ACTION RESEARCH REPORT

ENHANCING THE KNOWLEDGE OF ANGLES AMONG STANDARD V STUDENTS USING VIRTUAL TOUR

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CERTIFICATE

It is certified that the Action Research Report entitled **"ENHANCING THE KNOWLEDGE OF ANGLES AMONG STANDARD V STUDENTS USING VIRTUAL TOUR"** is an original and independent project work done by **Dr.S.VIJAYAKUMAR**, Lecturer, District Institute of Education and Training, Keelapalur, Ariyalur Dt. It has not previously formed the basis for any other project work or for the award.

Place: **Dr.S.BALASUBRAMANIAN**
Date:

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Lecturer,
District Institute of Education and Training,
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Ariyalur Dt.

DECLARATION

I hereby declare that the Action Research report entitled **"ENHANCING THE KNOWLEDGE OF ANGLES AMONG STANDARD V STUDENTS USING VIRTUAL TOUR"** is an original and independent work done by me and it has not formed the basis for any other programme, project work or any award.

Place: **Dr.S.VIJAYAKUMAR**

Date:

ACKNOWLEDGEMENT

I extend my thanks to God the almighty for his grace to complete this work successfully. I express my thanks for the **DIRECTOR** of **State Council of Educational Research and Training** and our **JOINT DIRECTORS AND DEPUTY DIRECTORS** of SCERT, Chennai for providing this opportunity to conduct the Project.

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Dr.S.VIJAYAKUMAR

CONTENTS

ENHANCING THE KNOWLEDGE OF ANGLES AMONG STANDARD V STUDENTS USING VIRTUAL TOUR

1. INTRODUCTION

In Mathematics, geometrical concepts connecting to day-to-day life of everyone in to the world. Learning angles in geometry is essential to improve students' spatial abilities. However, the concept of angles is still considered as a difficult topic to be taught by some math teachers and to be learnt by students in schools. Therefore, an alternative media which can facilitate the learning process of geometry is required for teachers and students so that they can easily understand the concept.

The angles are one of the important concepts in geometry which is taught in schools. This concept introduces students to recognize geometric objects, problem-solving abilities, and other mathematical abilities. These abilities are vital in human life, in observing angles in their surroundings and comparing their measures in real life situations. Geometry appeals to visual, aesthetic and intuitive senses, which are intimately connected with the development of mathematics. Geometry is one of the practical elements in mathematics. Studying geometry suits to improve one's mathematical abilities..

In the dynamic landscape of education, where the integration of inventive methods to enrich learning experiences is imperative, thus the study is initiated by the investigator. The focus of this research is to investigate geometric concepts, specifically angles, within the educational framework of standard V

students. By capitalizing on the potential of virtual tours, the investigator aims to examine how immersive and interactive experiences can enhance the comprehension of angles among students. The utilization of virtual tours presents a distinctive opportunity to surpass conventional classroom boundaries, offering a visually captivating and interactive medium for students to grasp abstract mathematical concepts in a tangible and memorable manner. Through this investigation, the investigator aims to unravel the effectiveness of virtual tours as a pedagogical tool in cultivating a more profound understanding of angles among standard V students, thereby contributing to the ongoing discourse on innovative and effective teaching methodologies.

In earlier classes angles concepts need clear understanding not only in geometry, but also in other branches of mathematics. So, it needs to be introduced at primary class and to train younger minds in thinking logically . So, in that sense, the investigator takes the concept exploring the knowledge of angles with the use of technology to enhance the learning for the present Action Research.

PRIMARY EDUCATION

Primary education is a crucial stage in a child's academic journey, focusing on foundational skills and holistic development. At this stage, children are introduced to fundamental concepts in literacy, numeracy, and basic sciences, laying the groundwork for advanced learning in subsequent years. The curriculum in primary education encompasses a wide range of subjects, including

languages, mathematics, science, social studies, arts, and physical education, providing a balanced and comprehensive learning experience. Through interactive and play-based learning approaches, primary education aims to foster creativity, critical thinking, problem-solving skills, and a love for learning, setting a strong academic foundation for future education.

Moreover, primary education places significant emphasis on social and emotional learning, helping children develop essential skills such as communication, collaboration, empathy, and resilience. Teachers play a vital role in creating a supportive and engaging learning environment where students feel safe to express themselves, explore new ideas, and develop positive relationships with peers. Parental involvement is also encouraged, the parents participating in their child's education through regular communication, involvement in school activities, and support for learning at home. By nurturing the intellectual, social, emotional, and physical development of children, primary education plays a pivotal role in shaping all-rounded individuals ready to succeed in their higher education.

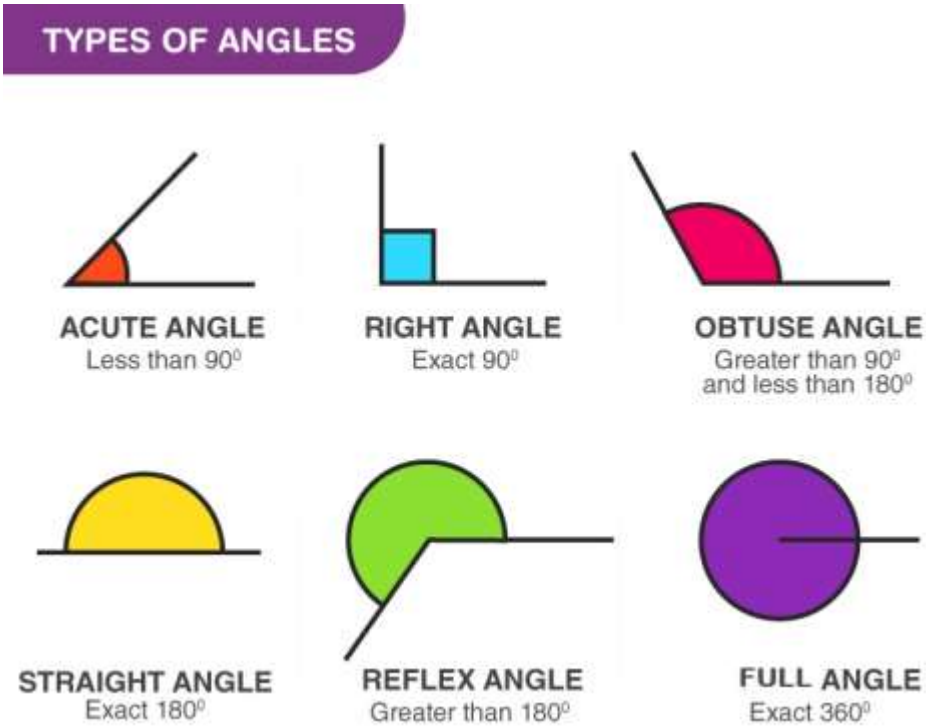
INTRODUCTION TO ANGLES

In mathematics, angles are fundamental geometric elements that measure the amount of rotation between two rays or line segments that share a common endpoint, known as the vertex. Angles are typically measured in degrees, though other units like radians are also commonly used. Understanding angles is crucial in geometry and trigonometry, and they play a significant role in various

mathematical applications. Here are some key concepts related to angles in mathematics:

1. Types of Angles:

- Zero Angle (0° in measure)
- Acute Angle: An angle that measures less than 90 degrees. (0° to 90° in measure)
- Right Angle: An angle that measures exactly 90 degrees. (90° in measure)
- Obtuse Angle: An angle that measures more than 90 degrees but less than 180 degrees. .(90° to 180° in measure)
- Straight Angle: An angle that measures exactly 180 degrees.(180° in measure)
- Reflex Angle: An angle that measures more than 180 degrees but less than 360 degrees.(360° in measure)



2. Angle Measurement Units:

- Degree (°): The most common unit of measurement for angles. A circle is divided into 360 degrees.
- Radian (rad): Another unit of angle measurement, particularly used in advanced mathematics and physics. One radian is the angle subtended when the radius of a circle is laid along its circumference.

3. Complementary and Supplementary Angles:

- Complementary Angles: Two angles whose sum is 90 degrees.
- Supplementary Angles: Two angles whose sum is 180 degrees.

4. Adjacent and Vertical Angles:

- Adjacent Angles: Angles that share a common vertex and a common side but do not overlap.

- Vertical Angles: Pairs of opposite angles formed by intersecting lines. Vertical angles are always equal.

5. Corresponding and Alternate Angles:

- Corresponding Angles: Pairs of angles formed by a transversal intersecting two parallel lines. Corresponding angles are equal.
- Alternate Angles: Pairs of angles formed by a transversal intersecting two parallel lines, but on opposite sides of the transversal. Alternate angles are equal.

6. Interior and Exterior Angles:

- Interior Angles: Angles formed on the interior side of two parallel lines when intersected by a transversal.
- Exterior Angles: Angles formed on the exterior side of two parallel lines when intersected by a transversal.

7. Unit Circle:

- In trigonometry, angles are often measured using the unit circle, a circle with a radius of 1 unit. The coordinates of points on the unit circle correspond to trigonometric values.

Understanding angles is foundational for solving geometric problems, analyzing shapes, and applying mathematical principles in various fields, making them a critical component of mathematical education.

IMPORTANCE OF ANGLES IN MATHEMATICS

Angles play a fundamental role in mathematics due to their significance in geometry, trigonometry, and various real-world applications. Here are some key reasons why angles are important in math:

1. Geometry: Angles are central to the study of geometry, which deals with the properties and relationships of shapes and spaces. Concepts such as lines, polygons, circles, and triangles heavily rely on angles to describe their properties, measure their dimensions, and determine their configurations.

2. Trigonometry: In trigonometry, angles are essential for understanding and working with trigonometric functions such as sine, cosine, and tangent. These functions are used to model and solve problems involving angles, distances, heights, and velocities, making them vital in fields like physics, engineering, and astronomy.

3. Spatial Reasoning: Understanding angles enhances spatial reasoning skills, allowing individuals to visualize and manipulate objects in three-dimensional space. This ability is crucial in fields like architecture, computer graphics, and design, where precise angles and spatial relationships are required.

4. Problem Solving: Angles often appear in mathematical problems as key components to be analyzed, measured, or manipulated. Solving problems involving angles helps develop critical thinking, logical reasoning, and problem-solving skills, which are valuable across various mathematical and scientific disciplines.

5. Measurement and Proportion: Angles are used for measuring rotations, determining directions, and expressing proportions. Concepts such as right angles (90 degrees), straight angles (180 degrees), and full rotations (360 degrees) provide standardized units of measurement that are widely used in mathematics and everyday situations.

6. Trigonometric Identities: Angles play a crucial role in establishing trigonometric identities and relationships, which are fundamental in solving equations, proving theorems, and analyzing functions in trigonometry and calculus in higher classes.

7. Real-world Applications: Angles have numerous practical applications in real life, including navigation (using angles for directions and bearings), surveying (measuring angles for land assessment), architecture (designing structures with specific angles and dimensions), and engineering (calculating forces and stresses based on angle measurements).

Overall, angles serve as essential mathematical concepts that bridge theoretical understanding with practical applications, making them indispensable in various mathematical disciplines and real-world scenarios.

2. NEED AND SIGNIFICANCE OF THE STUDY

The study exploring the knowledge of angles among standard V students using virtual tours holds significant importance for several reasons. Firstly, it addresses the need to adapt teaching methodologies to the evolving landscape of education by incorporating innovative technologies. Virtual tours provide a

unique and immersive learning experience that can potentially enhance the understanding of geometric concepts, such as angles, among standard V students. Secondly, the study aims to fill a gap in the existing literature by specifically focusing on the learning outcomes related to angles in mathematics education. Understanding angles is foundational to various mathematical and scientific principles, making it crucial for students to grasp these concepts thoroughly. Thirdly, the investigation seeks to evaluate the efficacy of virtual tours as a pedagogical tool, shedding light on their potential in improving student engagement and comprehension. Ultimately, the findings of this study may contribute valuable insights to educators, curriculum designers, and policymakers, guiding the integration of technology-enhanced learning experiences to foster a deeper understanding of mathematical concepts among elementary school students.

3. EMERGENCE OF THE PROBLEM

The emerging problem in the enhancing the knowledge of angles among V standard students using virtual tours lies in the necessity to adapt traditional teaching methods to meet the evolving educational landscape. As technology continues to advance, there is a growing recognition that incorporating innovative tools, such as virtual tours, can potentially revolutionize the way students engage with and comprehend complex mathematical concepts like angles. The problem is twofold: first, the conventional approaches may not effectively cater to the diverse learning styles of students, hindering their grasp of

geometric principles. Second, there is a need to assess the viability and effectiveness of virtual tours as a pedagogical tool in the specific context of teaching angles to standard V students. Thus, the emerging problem centers around the challenge of bridging the gap between traditional teaching methods and the potential benefits offered by virtual tours, with a focus on optimizing learning outcomes and enhancing the overall educational experience for students in the standard V.

Based on the periodical school visits the investigator interacted with the teachers, the researcher felt that some of the students faced more difficulties in the concept of Angles. From the school visits report regarding and observed the learning outcomes number 509 in standard V students the investigator intents to do the research in this topic.

4. OBJECTIVES

- To examine the difficulties in understanding the concept of angles
- To measure the learning achievement in the concept of angles
- To enhance the understanding the concept of angles.

5. HYPOTHESES

- The learning achievement of angles in standard V students will be low.
- There is no significant difference between pre test and post test scores of standard V students.

6. METHODOLOGY

The investigator has adopted Experimental method with Single group pre test /post test design.

7. SAMPLE

The 18 students from Class V of PUMS, Thirumanur Block, Ariyalur District were selected as the sample for the present investigation through a simple random sampling technique.

8. RESEARCH TOOL

The investigator-based activities and Performance test have been used as tools of the present investigation.

9. RESEARCH PROCESS

The following phases have been involved in the present action research

- ❖ Finding the problem and selection of school for action research study
- ❖ Identifying the sample
- ❖ Preparation of pre - test and post - test question paper
- ❖ Conducting pre test
- ❖ Implementation of activities
- ❖ Designing and adopting frequent practices
- ❖ Activities
- ❖ Conducting post test
- ❖ Comparing the performance of the students in pretest and post test
- ❖ Testing of hypotheses
- ❖ Findings, results as net gains

10.ADMINISTRATION OF PRE-TEST

To gauge students' existing knowledge of angle identification, a pre-test was administered.

11.TREATMENT

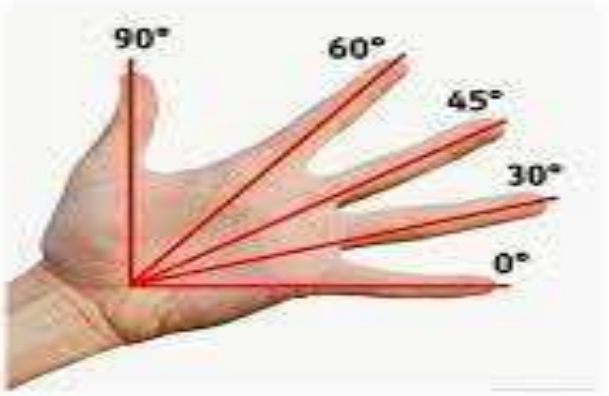
Activity -1 Drawing and Tracing (Hands on experience)

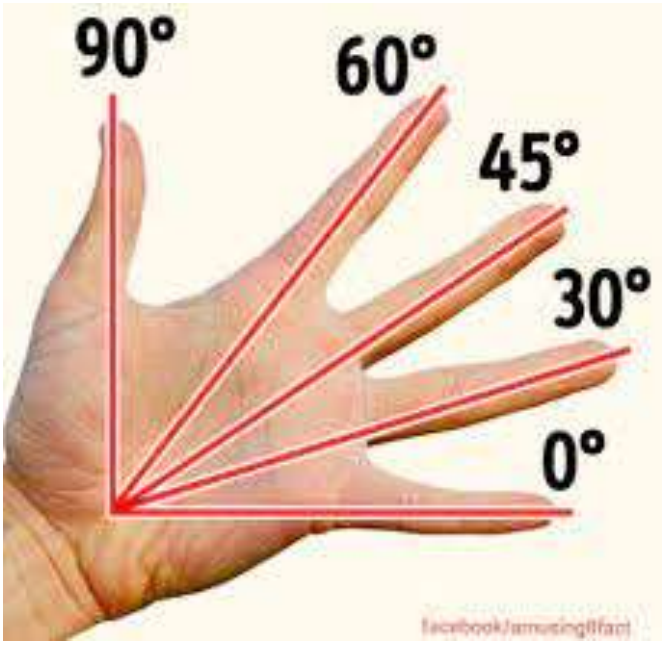
Incorporating drawing and tracing activities focused on angles can provide students with a hands-on and visual approach to understanding mathematical concepts. One engaging activity involves students drawing and labelling various types of angles. Creating acute, obtuse, right, and straight angles on paper by students. Encouraging them to explore real-world examples of these angles, fostering a connection between abstract mathematical principles and everyday scenarios. Additionally, tracing activities for creating geometric shapes and then identifying and measuring the angles within those shapes. This is not only reinforcing the angle measurement skills but also enhances spatial reasoning and geometry comprehension skills. By combining artistic expression with mathematical concepts, these activities make learning about angles more interactive and enjoyable for students, promoting a deeper understanding of mathematical principles. The investigator has used drawing and tracing activities for teaching angles.

Calculate The Degrees of an Angle With Your Hand

When you spread your fingers as much as you can and put your palm on some surface, Your fingers are going to mark the degrees of an angle up to 90.

0 degrees is on your pinky;
Angle between your pinky and a ring finger is 30°;
Pinky and a middle finger 45°;
Pinky and an index finger 60°;
And finally, the angle between your pinky and your thumb is 90°.

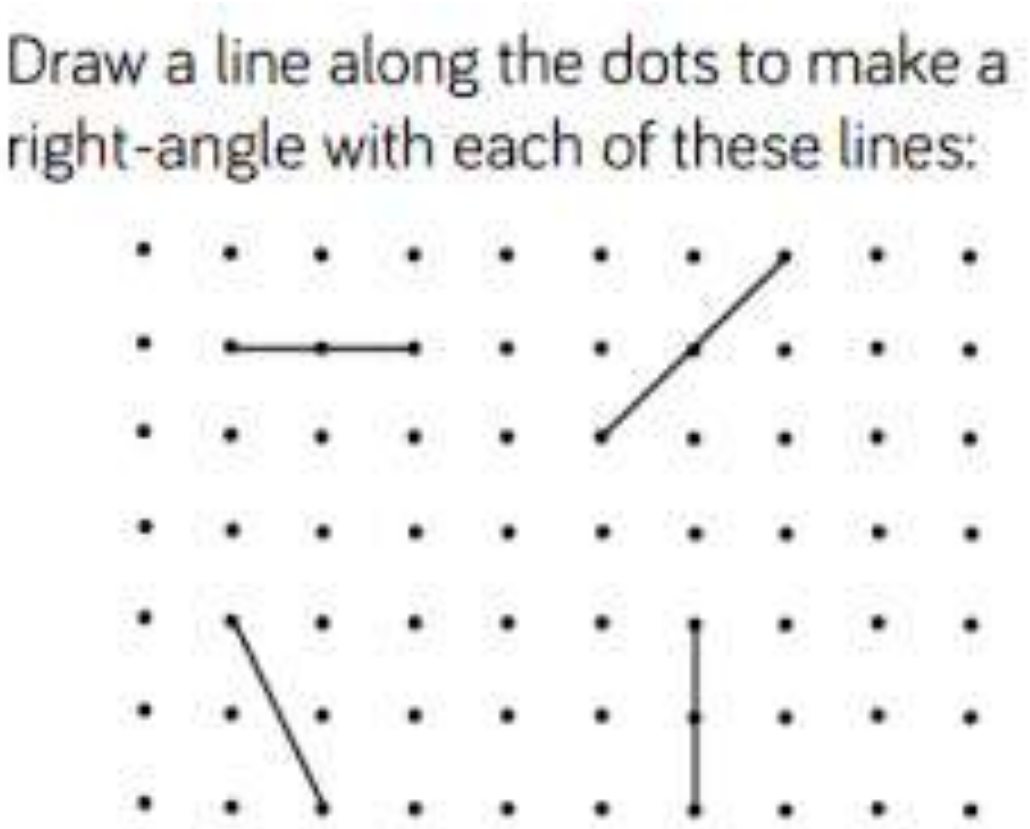




Activity -2 Join the dots and draw right angle

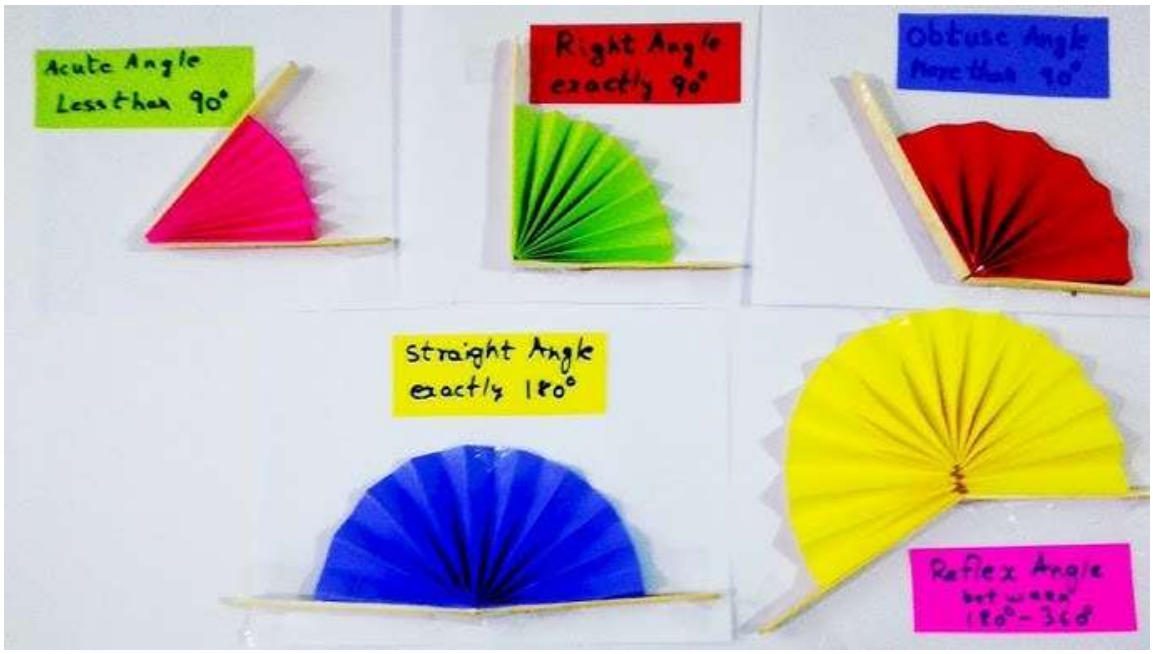
In Activity 2 of this study, participants are instructed to join specific dots to form a right angle. This activity focuses on enhancing participants' spatial perception and understanding of geometric concepts, particularly right angles. By joining the dots correctly to create a right angle, participants demonstrate their ability to visually recognize and construct geometric shapes accurately. This activity encourages hands-on engagement with geometric concepts and reinforces the concept of a right angle as a 90-degree angle formed by two intersecting lines.

Centimeter Dot Paper



Activity -3 Form angles of all types by paper cutting or paper folding and pasting on a chart.

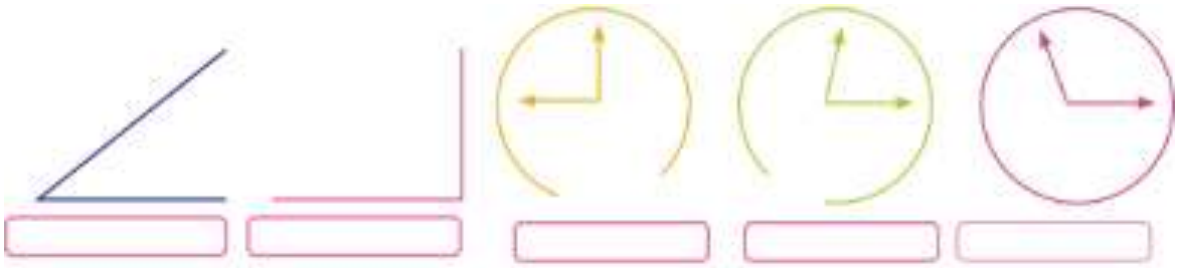
This study involves forming angles of all types using paper cutting or paper folding techniques. Participants created these angles and then pasted them onto a chart for visual representation and analysis.



Activity -4 Observe the following pictures and write the name of the angles in their box.

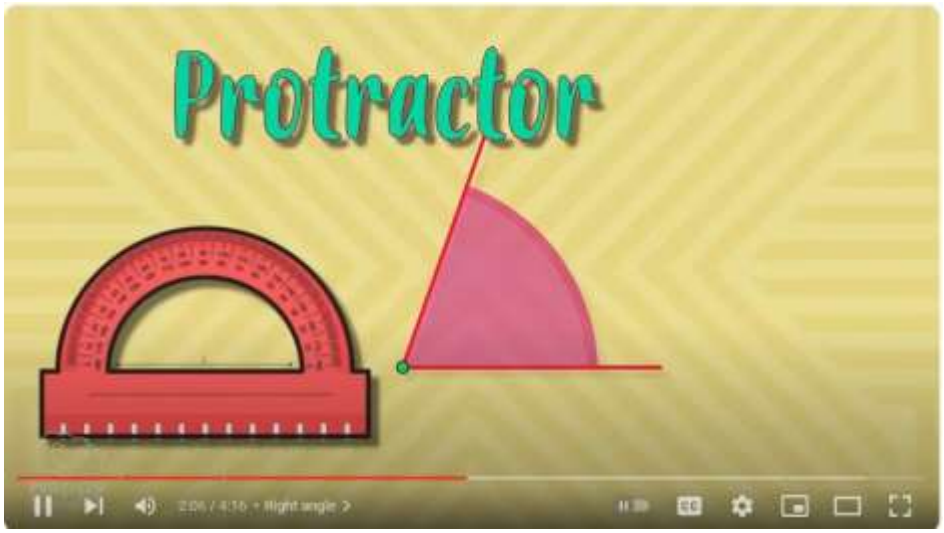
In this activity , participants observed a series of pictures depicting various angles and wrote the corresponding names of the angles in their respective boxes. This activity aims to assess participants' ability to recognize and label different types of angles accurately. The pictures serve as visual stimuli to enhance understanding and reinforce knowledge of angle types, such as acute angles, right angles, obtuse angles, and straight angles. Participants' responses were analyzed

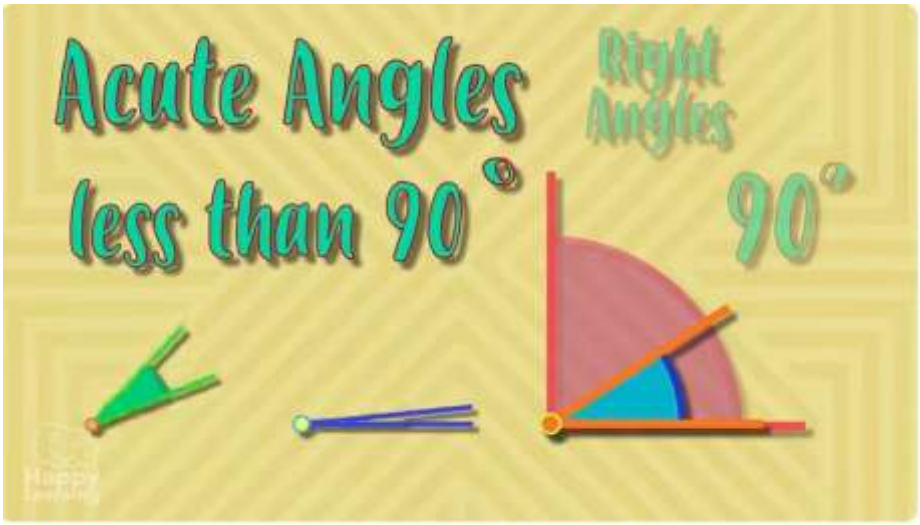
to evaluate their proficiency in identifying and categorizing angles based on visual cues provided in the pictures.



Activity -5 Virtual tour

In the realm of mathematics, the study of angles was a fundamental concept that played a crucial role in geometry and trigonometry. Video teaching served as an effective and dynamic tool to convey these geometric principles. Through visual aids and interactive demonstrations, instructors could elucidate the definition of angles, explore their various types (such as acute, obtuse, right, and straight angles), and delve into the measurement units like degrees and radians. Additionally, videos could vividly illustrate angle relationships, such as complementary and supplementary angles, enabling students to grasp abstract concepts more easily. The use of technology in teaching angles not only fostered a deeper understanding but also promoted engagement and retention, allowing students to visualize geometric concepts in a way that traditional methods may have struggled to achieve. In the current study, video teaching was employed by the investigator to illustrate concepts related to angles.


Protractor


Acute Angles
less than 90°
Right Angles
90°

VIRTUAL TOUR TEACHING

https://drive.google.com/file/d/1z9QUaK6otcIw13TJ0_2t0AYMoSI5JhTa/view?usp=sharing

12. ADMINISTRATION OF POST TEST

Following the introduction of angle-related activities, the researcher conducted a post-test to assess the extent to which students benefited from the learning experience in identifying angle of objects.

13. DATA COLLECTION

Data were collected with the help of questionnaire and they were analyzed and tabulated by the application of percentage, mean, SD and ‘t’ value for which pre test and post test scores could be compared.

14. STATISTICAL TECHNIQUES

- ❖ Descriptive Analysis (Mean and S.D)
- ❖ Differential Analysis (‘t’ test)

15. DATA ANALYSIS AND INTERPRETATION

Table 1
Pre test and Post test Scores

Samples	Pre test	Post Test
1	11	14
2	11	18
3	08	16
4	14	16
5	14	19
6	11	18
7	14	19
8	05	05
9	12	15
10	14	17
11	09	16
12	05	14
13	09	16
14	13	21
15	10	14
16	07	10
17	08	19
18	11	15

Table 1 displays the pre-test and post-test scores of 18 participants, capturing their performance before and after a specific intervention or assessment.

Table 2
The percentage of Pre test and Post test scores

Test	%
Pre test	39.74%
Post test	60.25%

The data presented indicates the level of performance based on pre-test and post-test scores, expressed as percentages. The pre-test level is at 39.74%, suggesting an initial performance level before any intervention or assessment. In contrast, the post-test level shows a significant increase to 60.25%, indicating an improvement in performance following the intervention or assessment.

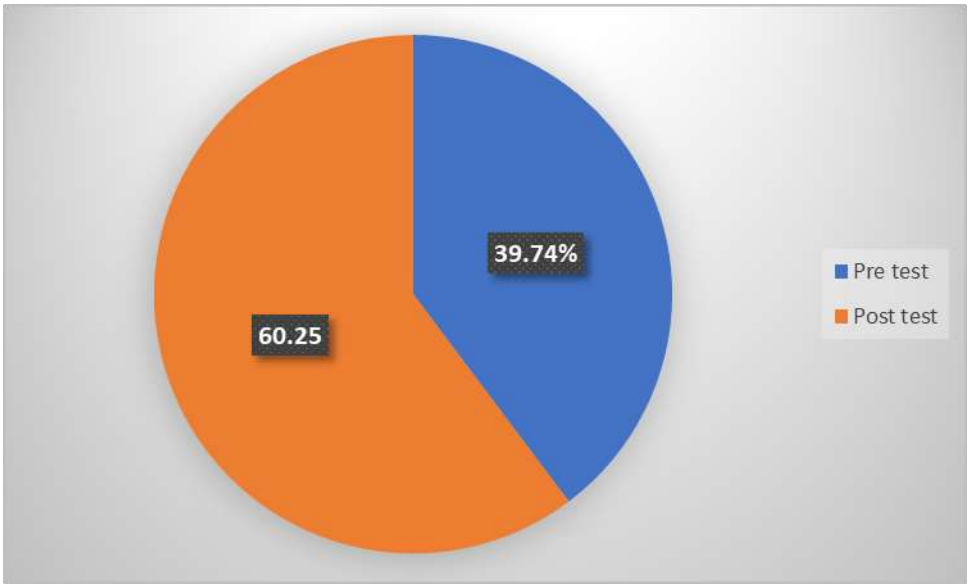


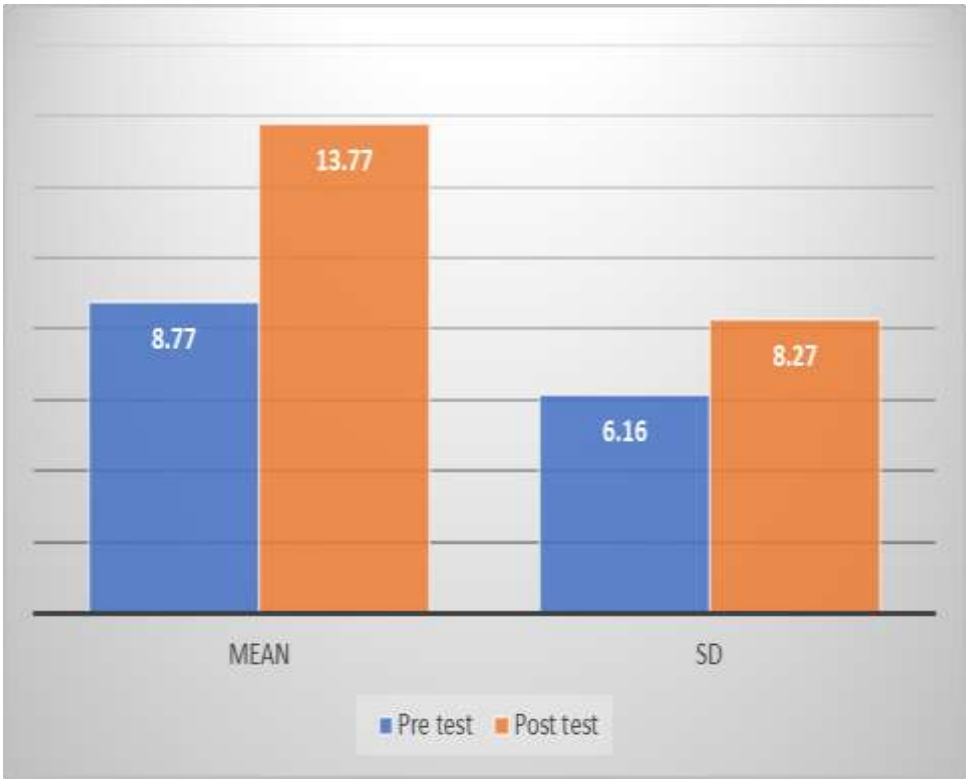
Table 3

Mean, SD and t test scores of Pre and post tests scores

Test	N	Mean	SD	't' value	Level of Significance
Pre test	18	8.77	6.16	2.06	S
Post test	18	13.77	8.27		

Significant at 0.05 level (2.03)

The above table shows that mean scores of post test (13.77) is higher than the mean scores of pre test (8.77). The calculated 't' value (2.06) is greater than the table value (2.03) significant at 0.05 level. It is concluded that there is significant difference between the pre and post test of understanding the concept of angles.



16. FINDINGS

1. There is a significant improvement in performance from pre-test (39.74%) to post-test (60.25%).
2. There is a significant difference between the pre-test and post-test scores

17. CONCLUSION

In conclusion, the study enhancing the knowledge of angles among standard V students, suggested teacher's activities and its using virtual tours has yielded valuable insights into the effectiveness of this innovative pedagogical approach. The integration of virtual tours into the curriculum proved to be a promising method for enhancing students' understanding of geometric concepts, particularly angles. The findings suggest that virtual tours not only captured students' interest and engagement but also contributed to improved comprehension levels compared to traditional teaching methods. The positive impact observed in both short-term assessments and long-term retention underscores the potential of virtual tours as a valuable tool in mathematics education for standard V students. The result indicates that the intervention given by the researcher has improved the knowledge of angles.

The study identified diverse learning preferences among students, highlighting the importance of tailored approaches in educational technology integration. As educators and policymakers consider optimizing teaching methodologies, the study recommends the thoughtful incorporation of virtual tours to foster a deeper and more enduring comprehension of angles among

standard V students. This research contributes to the ongoing discourse on innovative teaching strategies, emphasizing the need for adaptive and technology-enhanced approaches to meet the evolving needs of students in the modern educational landscape. So, this study strongly recommends to all schools teachers to intermediate with the school co-teachers to utilize this virtual tour concepts in this educational settings

18. IMPLICATIONS OF THE STUDY

- The use of virtual tours can make learning about angles more interactive and engaging for students, increasing their motivation and interest in the subject.
- Virtual tours provide a visual and immersive experience that can help students grasp abstract concepts related to angles more effectively. Seeing angles in real-world contexts can deepen their understanding.
- Virtual tours can cater to diverse learning styles and paces, allowing students to explore and learn about angles at their own speed and according to their individual needs.
- Integrating virtual tours into the curriculum helps students develop digital literacy skills, which are essential in the modern educational landscape.
- Virtual tours encourage a constructivist approach to learning, where students actively construct their understanding of angles through exploration and interaction with virtual environments.

- ❖ Virtual tours can include interactive elements that provide immediate feedback, helping students identify and correct misconceptions about angles in real-time.
- ❖ Teachers can use virtual tours as a supplementary resource to enhance their instructional strategies, making lessons on angles more dynamic and varied.
- ❖ Virtual tours can be designed to include collaborative activities, promoting teamwork and communication skills as students work together to explore and understand angles.
- ❖ The use of virtual tours can be integrated with other subjects, such as art and history, to provide a multidisciplinary approach to learning about angles.
- ❖ Virtual tours can be accessed by a wide range of students regardless of geographical location, ensuring that high-quality educational experiences are available to all learners.

19. REFERENCES

1. Tamil Nadu Text book corporation Term 1 and 2 Maths book.
2. Arnon, I., Cottrill, J., Dubinsky, E., Oktac, A., Roa Fuentes, S., Trigueros, M., & Weller, K. (2014). Chapter 4: Genetic decomposition. In APOS theory: A framework for research and curriculum development in mathematics education (pp. 27-55). New York, NY: Springer

3. Arslan, C., Erbay, H. N., & Guner, P. (2016). Prospective mathematics teachers' ability to identify mistakes related to angle concept of sixth grade students. European Journal of Education Studies, 2(12), 190-204.
4. Browning, C.A., Garza-Kling, G., & Sundling, E.H. (2008). What's your angle on angles? Teaching Children Mathematics, 14(5), 283-287.
5. Bütüner, S. Ö., & Filiz, M. (2016). Exploring high-achieving sixth grade students' erroneous answers and misconceptions on the angle concept. International Journal of Mathematical Education in Science and Technology, 1-22.
6. Charles, R. I. (2011). Geometry. Boston, MA: Pearson Prentice Hall.
7. Clement, J. (2000). Analysis of clinical interviews: Foundations and model viability. In A. E. Kelly & R. A. Lesh (Eds.), Research design in mathematics and science education (pp. 547–589).
8. Mahwah: Lawrence Erlbaum Associates, Inc. Clements, D.H., & Battista, M.T. (1989). Learning of geometrical concepts in a Logo environment. Journal for Research in Mathematics Education, 20(5), 450-467.
9. Clements, D.H., & Battista, M.T. (1990). The effects of Logo on children's conceptualizations of angle and polygons. Journal for Research in Mathematics Education, 21(5), 356-371.
10. Dubinsky, E., & McDonald, M. A. (2001). APOS: A constructivist theory of learning in undergraduate mathematics education research. In The teaching and learning of mathematics at university level (pp. 275-282). Springer Netherlands.

11. Greenberg, M. J. (2008). Euclidean and non-Euclidean geometries: Development and history. New York, NY: Freeman.
12. Henderson, D. W., Taimina, D. (2005). Experiencing geometry: Euclidean and non-Euclidean with history.
13. Upper Saddle River, NJ: Pearson Prentice Hall. Keiser, J.M. (2004). Struggles with developing the concept of angle: Comparing sixth-grade students' discourse to the history of the angle concept. Mathematical Thinking and Learning, 6(3), 285-306.
14. Kontorovich, I., & Zazkis, R. (2016). Turn vs. shape: teachers cope with incompatible perspectives on angle. Educational Studies in Mathematics, 93(2), 223-243.
15. Long, L. (2009). Painless geometry. Hauppauge, NY: Barron's Educational Series
16. Wilson, P. S. (1990). Understanding angles: Wedges to degrees. The Mathematics Teacher, 83(4), 294-300.

Websites

- Math playground .com
- https://illumations.com.org
- Khan academy
- www.mathgam.com
- Geogbra.com
- Math.aids.com

APPENDIX

செயல் ஆராய்ச்சி 2023 - 2024

மாவட்ட ஆசிரியர் கல்வி மற்றும் பயிற்சி நிறுவனம், கீழப்பழுவூர்.

முன் / பின்தேர்வு வினாத்தாள்

2023 - 2024

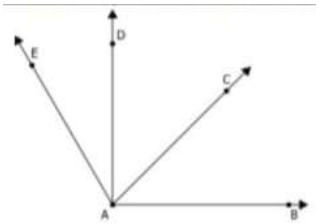
மாணவர் பெயர்: காலம் :

வகுப்பு : மதிப்பெண்கள் :

1. கொடுக்கப்பட்டுள்ள படத்தில் உள்ள கோணத்தினை எழுதுக.

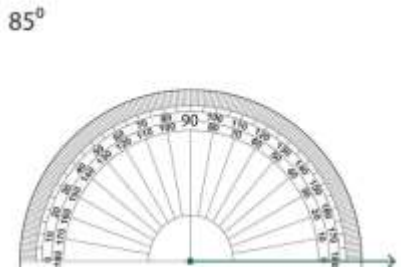
அ. பூச்சிய கோணம் ஆ. செங்கோணம் இ. குறுங்கோணம் ஈ. விரிகோணம்

2. கொடுக்கப்பட்டுள்ள படத்தில் $\angle BAD = ?$



அ. 0° ஆ. 90° இ. 180° ஈ. 360°

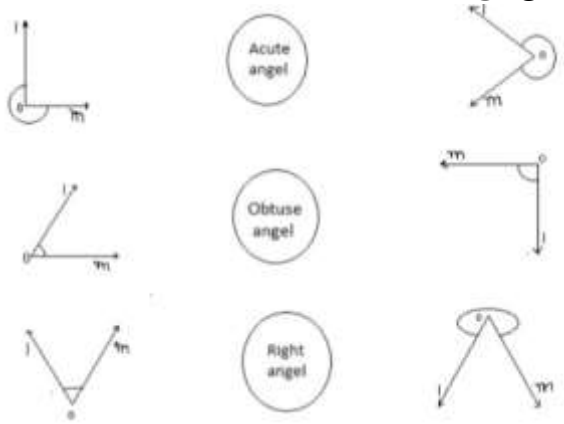
3. 85 கோணத்தினை கொடுக்கப்பட்டுள்ள படத்தில் வரைந்து காட்டுக?



4. இந்த சின்னத்தில் உள்ள $\angle A, B, C, D$ ஆகியவை எவ்வகையான கோணம்?

அ. குறுங்கோணம் ஆ. செங்கோணம் இ. விரிகோணம் ஈ. நேர்க்கோணம்

5. படத்தில் உள்ள கோணங்களைப் பொருத்துக.



6. கீழ்க்காணும் கடிகார முள் காட்டும் நேரத்திற்கான கோணத்தினை எழுதுக?

அ. 360° ஆ. 45° இ. 90° ஈ. 180°

7. கீழ்க்காணும் கோணங்களை குறுங்கோணம், செங்கோணம் மற்றும் விரிகோணம் என

வகைப்படுத்துக.

30°, 45°, 60°, 90°, 120°, 140°, 175°, 85°

8. கொடுக்கப்பட்ட கடிகாரம் படத்தில் 2.15 மணி காட்டும் கோணம் யாது?

அ. குறுங்கோணம் ஆ. செங்கோணம் இ. விரிகோணம்

ஈ.நேர்கோணம்

9. கீழ்க்காணும் படத்தில் நான்கு முனைகளில் உள்ள கோணத்தின் வகையினை கூறுக?

அ. குறுங்கோணம் ஆ. விரிகோணம் இ. செங்கோணம் ஈ. நேர்கோணம்

10. 80° கோணத்தினை வரைந்து காட்டுக?

PHOTOS

Pre test

Teacher activity

Teacher activity

Teacher activity

Teacher activity

Student activity

Teacher and students activity

Post test

Action Research 2023-2024

1. **Name of the Investigator** : D**r.S. Vijayakumar,** Lecturer

2. **Name of the DIET** : District Institute of Education and Training, Keelapalur, Ariyalur district

3. **Title** :

ENHANCING THE KNOWLEDGE OF ANGLES AMONG STANDARD V STUDENTS USING VIRTUAL TOUR

4. Objectives :

- To examine the difficulties in understanding the concept of angles
- To measure the learning achievement in the concept of angles
- To enhance the understanding the concept of angles.

5. Sample :

The 18 students from Class 5 of PUMS, Thiruvenganur, Thirumanur Block, Ariyalur District were selected as the sample for the present investigation through a simple random sampling technique.

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6. Tool :

The investigator-based activities and Performance test were used as tools.

Treatment

- Drawing and tracing hands on experience
- Virtual tour used

7. Methodology

The investigator has adopted Experimental method with Single group Design

Data Analysis

The following statistical techniques are used in the present study

- Descriptive Analysis
- Differential Analysis

8. Findings

1. There is a significant improvement in performance from pre-test (39.74%) to post-test (60.25%).
2. There is a significant difference between the pre-test and post-test scores