean Difference	t	P	Sig.level
Folklore Based Learning Package	10.20	3.37	44	0.08	0.091	0.928	NS
Traditional	10.28	3.73	40				

From the Table 4.1 it is clear that p value (0.928) is greater than the t value ($p>0.01$) is not significant at any level. Hence the null hypothesis is accepted. There exists no significant difference between the experimental and control groups with regard to pre-test mean scores of scientific creativity test. It means both the experimental and control group do not differ significantly in their mean scores in Scientific Creativity test. So, it is inferred that before the experimental treatment both the two groups were similar in their mean scores on their Scientific Creativity in Science subject.

PART II

PERFORMANCE OF STUDENTS IN EXPERIMENTAL AND CONTROL GROUPS AFTER EXPERIMENTAL TREATMENT

Post test Analysis

Post test was administered to the experiment groups and central group using the Scientific Creativity Test score obtained by each student in Science was estimated. The post-test more obtained by the students in two groups were subjected to statistical analysis of mean standard deviation and t-test.

Comparison of significant difference between the Experimental and Control group with regard to post-test mean scores of Scientific Creativity.

$H_0$2 Null Hypothesis

There exists no significance difference in the mean post-test scores of Scientific creativity test of experimental and control group**.**

Table 4.2

Summary of Mean, Standard deviations and t-value of Folklore Based Learning Package under students of Experimental and Control group at Post-test level **.**

Group	Mean	SD	N	Mean Difference	t	P	Sig.level
Folklore Based Learning Package	33.66	2.79	44	10.41	19.042	0.000	0.01
Traditional	23.25	2.15	40				

From the Table 4.2 it is clear that p value (0.000) is less than the t value ($p<0.01$) is not significant at any level. Hence the null hypothesis is rejected. There exists significant difference between the experimental and control groups with regard to post-test mean scores of Scientific Creativity Test. Therefore it is concluded that the Folklore Based Learning package is effective in learning Science rather than traditional method.

Section III

Effectiveness of Folklore Based Learning Package on Science in Scientific Creativity

H_{03}Null Hypothesis

There exists significant difference in the Effectiveness of Folklore Based Learning Package in Science on Scientific Creativity of Primary School Students.

Table 4.3

Summary of mean, standard deviation and paired t value of Effectiveness of Folklore Based Learning Package on Science in Scientific Creativity **.**

	Mean	**SD**	**N**	**Mean Difference**	**Paired t**	**Sig.**	**Sig.level**
Pre	10.20	3.37	44	23.46	50.09	0.000	0.01
Post	33.66	2.79	44				

From the **Table 4.3** it is evident that the paired t value is 50.09, $p<0.01$ and it is significant at 0.01 level. Therefore the null hypothesis is rejected. Also from the mean it is clear that the Folklore Based Learning package is effective in learning Science for V standard students. Therefore it is concluded that the Folklore Based Learning package is effective in learning Science rather than traditional method.

SECTION IV Adjusted Post- test Analysis

Comparison of significant difference between the adjusted post-test mean scores of Scientific Creativity of the Experimental group and control group while taking pre test as covariate.

H_{04}Null Hypothesis

There exists significant difference between the adjusted post-test mean scores of Scientific Creativity of the Experimental group and control group while taking pre test as covariate.

Table 4.4

Summary of mean, sum of squares of F values of pre, post and adjusted post test scores in Science, Scientific Creativity scores of Experimental and Control group.

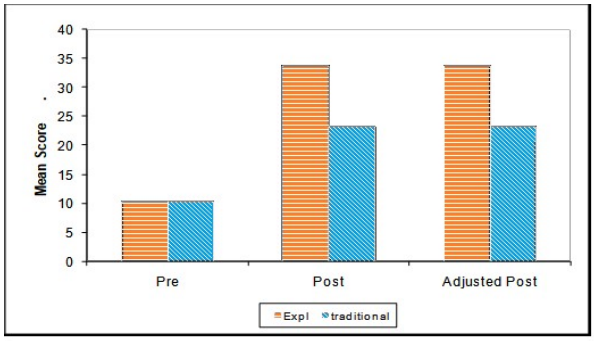
	Mean		Source	Sum of Squares	df	Mean Square	F	*P*	*Remark*
	Expl	**Control**							
Pre-test (X)	10.20	10.28	Between Groups	0.10	1	0.10	0.008	*0.928*	*NS*
			Within Groups	1031.13	82	12.57			
			Total	1031.24	83				
Post-test (Y)	33.66	23.25	Between Groups	2270.17	1	2270.17	362.601	*0.000*	*Sig. at 0.01 level*
			Within Groups	513.39	82	6.26			
			Total	2783.56	83				
Adjusted Post-test (Y.X)	33.67	23.24	Between Groups	2276.07	1	2276.07	390.180	*0.000*	*Sig. at 0.01 level*
			Within Groups	472.50	81	5.83			
			Total	2748.57	82				

Table 4.4: It is clear that Fy.x value is 390.18, $p<0.01$, and it is significant at 0.01 level. It indicates that adjusted post-test mean scores of Scientific Creativity Test of fifth standard students in the experimental and control groups differs

significantly after the experiment. Hence the null hypothesis is rejected. Therefore it is concluded that the Folklore Based Learning package is effective in learning Science than traditional method.

Figure 4.1

Unadjusted and adjusted mean scores of pre and post-test Scientific Creativity Test scores of Experimental and Control groups



In order to know the exact groups which differ significantly in the adjusted post-test mean scores of Scientific Creativity Test, the data was further analyzed with the help of post-Hoc test and the result are given in the Table 4.5

Table 4.5

Significance of difference of adjusted means for Folklore Based Learning Package and Traditional method

Summary of adjusted means, SD, and t values adjusted post test of Scientific Creativity Test scores of Experimental and Control Group.

Adjusted mean		**$SD_{(yx)}$**	**$SE_{D(yx)}$**	**T**	***P***	***Level***
Experimental	33.67	2.42	0.51	20.24	*0.000*	*0.01*
Control	23.24					

A post Hoc test was applied for pair wise comparison of the adjusted means of Scientific Creativity test of experimental and control groups. The table 4.5 highlights the adjusted mean post-test value of the Scientific Creativity test of experimental and control group of students. (33.67 and 23.24 with SD 2.42). The obtained t value is 20.24, $p<0.01$, and it is significant at 0.01 level. So it can be concluded that the Folklore Based Learning Package is significantly more effective than traditional method in enhancing Scientific Creativity in science of the students of 5^{th} standard.

Tenability of Hypothesis

1. There exists no significant difference in the effectiveness of Folklore Based Learning Package in Science on Scientific Creativity is rejected.
2. There exists no significant difference between the Experimental and Control group with regard to pretest mean scores of Scientific Creativity is accepted.
3. There exists no significant difference between the Experimental and Control group with regard to post-test mean scores of Scientific Creativity is rejected.
4. There exists no significant difference between the adjusted post-test mean scores of Scientific Creativity of the Experimental group and control group is rejected.

Discussion of Results

From the study it was found that Folklore Based Learning Package was effective in learning Science. This finding is consistent with the findings of the studies of Gupta (2020), Sharma (2019), Deshmukh (2018), Matshidze's (2021) were there studies are on the effectiveness of Science learning through Folklore. The studies of, Johnson (2019), Williams (2021), Gamboa (2021), Clark (2021) and

Carter (2022) revealed that Folklore facilitates better learning. Hence learning through Folklore will be more effective in teaching and learning.

The Folklore Based Learning Package guarantees active participation of the students. The package provides scope for teachers to integrate Folklore with Science learning. The importance of Folklore has increased significantly in the present educational scenario because the latest Educational Policy NEP-2020 shortly emphasis on the traditional and cultural values and upon which one shall to see the modern world. In such a context, undoubtedly a question would shoot up as to how Folklore Based Learning Package could be provided along with Science teaching. A very grateful way of providing Folklore Based Learning package to students is to embed it into the teaching of Science. This is not particularly difficult as changes are to be made in the instructional strategies along with the changes in the curriculum. Here educationalist can play their vital part by providing provision in the curriculum for the integration of Folklore Based Learning. From the discussion the investigator found that innovative method, Folklore based learning can bring positive impact on students learning. Hence, the investigator found that her study on “Effectiveness of Folklore Based Learning Package in Science on Scientific Creativity Among Primary School Students” is useful for enhancing Scientific Creativity.

CHAPTER - V

CHAPTER V

FINDINGS, CONCLUSIONS AND SUGGESTIONS

1. Study in Retrospect
2. Major Findings and Conclusion
3. Educational Implications
4. Suggestions for Further Research

CHAPTER V

FINDINGS, CONCLUSIONS AND SUGGESTIONS

The Study in Retrospect

In this chapter an attempt is made by the investigator to summarize all the findings based on analysis and conclusions drawn from the investigation. The summary of the procedure adopted for the study is followed by a short description of the findings of the study. This chapter concludes with educational implications, recommendations based on the findings and suggestions for further research that have been derived from the present study in the field of education.

NEED AND SIGNIFICANCE OF THE STUDY

The present educational system demands the teacher to employ variety of knowledge, methods, skills and strategies to meet the individual difference among the learners. In most of the classes the students remain passive listeners and rote learning is fostered. There is a paradigm shift towards the adoption of innovative strategies including Folklore Based Learning Package as learning strategy where the students are expected to be active participants in the teaching learning process *(Anupma Shah, 2009).*

Helping students to develop Scientific Creativity is a frequently cited goal of science educators. [The National Science Teachers-NSTA]. In its 1980 position statement advocated that science teachers help students learn and think logically; specifying that “school laboratory and field activities should emphasize not only the acquisition of knowledge but also Scientific Creativity *(Esther Suneela, 2019).*

Science education is the base of human knowledge. It helps us to figure out the fundamental principles and rules, that rule the world. Science helps us understand the complexity of being human from the details of life in science *(Korosec H, 2020).*

Increasing the student's level of knowledge through various innovative strategies like Folklore Based Learning improves the cognitive and affective components of student's behavior to live in a sustainable life *(Kiran Singh Sirah,2024)*

Research findings *(Joelly E Jackson 2022)* shows that Folklore Based Learning Package enhances the learning skills of the students. It also provides opportunity to exchange and share knowledge which contribute to effective learning. Even though, teachers are not in a position to implement this method of teaching learning in classroom situation due to various reasons, that means lack of awareness and other practice difficulties.

The significance of this research is that investigator try to develop Folklore Based Learning Package for 5th standard students for teaching Science and this practical knowledge will help the students to develop Scientific Creativity.

STATEMENT OF THE PROBLEM

Learning science is still considered as a problem to students because learners did not try to understand and experience the concepts and theories. The current state of Science education faces a challenge in fostering Scientific Creativity among students. Traditional teaching methods often fall short in cultivating a deep understanding of Scientific Creativity.

The investigator is making attempt to develop Scientific Creativity through Folklore and intends to conduct a study titled *"EFFECTIVENESS OF FOLKLORE*

BASED LEARNING PACKAGE IN SCIENCE ON SCIENTIFIC CREATIVITY AMONG PRIMARY SCHOOL STUDENTS".

OPERATIONAL DEFINITIONS OF KEY TERMS

Effectiveness

In this study Effectiveness means the outcome that occur as the consequence of teaching through Folklore Based Learning Package that brings desirable changes in the Scientific Creativity in Science among Primary school students.

Folklore Based Learning Package in Science

In the present study, Folklore Based Learning Packages refers to the package prepared for learning the contents such as Our Environment, Animals and Air from Science text book through selected Folklores, that enhances Scientific Creativity in Science of 5^{th} standard primary students.

Scientific Creativity

In this study 'Scientific Creativity' is the test scores obtained by the students in the Scientific Creativity test that measures originality, word, expressional fluency, ideational fluency, figural redefinition and symbolic redefinition of Scientific concepts.

Primary School Students

In this study Primary students refers to the students studying in 5^{th} standard following state syllabus of Tamil Nadu**.**

Objectives of the Study

1. To test the Effectiveness of Folklore Based Learning Package in Science on Scientific Creativity among Primary School Students.
2. To prepare Scientific Creativity Test for Vth standard students
3. To find out the significant difference in the pre-test mean scores of Scientific Creativity of Experimental group and Control group.
4. To find out the significant difference in the post- test mean scores of Scientific Creativity of Experimental group and Control group.
5. To find the significant difference in the mean adjusted post-test scores of Scientific Creativity of Experimental group and control group while taking pretest as covariate.

Hypotheses of the study

1. There exists significant difference in the Effectiveness of Folklore Based Learning Package in Science on Scientific Creativity of Primary School Students.
2. There exists no significant difference between the Experimental and Control group with regard to pretest mean scores of Scientific Creativity.
3. There exists significant difference between the Experimental and Control group with regard to post-test mean scores of Scientific Creativity.
4. There exists significant difference between the adjusted post-test mean scores of Scientific Creativity of the Experimental group and Control group.

METHODOLOGY IN BRIEF

Method Adopted

Experimental method is used for the present study.

Experimental Design

The Pre-test, Post-test non-equivalent group design was used for the present study.

Population

Population for the present study consists of all the primary students following state board syllabus of Tamil Nadu during the academic year 2024-2025

Sample

The study is conducted on a sample of 84 students studying in 5^{th} standard of Yettacode Nursery and Primary School, Kanniyakumari District.

Variables

Independent variable : Folklore Based Learning Package in Science

Dependent variable : Scientific Creativity

Tools used

1. Folklore Based Learning Package in Science from Science text book of 5^{th} standard prepared by the investigator
2. Scientific Creativity test on selected topic from Science text book of 5^{th} standard prepared by the investigator.

Data Collection Procedure

At the end of treatment period, a post-test was administered to both the experimental and control groups. The same Scientific Creativity Test is used for the pre-test and post-test in both the treatment groups for the experimental study.

Scoring

The investigator prepared a scoring key for correcting the response sheet of Scientific Creativity test. Each correct answer was given one mark and wrong answer zero mark. The score of Scientific Creativity is the total of the scores obtained for all the items.

Statistical Techniques

In the present study the following statistical techniques were used for the analysis and interpretation of the collected data.

1. Independent t-test

2. Paired t- test

3.ANCOVA.

FINDINGS OF THE STUDY

1. The findings of the study revealed that no significant difference was found in the pre-test mean scores in Scientific Creativity of Experimental and Control group. The finding is supported by the obtained result (t value =0.091, $p>0.01$). So before the experiment students of two groups have more or less same level of Science learning.

2. There was significant difference in the post- test mean scores in Scientific Creativity of Experimental and Control group. The finding is supported by the obtained result (t value =19.042, $p<0.01$). Hence the Folklore Based Learning package was statistically proved to be effective to learn Science than traditional method.
3. There was significant difference in the mean paired t test scores of Effectiveness of Folklore Based Learning Package in Science on Scientific Creativity of Primary School Students. The finding is supported by the obtained result (Paired t value =50.09, $p<0.01$). Hence the Folklore Based Learning Package was statistically proved to be effective for learning Science than traditional method.
4. There was significant difference in the adjusted post-test mean scores of Scientific Creativity of the Experimental group and control group. The finding is supported by the obtained result (t value =20.24, $p<0.01$). Hence the Folklore Based Learning was statistically proved to be effective for learning Science than traditional method.

CONCLUSION

The study proved that Folklore Based Learning is superior to traditional method and it increases the observational ability of the students to a great extent. The study revealed that Folklore Based Learning is most effective in learning Science at primary school level. Folklore Based Learning is most effective in primary school students for developing different educational objectives like knowledge, understanding, application and skills. The conclusions arrived from the study proved beyond doubt the need to employ diverse methods of Science learning at primary school level. This study bring to light the fact that Folklore Based

Learning increases curiosity and interest of students, through that Scientific Creativity of students also increases. Moreover, it fosters a spirit of co-operation and a feeling of oneness among the students as it provides opportunities for the students to work in groups.

Educational implications

The educational implications derived from the study based on the findings are as follows.

1. The premier implication of the study is that the package prepared by the investigator for teaching Science, it can be a great help for Science subject teachers for teaching scientific concepts at primary level.
2. It facilitates the integration of the values of indigenous tradition and culture into learning Science
3. Folklore Based Learning are to be implemented in the school curriculum by that the students will get enough opportunities to use their imaginative, creative skills and intellectual potentialities.
4. The teachers shall use their imaginative and creative skill to prepare innovate strategies of teaching for memorizing new scientific concept in Science subject for the primary students.
5. Folklore Based Learning Package shall be beneficial for the teachers and students to apply techniques to provide logical understanding of specific context, different materials and sophisticated issues.
6. Folklore Based Learning Package can be utilized in enhancing the efficiency of the teaching-leaming process, making students more innovative and providing them with an individualized learning environment.

7. Preparation of package in Science through Folklore Based Learning, makes students more independent and providing them with effective learning environment.

Thus, the researcher arrived at the conclusion that educational tools and packages, including the Folklore Based Learning Package, are extremely beneficial and effective in fostering academic understanding rooted in our proud indigenous culture.

RECOMMENTATIONS

The following are the recommendation of the study.

1. The integration of Science through indigenous method helps the students to learn the concepts easily.
2. Adapting a teaching method by using Folklore can have a positive effect on the acquisition of scientific concepts.
3. Holding training course for the Science teachers on the effective and proper use of the Folklore strategy on teaching Science.
4. By using Folklore, conducting studies and researches on other fields such as Mathematics, Social Studies and other language subjects are recommended.
5. Moreover, schools and teachers may also offer other approaches by integrating Folklore Based Learning, so that students will be familiarize with various teaching strategies. Those strategies should be promoted and let the learners see its importance on their learning processes and improve their abilities.

SUGGESTION FOR THE FURTHER STUDIES

The suggestion based on the present study is as follows.

1. The study can be administered at all levels of education.
2. The curriculum planners and educational policy makers may take note of this finding and restructure the curriculum by embedding Folklore Based learning approaches as appropriate method of instruction.
3. Large sample can be taken for a long time to confirm the result of the present study.
4. Effectiveness of Folklore Based learning has been tested with the use of only three topics in Science of 5^{th} standard. More topics can be selected and experimented for accurate result.
5. The effectiveness of Folklore Based learning can be studied in comparison to various other methods of innovate teaching
6. Experimentations on Folklore Based learning can be conducted in other schools based on various streams of education.

REFERNCES

REFERENCES

Suneela Esther, M. (2018). Art and Cultural Education. *Neel Kamal Publication Pvt Ltd New Delhi*.

Korosec, H. (2012). Playing with Puppets in Class—Teaching and Learning with Pleasure. The Power of the Puppet (pp. 29–45). *Zagreb, Croatia: Union International de la Marionette.*

Stutheit, W.K., (1981). Historical development and theoretical issues relative to the utilization of puppetry as a medium for instruction. *University of Nebraska - Lincoln.*

Ajithkumar, (2006). Pavanatakam, State Institute of Languages, Creative Drama and Puppetry in Education*, International Book Trust, India*

Anupma Shah (1992) "Puppetry and folk drama for non-formal education", *Baroda*,

Suneela Esther, M and Kumar Anand, P. (2019). Art Education. *Neel Kamal Education Pvt Ltd, New Delhi.*

Leyser, Y., & Wood, J. (1980). An evaluation of puppet intervention in a second-grade classroom Education.

Gupta, S. (2020). Folk literature and its pedagogical significance in the Indian context. *Journal of Indian Education*, 45(2), 55-68.

Kumar, R. (2021). The role of folklore in the development of creative thinking among Indian students. *Indian Journal of Educational Research*, 39(1), 72-85.

Sharma, P. (2019). Folklore and its integration in school curriculums in India. *Journal of Curriculum Studies*, 47(3), 112-127.

Singh, A. (2020). The use of folklore in promoting multicultural education in India. *Multicultural Education Review*, 11(4), 134-146.

Deshmukh, N. (2018). Folk narratives and their role in shaping moral education in India. *Journal of Indian Cultural Studies*, 21(2), 92-103.

Mehta, L. (2022). The impact of folklore-based learning on language acquisition among rural Indian children. *Language and Education*, 36(5), 410-426.

Reddy, S. (2023). Folklore and its influence on gender sensitization in Indian education. *Journal of Gender Studies*, 30(1), 59-72.

Joshi, D. (2021). Integrating folklore into STEM education: A case study from Maharashtra. *Educational Technology & Society*, 24(3), 88-101.

Nair, M. (2017). The role of folk music and dance in experiential learning in Indian schools. *Journal of Arts and Education*, 22(2), 75-88.

Patel, V. (2020). Folklore in education: A pedagogical tool for community development in rural India. *Rural Education Journal*, 28(1), 44-58.

Matshidze, P. M. (2021). Folklore and education: Bridging cultural gaps in the classroom. *International Journal of Folklore and Education*, 15(2), 34-50. https://doi.org/10.1007/ijfe.2021.0034

Smith, J. K. (2020). Folklore as a tool for language development in early education. *Journal of Early Childhood Education*, 23(4), 56-72. https://doi.org/10.1234/jecedu.2020.004

Richards, A. S. (2019). The role of folklore in teaching moral values to children. *Journal of Educational Psychology*, 18(3), 121-135. https://doi.org/10.1027/jep.2019.0010

Hernandez, M. C. (2022). Folklore and creative expression in high school curricula. *Creative Arts in Education*, 29(1), 43-59. https://doi.org/10.1080/cae.2022.0061

Perez, L. M. (2018). Incorporating folklore into science education: Enhancing conceptual understanding. *Journal of Science Education*, 45(2), 234-249. https://doi.org/10.1016/j.jsciedu.2018.03.002

Brown, K. A. (2023). Folklore in mathematics: Developing problem-solving skills. *International Journal of Mathematical Education*, 37(5), 58-72. https://doi.org/10.1080/ijme.2023.0021

Williams, N. T. (2020). Folklore, identity, and learning: A cultural perspective. *Cultural Studies in Education*, 22(4), 12-29. https://doi.org/10.1007/cse.2020.0018

Gamboa, F. A. (2021). The impact of folklore on critical thinking skills in secondary education. *Journal of Secondary Education Research*, 14(3), 95-110. https://doi.org/10.1016/j.jser.2021.0025

Johnson, S. M. (2019). Folklore as a medium for storytelling in digital education. *Journal of Digital Learning*, 13(2), 50-65. https://doi.org/10.1080/jdl.2019.0042

Turner, D. L. (2022). Folklore and social studies education: A case study in community engagement. *Journal of Social Studies Education*, 20(3), 78-93. https://doi.org/10.1007/jsse.2022.008

Lee, C. B. (2019). Integrating folklore into global education curricula. *Global Education Review,* 6(1), 19-33. https://doi.org/10.1080/ger.2019.0001

Thompson, R. J. (2020). The use of folklore in environmental education: A path to sustainable learning. *Journal of Environmental Education*, 41(2), 100-115. https://doi.org/10.1016/jee.2020.0023

Williams, B. E. (2021). Folklore and conflict resolution: Integrating traditional stories into social learning. *Journal of Peace Education*, 18(4), 203-219. https://doi.org/10.1016/j.jpe.2021.0030

Carter, E. F. (2022). Folklore and history education: A tool for promoting historical thinking. *History Education Review*, 27(2), 150-163. https://doi.org/10.1080/her.2022.0057

Garcia, J. A. (2023). Teaching geography through folklore: A cultural approach. *Journal of Geography Education*, 41(3), 80-94. https://doi.org/10.1016/j.jgeoe.2023.0055

Clark, K. R. (2021). Using folklore to teach empathy in the classroom. *Journal of Emotional Education*, 25(1), 45-58. https://doi.org/10.1080/jee.2021.0037

Martin, H. J. (2019). The role of folklore in teaching social skills in early childhood education. *Early Childhood Education Journal*, 33(2), 56-68. https://doi.org/10.1016/j.ecej.2019.0029

Johnson, W. L. (2020). Folklore as a tool for teaching diverse perspectives in history. *History and Social Studies Review*, 38(3), 103-118. https://doi.org/10.1080/hssr.2020.0016

Silva, D. P. (2022). The benefits of folklore in promoting lifelong learning skills. *Journal of Educational Development*, 15(4), 99-113. https://doi.org/10.1080/jed.2022.0017

Hill, E. W. (2023). Integrating folklore in art education: Fostering creative learning. *Journal of Art Education*, 37(2), 44-58. https://doi.org/10.1080/jae.2023.0032

Akpur, U. (2023). Creativity and academic achievement: A meta-analysis study article. *European Scientific Journal.*

Arya, & Maurya (2016). Relationship between creativity and academic achievement of school going children. *Journal of Educational Research.*

Guilford, J. P. (1967). The nature of human intelligence. *McGraw-Hill.*

APPENDICES

APPENDICES

CHAPTER I

APPENDICES

Appendix A

NVKSD COLLEGE OF EDUCATION (AUTONOMOUS)

ATTOOR

(Re-accredited by NAAC with A++ Grade)

GENERAL DATA SHEET

2024 – 2025

INSTRUCTIONS: Read the questions carefully and write the appropriate answers.

Name of the Student : _____

Standard : _____

Gender : _____

Mother Tongue : _____

Name of the School : _____

Appendix B

NVKSD COLLEGE OF EDUCATION (AUTONOMOUS)

ATTOOR

REACCREDITED BY NAAC WITH A++ GRADE

SCIENTIFIC CREATIVITY TEST (Draft)

Prepared by: C V THARA SOWMYA PRIYA and Dr. S. DEVIKA

2023 – 2025

INSTRUCTIONS:

Scientific creativity test is designed to check the scientific ability of the students. The measurement of thinking abilities is involved in creativity. It includes three dimensions namely originality, figural and symbolic. Read the following questions carefully and write the most suitable answer in the response sheet. Please answer all the questions without fail.

Time: 1 hr. **Total - 100 Marks**

Section - A

1. Write down any scientific word that you know which start with the following letter

   Example: Ca

   Responses: Calcium, Cathode, Calorie, Capillary

   Questions: Re……

2. Write down any scientific word that you know which ends with the following letters.

   Example: ……ey

   Responses: Monkey, Key

   Questions: ……ing

3. If you melt 50 grams of ice in 150 grams of water, how much water will you end up with?
   a) 125grams b) 150 grams c) 175 grams d) 200 grams

4. Note down the word that you know begins and ends with the following letter.

   Example: E……t

   Responses: Eat, Exit, Environment

   Questions: D……r

5. You are provided with three words phrase. Each word has to begin with the given letters.

   Example: C…… G…… M……

   Responses: Cow gives milk

   Questions: a) B…… C…… F…….

6. Carefully read the example and the responses. Similarly answer the following question given below.

   Example: Organisms which eat other animals

   Response: Lion, Tiger, Vulture

   Question: Name any one of the air borne diseases?

7. You are provided with a specific theme. Mention the scientific word which is related to it.

   Example: Asexual reproduction

   Response: Budding, Fission, Spores

   Question: Air pollution

8. Certain objects are given below. List their usual and unusual uses. Keenly observe the example and the responses.

   Example: Pen

   Response: Used as a pointer, used for writing

   Question: Honey

9. Identify the problems that may develop due to the over use of the following material.

   Example: Mobile phone

   Response: Harmful for eyes, Laziness

   Question: Pesticide

10. From the given set of letters find as much as words you can

    Example: N E B M O C Y O H

    Response: Honey, Comb, Money, Come, Hen…

    Question: F A N U L Z I N E

11. From the given set of letters find as much as words you can

    Example: N E B M O C Y O H

    Response: Honey, Comb, Money, Come, Hen…

    Question: O N U I T L O L P

12. Rearrange the provided letter to create terms that you are familiar with.

    konedy -

13. Rearrange the provided letter to create terms that you are familiar with.

    atbrib -

14. Rearrange the provided letter to create terms that you are familiar with.

ignmarf -

15. Rearrange the provided letter to create terms that you are familiar with.

nat -

16. Rearrange the provided letter to create terms that you are familiar with.

rydai -

17. Rearrange the provided letter to create terms that you are familiar with.

ytrloup -

18. Rearrange the provided letter to create terms that you are familiar with.

gnxeyo -

19. Rearrange the provided letter to create terms that you are familiar with.

psxeeerho -

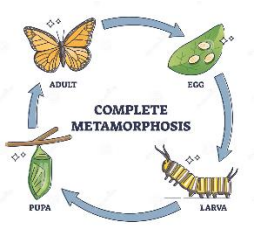
20. Rearrange the provided letter to create terms that you are familiar with.

tawse -

SECTION B

21. You can watch wild animals here _____

22. Read the sentences, select the suitable word from below. Now write in the blank space.



The process in which a butterfly becomes an adult is called metamorphosis

A caterpillar shedding its outgrown skin is called _____

SORTING MOLTING VOLTING

23. Can you find me who am I? Here's your clue

a. My first letter is in FOX but not in Box
b. My second letter is in WIND and not in WAND
c. My third letter is in SUM and not in BUN
d. My last letter is in HAT but not in BAT

24. Write the missing letters and name the Tiger biosphere reserve in West Bengal?

S____ N____A____B____N

SECTION – C

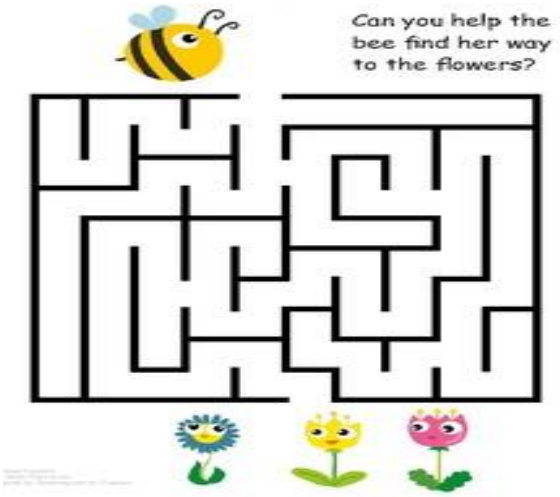
Each correct answer carries 1 mark

25 – 34. Find any ten hidden words from the given box.

(Words can be found on any directions ie. From Left To Right / Right To Left / Top To Bottom / Bottom To Top / Diagonal)

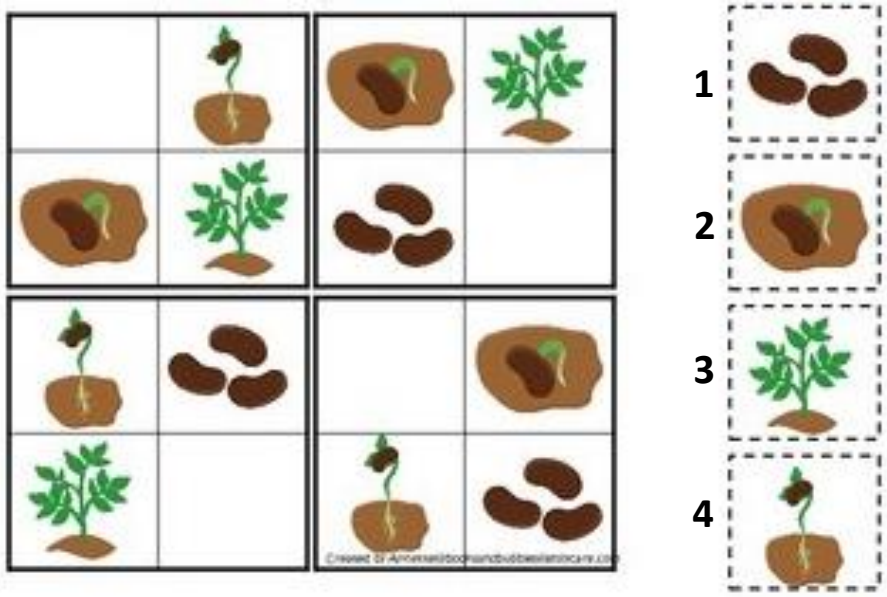
R	**A**	**T**	**L**	**C**	**H**
C	**N**	**I**	**G**	**H**	**T**
I	**O**	**D**	**I**	**V**	**I**
N	**W**	**E**	**R**	**H**	**G**
T	**L**	**A**	**A**	**W**	**E**
A	**E**	**R**	**F**	**O**	**R**
B	**E**	**G**	**F**	**N**	**Z**
F	**O**	**R**	**E**	**S**	**T**

35. Can you help the bee find the way to flowers?

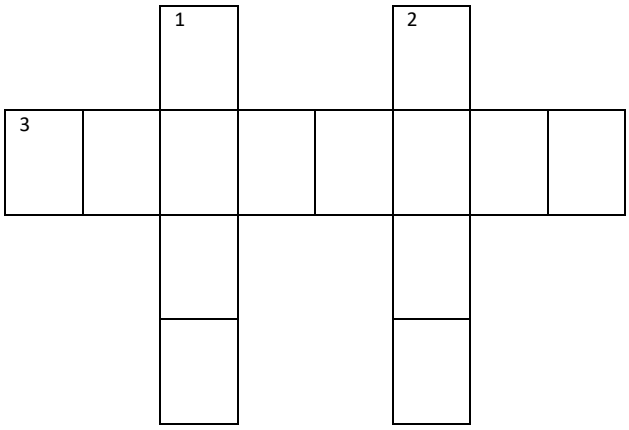


36 – 37. Picture Sudoku

- The provided picture must occur only once in each column.
- The provided picture must occur only once in each row
- The provided picture must occur only once in each corner box



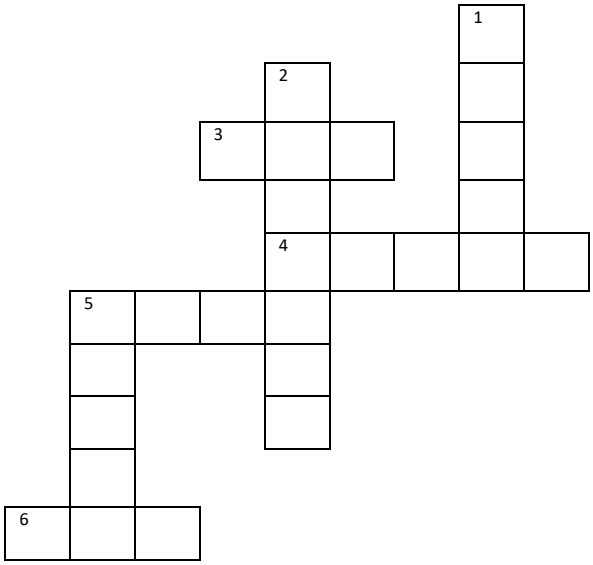
38– 40 Identify the picture and write on the appropriate column mentioned to solve the puzzle



1	
2	
3	

x

41-47. Identify the picture and write on the appropriate column mentioned to solve the puzzle



Down

1. 

2. 

5. 

Across

3. 

4. 

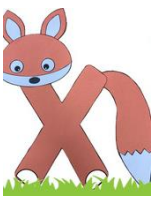
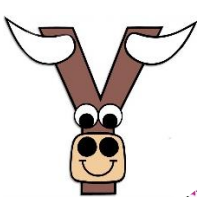
5. 

6. 

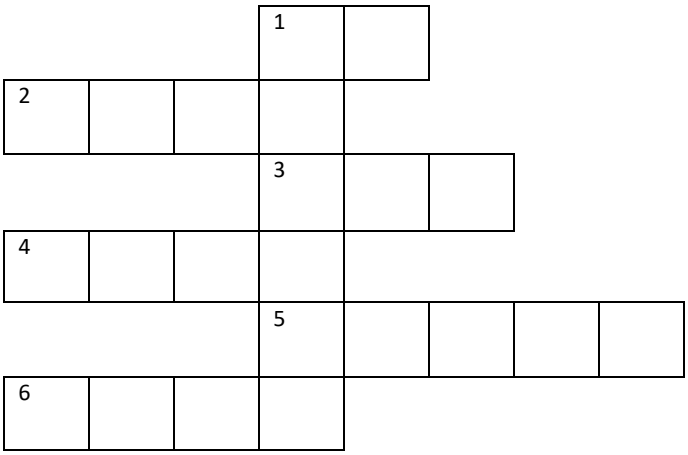
48 -57. Find the hidden words from the list. Words can go across or down [Recycling, environment, ocean, atmosphere, compost, mountains, lakes, earth, science]

M	S	C	W	R	I	L	T	C	B	O	O	S	N	M	S	U
S	T	H	R	S	E	O	P	A	E	C	O	M	P	O	S	T
V	E	S	E	H	O	F	O	A	A	E	N	X	T	U	R	T
T	R	P	Q	P	E	R	D	T	E	A	B	N	U	N	C	N
I	E	N	V	I	R	O	N	M	E	N	T	R	A	T	A	H
A	C	N	U	X	E	G	Y	O	G	T	R	B	Y	A	G	T
G	Y	K	I	J	C	S	Z	S	W	D	V	G	Y	I	O	K
O	C	Q	A	Z	L	B	V	P	A	S	C	I	E	N	C	E
L	L	Y	S	R	A	G	T	H	H	A	A	R	N	S	C	N
A	I	B	U	G	K	T	H	E	G	U	K	U	O	I	B	G
T	N	T	S	R	E	E	F	R	B	S	J	S	Y	O	I	B
A	G	G	F	T	S	E	G	E	A	R	T	H	R	S	Y	A
H	X	V	N	L	J	G	D	A	W	R	Y	I	P	L	I	J

58. Do you know the name of these pictures? Identify the hidden letter and then write the letter in the boxes to get a familiar word.


59. Solve this crossword using the clues given here



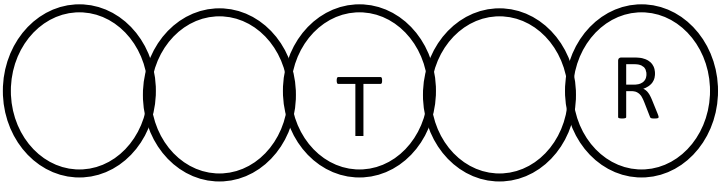
1. I am a male cow
2. I am a herbivore lived in forest
3. I am an insect that live in groups
4. I am the king of the forest
5. Due to the presence of this chlorophyll pigment, I am _____ in color.
6. I am tall with many leaves on my branched

58 Write the names of the animals given below and collect the first letters to get a new word.




_____

59 Find the hidden word related to pollution



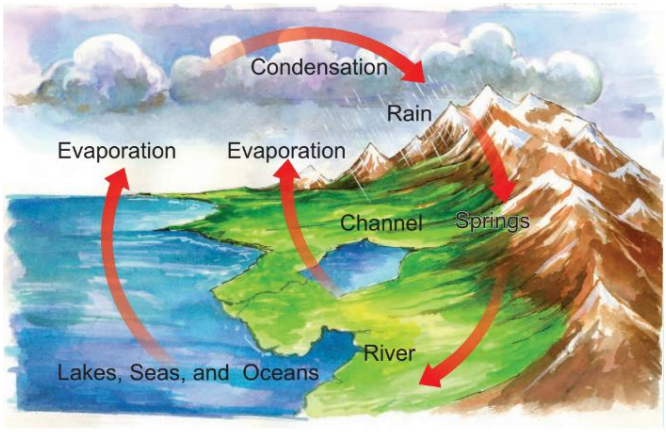
SECTION – D

Unscramble the sentence

60 – 64 Air is _____ for all the_____ organisms

[important / living]

65 – 69 Due to the _____ of the sun, the _____ on the surface of _____ and seas evaporates. Where does this _____ water go? What happens when it gets _____? Look at the figure below and find out how rain is formed.



[River, Cooled, Evaporated, heat, water]

70 – 72 The rocket _____ pad in our country is at

_____ in Andhra Pradesh. From here _____

are launched.

[Srihari Kota, satellite, launching]

73 – 75 Photosynthesis is a chemical _____ that takes place in

_____ when they are exposed to _____.

[Plants, sunlight Process]

76 -79 Cattle need _____ feed in order to be _____ and to produce high _____ yield. The cattle feed includes roughage and _____.

[milk, healthy, concentrates, nutritious]

80 -83 We breathe _____ present in the air and it is _____ to the cells in our body. Body cells burn the food _____ with the help of oxygen and produce _____.

[supplied, energy, oxygen, molecules]

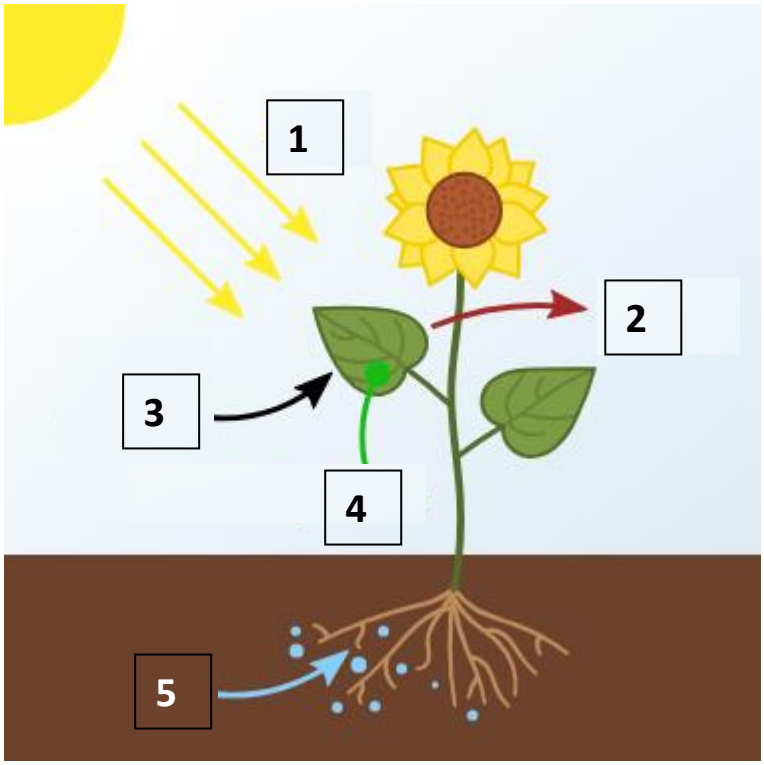
84 – 87 Hang gliding is also an air sport or _____ _____ in which a _____ flies a light, non-motorized foot – _____ air craft called a hang glider.

[activity, pilot, recreational, launched]

SECTION - E

Match the following

88 - 92



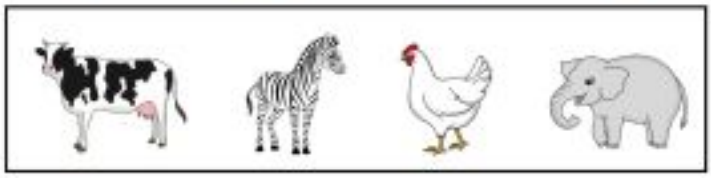
Water
Carbohydrates
Light
Carbon dioxide
Oxygen

93-95 Identify the pollution type

SECTION - F

Find the odd one out

96 

97 

98 

99 

100 

SCORING KEY

S. No	Answers	Mark	Total
I	**SECTION -A**		
1.	Reproduction / Respiration	1	
2.	Farming / Feeding	1	
3.	200gms	1	
4.	Deer / Danger	1	
5.	Birds can fly	1	**20**
6.	Pneumonia / Corona	1	
7.	Industries / Global warming	1	
8.	Used as Medicine / Health drink	1	
9.	Harmful/ Water Pollution/ Loss of Soil fertility	1	
10.	Influenza	1	
11.	Pollution	1	
12.	Donkey	1	
13.	Rabbit	1	
14.	Farming	1	
15.	Ant	1	
16.	Diary	1	
17.	Poultry	1	
18.	Oxygen	1	
19.	Exosphere	1	
20.	Waste	1	
	SECTION -B		
21	ZOO	1	
22	Molting	1	**41**
23	Fish	1	
24	Sundarban	1	
25 - 34	RAT, LION, NIGHT, FOREST, HARE, GIRAFFE, SNOW, BEAR, TIGER, BAT, HARE, REST, BEG, TIDE	10	

35	Route	1	
36-37	Sudoku	2	
38-40	Frog, Fish, Tortoise	3	
41 -47	DOWN: 1. HORSE 2. ROOSTER 5. GOOSE ACROSS: 3. COW 4. SHEEP 5. GOAT 6. HEN	7	
48 – 57	Recycling, environment, ocean, atmosphere, compost, mountains, lakes, earth, science	10	
58	Oxygen	1	
59	Ox, Deer, Ant, Lion, Green, Tree - ORANGE	1	
60	Farm	1	
61	Water	1	
	SECTION -C		
62-64	important, the, living	3	**26**
65 – 69	heat, water, river/lake, evaporated, cooled	5	
70 – 72	launching, Srihari Kota, satellites	3	
73 – 75	Process, Plants, sunlight	3	
76 – 79	milk, healthy, concentrates, nutritious	4	
80 – 83	supplied, energy, oxygen, molecules	4	
84 - 87	activity, pilot, recreational, launched	4	
IV	**SECTION -D**		
88 -92	Light, Oxygen, carbon dioxide, carbohydrates, water	5	**8**
93 – 95	Water pollution, Soil pollution, Air pollution	3	
	SECTION - E		
96	Bee / Honeybee	1	**5**
97	Hen	1	
98	Snake	1	
99	Frog	1	
100	Planting	1	

Appendix C

NVKSD COLLEGE OF EDUCATION (AUTONOMOUS)

ATTOOR

(Re-accredited by NAAC with A++ Grade)

SCIENTIFIC CREATIVITY TEST (Final)

Prepared by THARA SOWMYA PRIYA & DEVIKA

1. Write down any scientific word that you know which ends with the following letters.

   Example: ……ey

   Responses: Monkey, Key

   Questions: ……ing

2. If you melt 50 grams of ice in 150 grams of water, how much water will you end up with?

   b) 125grams b) 150 grams c) 175 grams d) 200 grams

3. From the given set of letters find as much as words you can

   Example: N E B M O C Y O H

   Response: Honey, Comb, Money, Come, Hen…

   Question: O N U I T L O L P

4. Rearrange the provided letter to create terms that you are familiar with.

   konedy -

5. Rearrange the provided letter to create terms that you are familiar with.

   atbrib -

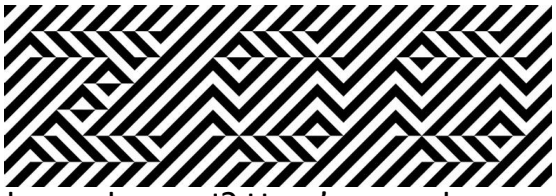
6. Rearrange the provided letter to create terms that you are familiar with.

   nat -

7. Rearrange the provided letter to create terms that you are familiar with.

   tawse -

8. You can watch wild animals here _____



9. Can you find me who am I? Here's your clue

   a. My first letter is in FOX but not in Box
   b. My second letter is in WIND and not in WAND
   c. My third letter is in SUM and not in BUN
   d. My last letter is in HAT but not in BAT

10. Write the missing letters and name the Tiger biosphere reserve in West Bengal?

    S____ N____A____B____N

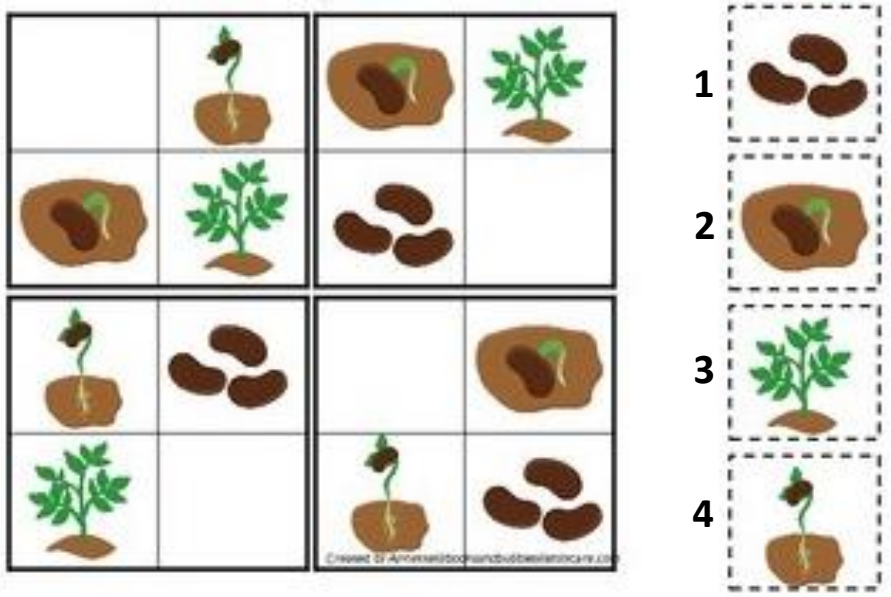
11– 19. Find any ten hidden words from the given box.

(Words can be found on any directions ie. From Left To Right / Right To Left / Top To Bottom / Bottom To Top / Diagonal)

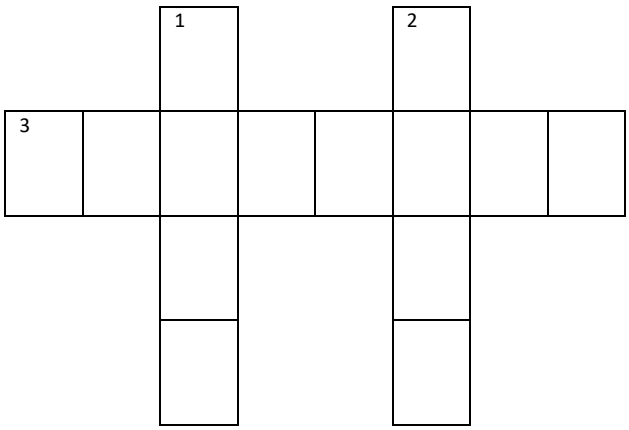
R	**A**	**T**	**L**	**C**	**H**
C	**N**	**I**	**G**	**H**	**T**
I	**O**	**D**	**I**	**V**	**I**
N	**W**	**E**	**R**	**H**	**G**
T	**L**	**A**	**A**	**W**	**E**
A	**E**	**R**	**F**	**O**	**R**
B	**E**	**G**	**F**	**N**	**Z**
F	**O**	**R**	**E**	**S**	**T**

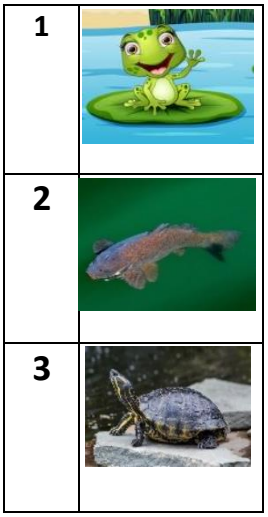
20– 21. Picture Sudoku

- The provided picture must occur only once in each column.
- The provided picture must occur only once in each row
- The provided picture must occur only once in each corner box

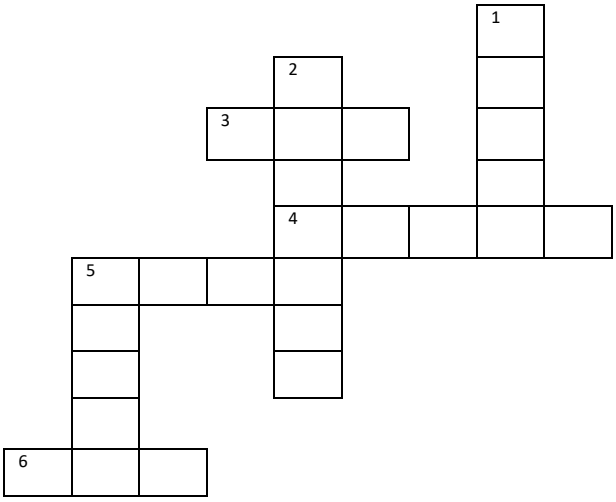


22– 24 Identify the picture and write on the appropriate column mentioned to solve the puzzle





25-31. Identify the picture and write on the appropriate column mentioned to solve the puzzle



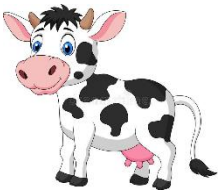
Down

1 

2 

5 

Across

3. 

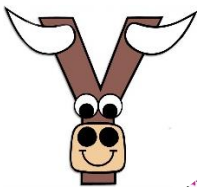
4. 

5. 

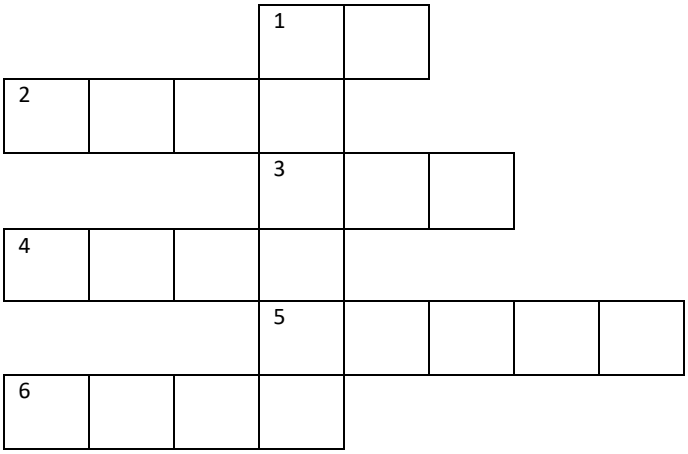
6. 

32. Do you know the name of these pictures? Identify the hidden letter and then write the letter in the boxes to get a familiar word.






33 Solve this crossword using the clues given here



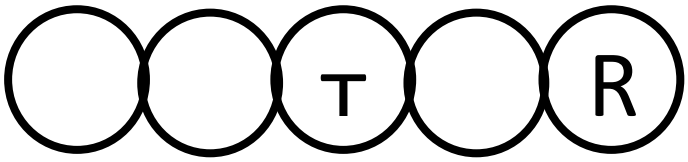
1. I am a male cow
2. I am a herbivore lived in forest
3. I am an insect that live in groups
4. I am the king of the forest
5. Due to the presence of this chlorophyll pigment, I am _____ in color.
6. I am tall with many leaves on my branched

34 Write the names of the animals given below and collect the first letters to get a new word.

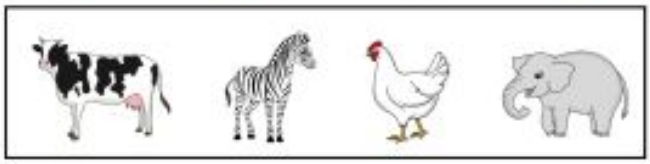



_____

35 Find the hidden word related to pollution



36 

37 

38 

39 

40 

SCORING KEY

S. No	Answers	Mark	Total
I	**SECTION -A**		
1.	Farming / Feeding	1	
2.	200gms	1	
3.	Pollution	1	
4.	Donkey	1	
5.	Rabbit	1	**40**
6.	Ant	1	
7.	Waste	1	
8.	ZOO	1	
9.	Fish	1	
10.	Sundarban	1	
11 - 19	RAT, LION, NIGHT, FOREST, HARE, GIRAFFE, SNOW,	10	
20-21.	Sudoku	2	
22 - 24	Frog, Fish, Tortoise	3	
25 – 31	DOWN: 1. HORSE 2. ROOSTER 5. GOOSE ACROSS: 3. COW 4. SHEEP 5. GOAT 6. HEN	7	
32	Oxygen	1	
33	Ox, Deer, Ant, Lion, Green, Tree - ORANGE	1	
34	Farm	1	
35	Water	1	
36	Bee / Honeybee	1	
37	Hen	1	
38	Snake	1	
39	Frog	1	
40	Planting	1	

Appendix D

The name of the school selected for conducting the Pilot study.

N.V.K.S.D. COLLEGE OF EDUCATION (AUTONOMOUS)

ATTOOR, KANNIYAKUMARI DISTRICT

Pilot Study Data Collection – M.Ed II year (2023-2025)
Attendance Sheet

Name of the M.Ed. Student : Thara Sowmya Priya C V

Sl. No	Date	Name of the Institution	Signature of the Head of the Institution
	13.12.24	Govt Primary School Thiruvattar	HEADMASTER GOVT. PRY. SCHOOL THIRUVATTAR.
	14.11.24	Gt. P.S. Villunnikonam	HEADMASTER GOVT. PRIMARY SCHOOL VILLUNNIKONAM ATTOOR
	15.11.24	N.V.K.S. Senior Senior Sec. School Attoor.	PRINCIPAL N.V.K.S. Senior Secondary School Attoor P.O., K.K.District-629 177
	18.11.24	N.V.K.S. Vidyalaya Vettuvenni	PRINCIPAL N.V.K.S.Vidyalaya Near Sastha Temple,Vettuvenni M...dam P.O,K.K.Dist -629 165
	15.11.24	Govt. Primary School Marthandam.	HEADMASTER GOVT. PRIMARY SCHOOL MARTHANDAM.

Appendix E

Subject experts for validation of Scientific Creativity Test

1. Mrs. Asha
   Science Teacher
   N.V.K.S.D Hr Sec School, Attoor

2. Mrs. Sheela. J
   Science Teacher
   Govt Primary School, Thiruvattar

3. Mrs. K. Latha
   Science Teacher
   Govt Primary School, Marthandam

Appendix F

N.V.K.S.D COLLEGE OF EDUCATION

(AUTONOMOUS)

(Reaccredited by NAAC with A++ Grade)

ATTOOR, KANNIYAKUMARI DISTRICT

Opinionnaire on Scientific Creativity Test

Kindly read each statement below and tick (✓) your opinion.

Sl No	Statement	Yes	No
1	The questions are clear.		
2	It is suitable for fifth standard students.		
3	The questions are written scientifically.		
4	It is very helpful to learn Science concepts easily.		
5	It is very colorful.		
6	It is very simple for fifth standard students.		

Appendix G

FOLKLORE BASED LEARNING PACKAGE - I

Name of the Teacher	:	C V THARA SOWMYA PRIYA
Name of the School	:	Yettacode Nursery and Primary School
Class	:	5th
Subject	:	Science
Unit	:	Air
Topic	:	Air pollution
Method used	:	Folklore Based Learning Package (Folktale)
Duration	:	45 mins
Date	:	20-01-2025

CONTENT ANALYSIS

Terms : Industries, hydrocarbons, burning, mining, pesticides.

Facts :

a) Environment is everything that is around us.

b) Physical environment and Biological environment are the two types of environment.

c) Physical environment includes all non-living things like land,Water and air.

d) Biological environment includes the living things such as plants and animals.

e) Air is important for all living organisms.

Concept : Air pollution is the contamination of the air we breathe.

LEARNING OBJECTIVES:

After learning the topic students will be able to:

1. Understanding the type of environment.
2. Classify physical and biological environment. Students visualize mental images of the effects of air pollution.
4. Observe adjustment of humans with their habitat and changes in the environment.
5. Students express their personal feelings about Air pollution.

TEACHING MATERIALS:

1. Text book
2. White board or projector
3. Video of the Folktale

LEARNING OUTCOME:

1. Identify the concept of Air pollution.
2. Explain the different causes of air pollution.
3. To know about the effects of air pollution.
4. Understand the various challenges in Air pollution.
5. Understand about remedial measures of air pollution

PHASE I **INTRODUCTION**

Folktale

Teacher played the below Folktale for ease of understanding the Science subject.

Once upon a time, in a bustling metropolis, there lived a young girl named Mayo. She loved playing with her friends in the park, watching the birds fly overhead, and feeling the warm sun on her face.

But as time passed, Mayo began to notice a change in her city. The air grew thick and hazy, making it hard to breathe. The once-clear skies turned a murky grey and the birds flew away in search of cleaner skies.

Mayo's parents, who worked in the city, would come home exhausted, complaining of headaches and coughs. The doctors said it was due to the poor air quality.

One day, Mayo decided to take matters into her own hands. She gathered her friends and formed a group called the "Clean Air Crusaders." Together, they set out to educate their community about the dangers of air pollution.

They organized rallies, created posters, and even met with the city's leaders to demand change. Mayo and her friends encouraged people to use public transport, carpool, or bike to work. They also promoted the use of masks and air purifiers.

Slowly but surely, the city began to transform. The government implemented stricter emission controls, and the citizens made a conscious effort to reduce their carbon footprint.

As the air quality improved, Mayo noticed the return of the birds, and the skies cleared up. Her parents' health began to improve, and they could once again enjoy the outdoors with their daughter.

Mayo realized that even small actions could make a big difference. She continued to spread awareness about air pollution, inspiring others to join the fight for clean air.

The city's transformation served as a reminder that collective action can lead to significant positive change. Mayo's story spread throughout the land, inspiring others to take up the cause and fight for a cleaner, healthier environment.

Phase	Teacher-Students Activity	Response
Phase-1 (Introduction) Teacher explains about the Air pollution from the text through Folklore method. Teacher gives an explanation about various species elaborately.	*Teacher*: Did you like the story? *Students*: Yes *Teacher*: Why did you like the story? *Students*: This is an eye opener to air pollution. *Teacher*: Very good. You have got the essence of this. Though, we have to manage all getting warned against air pollution. *Students*: Yes *Teacher:* What is Air pollution? *Students*: Air pollution is contamination of the indoor or outdoor environment by any chemical, physical or biological agent that modifies the natural characteristics of the atmosphere. *Teacher*: What are the causes of air pollution? *Students*: Major reasons for air pollutions are as follows. Fossil fuels Agricultural activities Waste disposal *Teacher*: Describe the effects of air pollution Respiratory problems Cardiovascular problems Neurological problems Environmental problems *Teacher*: What are the control measures of air pollution. *Students*: Transition to clean energy Increase energy efficiency Implement emission controls Promote sustainable transportation Implement waste management.	Students recall the concepts of Air pollution.

Phase II Focused explanation (Presentation)	The instructor separates the class into two groups and assign different topics to each group. She then poses the following question to each student within the groups. What is air pollution? What are the different causes for air pollution? What are the effects of air pollution? What are the remedial measures to control air pollution? Students discuss among them in this group and report their findings.	Students read and analyses the concept of Air pollution.
Phase III Reporting and reshaping	The teacher makes the students to discuss about Air pollution, its causes and effects. Teacher explains about different types of air pollutants. They are: Particulate matter Nitrogen oxides Carbon monoxide Sulphur-dioxide	Students discuss with the group and starts group work
	Teacher describes about the control measures of air pollution. Teacher concluded that air pollution can be controlled by the following methods: 1.Transitioning to clean energy sources such as solar and wind power can reduce air pollution. 2. Increasing energy efficiency can reduce air pollution by reducing the amount of energy needed. 3. Implementing emission controls such as scrubbers and filters can reduce air pollution. 4. Promoting sustainable transportation such as walking, cycling, and using	Students answered

	public transportation can reduce air pollution. 5. Implementing waste management practices such as recycling and composting can reduce air pollution. Then the teacher, re-narrates the story again and helped the students reinforce the concept of Air pollution once again.	
Phase IV Integration and Evaluation	What is Air pollution? What are the causes of air pollution? What are the remedial measures to control air pollution?	Students understand the definition and concepts of Air pollution.

Assignment:

1. Explains Air pollution with the help of folk song.
2. Explain the effects of air pollution.

FOLKLORE BASED LEARNING PACKAGE - II

Name of the Teacher	:	C V THARA SOWMYA PRIYA
Name of the School	:	Yettacode Nursery and Primary School
Class	:	5th
Subject	:	Science
Unit	:	Our Environment
Topic	:	Apiculture
Method used	:	Folklore Based Learning Package
Duration	:	45 mins
Date	:	21-01-2025

CONTENT ANALYSIS

Terms	:	Honey, Wooden Box, Insects, Farmers, Colony, Egg.
Facts	:	a) Environment is everything that is around us. b) Physical environment and Biological environment are the two types of environment. c) Physical environment includes all non-living things like land, Water and air. d) Biological environment includes the living things such as plants and animals. e) Honey and bee wax are obtained from honey Bees.

Concept : Rearing of honey-bee for honey is known as Apiculture.

LEARNING OBJECTIVES:

After learning the topic students will be able to:

1. Understanding the type of environment
2. Classify physical and biological environment
3. Students visualize mental images of the honey-bee and the extraction of honey.
4. Observe adjustment of honey-bees with their habitat and changes in the environment
5. Students express their personal feelings about apiculture.

LEARNING OUTCOME:

1. Identify the concept of apiculture.
2. Explain the different types of honey bees.
3. Analysis the uses of honey.
4. Understand the various challenges in apiculture.
5. Understand about bee wax.

PHASE I **INTRODUCTION**

எங்கே தேன் கூடு... எங்கே தேன் கூடு... ஏலேலோ...

இங்கே தேன் கூடு... இங்கே தேன் கூடு... ஏலேலோ...

எங்கே தேனீக்கள்? எங்கே தேனீக்கள்? ஏலேலோ...

இங்கே தேனீக்கள், இங்கே தேனீக்கள்... ஏலேலோ...

யாரும் பார்க்காதபடி ஒளிந்து கொள்கிறார்கள்.... ஏலேலோ...

பூக்களை தேடி தேனை சேர்த்து... ஏலேலோ...

இயற்க்கை அன்னைமடியிலிருந்து... ஏலேலோ...

பூமி பந்தின் வளத்தை சேர்க்கிறோம்... ஏலேலோ...

எங்கே தேன் கூடு, எங்கே தேன் கூடு... ஏலேலோ...

Where is the beehive... Where is the beehive...

Here is the beehive... Here is the beehive...

Where are the bees? Where are the bees?

Here bees, here bees...

They hide from being seen.

Look for flowers and add honey...

From mother nature...

Adding to the richness of the Earth Ball…

Where is the beehive, where is the beehive...

Phase	**Teacher-Students Activity**	**Response**
Phase-1 (Introduction) Teacher explains about the apiculture from the text through Folklore method. Teacher gives an explanation about various species elaborately.	*Teacher*: What is apiculture? *Students*: Apiculture is the scientific method of rearing honeybees. "The word 'apiculture' comes from the Latin word 'apis' meaning bee. So, apiculture or beekeeping is the care and management of honey bees for the production of honey and wax. *Teacher*: How many species of honey bees are found in India? List few of them. *Students*: Five important species of honey bees are as follows. The rock bee, Apis dorsata The Indian hive bee, Apis cerana indica The little bee, Apis florea The European or Italian bee, Apis mellifera Dammer bee or stingless bee. *Teacher*: Bees helps our environment by pollinate our plants, which means they carry pollen between plants of different sexes to fertilize them, or even between different parts of the same plant, which help plants reproduce. Bees even help plants survive by preventing inbreeding. *Teacher*: What are the products we get from apiculture. *Students*: Products obtained from apiculture are wax pollen, honey, beeswax, royal jelly, bee venom, etc.	Students recall the concepts of apiculture.
Phase II Focused explanation (Presentation)	The instructor separates the class into three groups as colonies, and assign a queen bee, workers bee and drones. She then poses the following question to each student within the groups. 1. What is a colony?	Students read and analyses the concept of apiculture.

	2. What are the different roles of beehive? 3. What are the uses of honey? 4. What are the products we get from apiculture? Students discuss among them in this group and report their findings.	
Phase III Reporting and reshaping	The teacher makes the students to discuss about apiculture, its varieties and uses Teacher explains about different types of bees. They are: 1. Queen Bee 2. Drones 3. Worker Bees Teacher describes about the use of honey. Teacher concluded that honey is a natural sweetener that has been used for centuries for its medicinal, culinary, and cosmetic properties. Here are some of the uses of honey: Sweetener: Honey is a natural sweetener. Baking: Honey is often used in baking. Cough syrup: Honey is often used as a natural cough syrup. Wound healing: It has antibacterial and antifungal properties. Digestive issues: Honey has been used to treat digestive issues.	Students discuss with the group and starts group work Students answered
Phase IV Integration and Evaluation	1. What is apiculture? 2. What are the different types of bees? 3. What are the uses of honey?	Students understand the definition and concepts of apiculture.

Assignment:

1. Explains apiculture with the help of folk song.
2. 2.Explain the uses of honey.

FOLKLORE BASED LEARNING PACKAGE - III

Name of the Teacher	:	C V THARA SOWMYA PRIYA
Name of the School	:	Yettacode Nursery and Primary School
Class	:	5th
Subject	:	Science
Unit	:	Our Environment
Topic	:	Dairy Farms
Method used	:	Folklore Based Learning Package
Duration	:	45 mins
Date	:	22-01-2025

CONTENT ANALYSIS

Terms	:	Livestock, breeding, white revolution, cattle breeds, vaccination, feed, nutrition.
Facts	:	a) Environment is everything that is around us. b) Physical environment and Biological environment are the two types of environment. c) Physical environment includes all non-living things like land, Water and air.

d) Biological environment includes the living things such as plants and animals.

e) Plants and animals in our environment are useful to us in a number of ways, especially for food and transportation.

Concept : Dairy farming is a type of agriculture that focuses on extraction of milk and preparation of various milk product.

LEARNING OBJECTIVES:

After learning the topic students will be able to:

1. Understanding the type of environment
2. Classify physical and biological environment
3. Students visualize mental images of the cattle breeds with different uses
4. Observe adjustment of cattles with their habitat and changes in the environment
5. Students express their personal feelings about dairy farming.

Learning Outcome:

1.Identify the concept of dairy farming.

2.Explain the different types of cattle breeds.

3.Analysis the uses of cattle breeds.

4.Understand the various diseases of cattle.

5.Understand the milk producing cattles.

PHASE I **INTRODUCTION**

காலத்துக்குள் காய வெச்சு

கீழாற்று காளை
மிதிக்குதையய்யா

கீழே பாத்து மிதிக்குதையய்யா

உழுது போட்ட
வயலுக்குள்ளே

நீர் பாய்ச்சி விதை
வீசுதையய்யா

மங்கையர்கள் ஒண்ணா
சேர்ந்து

நாறு நட்டு
களைபறிக்குதையய்யா

பட்டம் பாத்து நெல் மணி
பார்த்து

காற்றின் இசையில் கதிர்
அறுக்குதையய்யா

கால்படவும் கதிர் பூரா

கழலுதய்யா மணி மணியா

வயலெல்லாம் நெல்லு கிடக்கு

வழியெல்லாம் நெல்லு
கிடக்கு

மாட்டுக்கு வைக்கோலும்

வீட்டுக்கு நெல் மணியும்

நாட்டுக்கு அரிசியும்

மண்ணுக்கு மாட்டெருவும் என

நம் முன்னோர்கள் சொன்னது
போல்

நாம் முண்ணேறி
போறோமைய்யா

Dry field in time

Trample the field with bull

Look down and trample

Within the ploughed field

watered and thrown seeds

Together with the workwoman

Plant Seedlings and remove weeds

Check for the paddy grains

Cut hay along with wind's music

Stepping on the harvested paddy

Golden yields are falling down

fields are with rice

Paddy's all the way

Hay for cows

paddy bell for home

food for the country

dung for the soil

As our forefathers says

We are progressing.

Phase	Teacher-Students Activity	Response
Phase-1 (Introduction) Teacher explains about the dairy farming from the text through Folklore method. Teacher gives an explanation about various cattle breeds elaborately.	*Teacher*: What is dairy farming *Students*: Dairy Farming is a type of agriculture that focuses on extraction of milk and milk products like cheese, butter, curd etc. High milk producing cows along with bulls and oxen are raised in commercial dairy farms. other animals found in these farms include goats, and camels. *Teacher*: How many varieties of cattle breeds are found in India? *Students*: There are 26 cattle breeds are found in India. They are domesticated for milk, agricultural work, transportation and many other needs. Gir, Sahiwal, Red Sindhi, Kangayam and Ongole are some of the cattle breeds found in India. *Teacher*: What are uses of cattles. *Students*: We get milk from cow, goats and sheep. Bullocks are used to plough lands, harvest and thrash crops.Cattles are employed in transportation and cattle dung used as manure, its also used as fuel. Panchagavya is an Ayurvedic medicine used to control pest and fungi. It's a mixture of dung and urine of cow, fresh milk, curd, jaggerry and ghee.	Students recall the concepts of dairy farming.
Phase II Focused explanation (Presentation)	The instructor separates the class into two distinct groups, subsequently assigning different topics to each group. She then poses the following question to each student within the groups. 1. What is farming? 2. What are the different types of cattle breeds found in India? 3. What are the uses of cattle? 4. How cattle farming helps us? Students discuss among them in this group and report their findings.	Students read and analyses the concept of dairy farming

<table>
<tr><td rowspan="2">Phase III

Reporting and reshaping</td><td rowspan="2">The teacher makes the students to discussion about dairy farming, different types of cattle breeds, common diseases of cattle and uses of cattle breeds.

Teacher explains different types of cattle breeds in India are
1. Kangayam (TamilNadu)
2. Gir (Gujarat, Rajasthan)
3. Sahiwal (Punjab, Haryana, U.P)
4. Red Sindhi (Andhra Pradesh)
5. Nagari (Haryana, U.P, Rajasthan)
6. Ongole (Andhra Pradesh)

Teacher describes Panchagavya is an Ayurvedic medicine used to control pest and fungi. It is a mixture of dung and urine of cows, fresh milk, curd, jaggery and ghee.

Teacher concluded that Foot and Mouth disease and anthrax are some of the common diseases among cattle. Student: Cattle need nutritious feed in order to be healthy and to produce high milk yield. The cattle feed includes roughage and concentrates. The roughage contains high amount of fiber and it includes fodder, hay, straw and silage. Concentrates include broken grams, cereals, Millett, rice polish, cotton seeds and oil cakes. Apart from this feed, cattle need an adequate amount of fresh water.</td><td>Students discuss with the group and starts group work</td></tr>
<tr><td>Students answered</td></tr>
<tr><td>Phase IV
Integration and Evaluation</td><td>1. What is farming?
2. What are the different types of cattle breeds found in India?
3. What are the uses of cattle?
4. How cattle farming helps us?</td><td>Students understand the definition and concepts of dairy farming.</td></tr>
</table>

Assignment:

1. Explains dairy farming with the help of folk song.
2. Explain the uses of Dairy farming.

FOLKLORE BASED LEARNING PACKAGE - IV

Name of the Teacher	:	C V THARA SOWMYA PRIYA
Name of the School	:	Yettacode Nursery and Primary School
Class	:	5th
Subject	:	Science
Unit	:	Our Environment
Topic	:	Vermiculture
Method used	:	Folklore Based Learning Package
Duration	:	45 mins
Date	:	23-01-2025

CONTENT ANALYSIS

Terms : Organic wastes, earthworm, fertilizer

Facts :

a) Environment is everything that is around us.

b) Physical environment and Biological environment are the two types of environments.

c) Physical environment includes all non-living things like land, Water and air.

d) Biological environment includes the living things such as plants and animals.

e) Plants and animals in our environment are useful to us in

a number of ways, especially for food and transportation.

Concept : Vermiculture is a method of transforming organic waste such as waste paper, leaves, pieces of wood etc.. into nutrient rich fertilizer using earthworms.

LEARNING OBJECTIVES:

After learning the topic students will be able to:

1. Students will understand the concept of vermiculture and its importance.
2. Students will learn about the process of vermicomposting and its benefits.
3. Students will develop an appreciation for sustainable waste management practices.

LEARNING OUTCOME:

1. Identify the concept of vermiculture.
2. Explain the different types of essential nutrients.
3. Analysis the uses of vermicompost.
4. Understand the various organic wastes.
5. Understand the crop residues.

PHASE I **INTRODUCTION**

Once upon a time, in a small village in Tamil Nadu, there lived a little earthworm named Reddy. Reddy loved burrowing through the soil, making tunnels, and aerating the earth.

One day, a group of students from the local school visited the village farm. They learned about vermiculture and how earthworms like Reddy help break down organic waste into nutrient-rich compost.

Reddy felt proud to be a part of the vermicomposting process. The students were amazed by the benefits of vermiculture and decided to set up their own vermicomposting bin in the school garden.

As the students tended to their vermicomposting bin, Reddy and his friends worked hard to break down the organic waste. Soon, the students harvested the nutrient-rich compost and used it to fertilize their school garden.

The students were fascinated by Reddy's underground world and asked the farmer to show them how vermicomposting works. The farmer explained how earthworms eat organic waste and produce a natural fertilizer.

The garden flourished, and the students were thrilled to see the results. Reddy felt happy knowing he played a vital role in making the soil fertile and healthy.

Phase	Teacher-Students Activity	Response
Phase-1 (Introduction) Teacher explains about the vermiculture from the text through Folklore method. Teacher gives an outlook about its application and benefits.	*Teacher*: What is vermiculture *Students*: Vermiculture is a composting method of transforming organic waste such as waste paper, leaves, pieces of wood etc.. into nutrient rich fertilizer using earthworms. *Teacher*: What are the methods of vermicomposting process? *Students*: Setting up a vermicomposting bin: Create a suitable environment for earthworms to thrive. Adding organic waste: Provide earthworms with food sources like fruit and vegetable scraps. Maintaining moisture and temperature: Ensure optimal conditions for earthworms to survive and thrive. Harvesting vermicompost: Collect the nutrient-rich compost produced by earthworms. *Teacher*: What are uses of vermicompost? *Students*: Vermicompost can be used as a natural fertilizer in farming and gardening. Vermiculture can be practiced at home to manage kitchen waste and produce compost for plants.	Students recall the concepts of vermiculture.
Phase II Focused explanation (Presentation)	The instructor separates the class into two distinct groups, subsequently assigning different topics to each group. She then poses the following question to each student within the groups. What is vermicompost? What are the uses of vermicompost? How earthworm helps us in farming? Students discuss among them in this group and report their findings.	Students read and analyses the concept of vermiculture

Phase III Reporting and reshaping	The teacher makes the students to discussion about vermiculture, different types of organic matters used in farming. Teacher explains the types of essential nutrients for plant growth, They are Nitrogen, Potassium and phosphorus. Teacher describes the advantages of vermicompost. She also describes the importance of vermiculture. Student: Vermiculture offers an eco-friendly solution for managing organic waste. Vermicompost helps improve soil health, reducing erosion and promoting sustainable agriculture.	Students discuss with the group and starts group work Students answered
Phase IV Integration and Evaluation	What is vermicompost? What are the uses of Organic waste? How vermicompost helps in Farming?	Students understand the definition and concepts of vermiculture.

Assignment:

1. Explains vermiculture with the help of folk song.
2. Explain the uses of Vermiculture.

FOLKLORE BASED LEARNING PACKAGE -V

Name of the Teacher	:	C V THARA SOWMYA PRIYA
Name of the School	:	Yettacode Nursery and Primary School
Class	:	5th
Subject	:	Science
Unit	:	Animals
Topic	:	Endangered Species
Method used	:	Folklore Based Learning Package
Duration	:	45 mins
Date	:	24-01-2025

CONTENT ANALYSIS

Terms	:	Hunting, Natural disasters, forests
Facts	:	a) Environment is everything that is around us. b) Physical environment and Biological environment are the two types of environment. c) Physical environment includes all non-living things like land, Water and air. d) Biological environment includes the living things such as plants and animals.

e) Plants and animals in our environment are useful to us in a number of ways, especially for food and transportation.

Concept : Animals are most advanced organisms. They are very closely associated with human beings

LEARNING OBJECTIVES:

After learning the topic students will be able to:

1. Understanding the reproduction in animals
2. Differentiate oviparous and viviparous animals
3. Know about endangered animals and the importance to save them.
4. Students express their personal feelings about importance of animal in human life.

Learning Outcome:

1. Identify the concept of endangered species.
2. Explain the different types of endangered species.
3. Understand the reasons why species become endangered.
4. Describe the ways to protect endangered species.

PHASE I **IUNTRODUCTION**

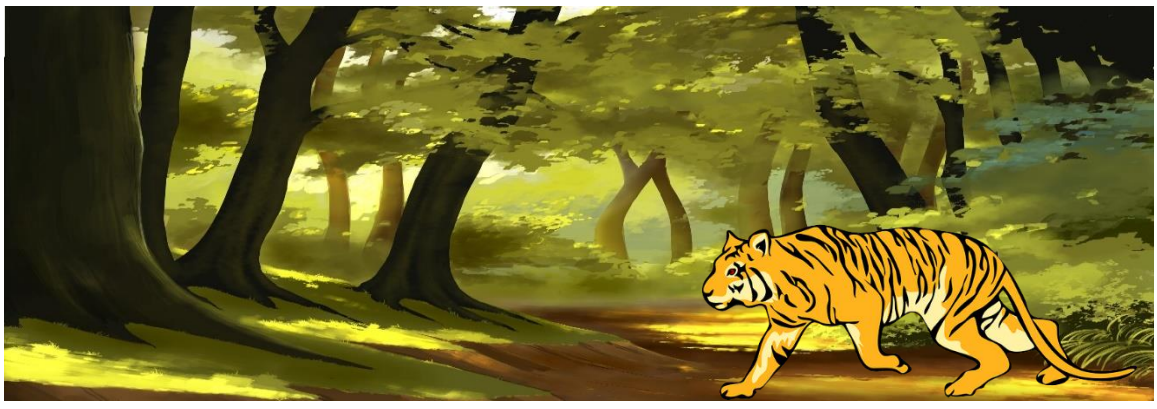
In a dense forest, a little tiger named Raja lived with his family. Raja's home was filled with tall trees, winding streams, and vibrant wildlife. However, Raja's family was in danger.

As the forest shrunk due to human activities, Raja's family struggled to find food and shelter. They were losing their habitat, and their numbers were dwindling.

One day, a group of students visited the forest to learn about conservation. They met a wise old owl who told them about the importance of protecting endangered species like Raja's family.

The students decided to help. They planted trees, reduced waste, and spread awareness about conservation. Slowly, the forest began to flourish again.

Raja's family began to thrive, and their numbers started to grow. The students' efforts paid off, and Raja's home was safe once more.



Phase	Teacher-Students Activity	Response
Phase-1 (Introduction) Teacher explains about endangered species from the text through Folklore method. Teacher gives an explanation about various endangered species elaborately.	*Teacher*: What is endangered species? *Students*: Endangered species are plants, animals, or organisms that are at risk of extinction due to various threats such as habitat loss, climate change, pollution, and human activities. *Teacher*: Explain the importance of protecting endangered species? *Students*: Endangered species contribute to ecosystem diversity and resilience. Species play crucial roles in maintaining ecosystem balance and providing essential services like pollination and pest control. Many endangered species have medicinal, cultural, or economic significance. *Teacher*: What are the Reasons for Endangerment. *Students*: Human activities like deforestation, urbanization, and infrastructure development lead to habitat loss. Rising temperatures, changing precipitation patterns, and increased frequency of extreme weather events affect species' survival. Pollution: Air, water, and soil pollution harm species and their habitats. Overhunting, overfishing, and unsustainable harvesting of resources threaten species' populations.	Students understand the importance of preserving ecosystem sustainability.
Phase II Focused explanation (Presentation)	The instructor separates the class into two distinct groups, subsequently assigning different topics to each group. She then poses the following question to each student within the groups. What is endangered species? What are the reasons for extinction? What are the causes for endangerment? Explain the steps to protect endangered species? Students discuss among them in this group and report their findings.	Students read and analyses the importance of maintaining ecosystem.

Phase III Reporting and reshaping	The teacher makes the students to discussion about endangered species, and list out them. Teacher explains different types of species facing challenges in sustainability in India and they are Amur leopard Sumatran rhino Vaquita Mountain gorilla Giant panda Teacher describes the necessity of maintaining ecosystem. Teacher concluded that endangered species require urgent conservation attention to prevent extinction. By understanding the causes of endangerment and implementing effective conservation strategies, we can protect these species and preserve ecosystem balance.	Students discuss with the group and starts group work Students answered
Phase IV Integration and Evaluation	What is endangered species? Explain the importance of protecting endangered species? What are the Reasons for Endangerment?	Students understand the definition and concepts of dairy farming.

Assignment:

1. Explains endangered species with the help of folk tales.
2. Explain the need to sustain ecosystem.

Appendix H

Article Published

Appendix I

C.D. of Folklore Based Learning Package

ARTICLE PUBLISHED

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RESEARCH ARTICLE

PERCEPTION OF PROSPECTIVE TEACHERS ON FOLKLORE-BASED LEARNING

C.V. Thara Sowmya Priya[1] and S. Devika[2]

1. M.Ed Student, N.V.K.S.D. College of Education, Attoor, K.K. District, Tamil Nadu, India.
2. Assistant Professor, N.V.K.S.D. College of Education, Attoor, K.K. District, Tamil Nadu, India.

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Abstract

Folklore-based learning integrates traditional oral narratives, cultural heritage, and indigenous knowledge into educational settings, fostering deeper engagement and contextual understanding among students. This study explores the perceptions of prospective teachers regarding the usefulness of folklore-based learning in contemporary classrooms. The data were gathered from prospective teachers to perceive their views on implementing folklore as a pedagogical tool.A teacher's role and performance significantly impact the overall educational process. To enhance education, teachers must adopt diverse teaching methods. The implementation of folklore-based learning helps teachers teach effectively and improves students' learning abilities. Folklore-based learning aims to maintain high educational standards by integrating cultural heritage into pedagogy. The study also shed lights on the perceptions of prospective teachers regarding folklore-based learning, highlighting its potential to enrich educational experiences and promote cultural heritage. A normative survey method was employed to gather data from prospective teachers, examining their views, concerns, and suggestions for integrating folklore-based learning into the curriculum. The findings indicate that folklore fosters creativity, critical thinking, and cultural awareness among students. However, challenges such as curriculum integration and resource availability must be addressed. This study emphasizes the need to incorporate folklore-based methodologies into teacher education programs to support culturally responsive teaching.

Introduction:-

Folklore, encompassing traditions, customs, and stories passed down through generations, offers a wealth of cultural knowledge and values. Incorporating folklore into educational settings can provide students with a deeper understanding of their cultural heritage, fostering empathy, creativity, and critical thinking. This study examines how prospective teachers perceive folklore-based learning and highlights its potential to transform instructional strategies.

Corresponding Author:- C.V. Thara Sowmya Priya
Address:- M.Ed Student, N.V.K.S.D. College of Education, Attoor, K.K. District, Tamil Nadu, India.

Need And Significance of The Study

Egan (2005)The integration of folklore in educational settings often involves multimodal learning approaches. Recent studies emphasize the use of visual arts, music, and drama in the presentation of folklore, which enhances engagement and supports diverse learning styles.

Pandey (2020) revealed that Folklore-based learning encourages critical thinking and problem-solving skills, as students analyze and interpret traditional stories and customs.

Basu (2016) explored that Folklore-based learning provides a contextual and culturally relevant approach to learning, making it more engaging and effective.

In this study investigator aims to explore these perceptions while emphasizing the significance and implications of folklore-based learning for teacher education and instructional practices.

Statement of the Problem

Effective learning should stimulate interest, encourage communication, and yield meaningful outcomes. Conventional teaching methods, which primarily involve presenting and practicing subject matter, often result in passive learning experiences. However, folklore-based methods can engage learners more effectively, capturing their interest and making the learning process more immersive. This study investigates the importance of folklore-based learning in classroom teaching and its impact on student motivation. Hence the present study is essential and has been titled as **'PERCEPTION OF PROSPECTIVE TEACHERS ON FOLKLORE BASED LEARNING'.** This method of learning plays an important role in the class room teaching and motivate the students to learn effectively.

Operational Definitions of Key Terms

Perception:

In this study, perception refers to the views of prospective teachers regarding folklore-based learning.

Folklore:

Folklore-based learning refers to the use of traditional cultural narratives and practices in educational settings.

Prospective Teachers:

Students enrolled in a Bachelor of Education (B.Ed.) program at teacher training institutions in Kanyakumari District.

Objectives:-

To study the perception of prospective teachers on folklore-based learning.

To compare the mean scores of perception of prospective teachers regarding folklore-based learning based on academic discipline and educational qualification.

Hypotheses

There is a significant difference in the mean scores of perceptions of prospective teachers on folklore-based learning with respect to academic discipline and educational qualification.

Methodology:-

Method Used

The investigators adopted a normative survey method for conducting the study.

Sample

The simple random sampling technique was used to select 100 prospective teachers from six teacher education institutions in Kanyakumari District.

Tool Used

The researcher developed a folklore-based questionnaire and it was administered to the prospective teachers along with the personal data sheet. This questionnaire consists of 15 statements, with 8 positive and 7 negative statements. Responses were categorized as Agree, Undecided, or Disagree. The data was analyzed using the SPSS package.

Result and Discussion:-

Percentage wise distribution of perception of prospective teachers on Folklore Based Learning.

Table 1:- Percentage wise distribution of different levels of perception of prospective teachers on Folklore Based Learning.

Level of perception of folklore	Count	Percentage
Low	27	27.00
Moderate	46	46.00
High	27	27.00
Total	100	100.00

From the Table-1 it is clear that among the total sample, 27% of prospective teachers have low level of perception of Folklore Based Learning, 46% of prospective teachers have moderate level of perception of Folklore Based Learningand the remaining 27% of prospective teachers have high level of perception of Folklore Based Learning.

Table 2:- Perception of prospective teachers on Folklore Based Learning.

Descriptive statistics of perception of prospective teachers on Folklore Based Learning.					
	N	Minimum	Maximum	Mean	Standard Deviation
Folklore Based Learning	100	6	20	12.5200	2.78698

Table 3:- Perception on prospective teachers on Folklore Based Learning in accordance with medium of instruction.

Mean, Standard Deviation and t-test of perception on prospective teachers on Folklore Based Learning in accordance with medium of instruction.						
	Mediumof Instruction	N	Mean	Std. Deviation	T	p
Folklore Based Learning	Tamil	26	11.5385	1.94383	5.980	0.016
	English	74	12.8649	2.96243		

From the table3 it is clear that thecalculated p- value is less than the table value at 0.05 level of significance.There is significant difference in the mean scores of Perceptions of prospective teachers on Folklore Based Learning in accordance with medium of instruction.Hence the null hypothesis is rejected. The prospective teachers who's medium of instruction in English have more perception on folklore based learning than Tamil medium of prospective teachers.

Table 4:- Perception of prospective teachers on Folklore Based Learning in accordance with academic discipline.

Mean, Standard Deviation and t-test of perception of prospective teachers on Folklore Based Learning in accordance with academic discipline.						
	Academic Discipline	N	Mean	Std. Deviation	T	P
Folklore Based Learning	Arts	69	13.1739	2.93035	6.469	0.013
	Science	31	11.0645	1.73081		

From the table4, it is clear that the calculated p-value is less than the table value at 0.05 level of significance.Hence the null hypothesis is rejected. There exists significant difference in the mean scores of Perceptions of prospective teachers on Folklore Based Learning in accordance with academic discipline. The prospective teachers from the Arts based discipline have more perception of Folklore Based Learning than the Sciencegroup.

Table 5:- Perception of prospective teachers on Folklore Based Learning in accordance with educational qualification.

Mean, Standard Deviation and t-test of perception of prospective teachers on Folklore Based Learning in accordance with educationalqualification.						
	Educational Qualification	N	Mean	Std. Deviation	T	p
Folklore Based Learning	UG	56	11.0000	1.67332	7.031	0.009
	PG	44	14.4545	2.73185		

From the table5 it is clear that the calculated p- value is less than the table value at0.05 level of significance. Hence the null hypothesis is rejected.There exists significant difference in the mean scores ofPerception of prospective teachers on Folklore Based Learning in accordance with educational qualification. The prospective teachers having PG degree have more perception on Folklore Based Learning than UG degree.

The results indicate a significant difference in perception based on the medium of instruction, with English-medium prospective teachers having a higher perception of folklore-based learning.

Conclusion:-

Folklore-based learning offers a unique opportunity to promote cultural awareness, creativity, and critical thinking among students. The perceptions of prospective teachers highlight the importance of cultural significance, pedagogical potential, and practical concerns. Addressing these concerns and providing necessary resources empower educators to effectively implement folklore-based learning methods and enhance educational practices.

Educational Implications

1. Folklore-based learning enhances students' ability to retain and recall information.
2. Stories and narratives evoke emotions, making learning more engaging and memorable.
3. Folklore-based learning fosters empathy and cultural appreciation.
4. Integrating folklore into education helps preserve cultural heritage for future generations.
5. This approach can be adapted to various educational settings, ensuring cultural sensitivity and authenticity.
6. Folklore-based learning requires flexible curriculum integration and creative implementation strategies.
7. Effective assessment methods should be developed to evaluate folklore-based learning outcomes.
8. Professional development opportunities for educators will enhance teaching practices and cultural competence.

References:-

1. Basu, H. (2016). Folklore and Education: A Study of the Relationship between Folklore and Education. Journal of Folklore Research, 53(1), 1-22.
2. Pandey, R. (2020). Folklore in Education: A Review of Literature. Journal of Educational Research, 113(4), 439-448.
3. Kumar, S. (2018). Folklore-Based Learning: A Pedagogical Approach. Journal of Education and Human Development, 7(1), 1-10.
4. Ajithkumar (2023). Pavanatakam. State Institute of Languages, International Book Trust, India.
5. Baron, R., & Spitzer, N. R. (1992). Public Folklore. Smithsonian Institution Press.
6. Brunvand, J. H. (2003). The Vanishing Hitchhiker: American Urban Legends and Their Meanings. W. W. Norton & Company
7. Egan, K. (2005). The Educational Uses of Storytelling. International Journal of Education & the Arts, 6(2).