

ACTIVITY RECORD

PEDAGOGY OF MATHS

INDEX

SL.NO	PARTICULARS OF ACTIVITY	COLLEGE/ SCHOOL/ SOCIETY	PAGE NO.
1.	Activity - I		1 to 2
2.	Activity - II		3 to 7
3.	Activity - III		8 to 12
4	Activity - IV		13 to 20
5.	Activity - V		21 to 25

Activity-1

During Internship conduct of Essay writing/quiz - competitions in Mathematics and report.

Introduction:

The word 'quiz' mean asking question it is a technique in which the participants are - required to make quick and rapid response to a series of question pertaining to a particular theme or topic.

The participants are expected to - Exercise utmost concentration so that they will be able to give accurate responses with a short span of time quiz programmes are very helpful job - mathematics learning as it will increase speed and accuracy as well as span of attention and the power of concentration of the student.

Procedure:

Decision regarding to the following matter should be taken and communicated to the participants.

1. Theme / Topic / Area / Specialization
2. Level of participants
3. Date / Time / Venue
4. Number of group and number in each group
5. Appointment of quiz master.
6. The number of rounds and the number question in each round.

✓
7. Variety in round.

8. The scores and scores board.

The qualities of Quiz Master

1. He plays a vital role in conducting quiz programme.

2. A person who has deep knowledge about the subject and who will be able to prepare good question pertaining to the topic should be selected as a quiz master.

3. He must have clarity in thinking, good command over language and must be able to clarify the doubts of the participants.

4. The question should be clear, specific and call for single responses and it should match the age and mental development of the participants.

ACTIVITY-2

One case study of gifted child and slow learner with interventions suggested.

Gifted children

Introduction:

Generally classroom consisting with average below average, and above average students of high ability. often referred to as "Gifted students" present a unique challenge to teachers. They are often the first ones done with an assignment or those whose continually for more creative and interesting work. They needing activities and energizing project that often a create curriculum with in the same work as the regular classroom program.

The term Gifted and talented when used with respect to students, children or youth means students, children or youth who given evidence of high achievement capability in such areas as - intellectual, creative, artistic or leadership capacity or in specific academic fields and who need services or activities not.

Characteristics:

Gifted student exhibit several common characteristic as out lined in the following lists.

- Has a high level of curiosity.
- Has a well-developed imagination.
- Can remember and retain a great deal of information.
- is well organized
- is often on Independent

- They have self respect.
- They have 120-140 intelligence quotient.
- They easily and fastly acquired the lesson.
- Having a keen observation.
- Ask the thought provoking.

Identification of case:

Enrichment programmes for gifted children:

1. More time can be allotted for independent study through projects, seminars and assignments.
2. More scientific and sophisticated evaluation task to assess the performance of the students so that the evaluation is reliable and valid.
3. If teacher provides the difficult problem to gifted students then they try to solve the problem.
4. Teacher provides the difficult problem to gifted student then they are able to utilize the mathematical knowledge in his/her daily life situations.
5. Teacher has to send students to mathematics library, and this is
6. If teachers gave the work to students to participate in national talents test such as mathematics olympiad.

Seminars debate competitions on months. Through this teach develop the some abilities in the students.

7. If teachers gave the work to students like making the Thimble so it develop the art skill among students.

8. If teachers provided the opportunity to student for organizing the maths Exhibits, Clubs then they will develop the organization ability.

9. Teacher has to provide some puzzles, riddle, magic square type mathematical games to student. It makes the student to be smart.

Name of the student

Class :-

School :-

Age :-

Slow learner

Introduction:

NCTM, 1967 defined low achiever as the child ranking of 30th percentage of the student population in achievement in mathematics.

Identification of slow learners:

Intelligent quotient below 90

Has little drive

Has short span of attention

Has weak associative memory

Has weak.

Is a poor reader

Is not logical thinking

Lack of imagination.

6

It is unable to detect his own errors
Has little power to transfer training
Is not reactive in his thinking.

Causes:

- Physical causes
- Lack of interest
- Mental disability
- Lack of mathematics abilities
- In appropriate learning experiences
- Irregular study habits
- Teacher indifference
- Ineffective method of teaching
- Practice and drill
- Family Background and home environment
- Irregular school attendance
- ~~Lack of understanding basic mathematics concepts~~

Suggested Interventions:

1. The Teacher has to develop in the learner positive attitude towards the subject through patience and persistence. This is possible by using illustrative aids.
2. Student suffering from mental disability can be successfully tackled by a competent teacher with a considerate attitude and effective sympathy and kindness on a long way in the regard.
3. The teachers will have to test proficiency of the slow learner on mathematics ability and necessary training programme should be implemented to improve the skill and abilities.

7

4. The teachers should help student to plan his study time properly and make them more regular and systematic drill and review also help them in improving this performance.

5. A Teacher should take more interest in the slow learning and understand this level of learning.

6. The teacher should also give individual attention to the slow learner in clarifying his doubts in stimulating and in directing his thinking.

7. The teacher has to change the attitude of parent and student by interacting with them in a more meaningful manner.

8. The teacher has to insist on neatness in work, legibility in hand writing, accuracy in copying the number and placing the number digits, neatness and accuracy in drawing geometrical figure, so as to improve this and accuracy.

Identification of case:

ACTIVITY-3

Prepare of mathematical puzzles, Games, riddles and recreational activities.

Introduction:

Recreational mathematics is a term of mathematics carried out of recreation rather than as strictly research and application-based professional activity. A thought is not necessarily limited to begin an end eagerly for a meteor.

There are number of myths prevalent about mathematics one myth is that mathematics is a cold, dry and uninteresting subject. This misconception occurs because of the failure on the teacher and textbook to stimulate and maintain interest in mathematics. This can be done mainly by introducing the element of recreation in the form of pattern, games, magic, squares, riddles, puzzles etc.

Puzzles:

Puzzles are also called brain-teasers. Solving puzzles enrich learning of mathematics. They develop power of thinking and reasoning in students.

(1)

	12	

Ans

1	8	3
5	12	7
6	4	2

(2)

	13	

Ans

8	4	1
3	13	7
2	6	5

(3)

	14	

Ans

7	3	4
6	14	2
1	5	8

(4)

	15	

Ans

6	1	8
2	15	4
9	5	3

(5) How many squares are there on the chessboard?

Ans Total 204 square is there on chessboard, including all sizes.

Riddles:

Question with clever is surprising answer are popularly called "riddles". A true riddler always asks question that can be answered reasonably. Riddlers are children's oldest quizzing games. Riddlers not only create interest in learning ab mathematics, that help in the development of logical thinking and reasoning.

1. I am an odd number, take away an alphabet come even, what number am I.

10

Ans seven = seven - 5
= even

2. Using only addition, how can you add eight 8 to get the number 1,000?

Ans $888 + 88 + 8 + 8 + 8 = 1,000$

3. 4, 6, 12, 18, 30, 42, 72, 102, 108, ...

Doc

$$4 + 2 = 6$$

$$6 + 6 = 12$$

$$12 + 6 = 18$$

$$18 + 12 = 30$$

$$30 + 12 = 42$$

$$42 + 30 = 72$$

$$72 + 30 = 102$$

$$102 + 6 = 108$$

$$108 + 6 = 114$$

$$114 + 2 = 116$$

4. can you solve this?

$$1 + 4 \times 1 = 5$$

$$2 + 5 \times 2 = 12$$

$$3 + 6 \times 3 = 21$$

$$4 + 7 \times 4 = 32$$

$$8 + 11 \times 8 = 96$$

$$1 + 4 = 5$$

$$2 + 5 = 12$$

$$3 + 6 = 21$$

$$8 + 11 = ??$$

Pattern:

Mathematics is full of recreations. It depends on the teacher how he/she makes their use in enriching learning mathematics. Number patterns are interesting to observe and one may be curious enough to find the rationale. A part from being recreational, they encourage an alert and open-minded attitude in youngsters and help them in developing high degrees of logical thinking.

(1) $0 \times 9 + 1 = 1$

$01 \times 9 + 2 = 11$

$012 \times 9 + 3 = 111$

$0123 \times 9 + 4 = 1111$

$1234 \times 9 + 5 = 11111 \text{ and so on}$

(2) $1 \times 8 + 1 = 9$

$12 \times 8 + 2 = 98$

$123 \times 8 + 3 = 987$

$1234 \times 8 + 4 = 9876$

$12345 \times 8 + 5 = 98765$

$123456 \times 8 + 6 = 987654$

$1234567 \times 8 + 7 = 9876543$

$12345678 \times 8 + 8 = 98765432$

$123456789 \times 8 + 9 = 987654321$

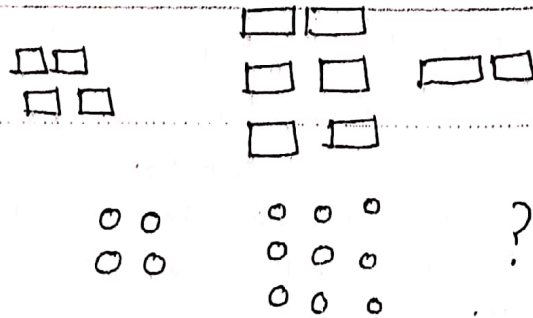
(3) $\square \nabla \square \triangle \square \triangleright \square \triangle \text{ — }$

Ans $\square \nabla$

(4) Complete the pattern, then write the rule
12, 16, 20, 24, 28

Ans Add 4

12



Ans 00

Games:

We usually play games to pass our leisure time. Many number games have been developed in mathematics, which apart from killing the leisure time create interest and develop positive attitude towards the subject of mathematics.

$$(1) 11 \times 11 = 121 \rightarrow 1+1=2 = 2 \times 2 = 4$$

$$22 \times 22 = 484 \rightarrow 2+2=4 = 4 \times 4 = 16$$

(2) Take any 3 digits and write it in reverse order.

$$(1) \begin{array}{r} 845 \\ - 548 \\ \hline 297 \\ 792 \\ \hline 1089 \end{array}$$

$$(2) \begin{array}{r} 732 \\ - 237 \\ \hline 495 \\ (4) 594 \\ \hline 1089 \end{array}$$

ACTIVITY - 4

13

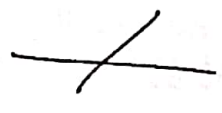
Preparing two types of assessment test - formative and summative types of tests.

Introduction

Formative assessment:

The term 'formative' denotes the ongoing or systematic assessment of student achievement while courses or instructional programmes are in progress. The main purpose of formative assessment is to give feedback to the student and not the assignment or a grade. Formative evaluation is conducted periodically. The teacher identifies the discrepancies of learning in the student and carry out remedial measure for improving them by using the result of this modify his teaching strategies to suit the abilities of the students.

Answer the following questions: - $5 \times 2 = 10m$

1. What is intersecting line?
2. What is parallel line?
3.  What is the lines?
4. Draw the figure for intersecting lines?
5. The scale is denotes the which lines?

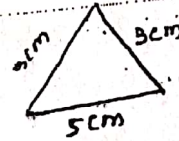
Answer the following two questions,

1. Find the perimeter of a rectangular field which is 36 cm long and 24 cm wide. - 8m
2. What is formula of the Perimeter of rectangle? - 2m

12

Answer the following questions! $5 \times 2 = 10$

1. What is the triangle?
2. What is equilateral triangle?
3. What is triangle?
4. The based on the angle are how many types are there?
5. What is obtuse angled triangle?

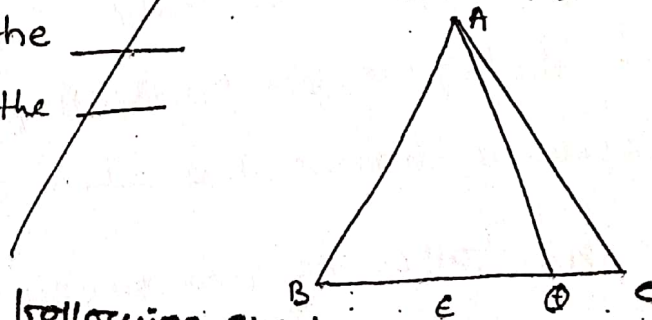


Answer the following questions! $5 \times 2 = 10$

1. What is centroid?
2. What is the median of a triangle?
3. Name of the triangle in which the two altitude of the triangle.
4. Draw of the figure of the medians of triangle with the points.

5. In the $\triangle ABC$, D is the midpoint of BC

- (i) $\overline{AD}$ is the
- (ii) $\overline{AE}$ is the



Answer the following questions.

1. Proof of angle - sum property of a triangle
2. In $\triangle ABC$, $\angle A = 30^\circ$, $\angle B = 45^\circ$ find $\angle C = ?$

Summative assessment

Summative assessment are used to evaluate learning, skill acquisition and academic achievement at the end of the instructional period. This is at the end of the end by the semester or school year. Summative assessment

are done. They are generally associated with grade points or percentage. summative assessment refer to the assessment of student where the focus is on the outcome of an educational program. summative assessment are widely used in educational program all over the world.

weightage to academic standard:

As the testing is objective based testing. In mathematics the relative weightage is given to academic standard. the main task here is to decide the weightage to be given to the different object included in the unit.

Sl No	Academic Standard	Marks	Percentage
1.	Problem Solving	30	37.5
2.	Reasoning and Proofs	15	18.75
3.	Communication	10	12.50
4.	connection	10	12.50
5.	Visualization and Presentation	15	18.75
		<u>80</u>	<u>100%</u>

weightage to content:

The selected content is divided into possible subunits and then give weight to the subunits based on the scope of the mathematics concepts. It helps to distribute the allowed mark over the whole content according to the importance of the subunit. then only the paper will become a balanced one in this aspect also.

S.No.	UNIT	Marks	Percentage
1.	Integers	20	25
2.	Fractions	30	37.50
3.	Simple equation	10	12.50
4.	Lines and angle	20	25
		80	100%

Weightage to different forms of questions:

For testing the different abilities and sub-units different forms of questions may suitably used. The unit test consist of three or four of object based questions namely the essay type, the short answer type and the objective type. Again objective type has multiple choice. If in the paper the solution of a problem is more than 5 steps it may be called an essay question carrying 4 or more marks. Unit paper contain essay questions.

Short answer questions which required only two or three steps for solution can be considered in mathematics. Such questions carry 1 or 2 marks. No. of short questions are 3 or 4 in a unit paper.

Each objective question carries one mark. The number of objective may range 35% to 45% of the marks. These are only approximations. The teacher should feel free to use single choice or multiple choice.

Essay	Short	Very short	Objective
4	5	4	20
8m	4m	2m	1m

weightage to difficulty level:

It is an accepted fact that, in a classroom, there are three type of pupils above average and below average. A good test consists of items with varying difficulty level.

Q

S.No	Difficulty level	Marks	%
1	Easy	25	31.25
2	Average	35	43.75
3	Difficult	20	25
		80	100%

Preparation of Blue Print:

After preparing weightage tables, the paper setter has to prepare a blue print of the test. It is two dimensional chart. one dimension covers the weightage to content and the other, weightage to objective through the types of items.

The sub-units or the content is listed in the left while the objective are tested as horizontal line. Each column is further sub-divided into column to indicate to some of questions.

The weightage to the difficulty level is not to be mentioned in the blue print but it should be kept in mind while getting the question paper.

Academic Standard	Problem Solving	Representation	Communication	Connections	Representation	Total
Content	E	F	G	H	I	J
1. Integers	(1)	(2)	(1)	(1)	(2)	15
2. Fractions	(1)	(1)	(1)	(1)	(1)	25
3. Simple Equations	(1)	(1)	(1)	(1)	(1)	10
4. Linear and angles	(1)	(1)	(1)	(1)	(1)	15
5. Triangle and properties	(1)	(1)	(1)	(1)	(1)	15

MATHEMATICS PAPER

Time - 3 Hour

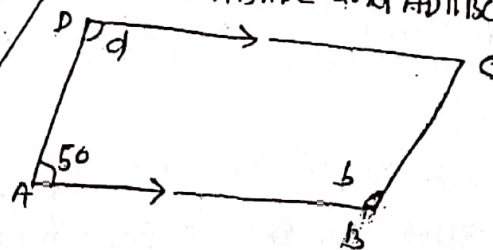
Maximum marks - 180

PART - A

I. Answer the following question.

4x2=8

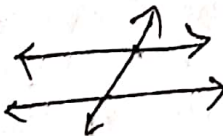
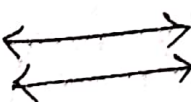
- Solve the following $2 + \frac{3}{4}$
- Find each of the products $(-18) \times (-5) \times (-4)$
- ABCD is a quadrilateral in which $AB \parallel DC$ and $AD \parallel BC$. Find the $\angle b$, $\angle c$ and $\angle d$
- Solve $\frac{2}{6} = -3$



II. Answer the following question.

- An elevator descends into a mine shaft at the rate of 6 meter per minute. It starts from 10m above the ground level. How long will it take to reach -350m
- Solve $3x + 5 = 5x - 11$

10

1. The 1, 2, 3, 4, 5, ... are which numbers —
2. The $a \times (b+c) = a \times b + b \times a$ is which property —
3. $50 \div 0 =$ —
4. Find $4\frac{2}{5} \div 3 =$ —
5. The set of rational numbers is denoted by —
6. $0.3 \times 6 =$ —
7. $9Z = 81 =$ —
8. $14 = 27 - x =$ —
9. The sum of two angles is equal to 90° the angles are called —
10. The line which intersects two or more lines at distinct points is called —
11. If two lines intersect each other then the number of common points they have —
12. The angles having a common arm and a common vertex are called —
13.  l is the intersected line is called —
14.  the lines are intersected is called —
15. A triangle whose one angle is right angle is called —
16. Write the formulae of the properties of triangles —
17. What is the sum of the exterior angles of $\triangle ABC$ —
18. $3x - 5 = 8x + 11$ —
19. Draw the figure of a triangle —
20. $\frac{24}{6} = -18 =$ —

ACTIVITY - 5

21

Prepare diagnostic test in algebra, arithmetic, Geometry from 8th to 10th class?

Introduction:

The diagnostic test consist of items based on a detailed analysis of the specific skill involved in successful performance and the study of most common errors made by the student have difficulty in understanding and learning certain concepts the diagnostic test is a test used to certain diagnosis to reveal an individual weakness and strength in certain area of study. Diagnostic test are designation to analyse the individual performance and provide information on the causes of difficulty. The word diagnosis is used more or less in the same sense in the field of education.

It helps the teacher in identifying the status of the learner at the end of particular lesson unit or course of learning as to what specific teaching or learning points have been properly grasped by the learner. After administering a diagnostic test or a battery of diagnostic test to students a teacher takes a remedial measure to cover to cover over the deficiencies which have been discovered.

Process of diagnostic tests.

Diagnostic test may also be standardized but teacher made diagnostic test will largely be more economical and effective than standardized test. The norms, which constitute a strong point with standardized test are not called for in diagnostic as the purpose there is to discover

27

the weakness of individuals students rather than compare their achievements.

The preparation of diagnostic test required special technique which is different from other test. nevertheless, the stage of preparation will be planning writing items, assembling test providing direction and preparing the marking key marking scheme and reviewing the test. All the forms of question. As we want to locate evidence in all point. It is desirable to use either short answer or objective type questions.

Algebra:

1. on a history test, 20 students received A and 12 student received a B which of these is the correct ratio of students on A to student receiving a B?
2. These use correct order of operation to simplify the Expression $2(3+4) - 6/3$?
3. The "ten more than seven times a number" represented by which of the expressions?
4. The zoo herd of zebra has 44 female zebra and 56 male zebra's which of these is the correct ratio of female to the number of zebra?
5. what is the next number in the sequence 1, 4, 9, 16, 25 _____?
6. what is the opposite of -4 ?
7. what is the opposite of $1/3$?
8. what is $\sqrt{144}$?
9. The area of a square is 25 square units. How long is each side of the square?

10. Write as a monomial using Exponents 29)
a a a a a b b b c c ?
11. Which is larger, $\frac{2}{3}$ or 67 ?
12. Arrange the following rational numbers in ascending order $-0.75, 5, -\frac{2}{3}, 55, \frac{1}{2}$
13. What is the reciprocal of 3 ?
14. Simplify $4(2x-4) + (-3x+1)$
15. The formulae of sum of cubes $a^3 + b^3$
16. Find the value of $x^2 - y + 2$ if $x=0$ and $y=1$
17. Area of the triangle is given by $A = \frac{1}{2}bh$
if $b=12\text{cm}$ and $h=7\text{cm}$ find the area of the triangle.
18. $x=2$ value of $x^2 + 2y + 3 = 0$ find the value of y
19. Give the example for the real numbers ?
20. $(n+1)(n+2) = 2$ find the value of n ?
21. What the formula of a distance ?
22. What is radicals ?
23. Define hyperbola ?
24. What is ellipse ?
25. What is the property of the ellipse ?

