



# National College for Teacher Education

(NAAC Accredited with 'B' Grade)

Iqbal Square, Meprathupady, Vengola, Perumbavoor, Ernakulam - 683 556

## KEY INDICATOR

### CRITERION 2-Teaching-learning and Evaluation

#### 2.4 TOOLS OF LEARNING ASSESSMENT

##### ICT IN TEACHING LEARNING PROCESS

##### METRIC 2.4.5.A

Sample evidence showing the tasks carried out for each of the selected response

#### Affidavit

I do hereby certify that, all pages in this document are duly authenticated by me, under my privilege as the Head of the institution of National College for Teacher Education, Vengola, Ernakulum, Kerala

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VENGOLA, PERUMBAVOOR - 683 556



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##### METRIC 2.4.5.B

Documentary evidence in respect of each response selected

#### Affidavit

I do hereby certify that, all pages in this document are duly authenticated by me, under my privilege as the Head of the institution of National College for Teacher Education, Vengola, Ernakulam, Kerala



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# NATIONAL COLLEGE FOR TEACHER EDUCATION

IQBAL SQUARE, VENGOLA, PERUMBAVOOR,  
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(AFFILIATED TO MAHATMA GANDHI UNIVERSITY & RECOGNISED BY THE NCTE)

NAAC ACCREDITED



RECORD ON

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OPTIONAL SUBJECT PHYSICAL SCIENCE

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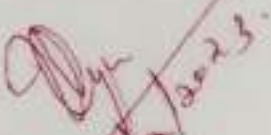
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Principal **MADHAVAN**  
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ERNAKULAM DISTRICT  
PIN 683 554

Submitted for the Practical Examination held on .....



  
Faculty in charge

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# ACHIEVEMENT TEST AND ANALYSIS AND INTERPRETATION



  
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## Introduction

Achievement tests play a pivotal role in assessing an individual's knowledge, skills, and proficiency in a specific subject or area of study. These tests are designed to measure the extent to which a person has acquired certain information or mastered particular skills, often in an educational context. The analysis and interpretation of achievement test results provide valuable insights into an individual's academic performance, helping educators make informed decisions about curriculum development, instructional strategies, and student support.

The analysis of achievement test results involves a multifaceted examination of the data gathered. This process includes statistical measures such as mean scores, standard deviations, and percentiles to provide a quantitative overview of performance. Additionally, qualitative analysis may involve scrutinizing individual responses, identifying patterns of strengths and weaknesses, and understanding the nuances of learning styles and preferences.

Interpretation of achievement test results goes beyond mere numerical values. Educators and researchers delve into the implications of the data to inform educational decision making. Further more, achievement

Test analysis contributes to a broader understanding of instructional effectiveness. By evaluating how well students perform in relation to curriculum objectives, educators can refine teaching methods, adapt instructional materials, and implement strategies to enhance overall student learning outcomes.

Achievement tests serve as essential tools for evaluating educational progress and informing instructional practices. The careful analysis and interpretation of test results provide valuable information for educators and researchers to make data-driven decisions aimed at improving the quality of education.

Achievement tests can be used in a variety of settings, such as in schools to assess students' academic performance, in employee training programs to assess competency in a particular field.

It is important to note that achievement tests should be carefully designed and administered to ensure that they are fair, reliable and valid. This means that the test should accurately measure what it is intended to measure and that the results should be interpreted appropriately.



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# Steps to construct Achievement Test

Here are the steps involved in constructing an achievement test:

## 1. Determine the purpose of the test

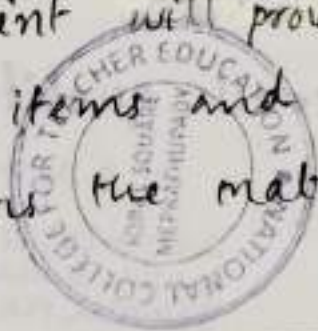
Before constructing an achievement test, it is essential to determine its purpose. What specific knowledge or skill do you want to assess? What are the learning outcomes you hope to measure? and what grade level or level of education is the test intended for? These questions will guide you in developing the blueprint for the test.

## 2. Define the test format or blueprint

The format of the test should align with its purpose and scope. Will it be a multiple-choice test, a fill-in-the-blank test, an essay test, or a combination of formats? Consider the advantages and disadvantages of each format and choose the one that best suits your goals.

The blueprint is an outline or plan for the test that includes the topics, objectives, and format. It should be based on the learning outcomes and course content you want to assess.

The blueprint will provide a framework for constructing test items and ensure that the test adequately covers the material you want to assess.



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### 3. create or Develop the test items

write or select items that accurately measure the knowledge or skills you want to assess. Be sure to use clear and concise language and avoid using technical terms that may be unfamiliar to the test takers. You can also consider using real-world examples to help make the test items more relevant and engaging.

We should design the test items to measure the knowledge and skills outlined in the blueprint. There are different types of test items, including multiple-choice, true/false, short answer and essay questions.

It's essential to choose the appropriate type of item that will best measure the intended knowledge or skill. Test items should be clear, concise and focused on a single concept or idea.

### 4. pilot the test

Before administering the test to the target population, it is advisable to pilot the test on a small sample of individuals who are representative of the target population.

This will help identify any problems with the test items, such as unclear instructions or ambiguous questions. Feedback from the pilot is used to refine the test items and improve the test's overall quality.



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## 5. Administer the test

once we have constructed and piloted the test, it is ready for administration to the target population. It's essential to ensure that the testing environment is conducive to concentration and focus.

It is important to provide clear instructions to ensure that participants understand what we actually expect from them.

## 6. Test security

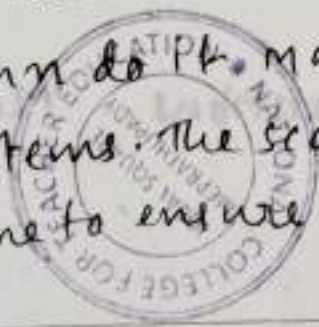
Maintain the security and confidentiality of the test to prevent cheating or other forms of test compromise. This might involve using secure testing environments, monitoring test takers during the testing process, or implementing other security measures.

## 7. Check the validity and reliability

Ensure that the test is valid and reliable. Validity refers to the consistency of test scores over time or across different test-takers. Validity and reliability are important considerations for ensuring the overall quality and usefulness of the test.

## 8. Score the Test

once we are able to administer the test, it's time to score it. We can do it manually or using automated scoring systems. The scoring key should be developed ahead of time to ensure consistency and objectivity in scoring.



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The scores should be analyzed to determine the extent to which the test objectives were met and the overall effectiveness of the instruction.

### 9. Analyze the results

Use the test results to evaluate the knowledge or skills of the test-takers and to identify areas for improvement. Consider the validity and reliability of the test and use the results to make informed decisions about future testing and instruction.

## Construction

### I General Information

Name of the teacher : Vimaya M.V

Name of the school : Asram H.S.S Perumbavoor

standard : IX

subject : മനോരമ

Unit : ചലനവും ചലനനിയമങ്ങളും, ഗുരുത്വബലവും,  
(പ്രവൃത്തി, മനോരമ, ചിത്രം)

### II Preparation of Design for the Test

#### a) weightage to objectives

| Sl.No | objectives | No. of questions | Marks | percentage (%) |
|-------|------------|------------------|-------|----------------|
| 1     | knowledge  | 6                | 5     | 20             |

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|   |               |    |    |     |
|---|---------------|----|----|-----|
| 2 | understanding | 6  | 5  | 20  |
| 3 | Application   | 4  | 15 | 60  |
|   | Total         | 16 | 25 | 100 |

b) Weightage to content

| Sl.No | content                                | No. of Questions | Marks | percentage(%) |
|-------|--|------------------|-------|---------------|
| 1     | ചിന്താശാസ്ത്രം<br>ചിന്താശാസ്ത്രം       | 5                | 6     | 24            |
| 2     | ബോധശാസ്ത്രം                            | 6                | 14    | 56            |
| 3     | വിദ്യാർത്ഥി, അധ്യാപകൻ,<br>പാഠ്യപുസ്തകം | 5                | 5     | 20            |
|       | Total                                  | 16               | 25    | 100           |

c) Weightage to form of questions.

| Sl.No | Items             | No. of questions | Marks | percentage. |
|-------|-------------------|------------------|-------|-------------|
| 1     | objective type    | 10               | 5     | 20          |
| 2     | short answer type | 3                | 8     | 32          |
| 3     | Essay type        | 3                | 12    | 48          |
|       | Total             | 16               | 25    | 100         |



### d) Weightage to difficulty level

| Sl. No | Type of Test items | No. of questions | Marks  | Percentage |
|--------|--------------------|------------------|--------|------------|
| 1      | Easy               | 5                | 2 1/2  | 10         |
| 2      | Average            | 9                | 14 1/2 | 58         |
| 3      | Difficult          | 2                | 8      | 32         |
|        | Total              | 16               | 25     | 100        |

### e) Weightage to expected time for each question

| Sl. No | Form of question | Expected time |
|--------|------------------|---------------|
| 1      | Objectives       | 45 minutes    |
| 2      | Short answer     |               |
| 3      | Essay type       |               |

### III Blue print

chapters including;

1. ചരമം, ചരമ നിരീക്ഷണം
2. ന്യൂനതകൾ
3. ഭാഗ്യം, ചരമം, ചരമ

→ Number outside the bracket shows marks  
 → Number inside the bracket shows the number of questions





| Sl No       | Objectives content        | Knowledge |         |       | Understanding |         |       | Application |         |       | Total items | Total marks |
|-------------|---------------------------|-----------|---------|-------|---------------|---------|-------|-------------|---------|-------|-------------|-------------|
|             |                           | obj.      | short   | essay | obj.          | short   | essay | obj.        | short   | essay |             |             |
| 1           | ചരമനിയമം<br>ചരമനിയമങ്ങളും | 1/3 (3)   | 1/2 (2) | —     | 1/2 (1)       | 1/2 (3) | —     | —           | 1 (5)   | 2 (2) | 16          | 13 1/2      |
| 2           | കുടുംബനിയമം               | 1/2 (2)   | 1/2 (2) | —     | 1/2 (1)       | 1/2 (2) | —     | —           | 1/2 (2) | 1 (2) | 11          | 6 1/2       |
| 3           | പ്രായസ്കരി, മതം, ചരമ      | —         | 1/2 (1) | —     | 1/2 (3)       | —       | —     | —           | 1 (1)   | 1 (2) | 7           | 4           |
| Total items |                           | 5         | 5       |       | 5             | 5       |       |             | 8       | 6     | 34          |             |
| Total marks |                           | 2 1/2     | 2 1/2   |       | 2 1/2         | 2 1/2   |       |             | 7       | 8     |             | 25          |

Numbers outside the bracket shows marks

Numbers inside the bracket shows the number of questions.

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 RURAL SQUARE, MISHRA THURAI



# ACHIEVEMENT TEST

അന്യോന്യം എച്ച്. എസ്. എസ് ചെയ്യുന്നവരുടെ  
ഉന്മൂലന പരീക്ഷ

സമയം : 45 minutes

മാർക്ക് : 25

ക്ലാസ് : IX

തന്നിരിക്കുന്നവയിൽ നിന്നും ശരിയായ ഉത്തരം തിരഞ്ഞെടുക്കുക.  
(കുറഞ്ഞതും കൂടുതലും വരയ്ക്കരുത്)

1. കനകപ്രസാദത്തിൽ ഒരു വസ്തുവിന് പരമാവധി 1000 രൂപയുടെ വിലയുണ്ട്.  
നൽകിയത് \_\_\_\_\_ ആണ്. (1/2)

(പ്രശ്നത്തിൽ / ഉദാഹരണത്തിൽ)

2. സൂര്യനാശി എന്ന പേരിൽ അറിയപ്പെടുന്ന ഗ്രഹത്തിന്റെ പേര് \_\_\_\_\_  
ആണ്.

(താരതമ്യം, ഗ്രഹങ്ങൾ, സൂര്യൻ, ചന്ദ്രൻ, ഭൗമൻ, ശനി) (1/2)

3. ഒരു വസ്തുവിന്റെ തൂക്കം \_\_\_\_\_ ആണ്.

(കുറഞ്ഞതും കൂടുതലും വരയ്ക്കരുത്, അളക്കുന്നതിന് സ്പ്രിങ്ക്, തോളിൽ നിന്നും തിരിച്ചറിയുന്ന  
വസ്തുവിന്) (1/2)

4. സൂര്യന്റെ കനകപ്രസാദത്തിലേക്ക് വികിരണം \_\_\_\_\_ ആണ്

(ഉന്മൂലനം, പ്രകാശം, ശബ്ദം, താപം) (1/2)

5. ഒരു വസ്തുവിന്റെ തൂക്കം \_\_\_\_\_ ആണ്. അതിന്റെ തൂക്കം \_\_\_\_\_ ആണ്.

(1/2, 1/4, 2, 4)



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6. ചുവട് തന്നിരിക്കുന്നവയിൽ ഘടകങ്ങളെ സ്വീകരിക്കുന്ന ചേടകം  
(സമം, പ്രവേഗം, മാസ്, ത്വരണം) (1/2)

7. താഴെ കൊടുക്കുന്നവയിൽ പ്രയുക്തി ചെയ്യാത്തതായി കണക്കാക്കുന്ന സന്ദർഭമേക്ക്

(തീക്കുടമ്പാൽ അടിച്ചുണിയിക്കുന്നു, ഉത്തുവർത്തിക്കുന്നു, ചുരം തട്ടുന്നു, മാങ്ങ വീഴുന്നു) (1/2)

8. തെങ്ങിൽ നിന്നും തേങ്ങ താഴോട്ടുവീഴുമ്പോൾ നടക്കുന്ന ചലനം പരിവർത്തനമെന്താണ്.

(ഗതിതോർമ്മം  $\rightarrow$  സ്ഥിതിതോർമ്മം, സ്ഥിതിതോർമ്മം  $\rightarrow$  ഗതിതോർമ്മം, ഗതിതോർമ്മം  $\rightarrow$  ചലനീതോർമ്മം, ചലനീതോർമ്മം  $\rightarrow$  ഗതിതോർമ്മം) (1/2)

9. ചലിച്ചുതൊണ്ടിരിക്കുന്ന വസ്തുക്കളുടെ സമീകരണമെന്താണ് \_\_\_\_\_  
(ആവേഗം, ഞെല്പനം, ഞെക്കം, ബലം) (1/2)


10. 1m ഉയരത്തിൽ ഉരിക്കുന്ന വസ്തുവിനെന്നോ 2m ഉയരത്തിൽ ഉരിക്കുന്ന വസ്തുവിനെന്നോ സ്ഥിതിതോർമ്മം തട്ടുന്നത്?

(1m ഉയരത്തിൽ, 2m ഉയരത്തിൽ, ഉൾക്കൊള്ള) (1/2)

$(10 \times 1/2 = 5)$

11. ചേരുംപടി ചേർക്കുക. (5 x 1/2 = 2 1/2)

| $mgh$                                | സൂത്രം ഉപയോഗിക്കുക     | $J$ (നൂറ്റ)                  |
|--------------------------------------|------------------------|------------------------------|
| തെങ്ങിൽ നിന്നും തെങ്ങിന്റെ വെട്ടലാണ് | സ്ഥിതിതോർമ്മം          | പ്രവർത്തനം<br>ചലനീപ്രവർത്തനം |
| $\frac{GM}{R^2}$                     | $F_c = \frac{mv^2}{r}$ | $9.8 \text{ m/s}^2$          |
| മുക്ക് തിരിക്കുന്നത്                 | സൂത്രം ഉപയോഗിക്കുക     | വർത്തനം ഉപയോഗം               |
| $F=ma$                               | $g$                    |                              |

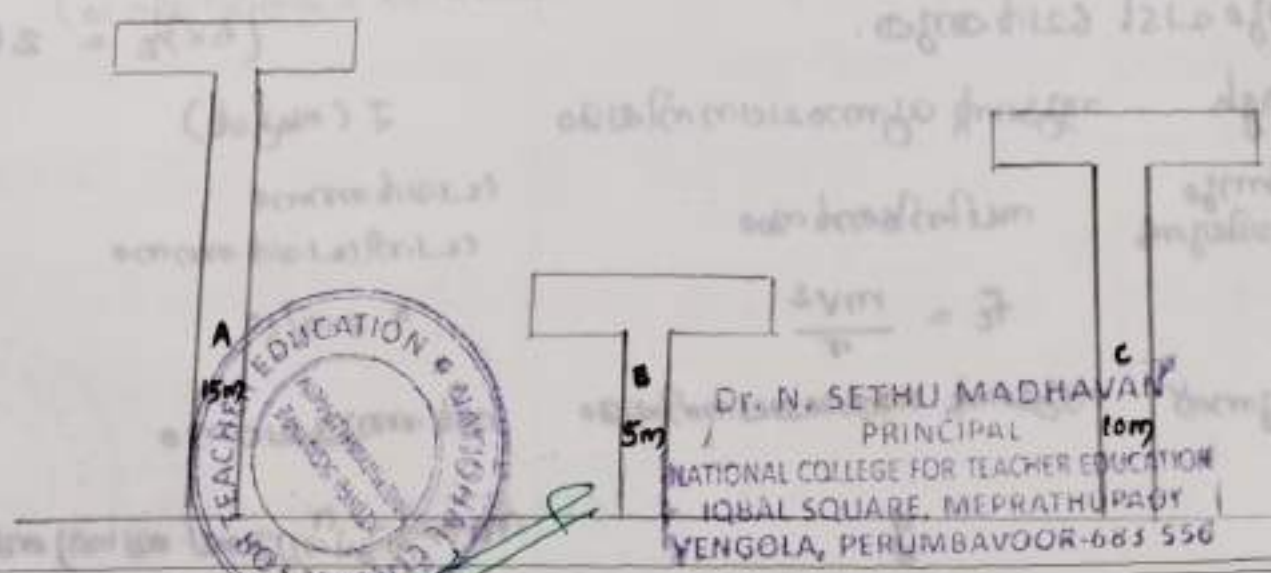

  
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12. പട്ടികപൂർത്തിയാക്കുക.

(5x1/2 = 2 1/2)

|   |                 |   |
|---|-----------------|---|
| <p>കരു വസ്തുവിനോടുകൂടുന്ന അമ്മ വ്യത്യസ്തത്തിന്റെ നിരക്ക് അ വസ്തുവിൽ പ്രയോഗിക്കുന്ന അ ഡർശന ബാഹ്യബലത്തിന് നേർ അനുപാതത്തിലായിരിക്കും.</p>  | <p>a) _____</p> | <p>b) _____</p>                                       |
| <p>ഒരു ബാഹ്യബലമില്ലാതെ കരു വ്യക്തത്തിന്റെ അതെ അമ്മം ഡർശനമായിരിക്കും.</p>  | <p>c) _____</p> | <p><math>m_1 v_1 + m_2 v_2 = m_1 u + m_2 u</math></p> |
| <p>പ്രവണതയിലൂടെ എല്ലാ വസ്തുക്കളും പരസ്പരം അകർഷിക്കുന്നു. 2 വസ്തുക്കൾ തമ്മിലൂടെ അകർഷണബല അവയുടെ ദിശ്യ ക്ഷേത്ര ഗുണനഫലത്തിന് നേർ അനുപാതത്തിലും അവ തമ്മിലൂടെ അകലത്തിന്റെ വർഗത്തിന് വിപരീത അനുപാതത്തിലായിരിക്കും.</p> | <p>d) _____</p> | <p>e) _____</p>                                       |

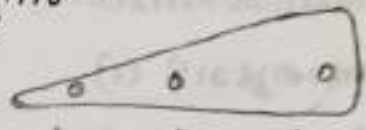
13. 10kg ദിശ്യകൂടാ ഇരുമ്പ് ഗോളത്തെ ഗണ്ണിയിൽ നിന്നും A, B, C എന്നീ ജാറ്റ് മോമുകളുടെ മുതലിൽ ഏർപ്പാടു ചെയ്യുന്നു. ജാറ്റ് മോമുകളുടെ ഉപരി ചിരത്തിൽ തൊടുത്തിരിക്കുന്നു.



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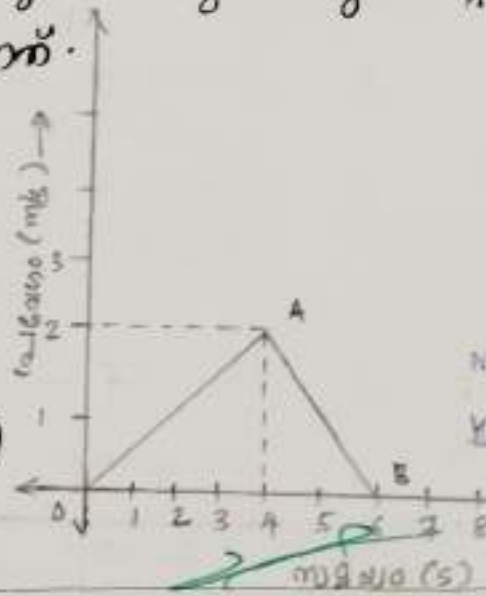
- a) ഏത് ജാർജ്ജിയൽ വർണ്ണനകിനാണ് തൂങ്ങൽ പ്രയുക്തിയെന്ന് വിവരിക്കുക? (1)
- b) പ്രയുക്തിയുടെ അളവിനെ സ്വീകരിക്കുന്ന ഘടകങ്ങൾ ഏതെല്ലാം? (1)
- c) ഉത്തമ ഉപരന്ന രെട്ട് കഴിഞ്ഞാൽ സംഭവിക്കേണ്ടുന്ന ഉൾനടയ്ക്ക്? (1)
- (3x1=3)

14. വസ്തു തിരമാലി വ്യത്യാസപ്പെട്ടിട്ടുള്ള ഒരു ലോഹരേഖയിൽ A, B, C എന്നീ ബിന്ദുക്കൾ രേഖപ്പെടുത്തിയിരിക്കുന്നു.



- a) ഈ ബിന്ദുക്കളിൽ രേഖയിന്റെ ഗുരുത്വ കേന്ദ്രമാകാൻ സാധ്യതയുള്ള ബിന്ദുവേത്? (1/2)
- b) ഗുരുത്വ കേന്ദ്രമെന്താണത്? (1)
- c) ഇത് ഒരു വസ്തുവുമായ രേഖയിരുമ്പുന്നതിൽ ഇതിന്റെ ഗുരുത്വകേന്ദ്രം ഏതാണെന്ന് സാധ്യത? (1/2)
- d) വസ്തുവിന് വെട്ടിയിൽ ഗുരുത്വകേന്ദ്രം വരുന്ന വസ്തുവിന് ആയത് നമുക്കുതോന്നുന്നു. (1)
- (3)

15. 2kg മാസ്സുള്ള ചലനാവശ്യമില്ലാത്ത ഒരു വസ്തുവിന്റെ സമയ-പ്രവേഗ ഗ്രാഫിന് ഇവിടെ അറിയിക്കുന്നു.



- a) നാലരണ്ടാം സെക്കന്റിൽ ഈ വസ്തുവിന്റെ ത്വരണം എത്ര? (1)
- b) അദ്ദേഹം 4 സെക്കന്റിൽ വസ്തുവിന്റെ ത്വരണം എത്ര? (1)
- c) ഈ സമയത്ത് വസ്തുവിന്റെ പ്രവേഗി ചുരുക്കം എത്രയാണത്? (1)

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d) സെമിനാർ സമയം തൊണ്ട് ഇന വർഗ്ഗവിഭാഗങ്ങൾ സംബന്ധിച്ച  
ലേഖനം തയ്യാറാക്കുക. (2)

(5)

16. 1. നീളമുള്ള ചരടിൽ തെളിഞ്ഞു കിട്ടിയ ചരടിന്റെ ഭാരം പിടിച്ചുകൊണ്ട്  
വർണ്ണിച്ച പത്രികയിൽ ചിലിപ്പിക്കുന്നു.

a) തട്ട് ഇതേ പത്രികയിൽ തൂങ്ങാൻ പ്രയത്നിക്കേണ്ടുന്ന ബലത്തിന്റെ  
പ്രകാരം എത്ര? (1)

b) തട്ട് സമതുലനത്തിലാണ് സന്തുലനമാണെന്ന് അതിന്റെ പ്രയത്നത്തിന്  
മറ്റൊരു കാര്യമുണ്ടോ? (1)

c) ക്ലോത്തിലെ സെമിനാർ സൂചിയുടെ അളവ് എത്രയും കൂടുതൽ  
ചെയ്യണമോ? കാര്യമെന്താണ്? (2)

(4)



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(2)

# IV. Scoring key and marking scheme

## scoring key

| an. No | scoring key                             | Mark |
|--------|---|------|
| 1      | ഈയവസ്ഥ                                  | 1/2  |
| 2      | താവഴി                                   | 1/2  |
| 3      | തോതിൽ നിന്നും അറിയിച്ചതും<br>വെടിവെച്ചു | 1/2  |
| 4      | അവസ്ഥ                                   | 1/2  |
| 5      | 2 ഭാഗങ്ങൾ                               | 1/2  |
| 6      | മണ്ണ്                                   | 1/2  |
| 7      | ചുരുൾ നൂൽക്കുന്നു                       | 1/2  |
| 8      | പുതിയതോളം $\rightarrow$ പഴയതോളം         | 1/2  |
| 9      | അതേ                                     | 1/2  |
| 10     | 2 ഭാഗങ്ങൾ ഉപയോഗിക്കുക                   | 1/2  |

## marking scheme

| Qn. No | value points  | Marks | Total |
|--------|---|-------|-------|
| 11.    | $mgh$ - പുതിയതോളം $m$ - $g$ (5)   | 1/2   | 2 1/2 |
| 8      | തോതിൽ നിന്നും<br>അറിയിച്ചതും<br>വെടിവെച്ചു<br>$\frac{1}{2} m v^2 = mgh$<br>$v = \sqrt{2gh}$ | 1/2   |       |
|        | $GM/R^2 = g = 9.8 \text{ m/s}^2$  | 1/2   |       |
|        | ഏറ്റവും<br>വേഗം $v = \frac{mv^2}{r}$ - $g$ (അതേ)  | 1/2   |       |
|        | $F = ma$ - $g$ (അതേ)  | 1/2   |       |



12.

ഒരു വസ്തുവിനുണ്ടാകുന്ന  
അനുഭവക്രമത്തിന്റെ നിരക്ക്  
അവസ്തുവിൽ പ്രവേശിക്കു  
ന്ന അനുഭവക്രമത്തെ അനുസരിച്ച്  
അതിന് അനുരൂപമായിരിക്കുന്നു

നൂൽക്കൂ  
രംഗം  
ചലന  
നിലയം

$$F = ma$$

1

ഒരു ബാഹ്യബലമില്ലാതെ ഒരു  
വസ്തുവിന്റെ അതേ അതേ  
സമീപമായിരിക്കുന്നു.

അതേ  
സമീപം  
നിലയം

$$m_1v_1 + m_2v_2 = m_1u_1 + m_2u_2$$

1/2

2 1/2

പ്രപഞ്ചത്തിലുള്ള ഏറ്റവും വലിയ  
തൂണുപട്രം അതുകൊണ്ടും  
2 വസ്തുക്കൾ തമ്മിലുള്ള അതുകൊണ്ടും  
ബലം അയ്യോമിതമായിരിക്കുന്നു  
മലത്തിന് അനുരൂപമായിരിക്കുന്നു  
അതുകൊണ്ടും അതുകൊണ്ടും  
അതിന് വിപരീതമായിരിക്കുന്നു

സമീപം  
നൂൽക്കൂ  
രംഗം  
നിലയം

$$F = \frac{Gm_1m_2}{r^2}$$

1

13.

a) A

1

b) മണ്ണ്, ഗോവിളി, ഉയരം

1

3

c) സമീപിക്കേണ്ടതും

14

a) c

1/2

b) ഒരു വസ്തുവിന്റെ വ്യക്തമായ കാരണം കേന്ദ്രീകരിച്ചിരിക്കുന്നതും ഉപരിയെ വരുന്നതും അതിനു  
വണ്ണ് ഗുരുത്വകേന്ദ്രമേക്ക് വിട്ടിരിക്കുന്നത്

1

3

c) B

1/2



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15 a) വസ്തുവിന്റെ പിണ്ഡം = 2kg  
 സമയം = 4s പ്രവേഗം = 2m/s  
 ∴ അതോ = 2 x 2 = 4 kg m/s

1

b) സമയം = 4s പ്രവേഗം = 2m/s  
 ത്വരണം =  $\frac{\text{പ്രവേഗം}}{\text{സമയം}} = \frac{2}{4} = \frac{1}{2} \text{ m/s}^2$

1

c)  $F = ma$   
 പിണ്ഡം,  $m = 2 \text{ kg}$   
 ത്വരണം,  $a = \frac{1}{2} \text{ m/s}^2$   
 ∴  $F = 2 \times \frac{1}{2} = 1 \text{ N}$

5

d) പ്രവേഗം =  $\frac{\text{സമയം}}{\text{സമയം}}$  സമയം = 6s  
 പ്രവേഗം = 2 m/s  
 സമയം = പ്രവേഗം x സമയം  
 = 2 x 6  
 = 12m

2

16 a) വർത്തുചലനം

1

b) ചക്രങ്ങളും, പ്രവേശനത്തിന് ദിശയുണ്ട്.  
 വർത്തുചലനത്തിന് സമവേഗത്തിലാണ് ചലിക്കുന്നത്.  
 അതിൽ ദിശമാറുന്നതുതന്നെ പ്രവേശനമില്ലാത്തതാണ്.

1

4

c) ജോയിന്റലി സെക്ഷൻ സൂചിയുടെ അപരത്തിൽ  
 ചലനം സമവർത്തുചലനമാണ്. കാരണം,  
 തുല്യസമയം തെളിയിക്കുന്നുണ്ട് സൂചിയുടെ  
 സൂചി സഞ്ചരിക്കുന്നത് ∴ സമവർത്തുചലനം  
 മിനുസമാണ്.

2




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# Questionwise Analysis

| Q.No | Content   | Objective     | Specifications | from the questions | Difficulty level | Marks |
|------|---|---------------|----------------|--------------------|------------------|-------|
| 1    | ഗുരുത്വാകർഷണം   | knowledge     | Recognize      | objective type     | Easy             | 1/2   |
| 2    | ഗുരുത്വാകർഷണം   | knowledge     | Recalls        | objective type     | Easy             | 1/2   |
| 3    | ചലനവും ചലനനിലാരോധവും  | understanding | Recognize      | objective type     | Average          | 1/2   |
| 4    | ചലനവും ചലനനിലാരോധവും  | knowledge     | Recognize      | objective type     | Easy             | 1/2   |
| 5    | ഗുരുത്വാകർഷണം   | understanding | Recognize      | objective type     | Average          | 1/2   |
| 6    | ചലനവും ചലനനിലാരോധവും  | knowledge     | Recalls        | objective type     | Easy             | 1/2   |
| 7    | പ്രവൃത്തി, ഉന്മൂലം ചലനം                                       | understanding | Recognize      | objective type     | average          | 1/2   |
| 8    | പ്രവൃത്തി, ഉന്മൂലം, ചലനം                                      | understanding | Recalls        | objective type     | average          | 1/2   |
| 9    | ചലനവും ചലനനിലാരോധവും  | knowledge     | Recalls        | objective type     | Easy             | 1/2   |
| 10   | പ്രവൃത്തി, ഉന്മൂലം ചലനം                                       | understanding | Recognize      | objective type     | Average          | 1/2   |
| 11   | ചലനവും ചലനനിലാരോധവും, ഗുരുത്വാകർഷണം, പ്രവൃത്തി, ഉന്മൂലം, ചലനം | knowledge     | Recalls        | short answer type  | Average          | 2 1/2 |

  
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|    |   |               |  |                         |           |       |
|----|---|---------------|--|-------------------------|-----------|-------|
| 12 | ചലനവും<br>ചലനനിയമങ്ങളും,<br>ഗുരുത്വാകർഷണം | Understanding | Recognize  | short<br>answer<br>type | Average   | 2 1/2 |
| 13 | പ്രകൃതി, മൃഗങ്ങൾ,<br>പുഷ്പ                | Application   | Use of<br>scientific<br>knowledge into<br>Application                  | short<br>answer<br>type | Average   | 3     |
| 14 | ഗുരുത്വാകർഷണം                             | Application   | use of<br>scientific<br>knowledge into<br>Application                  | short<br>answer<br>type | Difficult | 3     |
| 15 | ചലനവും<br>ചലനനിയമങ്ങളും                   | Application   | Recognize<br>and use of<br>scientific<br>knowledge<br>into Application | Essay<br>type           | Difficult | 5     |
| 16 | ചലനവും<br>ചലനനിയമങ്ങളും                   | Application   | use of<br>scientific<br>knowledge into<br>Application                  | Essay<br>type           | Average   | 7     |

  
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# Rank list

| Roll No. | Name of students | Marks  |
|----------|------------------|--------|
| 1        | Alphonsa Jose    | 16     |
| 2        | Anitha . L       | 22 1/2 |
| 3        | Anmariya Baiju   | 10     |
| 4        | Dilsha shaji     | 5 1/2  |
| 5        | Fathima Ruksana  | 14 1/2 |
| 6        | Vigneeswari      | 15     |
| 7        | Vrinda krishna   | 8 1/2  |
| 8        | Abijith          | 4 1/2  |
| 9        | Abishek          | 18 1/2 |
| 10       | Adwaitth         | 8      |
| 11       | Ananth pratheesh | 2 1/2  |
| 12       | Bazlel           | 11     |
| 13       | Devadarsh        | 3      |
| 14       | Tojo             | —      |
| 15       | Krishor          | 12 1/2 |
| 16       | Ramki            | 9      |
| 17       | Sanju            | 6      |
| 18       | Satheesh         | 20     |
| 19       | Sinan            | 17     |
| 20       | Viswajith        | 14     |

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22/2  
25

ഉറക്കത്തോടെ

Prithvi L  
IX-A  
Roll no: 2

Y1 (പ്രാഥമിക)

Y2 കാനിഫ്

3 കോർത്തിളം പ്രിന്റ്

Y3 ഉപയുഗം

Y4 2

6 മാസി

7 പ്രവർത്തനങ്ങൾ

8 നീതികോർട്ടം - നീതികോർട്ടം

9 തിരുത്തൽ

Y5 2m ഉയരത്തിൽ

11.  $mgh$  - നീതികോർട്ടം - 4 (ഊർജ്ജം)

തോതിൽനിന്നും - ന്യൂട്ടൺ രണ്ടാം നിയമം - പ്രവർത്തനം, പ്രതിപ്രവർത്തനം  
 തന്മൂലം ഉണ്ടാകുന്ന ഏകീകൃത ചലനം

2/2  $\frac{GM}{R^2} = g$   $9.8 \text{ m/s}^2$

$F = ma$  - ന്യൂട്ടൺ രണ്ടാം നിയമം - ദൂരം നൽകുന്നതിനുള്ള സമവാക്യം  
 -  $a = g$

ഊർജ്ജം നിലനിർത്തൽ -  $F_c = \frac{mv^2}{r}$  - വൃത്താകൃതിയിലുള്ള ചലനം

12 (a) ന്യൂട്ടൺ രണ്ടാം നിയമം ഉപയോഗിച്ച്

(b)  $F = ma$

(c)  $\alpha$

(d)  $\alpha$

Y2 (e)  $F = \frac{Gm_1m_2}{r^2}$

13 (a) A

2 (b) ഏതെങ്കിലും മാസ്, പ്രവേഗം, ഉയരം

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- 14) (a) C ✓  
 (b) D ✓  
 (c) B ✓

(d) ~~നന്നുമാ~~

15) (a) നൂറുമുനികളുടെ ദൂരം = 2kg  
 സമയം = 4 sec (ഗുരുത്വം = 2 m/s)

∴ തന്മൂലം =  $2 \times 2 = \underline{4 \text{ kg m/s}}$

(b) സമയം = 4s. ഗുരുത്വം = 2 m/s<sup>2</sup>.

തന്മൂലം =  $\frac{\text{ഗുരുത്വം}}{\text{സമയം}} = \frac{2}{4} = \underline{\underline{\frac{1}{2} \text{ m/s}^2}}$

(c)  $F = ma$

ദൂരം,  $m = 2 \text{ kg}$

തന്മൂലം,  $a = \frac{1}{2} \text{ m/s}^2$

∴  $F = 2 \times \frac{1}{2} = \underline{1 \text{ N}}$

(d) ഗുരുത്വം =  $\frac{\text{നൂറുമുനികളുടെ}}{\text{സമയം}}$  സമയം = 6s  
ഗുരുത്വം = 2 m/s

നൂറുമുനികളുടെ =  $(\text{ഗുരുത്വം} \times \text{സമയം})$   
 $2 \times 6$   
 $= \underline{\underline{12 \text{ m}}}$

16) (a) ~~നന്നുമാ~~

(b) ~~ഭാരം, ഭാരമുള്ളവയുടെ തന്മൂലം ഉണ്ടായുള്ള ഊർജ്ജം~~  
~~തന്മൂലം ഉണ്ടായുള്ളവയുടെ തന്മൂലം ഉണ്ടായുള്ള ഊർജ്ജം.~~

(c) ~~ഭാരം, ഭാരമുള്ളവയുടെ തന്മൂലം ഉണ്ടായുള്ള~~  
~~തന്മൂലം ഉണ്ടായുള്ളവയുടെ തന്മൂലം ഉണ്ടായുള്ള~~

## Summary of the Result

Total number of students in the class = 20

Total number of students appeared exam = 19

Maximum mark : 25 ; Maximum score = 22.5

Minimum score = 2.5

## Statistical Analysis of Achievement Test

### Statistics

Statistics is the science of collecting, analysing, presenting and interpreting data. It provides methods for drawing conclusions and making inferences about populations based on sampled data.

### Frequency distribution

A frequency distribution is a tabular or graphical representation that shows the number of occurrences of different values or ranges of values in a dataset. It helps to organize and summarize the data, making it easier to identify patterns and understand the distribution of values. In summarising large masses of new data, it is often useful to distribute data into classes and determine the number of individual belonging in each class which is called the class frequency. By classifying scores to get what is called frequency distribution.

Frequency distributions provide a clear and organized way to understand the distribution of values in a dataset, revealing patterns, central tendencies, and variations. They are fundamental in descriptive statistics and are often a precursor to further.



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## Frequency Distribution Table

| class Interval | Tally marks | Frequency |
|----------------|-------------|-----------|
| 0-5            |             | 3         |
| 5-10           |             | 4         |
| 10-15          |             | 4         |
| 15-20          |             | 4         |
| 20-25          |             | 1         |

### ① Measures of central tendency

The value of the point around which scores tend to cluster is called measure of central tendency. A measure of central tendency may be defined as a single measure representing all the scores of a distribution. The commonly used measures of central tendency are; i) mean ii) median iii) mode.

#### (i) Arithmetic mean

It is defined as the relation between sum of those values in these numbers. It is the ordinary average in arithmetic.

$$\text{Mean} = \frac{\sum f x_i}{N}$$

$x_i \Rightarrow$  mid point  $x$ ,  $N \Rightarrow$  total no. of score,  $f \rightarrow$  frequency

| class interval | frequency (f) | midpoint ( $x_i$ ) | $f x_i$ |
|----------------|---------------|--------------------|---------|
| 0-5            | 3             | 2.5                | 7.5     |
| 5-10           | 4             | 7.5                | 30      |



|       |   |      |      |
|-------|---|------|------|
| 10-15 | 5 | 12.5 | 62.5 |
| 15-20 | 4 | 17.5 | 70   |
| 20-25 | 1 | 22.5 | 22.5 |

Total  $N = 19$

$\sum fx_i = 204.5$

$$\text{Mean} = \frac{\sum fx_i}{N} = \frac{204.5}{19} = \underline{\underline{10.921}} \checkmark$$

## 2. Median

Median is the middle score of a set of scores when they are arranged in either ascending or descending order of their magnitudes, median of grouped data is calculated using the formula,

$$\text{Median} = l + \left( \frac{\frac{N}{2} - Cf}{f} \right) \times i$$

$l \rightarrow$  lower limit of the median class,  $i \rightarrow$  class interval

$f \rightarrow$  frequency of median class

$Cf \rightarrow$  cumulative frequency of class just preceding the median class

$N \rightarrow$  Total number of scores.

| class interval | frequency (f) | cumulative frequency (Cf) |
|----------------|---------------|---------------------------|
| 0-5            | 3             | 3                         |
| 5-10           | 6             | 9                         |
| 10-15          | 5             | 14                        |
| 15-20          | 4             | 18                        |
| 20-25          | 1             | 19                        |

$l = 5$



$l = 5$ ,  $f = 6$ ,  $Cf = 9$



$$\begin{aligned}
 \text{Median} &= l + \left( \frac{\frac{N}{2} - Cf}{f} \right) \times i = 5 + \left( \frac{\frac{19}{2} - 3}{6} \right) \times 5 \\
 &= 5 + \left( \frac{9.5 - 3}{6} \right) \times 5 \\
 &= 5 + \left( \frac{6.5}{6} \times 5 \right) \\
 &= 5 + (1.083 \times 5) \\
 &= 5 + 5.415 = \underline{\underline{10.415}}
 \end{aligned}$$

### 3. Mode

The value of the variables which occupies most frequency in a distribution is called the mode.

$$\text{mode} = l + \left( \frac{f_2}{f_1 + f_2} \right) \times i$$

$l \rightarrow$  lower limit of mode class

$f_1 \rightarrow$  frequency just below the mode class

$f_2 \rightarrow$  frequency just above the mode class

| class interval | frequency (f) |
|----------------|---------------|
| 0-5            | 3             |
| 5-10           | 6 mode class  |
| 10-15          | 5             |
| 15-20          | 4             |
| 20-25          | 1             |

$$l = 5$$

$$f_1 = 3$$

$$f_2 = 5$$

$$i = 5$$

~~$$\text{Mode} = l + \left( \frac{f_2}{f_1 + f_2} \right) \times i$$~~

$$= 5 + \left( \frac{5}{8+5} \right) \times 5 = \underline{\underline{8.125}}$$

## ② Standard Measures of Dispersion

### 1. Standard Deviation

Standard deviation is the square root of the average (mean) of the squares of deviations of the score taken from the mean. It is the most important measure of variability. In calculating the standard deviation we square the deviation of each score separately and find their sum. This sum is then divided by total number to determine the average of the square of deviation.

$$S.D, \sigma = \sqrt{\frac{\sum fd^2}{N}}$$

$f \rightarrow$  frequency of each class,  $d = \text{mid } x - A.M$

| class interval | frequency | mid point $x_i$ | Deviation $d = x_i - \bar{x}$ | $d^2$   | $fd^2$  |
|----------------|-----------|-----------------|-------------------------------|---------|---------|
| 0-5            | 3         | 2.5             | -8.421                        | 70.913  | 212.739 |
| 5-10           | 6         | 7.5             | -3.421                        | 11.903  | 70.218  |
| 10-15          | 5         | 12.5            | 1.579                         | 2.493   | 12.465  |
| 15-20          | 4         | 17.5            | 6.579                         | 43.283  | 173.132 |
| 20-25          | 1         | 22.5            | 11.579                        | 134.073 | 134.07  |

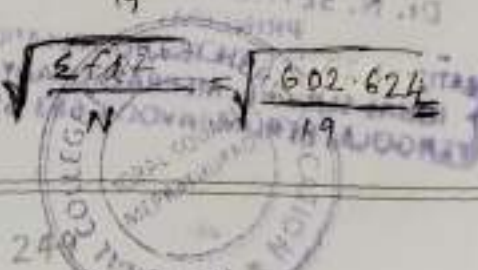
$$N = 19$$

$$\sum fd^2 = 602.624$$

$$\text{Mean} = \frac{\sum fx}{N} = \frac{207.5}{19} = 10.921$$

$$\sigma (S.D) = \sqrt{\frac{\sum fd^2}{N}} = \sqrt{\frac{602.624}{19}} = 1.292$$

$$\underline{\underline{1.292}}$$



## 2. Range

The range is the difference between the highest and lowest scores in a distribution.

H  $\rightarrow$  Highest score : 22.5

L  $\rightarrow$  Lowest score : 2.5

$$R = H - L = 22.5 - 2.5 = 20$$

## Statistical Analysis Table

| Sl-No | Statistics         | Value  |
|-------|--------------------|--------|
| 1.    | Arithmetic Mean    | 10.921 |
| 2.    | Median             | 10.415 |
| 3.    | Mode               | 8.125  |
| 4.    | Range              | 20     |
| 5.    | Standard deviation | 1.292  |

## Graphical Representation of data

There are different type of graphical representation of data. There are two method which are usually employed for this graphical representation of frequency distribution.

a) Histogram

b) Frequency polygon

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ogram

the most accurate graph that represent a frequency distribution. In histogram, scores are spread uniformly over the entire class interval. The class interval is marked on the x-axis and the frequency on the y-axis. Each interval in histogram is represented by a separate rectangle. The whole of the histogram is the preparation with the whole of the statistical data

| class interval | Frequency |
|----------------|-----------|
| 0-5            | 3         |
| 5-10           | 6         |
| 10-15          | 5         |
| 15-20          | 4         |
| 20-25          | 1         |

Steps:

- on the vertical axis, label frequency  $x$  on the horizontal axis, label lower value of each interval
- Draw the base extending from the lower value of each interval to the lower value of the next interval. The height of each base should be equal to the frequency of its corresponding interval.

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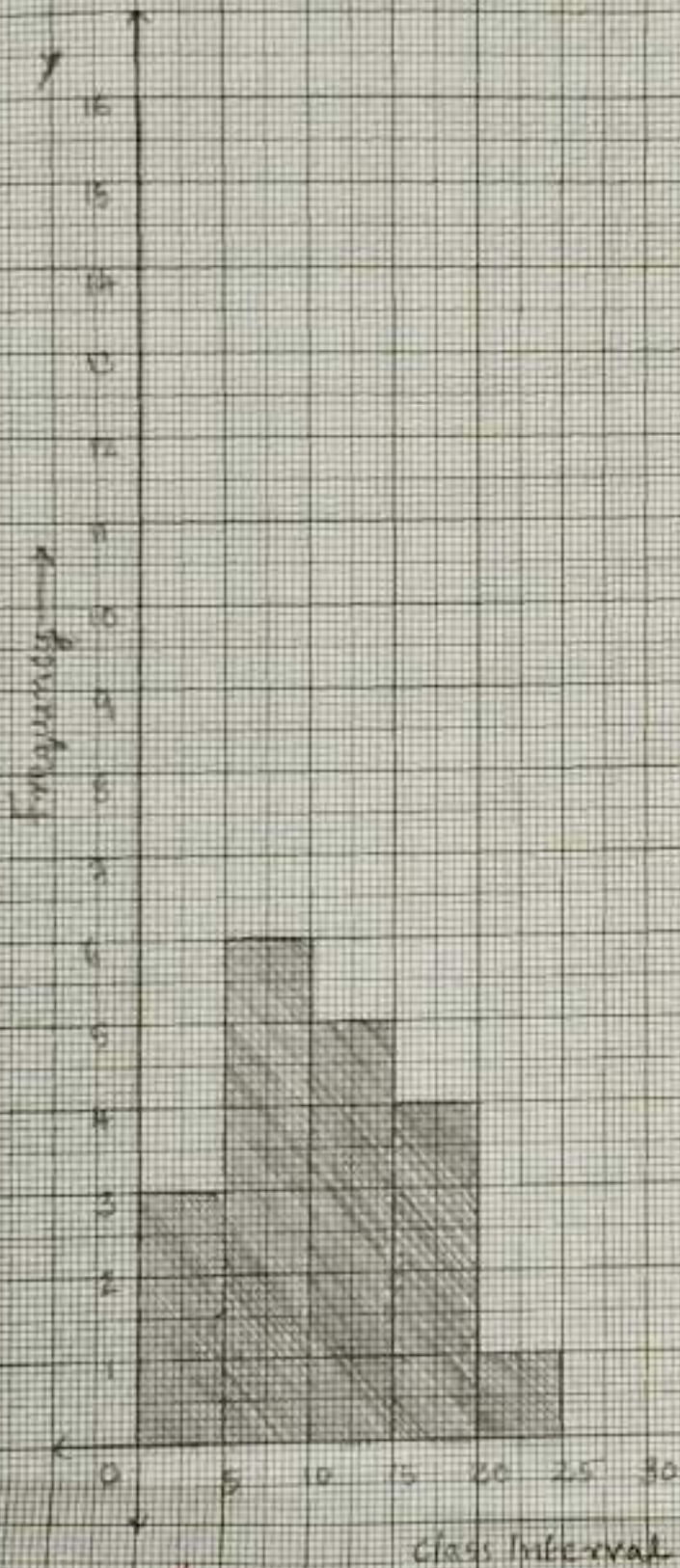


# HISTOGRAM

Scale

x-axis = 10 division = 5 marks

y-axis = 10 division = 1



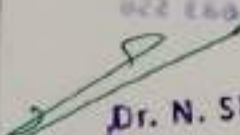


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## Frequency polygon

A frequency polygon is a many sided closed figure. A frequency polygon is a graphical representation of a given frequency distribution. In this graph, the midpoint of the class are plotted on the x-axis to represent the score. The frequency of each class is marked by a point from the x-axis being proportional to the frequency concerned. It is created by connecting the midpoints of the intervals in a frequency distribution with straight lines. This helps visualize the shape and pattern of the data set, providing insights into its distribution. The resulting polygon provides a visual summary of the data's shape and central tendency. It is especially useful for displaying the distribution of numerical data and identifying patterns or trends.

| class interval | Frequency | Midpoint of class interval |
|----------------|-----------|----------------------------|
| 0-5            | 3         | 2.5                        |
| 5-10           | 6         | 7.5                        |
| 10-15          | 5         | 12.5                       |
| 15-20          | 4         | 17.5                       |
| 20-25          | 1         | 22.5                       |

  
  
  
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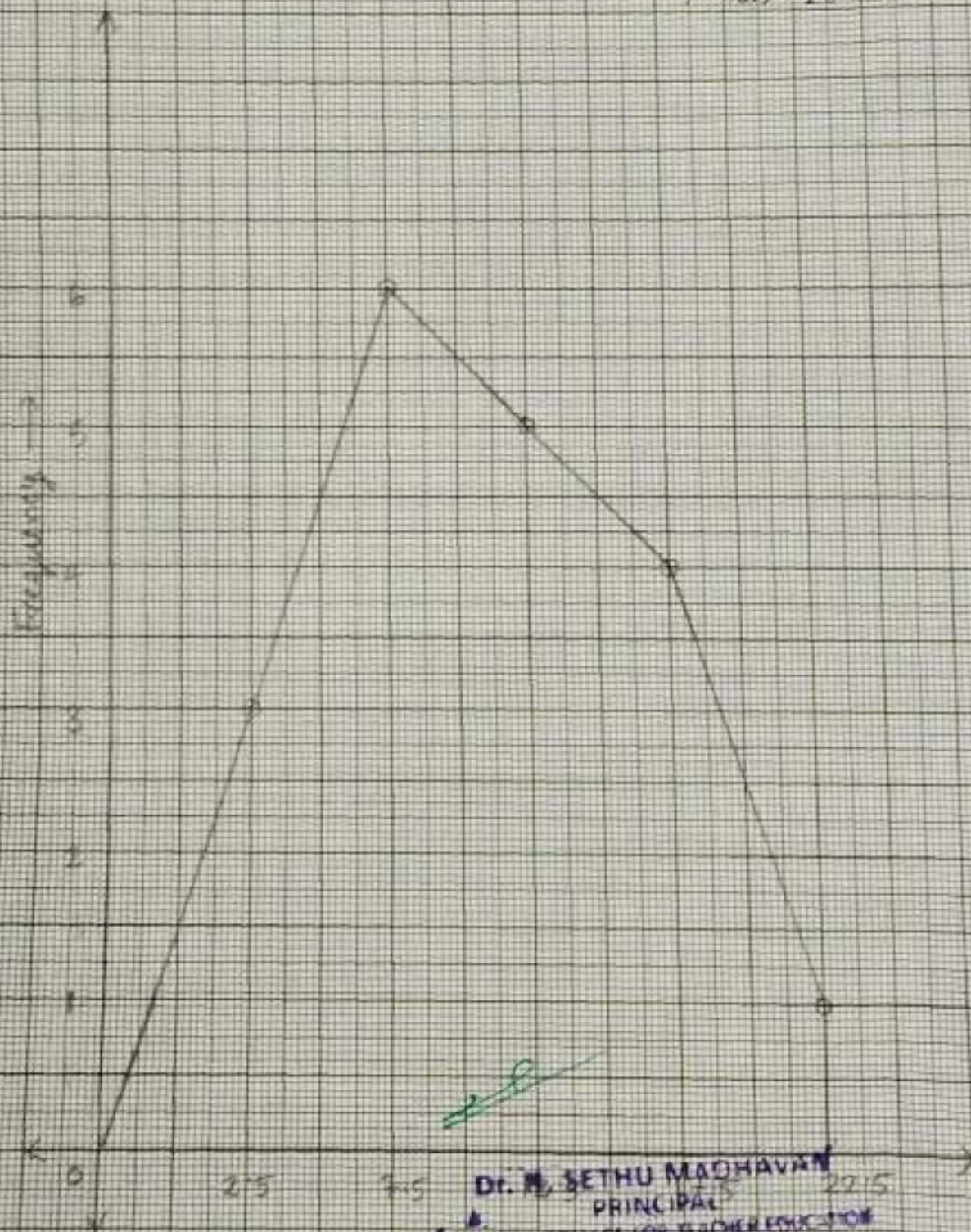


# FREQUENCY POLYGON

Scale

X-axis = 50 div = 2.5

Y-axis = 20 div = 1

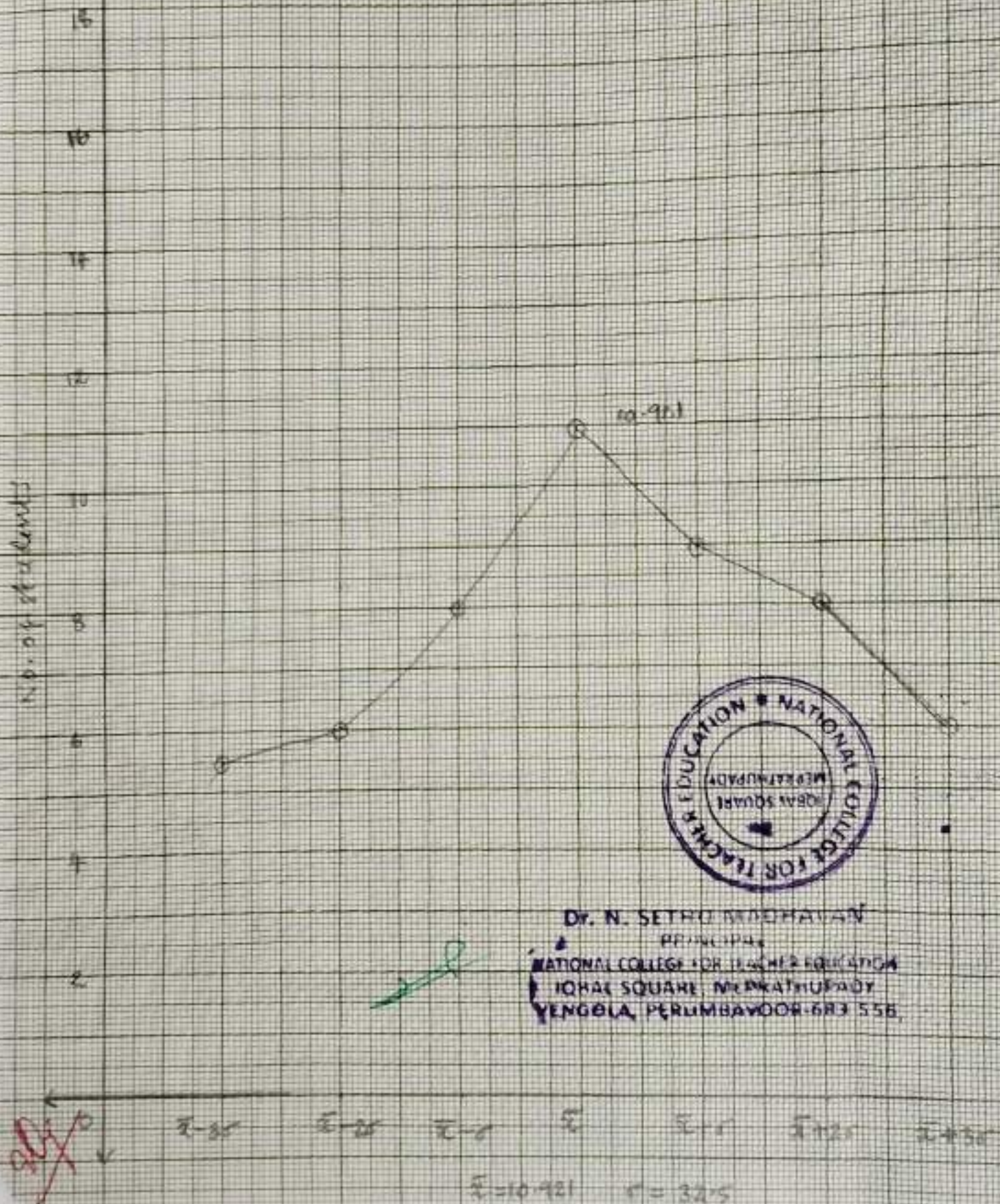


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# NORMAL PROBABILITY CURVE



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# Statistical Analysis Table

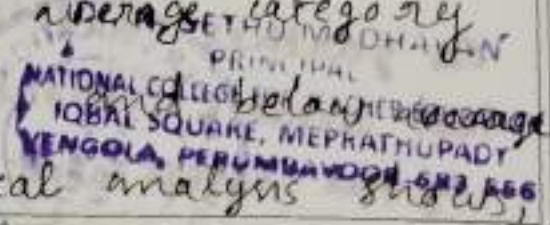
| S.No | Group         | Statistics                            | No. of students |
|------|---------------|---------------------------------------|-----------------|
| 1    | Above average | $A + \sigma$                          | 9               |
| 2    | Average       | Between $A + \sigma$ and $A - \sigma$ | 2               |
| 3    | Below average | $A - \sigma$                          | 8               |

Above average =  $A + \sigma$   
 $= 10.921 + 1.292$   
 $= 12.213$

Below average =  $A - \sigma$   
 $= 10.921 - 1.292$   
 $= 9.629$

## Analysis and Interpretation

From the statistical analysis of achievement test it can be interpreted by the following facts. The number of students in the above average category is 9, in the average category is 2, and in the below average category is 8. The statistical analysis shows,



Mean = 10.921, Median = 10.415, and mode = 8.125. The Standard deviation is 32.556.

From the achievement test, I understand that out of 19 students who attend the test, a major number of studied are in the category above average. By giving proper care and attention this students can score above average marks and improved well. The number of students falling in the above average category is 9, Average category is 2, and below average category is 8. From the achievement test, I understand that out of 20 students who attend the test a major number of students are in the category above average.

## Conclusion

An achievement test typically involves analyzing the test results to evaluate an individual's performance or proficiency in a specific area of study or skill. This assessment allows for comparisons against predetermined standards or norms. It may include insights into strengths and weakness, indicating areas where improvement is needed or where the individual excels. It serves as a valuable tool for educators, employers, or individuals themselves to make informed decisions about educational paths, training, or further development. Interpretation of achievement test results should consider the context and purpose of the assessment to ensure educational and professional growth.



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I conducted achievement test for class IX A students of Asram H.S.S perumbavoor. For that, I selected 3 chapters from physics namely motion and laws of motion, Gravitation, work, power and energy. The test was conducted out of 25 marks. It consists of first 10 objective type questions each carries  $\frac{1}{2}$  mark, and 10 short answer type questions and 2 essay type questions. 19 students out of 20 students attended the test. Most of the students score good marks.

This achievement test thus helps to assess the students achievement or understanding what they know and can do and thus learning. It is really helpful in understanding the achievement of the students.

## References

<https://topphat.com>

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# National College for Teacher Education

B.Ed. Degree Internal Examination

EDU404.5: Communicative English- Oral Assessment Test

Duration: 10 minutes

Maximum Marks

Oral Test: 10

Task 1 – Talk five minutes about a topic you have chosen from the list.

1. An inspiring person
2. A memorable event
3. A Discipline that interests you
4. A Recipe you would like to share
5. Your dream journey
6. Your favourite movie/ book/author
7. Your hobby
8. Your perspective of good teaching....
9. What is your dream job?
10. Lessons learnt from setbacks/ failures

Task 2 - What would be <sup>the</sup> likely response in the context?

You are at a friend's house for lunch.

Friend: How about another piece of cake?

You:.....

Friend: Come on, just a little piece?

You:.....



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# National College for Teacher Education

(NAAC Accredited with 'B' Grade)

Iqbal Square, Meprathupady, Vengola, Perumbavoor, Ernakulam - 683 556

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## KEY INDICATOR

### CRITERION 2-Teaching-learning and Evaluation

#### 2.4 TOOLS OF LEARNING ASSESSMENT

##### ICT IN TEACHING LEARNING PROCESS

##### METRIC 2.4.5.D

Any other relevant information

#### Affidavit

I do hereby certify that, all pages in this document are duly authenticated by me, under my privilege as the Head of the institution of National College for Teacher Education, Vengola, Ernakulum, Kerala

---

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|        | <p><b>Dr. N. SETHU MADHAVAN</b><br/>Principal<br/>NATIONAL COLLEGE FOR TEACHER EDUCATION<br/>GLOBAL SQUARE, MEPRATHUPADY<br/>VENGOLA, PERUMBAVOOR - 683 556</p> |                      |          |         |





Educational  
Journal

# EDUCATIONAL JOURNAL REVIEW

[5 RESEARCH ARTICLES]

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## Introduction

In the ever-evolving landscape of science education, this journal serves as a beacon of knowledge and innovation, illuminating pathways to enhance teaching practices, engage students, and inspire a lifelong love for scientific inquiry. Science education journals play a crucial role in advancing the field of science education by publishing theoretically informed, empirically robust research that sheds light on significant educational practices and innovations. These journals serve as platforms for scholars, researchers, educators, and policymakers to share insights, best practices, and cutting-edge research findings that contribute to the enhancement of teaching methodologies, curriculum development, and student engagement in science.

By disseminating scholarly articles that articulate principles and practices used by researchers to make valid claims about the world, these journals facilitate critical discourse within the scientific community. They promote the advancement of knowledge in science education by encouraging the exploration of new technologies, innovative teaching practices, and diverse perspectives that enrich the learning experiences of students at various educational levels. Science education journals also help identify trends in the field of science education, which inform future research and practice.

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## NEED AND SIGNIFICANCE

- Science education journals serve as platforms for scholars, researchers, educators and policymakers to disseminate their work, contribute to the development of the field, and enhance teaching methodologies.
- Science education journals serve as platforms for researchers to share their findings and insights with the broader academic community.
- They offer valuable resources for educators, including lesson plans, teaching strategies and educational technologies to enhance the quality of science instruction in classrooms.
- Journals encourage critical reflection and discourse within the scientific community, promoting a culture of continuous improvement and scholarship in science education.
- Journals maintain high standards through rigorous peer review processes, ensuring the credibility and reliability of published research.
- Journals often feature special issues or themed sections dedicated to emerging trends and emerging areas of science education.



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## OBJECTIVES

To address challenges and opportunities in science education

To explore the relationship between research and practice in science education.

To contribute to the advancement of the field of science education through scholarly community.

To highlight best practices in science education.

## OVERVIEW OF JOURNAL

Research in science Education is an International Journal publishing and promoting scholarly science education research of interest to a wide group of people. The journal examines early childhood, primary, secondary, tertiary, workplace and informal learning as they relate to science education.

In publishing scholarly articles, RISE is looking for articulation of the principles and practices used by scholars to make valid claims about the world and their critique of such claims. Publishing such work is important as it makes these principles and practices



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practices known to the scholarly community so that can be considered, debated, judged, and accepted, rejected or reformed. Importantly these principles and practices must be constantly advancing in ways that allow our knowledge to advance within the field. In looking for works to publish, BISE will seek articles that advance our knowledge in science education research rather than reproducing what we already know.

Research can take many forms, quantitative, qualitative and mixed methods to name a few. BISE is interested in producing valid and trust-worthy research that takes on a variety of forms and embraces new capabilities at hand, particularly around new technologies. Innovative practices and how these relate to science education will be at the fore front of our thinking in BISE.

Scholarly works of interest need to encompass the wide diversity of readership. BISE is the journal associated with the Australasian Science Education Research Association (ASERA), one of the oldest such association in the world, with a history from

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with its location

within the highly productive and exciting Asian region, the membership of ASEBA and the readership of RISE spans the globe and cultural perspectives. Hence, the scholarly works of interest published within RISE need to reflect this diversity. Additionally, they must also include a diversity of form. So, RISE will continue to review articles, editorials, book reviews, and other material deemed appropriate by the editors.

Name of the journal : Research in science Education  
(RISE)

Discipline : Science Education

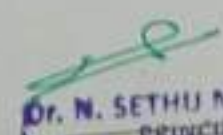
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Publisher : Clute Institute

Issue & year : Issue 1 Feb 2024

Editorial Board : Peter Aabnsson, University of  
Technology Sydney, Australia  
Shaun Bullock, Simon Fraser  
University, Canada  
et al.

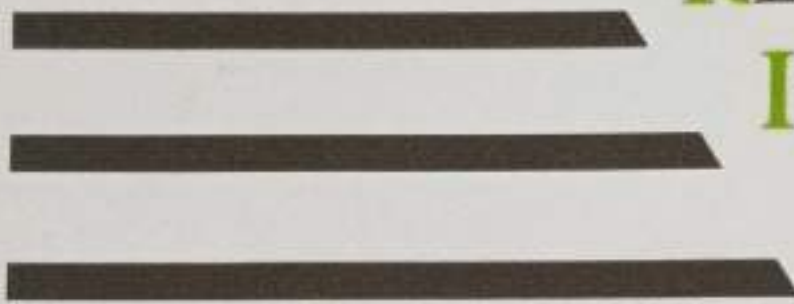
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Journal of the Australasian Science Education Rese

**R**ESEARCH  
**I**N  
**S**CIENCE  
**E**DUC.



# REVIEW OF THE RESEARCH ARTICLE

## Article - 1

Exploring Primary school students self-Regulated learning profiles in a web-Based Inquiry science Environment"

published : 17 February 2024

### Authors :

Yue Liu,

Yuxuan Lu,

Shixia Ren &

Danhui Zhang

### Abstract

web-based inquiry learning provides opportunities for students to take responsibility to regulate their learning. However, due to a lack of science inquiry specific self-regulated learning (SRK) frameworks, there is insufficient understanding of SRK processes in inquiry based science learning. This study aims to explore students' SRK patterns by using a comprehensive framework that combines SRK with the science inquiry process. Additionally, log-file data collected in the online science inquiry learning session were used to analyze students' SRK patterns. The results of the latent class analysis revealed four types of SRK learners: disengaged learners, and less reflective learners. Further more, we found

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significant differences in science achievement tests among different SRL learners.

Specifically, proficient SRL learners and less reflective learners scored significantly higher than the other two types of learners. A difference was also found between proficient SRL learners and disengaged learners in terms of their self-determined motivation.

Understanding the heterogeneity of SRL processes among students revealed from distinct SRL patterns informs how to provide targeted intervention and support for students who encounter difficulties in inquiry-based science learning.

## Article - 2

"Elementary Teacher Candidates' Experiences with and Ideas About Digital Science Notebooks"

Published : 15 February 2024

Authors:

Ingrid S. Carter  
& Valarie L. Akerson

### Abstract

This study explored the use of digital notebooks in an elementary science methods course to encourage

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teacher candidates (Tcs) to think critically about and reflect on important aspects of elementary science teaching. Framed within John Dewey's experiential education and the application of this work to science education, we examined how Tcs experienced digital science notebooks and the ways in which Tcs plan to use them in their future classrooms. Data sources from two course sections included pre- and post-surveys and focus group interviews and were analyzed qualitatively. Findings suggest Tcs' engagement in digital notebooks as an inquiry experience and the investigative tasks therein supported organization of thoughts and resulted in different levels of confidence in using digital notebooks, particularly regarding technology. Teacher candidates valued digital notebooks for use with students, noting the recording of observations and scientific explanations, differentiation and multimodal strategies, accessibility / shareability, and creativity. Concerns about digital notebooks included technology difficulties, technology access, and appropriate usage for elementary students. This study provides critical insights into how Tcs perceive digital notebooks, an online tool that can be used to support active inquiry experiences in science classrooms.

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## Article - 3

"Looking Beyond Disciplinary silos: Revealing Students' Interdisciplinary Understanding by Applying the Topic Modeling Technique"

published : 13 February 2024

Authors :

Hyemin Youg

Minju Hong

### Abstract

Natural phenomena and scientific issues are intrinsically interdisciplinary. Students need to study a variety of academic disciplines in the natural sciences to explain a phenomenon or its related problems. Our goal in the current study was to examine the epistemological foundation of students' interdisciplinary understanding of carbon cycling using the supervised latent Dirichlet allocation model. The 454 students in this study were from a public high school and a public research university in Texas. The students' interdisciplinary understanding was shown in each of the constructed response items. In the relationship between the proportion of interdisciplinary in students' responses to the constructed response items and

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on interdisciplinary understanding, all integrations of disciplines were statistically significant in explaining students' interdisciplinary understanding. Moreover, one particular integration set had advantages for obtaining a high score. We found that science course work contributed to students' interdisciplinary understanding in different ways, and this interdisciplinary understanding was influenced by the number and type of science courses taken. Characterizing interdisciplinary based on the clusters of science disciplines provided insights into how students synthesize their knowledge. The significance of this study lies in its potential impact on diverse curricular and instructional approaches in interdisciplinary science education.

#### Article - 4

"Developing a Framework of STEM Literacy for Kindergarten Children"

Authors:

Published: 07 February 2024

Zhenhua Wu, Li'an Hanong, Xu-kuang Liang, Feng-kuang Chiang.




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## Abstract

STEM literacy is a desired principal outcome of STEM (science, technology, engineering and mathematics) education. With the increasing popularity of Early STEM learning, it is believed that STEM literacy could be developed in the early years. However, relatively few studies have examined STEM literacy in young children. This study utilized the Delphi method and the analytic hierarchy process (AHP) to elicit the opinions of a panel of experts with diverse backgrounds and to construct a framework of STEM literacy for kindergarten children. The findings of the study illustrate what young children could achieve from high-quality early STEM experiences.

This would help to promote curriculum development, performance, assessment, and best practices in early STEM education.

  
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## Article - 5

Understanding STEM outcomes for Autistic middle schoolers in an Interest Based, After school program : A Qualitative study"

published : 30 January 2024

### Authors :

Kavitha Marthi, Yu-lan  
chen, Wendy Martin  
Ariana Bicio & Kristie  
patten

### Abstract

Current research underscores that there are only a few evidence-based programs that teach STEM (Science, Technology, Engineering and Mathematics) as part of their curriculum, especially autistic students. Even fewer programs focus on engineering and design learning. Hence, we developed an informal afterschool maker program to develop autistic and non-autistic students' interests in engineering to understand the

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experiences learning STEM concepts and values while applying the engineering mindset to develop projects. This qualitative study aimed to explore and understand students' experiences participating in STEM activities in the maker club. We interviewed twenty-six students (seventeen autistic and nine non-autistic), nine teachers, and thirteen parents representing diverse cultural and socio-economic backgrounds across three public middle schools in a large urban metropolitan city between 2018 and 2019. Our thematic analysis yielded four themes: (1) active participation in STEM; (2) curiosity about STEM topics, concepts and practices, (3) capacity building to engage in STEM learning; and (4) understanding of the importance of STEM education in daily life. The results of this study enabled us to understand that students were deeply engaged with the content and curriculum of our program, expanded their knowledge base about scientific concepts, used engineering-specific scientific terminologies, and engaged with the engineering design process to conceptualize, test, improvise and problem-solve. Furthermore, this after-school engineering education program created a safe and stimulating environment for students to develop engineering readiness skills.

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# REPORT

As a part of our two year BEd curriculum, we had to do a practical work on science education journal review for the paper EDU 403.17 'professional development of a physical science teacher', for this work, I selected Research In science Education (RISE). This study journal offers valuable insights into effective teaching methods that can improve students understanding and retention of scientific concepts within our discipline. The authors, Yue Lian, Yuxuan Lu, Ingrid S. Carter, Hyesun You, Zhenhua Wu, Kavitha Murthi, et al. by 5 research articles, they conducted an extensive review of existing literature and implemented their findings to design innovative instructional approaches.

The researchers found that interactive and inquiry-based learning strategies significantly enhance student engagement and conceptual development compared to traditional lecture centered pedagogies.

Editors-in-chief of this journal are, Wendy Nielsen, Kok-sing Tong. From this journal, I have selected,

articles

- 1) "Exploring the self-learning of school students self"

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learning profiles in a web-based Inquiry science environment."

- ii) "Elementary Teacher candidates' Experiences with and Ideas about digital science note books"
- iii) "Looking beyond disciplinary silos: Revealing students interdisciplinary understanding by applying the topic modeling technique"
- iv) "Developing a framework of STEM literacy for kindergarten children"
- v) "Understanding STEM outcomes for autistic middle schoolers in an interest based, After school programs: A qualitative study"

Reviewing each article gives more and deep understanding of the topic discussed in the article. Overall, the research in science education journal serve as a valuable resource for science education. By accessing this journal, science teachers can stay informed about the latest research findings, innovative teaching methods and best practices in science education.

  
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## CONCLUSION

The science education journal has explored the vital role of science education in shaping the minds and futures of learners. Through engaging experiments, and insightful discussions we've unlocked new realms of understanding and sparked curiosity within our minds. The science education journal provides valuable information for physical science teachers who want to improve their teaching methods and help their students learn better. The research shows that interactive and inquiry based learning strategies are effective in engaging students and helping them understand complex scientific concepts.

It is important for teachers to stay up-to-date with the latest research and best practices in science education to ensure that they are providing the best possible learning experience for their students. Overall, the science education journal is a valuable resource for science teachers who want to improve their teaching methods and help their students succeed.

## REFERENCE

<https://www.mdpi.com>

<https://www.oecd.org>

By: ~~hobbs~~

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Introduction

The first chapter of the book is an introduction to the concept of a blog. It discusses the history of blogging and how it has become a popular way for people to share their thoughts and experiences. The author explains that a blog is a type of website that is updated regularly with new content. It is often used by individuals, but it can also be used by businesses and organizations. The author also discusses the benefits of blogging, such as the ability to reach a large audience and to interact with readers. Finally, the author provides some tips for how to get started with blogging.

# BLOG

The second chapter of the book is a discussion of the various types of blogs that are available. The author explains that there are many different types of blogs, each with its own unique characteristics. Some blogs are focused on a specific topic, such as travel or food. Other blogs are more general in nature, covering a wide range of subjects. The author also discusses the different ways in which blogs can be used, such as for personal expression or for business purposes. Finally, the author provides some tips for how to choose the right type of blog for your needs.

The third chapter of the book is a discussion of the various ways in which blogs can be monetized. The author explains that there are many different ways to make money from a blog, and that the best way to choose a monetization strategy depends on the type of blog and the audience. Some common monetization strategies include advertising, affiliate marketing, and selling products or services. The author also discusses the importance of transparency when it comes to monetization, and provides some tips for how to disclose any potential conflicts of interest. Finally, the author provides some tips for how to track and analyze the performance of your monetization strategy.

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Preparation and  
uploading of self  
designed article of  
Pedagogic relevance  
in the Blog



## INTRODUCTION

A blog is a website or platform where individuals or businesses regularly publish articles or entries, known as blog posts, typically in a diary-style format. Blogs have evolved from personal online diaries to essential platforms for sharing information, opinions and updates on various topics. Blogs often include text, images, videos, and hyperlinks and are usually interactive, allowing readers to engage through comments.

In today's digital age, blogs have become a powerful tool for sharing knowledge and ideas with a global audience. As educators, we have a benefit our colleagues, students and the wider community. By preparing and uploading self-designed articles of pedagogic relevance to a blog, we can share our expertise and contribute to the ongoing conversation about teaching and learning. We will provide a step by step guide to help to prepare and upload a quality article that is relevant, informative and engaging.

It is essential to ensure that the content of an education blog is pedagogically relevant to its intended audience. This relevance ensure that the blog post is informative, engaging and useful to readers and that it contributes to the ongoing conversation

about teaching and learning. By focussing on pedagogic relevance, education bloggers can create content that is tailored to the needs, interests, and learning styles of their audience and that promotes effective teaching and learning practices. Education blogs can serve as a valuable resource for educators, students, and the wider community, helping to foster a culture of ongoing improvement and growth in the field of education.

## PURPOSE

The purpose of writing a self-designed article on an education blog is to share knowledge and insights with a wider audience. By doing so, educators can contribute to the ongoing conversation about teaching and learning practices, build their professional network, and enhance their reputation. Writing and publishing articles can also help improve writing and communication skills, stay informed and engaged with the latest developments in education and contribute to the profession. Additionally, blogging can be used in the classroom to promote critical thinking, collaboration, communication, and creativity among students. It provides opportunities for students to work on these skills and publish their ideas for a wider audience, leading to greater student engagement and building a supportive learning environment.

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## OBJECTIVES

- To share knowledge and insights with a broader audience.
- To build a professional network and reputation
- To improve writing and communication skills.
- To stay informed and engaged with the latest developments in education.
- To strengthen students confidence in their ability to communicate effectively.

## STEPS OF CREATING A BLOG

1. Go to <http://www.blogger.com>, click on blogger.com  
create unique and beautiful blog and click the button, create a blog.
2. Fill up the registration information, then click continue.
3. Fill in the information on the next screen officially opening a google account, then click 'continue'
4. Name your blog also gave a unique URL address check the availability of URL, click to continue
5. Then you could see 'the blog has been created' and you can start blogging now.

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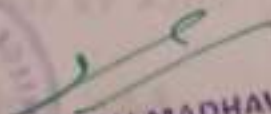


To create a new post

- 1 Sign in to your blog at <http://www.blogger.com> with email-id and password you gave during the set up. Then click on the 'new post' button. Type your material there and click on publish post.
- 2 You can also select a theme for your blog page
- 3 You can view your blog by typing the name of the blog [blogspot.com](http://blogspot.com) - on the google page.

## REPORT

As a part of BED curriculum the practical work of EDU 403-16 professional development of physical science was to prepare and upload self designed article of pedagogic relevance in the blog. I selected the topic "Cross-curricular connections: Linking physical science with other subjects". I need to search other articles, websites. Then I upload my article in educational blog.

  
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## CONCLUSION

The creation and upload of this self-designed blog article signify a commitment to sharing valuable insights and perspectives on pedagogic relevance with a broader audience. By focusing on self-designed content, it emphasizes the importance of personalized learning experiences tailored to individual needs and interests. The article explores various aspects of pedagogy, including instructional strategies, assessment methods in education. It serves as a resource for educators, parents, and anyone interested in understanding the importance of pedagogy in teaching and learning. It emphasizes the importance of creating a supportive and inclusive learning environment where all students can thrive academically and personally. Overall, the blog article aims to empower educators with the knowledge and tools they need to foster a positive and impactful learning experience for their students, ultimately contributing to the advancement of education as a whole.

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Vismaya M V




# Cross-Curricular Connections: Linking Physical Science with Other Subjects



March 05, 2024

Cross-Curricular Connections: Linking Physical Science with Other Subjects  
VISMAYA MV BEd 2nd year student National College For Teacher Education, Vengola  
Abstract In today's educational landscape, there ...

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Dmitri Mendeleev



June 06, 2023



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### Cross-Curricular Connections: Linking Physical Science with Other Subjects

**Cross-Curricular Connections: Linking Physical Science with Other Subjects**  
VISMAYA M V      BEd 2nd year student      National College For Teacher  
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#### Abstract

In today's educational landscape, there is a growing emphasis on interdisciplinary learning. This article explores the benefits of cross-curricular connections, particularly in linking physical science with other subjects. By integrating physical science concepts into various disciplines, educators can create engaging and relevant learning experiences for students. The article discusses how physical science principles can be applied across different subjects like mathematics, language arts, and social studies. For example, understanding the principles of force can help students better understand the language used in physics textbooks. Similarly, properties of matter can enhance students' understanding of chemical reactions and their real-world applications. The article also highlights the importance of hands-on learning in fostering a deeper understanding of physical science concepts. By engaging students in experiments and real-world applications, educators can help them develop critical thinking skills and a deeper appreciation for the world around them. Integrating physical science into other subjects can provide a more holistic and meaningful learning experience for students.

#### Keywords:

interdisciplinary learning, Cross-curricular connections, Physical science, Physical Integratio  
Mathematics, Language arts, Social studies, Hands-on learning, Real-world applications, Oil  
Holistic perspective, Silo breakdown, Educational approach, Creativity, Innovation, Global lar  
Adaptability, Knowledge integration, Transformative potential, Application of knowledge, En

#### Introduction:

In the realm of education, the silos that once separated subjects are gradually being dismantled in favor of a more interconnected and holistic approach to learning. One powerful way to achieve this is through cross-curricular connections, where different disciplines are woven together to create a rich tapestry of knowledge and understanding. In this article, we delve into the world of cross-curricular connections, focusing specifically on the integration of physical science with other subjects. We explore how physical science can be linked with diverse fields such as mathematics, language arts, and social studies, and we aim to showcase the immense benefits of this interdisciplinary approach in our classrooms.

#### Importance of Cross-Curricular Connections

Cross-curricular connections play a pivotal role in demonstrating the relevance of physical science to students' daily lives and the broader world around them. By linking physical science with mathematics, language arts, and social studies, educators can create a more engaging and interconnected learning environment that promotes critical thinking and application of knowledge across disciplines.

#### Benefits of Integrating Physical Science Across Subjects

**Mathematics:** Understanding physical science principles such as motion and force can enhance students' grasp of mathematical concepts like velocity and acceleration, showcasing the practical application of theoretical ideas.

**Language Arts:** Integrating scientific terminology and writing assignments can improve students' communication skills and ability to articulate complex scientific ideas effectively.

**Social Studies:** Exploring historical developments through the lens of physical science can provide insights into how scientific innovations have shaped societies over time, highlighting the interconnected nature of different disciplines.

#### Hands-On Learning and Real-World Applications

Engaging students in hands-on experiments that bridge physical science with other subjects can solidify cross-curricular connections. By immersing students in practical activities that apply the application of scientific principles in various contexts, educators can foster a deeper understanding and appreciation for interdisciplinary learning.

#### Conclusion

The exploration of cross-curricular connections, particularly in linking physical science with other subjects, illuminates the transformative potential of interdisciplinary learning in education. By integrating physical science concepts with diverse disciplines such as mathematics, language arts, and social studies, educators can create a rich tapestry of knowledge that fosters a deeper understanding and appreciation for the interconnectedness of various fields of study. Through hands-on experiments, real-world applications, and practical activities that bridge subjects, educators can provide a more holistic and meaningful learning experience for their students.

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