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Designing A Place Value Chart to Help Pupils In Basic Three Subtract Three-Digit Numbers

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Abstract
The action research conducted was about designing a place value chart to help pupils in Basic three, subtract three-digit numbers. The project was undertaken in the Nsuta R/C Primary School in the Sekyere Central District in the Ashanti Region.
The targeted population for the study was Nsuta R/C Primary Three pupils. The population size was 33 pupils, made up of 20 boys and 13 girls. A sample size of 20 pupils was selected for the study, comprising 9 boys and 11 girls. Purposive sampling procedure was considered in selecting the pupils in order to give pupil who needs help the opportunity to participate in the action research.
Instruments used in the collection of data included observation, and test. Related literature review on the research was conducted. Pre- Intervention tests and a post-intervention test were administered. The post-Intervention test results showed tremendous improvement in pupils' performance. According to the results of the study, primary schools should be encouraged to use materials like place value charts and sticks, especially in the Early Grade levels, to help pupils learn how to solve subtraction problems involving three-digit numbers.

Keywords: Mathematics, place value, subtraction

1.1 Background to the Study

Mathematics is a subject that deals with finding answers to problems, using our knowledge of shapes and measures in everyday life, using numbers in counting and calculation, thinking for ourselves in seeing and using relationships. Mathematics is a subject that cannot be left out in human activities hence the school curriculum, because almost every day's activities involve some aspects of Mathematics.

All elementary school students must be able to add and subtract three-digits, which is a crucial skill. since mastering this skill is a prerequisite for further mathematics tasks, however, some students are still having trouble with it (Mauhibah & Karso, 2020). This study discusses the challenges that students face when trying to solve subtraction problems. Arithmetic operations, which covers the study of addition and subtraction operations, is one of the most crucial topics in the first course in mathematics. Without a question, mathematics plays a crucial role in everyday life. There can be no research, discovery, or invention without applying mathematical concepts.

Mathematics is not only restricted to the development of the child academically but to prepare the child for life through the acquisition of knowledge in problem solving and many others. Devlin (1998) asserts that the goal of studying mathematics is to understand the frameworks and trends associated with mental constructs, which have an impact on how the environment and the entire world develop. The discipline is learnt to develop one's ability to solve problems, make discoveries and take responsible procedures by choosing from alternative choices. It is therefore, important to teach the subject to facilitate the understanding of its concepts and operations.

Every facet of intellectual endeavour and human development need mathematics to deal with difficulties of living. Math is a mandatory for all students and a precondition or criterion that is used in all basic schools. Governments, stakeholders, and guardians all throughout the world believe that teaching children mathematics will help them earn a living and that making it a compulsory subject will benefit them in life. There is no doubt to say that Mathematics forms an integral part of human life. No study, discovery or invention can be done without the use of Mathematics principles. It is for this reason that the education systems of countries that are serious about their development put great deal of emphasis on the study of Mathematics.

In recent times, the performance of Ghanaian children in Mathematics has been a subject of intense discussion among educationist, policy makers and the public at large. The subject provokes the strongest anxiety and ill feelings among pupils, as few are able to perform well in the basic three.

While addition and subtraction are used in the majority of calculations performed worldwide, it is one of the key concepts in mathematics. Even though they are crucial in the study of mathematics, most students struggle with subtracting more than addition of numerals. The Nsuta R/C pupils in primary three are not exempt from this issue. Despite the importance of subtraction in the field of Mathematics, most pupils find difficulties in subtraction of numerals The researcher noticed that pupils in primary three (3) of Nsuta R/C performed poorly while subtracting three-digit numbers during the instructional session and it is in the light of this that the researcher has improvised place value chart to assist pupils to overcome the identified problem.

1.2 Statement of the Problem

The concept and operations involving subtraction are confusing and difficult for pupils in basic schools to comprehend. Observations in classroom activities, marking of exercises involving subtraction of numbers, observed that, pupils have problems in understanding subtraction of numbers especially where the top numerals are smaller in some cases than the down numerals. For example;

(a) $\begin{array}{r} 254 \\ -\ 193 \\ \hline \end{array}$ (b) $\begin{array}{r} 856 \\ -\ 537 \\ \hline \end{array}$

(c) $\begin{array}{r} 663 \\ -\ 651 \\ \hline \end{array}$ (d) $\begin{array}{r} 135 \\ -\ 147 \\ \hline \end{array}$

(e) $\begin{array}{r} 357 \\ -\ 249 \\ \hline \end{array}$

The pupils' response shown that, the bigger numeral was subtracted from the smaller numerals, thus, **6** was subtracted from 7 in example (b) and **5** from **7** in example (d). This was common among most of their exercises. This situation prompted the researcher to undertake the project-work to assist the pupils with this problem to overcome it.

1.3 Purpose of the Study

This study aimed to explore and develop the concept of place value in basic three pupils to be able to do subtractions involving large numbers in Nsuta R/C Primary School. Once more, the goal was to use place value chart to teach and improve the pupils' abilities in subtraction. The final goal was to involve pupils in constant practicing of subtraction in Mathematics to overcome the problem of subtraction of large number.

1.3 Research Objectives

The objectives of this study were to:

1. Find out the problems of subtraction of numbers in Nsuta R/C Primary.
2. Find if with the use of place value chart, pupils will easily solve problems involving subtraction.
3. Examine if pupils will solve mathematical problems involving subtraction of three-digit numbers with confidence.

1.4 Research Questions

The researcher asked specific questions that will facilitate in the research. The following are the questions for which answers are being sought.

1. What are the problems of subtraction of numbers in Nsuta R/C Primary?
2. With the use of place value chart, will pupils easily solve problems involving subtraction?
3. Will pupils solve Mathematical problems involving subtraction of three- digit numbers with confidence?

1.5 Significance of the Study

The result of this study will lead to high performance in the subtraction of three-digit numbers. This outcome will also help educators and other interested parties identify a long-term fix for the subpar performance in three-digit number subtraction.

Furthermore, the results of this study will show the use of teaching and learning resources when teaching mathematics. Additionally, the high achievement of students in the subtraction of three-digit numbers will be improved by the exposure of the causes. This study will also aid in dispelling the false notion that mathematics is challenging. This study will help parents focus on their children's education. The researcher expects that the issue under investigation will assist math teachers in planning their instruction on teaching subtraction of three-digit number.

Literature Review

In the past 40 years, there has been a surge in interest in the study of mathematical cognition. The field has apparent appeal since it provides a solid foundation for advanced mathematics, problem solving, and mathematical reasoning. This foundational information about arithmetic and the number system is acquired during early education, albeit with some difficulty. This acquired information enhances the more basic comprehension of numerosity and comparison displayed in nonverbal counting or comparison tasks by lower animals (Meck & Church, 1983), newborns (Wynn, 1992), and adults (Whalen, Gallistel, & Gelman, 1999).

According to the research Gervasoni, Giumelli & McHugh (2017), it can be difficult to address all of a child's learning demands, and teachers must be aware about how to assess each student's existing mathematical proficiency and tailor their training accordingly. Jordan & Brannon (2006) opines that infant's mental representation of numbers is largely abstract and unrelated to the mode of presentation. This necessitates the use of sophisticated evaluation techniques that can show the depth of children's knowledge and learning processes, as well as a framework of growth points that can direct curricular and pedagogical decisions on the part of teachers (Gervasoni, Giumelli & McHugh 2017).

2.1 Mathematics Education

There is not a single definition of mathematics that has been offered and is widely acknowledged. Many people have defined it in the way that suits how they experience it. In light of this, Addae (2006) stated that the process of addition and its reciprocal subtraction leave mathematics in a calm state of fragmentation.

The daily existence of humanity depends heavily on mathematics as well as science and technology which are believed to be influenced by math. It is impossible to ignore the role that mathematics has played in the formation of the modern world, yet many people are reluctant to enrol in programmes with a strong mathematical component. Pal (2009) came to the conclusion that many learning challenges children have are caused by a lack of comprehension of basic ideas and a lack of awareness of many principles that are frequently in conflict and that can influence mathematics learning. Working memory deficiencies in youngsters are a hindrance to their learning processes, according to Acha (2014).

One can't ascend the educational ladder to its highest point if they can't perform simple subtraction, which is one of mathematics' most crucial ideas. The researcher was given the chance to assist students in basis three who have problem in subtraction of three-digit numbers.

Subtraction Definition

Calculating the difference between two numbers or quantities is done through the arithmetic procedure of subtraction. The negative sign (-) is used to denote it. Using various types of numbers and mathematical structures, subtraction can also mean removing or decreasing both concrete and abstract items. Since subtraction is not associative but anticommutative, the order of the numbers matters. A right may also be withdrawn or withheld as a result of subtraction.

Interestingly, only a small portion of the research has concentrated on elementary subtraction, whose core ideas are often always taught in the second grade. Numerous developmental studies have focused on simple subtraction (Robinson, 2001; Fuson, 1992), Siegler(1987) & VanLehn (1990) paper on the "bugs" in kids' acquisition of the complex subtraction algorithm for borrowing is well-known. Subtraction is also being utilised more frequently in studies of neural representation and functioning due to convincing evidence that shows subtraction and addition may depend on different brain substrates than multiplication (Cohen & Dehaene, 2000).

It is possible to define subtraction operations as taking or throwing some or all of the objects from a particular collection. The definition should be led by manipulatives while instructing second graders. Over the past quarter century, substantial experimental research has been done on the cognitive functions that support the execution of simple calculations, such as **13 - 6=7** and **6 - 7= -1**. Understanding the representations, retrieval processes, and procedural methods that support primary maths have been the main objectives (Campbell, 2005).

Resource for Instructions, Instructors' knowledge and their role in Teaching Mathematics

Teachers employ resources as they create classes, assign tasks, analyse students' work, and control time and activity. Teachers and students must control surroundings, coordinate lessons, mobilise performance incentives, and hold and utilise knowledge in order to do this. In reality, the areas are not always different, but it is more practical to analyse them individually. Learning cannot profit from good instructors if adequate school funds are not used to pay them and give them the tools they need to do their jobs. Although these schools possessed an abundance of resources, observers would conclude that their potential to affect instruction had not yet been completely achieved (Odden & Busch, 1998).

The tangible items utilised in the classroom for teaching and learning are referred to as instructional resources. Drama-based instruction, according to Duatepe-Paksu & Ubuz (2009), has a substantial impact on students' accomplishment and facilitates easier learning and better comprehension of geometry concepts and problems. According to Benjamin (2002), the utilisation of instructional resources contributes in a special way to enhancing teaching and learning at all levels and this can be achieved through fostering in kids a high level of interest in learning as well as the development of their analytical and manipulative skills. As tasks progress and lead to others, as student interest and comprehension vary, and as organisational structures change, instruction alters (Lampert, 2001). The environment that instruction flows into and draws from includes other instructors and students, school administrators, parents, professionals, local districts, state agencies, and exam and text publishers. Instruction is a stream of ideas, not an event.

Mathematics Strategies for Teaching

To improve the teaching of mathematics topics at all levels and in all aspects of life, math teachers should stay current on terminology, symbols, and signs. According to Ansubel et al. (2003), it is vital to point out that the pupils' prior knowledge is the most significant sole element impacting learning. Teachers must therefore determine this and instruct students appropriately at all grade levels. Schools can be built and enough books can be supplied, but Davidson et al. (2001) contend that if pupils are not receiving the proper training and education, we should be counting the numbers backward on the advancement track. Learners should be motivated to work on any given assignment till they feel pleased with the result or results by educators making appropriate use of the teaching and learning materials.

The use of Place Value Chart in Subtraction

In mathematics, each digit in an integer has a place value. Place value refers to the value that a digit in a number represents dependent on where it sits within the number. Price (1998) outlined how children might

better learn difficult numeration concepts like place value by developing related memory structures, or schema. He discussed how mathematics teachers were drawn to helping students create strong conceptual frameworks to understand the complexity of place value, but he made the observation that many pupils had not yet done so.

As an illustration, the place value of 7 in 759 is 700. Though the place value of 7 in 7,834 is 7,000 and that of 3 is 3 ten (30), respectively. Although the digits in both numbers are the same, we can see that their place value varies as a result of the change in position. Ruth Merttens (1987) expanded on the importance of early place value in teaching primary mathematics. It is critical that children begin acquiring the principles of grouping and trade that constitute the foundation of a solid knowledge of place value as early as middle babies. The most common cause of later computing difficulties is a failure to grasp the idea of place value. Children will be unable to perform the essential algorithms in Junior School and beyond if they do not understand that the first "2" in "22" has a different value than the second because of its place value.

The formal computational techniques that we employ in arithmetic combine the use of place value notation with the use of specific formal rules for the manipulation and combination of numbers, according to Notes on Mathematics in Primary Schools by Members of the Association of Teachers of Mathematics (1967). Through regrouping before subtracting, place value is used to help students better grasp and manipulate the locations of the numbers. Let's use the number 3752 - 1693 as an example. The youngsters can simply perform the subtraction of 3752 - 1692 because they can identify the place of the numbers 3 as 3000, 7, as 700, 5, as 50, and 2, as 2 of the top numbers. To help them gradually understand the worth of numbers, the kids will think it's proper to draw the locations on top of the questions. Students now perform subtraction in this format:

Th	H	T	U
		14	12
3	7	~~5~~	~~2~~
1	6	9	3
2	1	5	9

What are the challenges that Nsuta R/C Primary faces with number subtraction, in response to research question 1? Ginsburg's theory was followed up on by Brown & Burton (1978); Burton (1981), who used a total of 2500 American students to look at the inaccuracies that can occur while using the subtraction procedure. They discovered that the majority of the kids adopted practises that made it challenging to find a solution. The following are some instances of typical errors the kids made:

Example 1: ***Greater from smaller:*** Regardless of which digit appears on top, the students deducted the smaller digit in a column from the larger digit.

326	5423
-247	-3894
121	2471

Example 2: Borrow-from-zero. The pupils wrote 9 but did not continue borrowing from the column to the left of the 0 when borrowing from a column where the top digit is 0.

9	9
602	802
-437	-296
265	506

Palling (1986) employed subtraction strategies in his book, "Teaching Mathematics in Primary Schools." It is very helpful to divide the job into manageable pieces and use a place value chart to explain the value of numbers step by step. He explained using decomposition. If we start with the units, we cannot take away 7 from 5. As a result, we convert it to 10 units using one of the four tens. Here's how it was carried out:

T	U		T	U
4	5		~~4~~ 3	15
-2	7		- 2	7

He further continued to deal with it in two ways

1. By subtracting 7 from 15 (15-7) = 8, and subtracted 2 tens from 3 tens = 1 ten.

T	U
3 10	
~~4~~	5

- 2 7
1 8

2. Palling (1986) applied a different strategy known as equal additions. We cannot subtract 7 from 5 (5-7) when dealing first with units.

T U
4 5
- 2 7

Therefore, we add 10 units to 45 and at the same time add 1 ten to 27, that is;

T U
10
4 5
3 2 7

Subtraction will be completed by dealing with the tens; (4-3) = 1

T U
10
4 5
3 2 7
1 8

When subtracting numbers with three digits or more, Palling (1986) emphasises the same steps. He recommended that students constantly practise subtracting numbers using the techniques outlined in his book. The habit of consistently practise subtraction problems and Mathematics as a subject should be adopted by students. In this manner, students will find mathematics to be a fascinating topic and will subtract numbers gently.

Wardle (1987), created a place value chart and gave the students addition and subtraction practice questions. The drawn table is shown below;

7352 ⇨

Th	**H**	**T**	**U**
7 seven thousand	3 three hundred	5 five tens	2 two units

Seven thousand, three hundred and fifty-two

He wrote questions for answering; write down the value of the ringed numbers.

(a) 2 (5) 3 (b) (5) 3 7 (c) 2 (5) 3 7

He then demonstrated the use of the place value chart to subtract numbers. The Wardle instances of subtraction are listed below;

T U
7 5
- 2 7
5 8

Th H T U
3 3 7 6
- 2 1 8 3
1 2 9 3

H T U
2 ^{1}1 1
- 1 7 1
1 4 0

When performing subtraction of numbers, particularly larger numbers, pupils must comprehend the concepts of place value and regrouping, according to a passage in his book. Once the idea of place value is understood, people can start to arrange numbers in a way that makes them simple to subtract from without making the common mistake of subtracting larger numbers from lower, lower-valued numbers at the top.

3.0 Methodology

3.1 Research Design

An action research project has been started. Action research focuses on discovering immediate solutions to local issues. Action research is carried out to address issues in a specific environment; for instance, action research in the educational sector is carried out to address issues with the method of instruction and learning in the classroom setting. Action research might be seen to be a form of professional expertise (Burns, 2015).

Because the researcher discovered a specific issue in the study's subject matter during a classroom lecture, the research is taken into consideration.

The type of research undertaken will go a long way toward assisting other researchers and teachers who are dealing with peculiar challenges in using the approach in their methods of instruction and education. The research kind, on the other hand, exclusively addresses a narrow range of problems. Additionally, the results of action research cannot be used in other topic areas.

3.2 Population and Sample Selection

3.2.1 Population

Nsuta R/C Primary 3 students are the study's target group. 33 students make up the whole population, with 20 boys and 13 girls.

3.2.2 Sampling Size

Out of a population size of 33 pupils, a sample size of 20 was selected for the study.

3.2.3 Sampling Procedure

Purposive sampling was used as the sample strategy for the study. This is due to the fact that the issue was discovered based on the students' written assignments, general observations, and series of tests on three-digit number addition and subtractions.

3.3 Research Instrument

The study's issue was discovered while teaching students how to subtract numbers between 0 and 999. In the course of teaching, the researcher noticed that the students were having trouble subtracting, particularly when the upper numbers are less valuable than the lower ones. After noticing this issue, the researcher created an intervention approach and procedures to aid students.

The study employed certain tools to help shed further light on the issue. In order to gather in-depth information on the issues students faced, the researcher used observation, and a test.

3.3.1 Observation

When teaching three-digit number under subtraction operation, the researcher went about inspecting students' work in their workbooks. After marking class assignments, she saw that the students struggled with number subtraction. Because observation provides data when other sources of knowledge are unavailable, the researcher exploited it. It presents events as they actually occur. Additionally, if the researcher is skilled at observation, it takes less time and is simpler to do an observation.

3.3.2 Test

The researcher used a class test in a sample study exercise. The exam results revealed learners struggled with subtraction, particularly when it was necessary to borrow from the place value after. The questions that were asked are listed below.

1. 254 - 193 _____	**2.** 856 - 537 _____	**3.** 663 - 654 _____
4. 135 - 147 _____ _____	**5.** 357 -248 _____ _____	

3.4 Pre-Intervention

After recognising the students' issue, as previously indicated, the researcher used tools including observation, oral interview, and test to gain a thorough understanding of their issue. The researcher conducted one-on-one interviews with students. A class test was given to determine the students' problems. The researcher graded the assignment and discussed the issue with other teachers. To help students grasp

the idea of location value, the researcher and his colleagues proposed place value discussion. A colleague advised that before beginning subtraction, the students' understanding would be aided if they were familiar with the place values of the numbers. To assist the students in solving the issue, the researcher created a place value chart.

3.5 Intervention

The researcher developed a method that will help address the problem and, in the end, handle the difficulties that students are experiencing with four-digit number subtraction in an effort to help them with number subtraction. The instructor of the exercises was the researcher.

The first plan was to assist pupils in coming up with precise words that included subtraction. Take 193 away from 254, for example. The pupils learned how to subtract one number from another from the researcher, but not the other way around. The researcher gave each student in the sample they chose the chance to state a subtraction.

On the chalkboard, the researcher first wrote subtraction questions with all of the top numbers bigger than the bottom digits, and then he or she produced another sample of questions with the top numbers lower than the bottom digit numbers. The researcher demonstrated how to subtract integers while accounting for the place values of the different digit numbers using an improvised place value table.

The plywood used to construct the makeshift place value chart has dimensions of three feet in length and two feet in width. The plywood has Manila card adhered to it. On a manila card, a three-digit subtraction example is written using different coloured markers to represent the actual numbers that need to be subtracted, the numbers that were borrowed, and the remainders. The "Legend" is written on the manila card, explaining the writing's colour scheme.

The researcher hung the improvised place value chart on the board and instructed students to move to the next place value and take one to add to the top number that would be larger than the down number to be subtracted from it. This was done to explain the case where the top number is larger than the down number using subtraction procedures. The researcher advised students to recall the value left before subtracting by noting the place value where a number has been subtracted.

The 1 in the tens column is written in red, indicating that the number has been transformed from one place value to another. Learners were guided in subtracting 11 from 3 to get the number 8 as shown on the chart. The researcher informed the students that since 1 was taken from the tens column, they should cross the actual number 6 there and write the remainder (5). After picking a number from a location, the students were reminded to always remember the remainder.

Since it is impossible to take away 7 from the remaining 5 in the tens column, learners were instructed to add 1 from the hundreds column to 5 instead, which will result in the sum of 15. Following that, the researcher instructed students to subtract 7 from 15 to get 8, which is the result. The researcher showed the students the remainder under the hundreds column by taking 1 from the hundreds. The remaining is 6, thus subtracting 4 from 6 results in the number 2. After subtracting, we discovered that the result for 761 - 473 is 288.

Additionally, the researcher emphasised to the students that before subtracting, one must carefully consider the numbers. The following instances were used to instruct students:

Examples

1.

	H	T	U
	7	6	1
-	4	7	3
	2	8	8

2.

	H	T	U
	9	1	2
-	6	0	3
	3	0	9

The researcher created the place value chart shown below to aid in problem-solving;

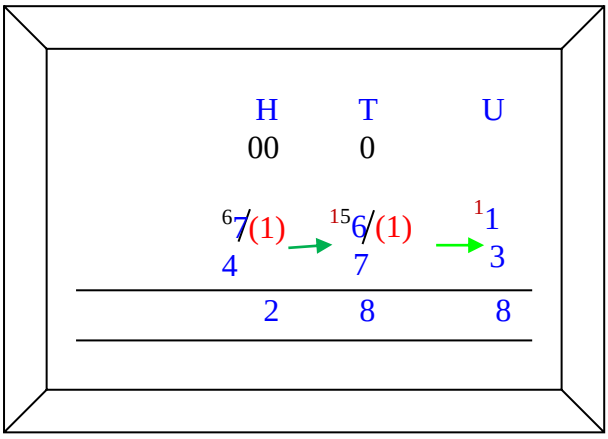

Figure 1: Improvised Place Value Chart

The researcher clarified that 3 cannot be deducted from 1 in example 1 of the place value chart's unit column. Students must therefore move to the top digit's tens column and add 1 to 1 in the unit column to make 10+1=11. Since the unit column at the top is now greater than the unit column at the bottom, the researcher instructed the students to subtract 3 from 11.

In addition, the researcher seamlessly assisted students in the unit columns before switching to the hundreds column while still working on Example 1. After subtracting a tenth (10) for the unit column, the hundreds column also had an issue with the top number, which is now "5" less than down number "7". The researcher then instructed the students to add 1 from the thousand's column to 5 from the hundreds column to get 15 or 150. The researcher instructed students to divide 15 or 150 by 7, which corresponds to 70 on the place value chart. Thus, 150 - 70 = 80, or 15 - 7 = 8. In example 2, the identical approach was used.

3.6 Post Intervention

The post-test was administered by the researcher after she had addressed the issue, both pre-test and post-test were given the same questions by the researcher. He saw that the students were competent in responding to the post-test. Students could distinguish between the numbers at the top and those below in terms of place value. The students were competent at subtracting correctly when given the opportunity to take one from the next place, convert it, and add it to the number at the place in question. Students did well overall on the post-test. Appendix 2 contains a sample of the students' test results.

3.7 Data collection Process

The researcher used observations and tests to acquire knowledge about the problem. During a maths lesson, the researcher examined the pupils and saw that they had a very difficult time performing place value subtraction problems.

The researcher once more selected a small sample of place value-required, basic subtraction problems from Pupil's Mathematics Textbook 3 to determine the extent of the problem. Written tests made by the researcher were used for the Pre-Test and the Post-Test. The researcher used place value charts as intervention strategies to minimise the problem.

3.8 Data Analysis plan

To analyse the study's data, the researcher employed tables, charts, figures, and percentages.

Data Analysis, Findings And Discussion

4.0 Introduction

This action research chapter focuses on presenting, analysing, and discussing the data collected in the previous chapter. Frequency tables are used to analyse the data. Tables and bar graphs are used to discuss the findings.

4. 1 Results

The following information was gathered for the Pre-Test I (for the thirty-three (33) students). The researcher examined the results of the observation exercise conducted at the start of the study. When evaluating students' class exercises and assignments, the researcher assessed their performance in subtractions of three-digit integers. The researcher emphasised the placements of the numbers and the final responses supplied, scoring them out of five (5) using basic percentages. The findings in the table below were analysed by the researcher.

4.1.1 Pre- Intervention Test I

Table 1: Responses of pupils in the Pre- Intervention Test I

Mark (x)	No. of Pupils (f)	Fx	Percentage Score
0	10	0	30%
1	6	6	18%
2	4	8	12%
3	11	33	33%
4	1	4	3%
5	1	5	3%
Total	33	56	100%

From Table 1, the researcher gave out five (5) questions to the pupils which were marked over five (5). The average mark scored from the test is 1.7, approximately 2. Out of the 5 marks, ten (10) pupils scored 0 marks representing 30% and had the lowest mark. Six (6) of the pupils also scored 1 mark out of the total of representing 18% which is low Average mark. Four (4) scored 2 marks representing 12%, 3 marks were scored by 11 pupils representing 33% of the total number, one (1) hard 4 marks representing 3%, and 3% scored 5 marks which consist of 1 pupil. In all, only thirteen (6) of the pupils which represent 39 % scored marks from 3-5 which is the above average remarks. The researcher purposively conducted the actual Pre-Intervention Test (Pre-Intervention Test II) for the 20 pupils who scored from the average mark 2 to the lowest mark 0. The figure below gives the graphical representation of the Pre-Intervention Test I result of the total class.

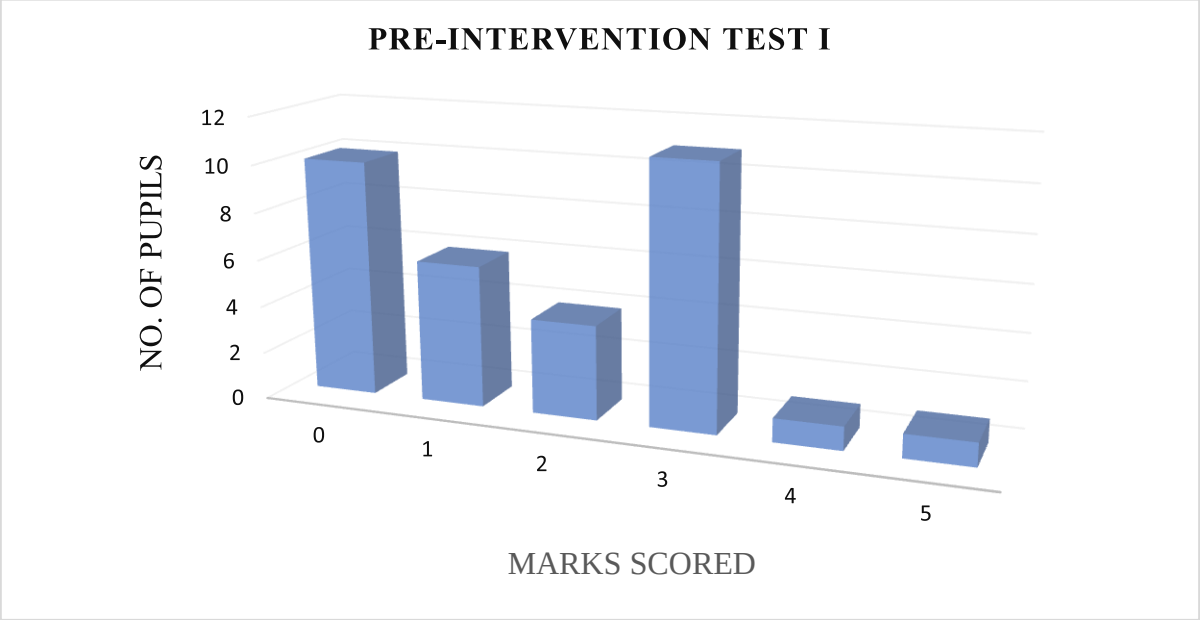

Figure 2: Pre- Intervention Test II Results

4.1.2 Pre-Intervention Test II

The researcher tested pupils again to assess the level of the problem after using tests and observations to acquire information on the various causes of pupils' failure to subtract three-digit numbers. Based on the findings of Pre- Intervention Test II, a simple percentage table was created to illustrate the result below:

Table 2: Responses of pupils in the Pre- Intervention Test II

Mark (x)	No. of Pupils (f)	fx	Percentage Score
0	7	0	35%
1	9	9	45%
2	3	6	15%
3	1	3	5%
4	0	0	0%
5	0	0	0%
Total	20	18	100%

The findings of the Pre-Intervention Test II, which were provided before the start of the intervention period are displayed in the table above. It is evident that none of the students received a score of 4 or 5 marks, which equals 0% for both scores, and that just one (1) learner, who represents 5%, had a score of 3. On the other side, 3 students received 2 marks, which represents 15% of the sample used, and 9 students received 1 mark indicating 45% of the sample as well. 7 students, or 35% of the class, received a score of 0 on the Pre-Intervention Test II. It can be seen from the table that about 95% of the pupils scored below 3 marks. This indicated that the pupils in Nsuta R/C primary Three have difficulties in finding the difference of numbers in their mathematics class. Below is the graphical representation of the Pre- Intervention Test II scores:

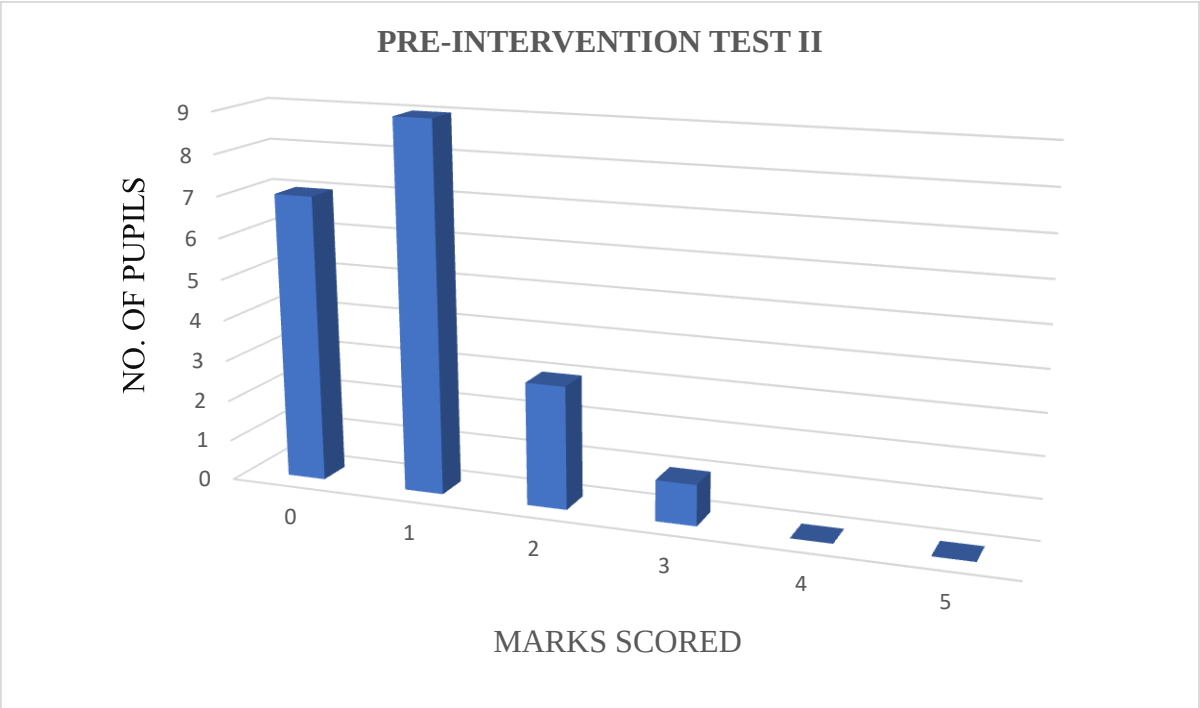

Figure 3: Responses of pupils in the Pre- Intervention Test II

4.1.3 Post- Intervention Test

Following the Pre-Intervention Test II findings, which showed the students' poor performance in their inability to accurately subtract three-digit numbers, the researcher selected an intervention strategy using place value chart to help alleviate the issue of subtraction. To determine whether there had been any progress following the interventions, the researcher administered a second test to the pupils. The findings were gathered and are shown in the table below as the outcome of Post- Intervention Test.

Table 3: Responses of pupils in the Post - Intervention Test

Mark (x)	No. of Pupils (f)	Fx	Percentage Score
0	0	0	0%
1	0	0	0%
2	1	2	5%
3	2	6	10%
4	3	12	15%
5	14	70	70%
Total	20	90	100%

The table above presents the results of the Post-Intervention Test. It is clear that none of pupils received a score of 0 or 1, which equals 0% for both scores, and that two (2) students, or 5% of the class, had a score of 2. On the other hand, 3 pupils received 4 marks, representing 15% of the sample, and 2 students received 3 marks, representing 15% of the whole sample. On the Post-Intervention Test fourteen (14) pupils, indicating 70% of the class, received a score of 5, signifying a great improvement in the class. The Post-Intervention Test results are shown in the graph below:

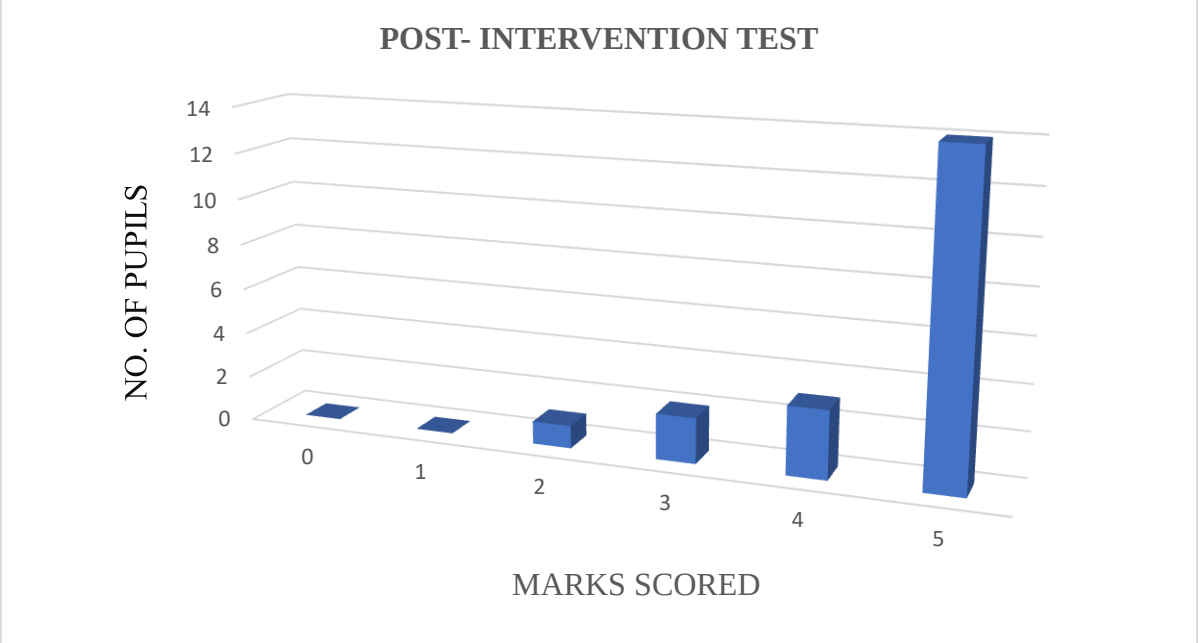

Figure 4: Responses of pupils in the Post-Intervention Test II

4.2 Findings

As it can be seen from the study of the aforementioned tables and figures, arithmetic would be simpler and easier to learn if students had enough time to practice subtracting three-digit integers while receiving support, guidance, and encouragement. The best and most practical method for teaching mathematics has been demonstrated by the results of three-digit number subtraction using demonstrations, hands-on activities, games, and motivation from beginners.

Following the pre-intervention tests, I and II, it was found that approximately 39% of respondents achieved marks of 2 or higher while the remaining 61% failed, and that approximately 5% of respondents achieved marks of 2 or higher while the remaining 95% failed the pre-intervention test II given to the sampled students.

According to the respondents' pre-intervention test I and pre-intervention test II results, students in Nsuta R/C Primary Three had trouble subtracting three-digit numbers, particularly when regrouping was required and a smaller number needed to be subtracted from. Poor teaching methods and insufficient use of teaching/learning resources were blamed for the difficulties. Therefore, the researcher made up a place value chart to teach students during the intervention process in order to help pupils attain the goal of differentiating between numbers according to their worth. By taking into account the positions of the numbers, the researcher demonstrated the necessity of comprehending the location of the distinct column numbers and their worth. The prior chapter talked about this. After the intervention, students were able to determine the numbers' values and locations before starting subtraction, a test was given to see how well the students had understood what had been taught. The outcome was shown in table 3 and figure 4 explained above.

Thus, students' comprehension was enhanced by various exercises like the use of place value charts and place value sticks to teach three-digit number subtraction. Once more, the results of all the evaluation exercises amply demonstrated that the lessons planned for this study's purposes actually assisted students in finding the differences between three-digit numbers.

The Pre-Intervention Test II and Post-Intervention Test performance variations with respect to the number of students and their successful test scores are a sign of improvement, as shown in the table 4 and figure 5. It is now clear from the learners' performance that the researcher's intervention tactics were what caused the significant variations in their performance on the Post-Intervention Test. This is explained in the comparison table and the figure below vividly.

4.2.1 Comparism of Pre-Intervention Ii And Post - Intervention Test

Table 4: Pre-Intervention Test II and Post - Intervention Test

Mark (x)	**Pre-Intervention Test II**	**Post-Intervention Test**
0	7	0
1	9	0
2	3	1
3	1	2
4	0	3
5	0	14
Total	20	20

From the above discussion emanating from the results in the tables above, none of the respondents scored 0 mark and one (1) mark as against seven (7) and nine (9) pupils respectfully in the pre-intervention test II, one (1) pupil scored 2 marks as compared to three pupils, the number of pupils who scored 3 marks increased to 2 from 1 as measured with the pre-intervention test II. In addition, three (3) pupils scored 4 as against no (0) pupil in the pre-intervention test II. Lastly, a greater number of pupils aggregating 14, scored 5 out of 5 in the post-intervention test as compared to zero pupil in the pre-intervention test II. The average mark scored for the post-intervention test is 4.5, this showed that about 95% of respondents passed in the post-intervention test as compared to 5% in pre-intervention test II. The information is shown in the table and graph below:

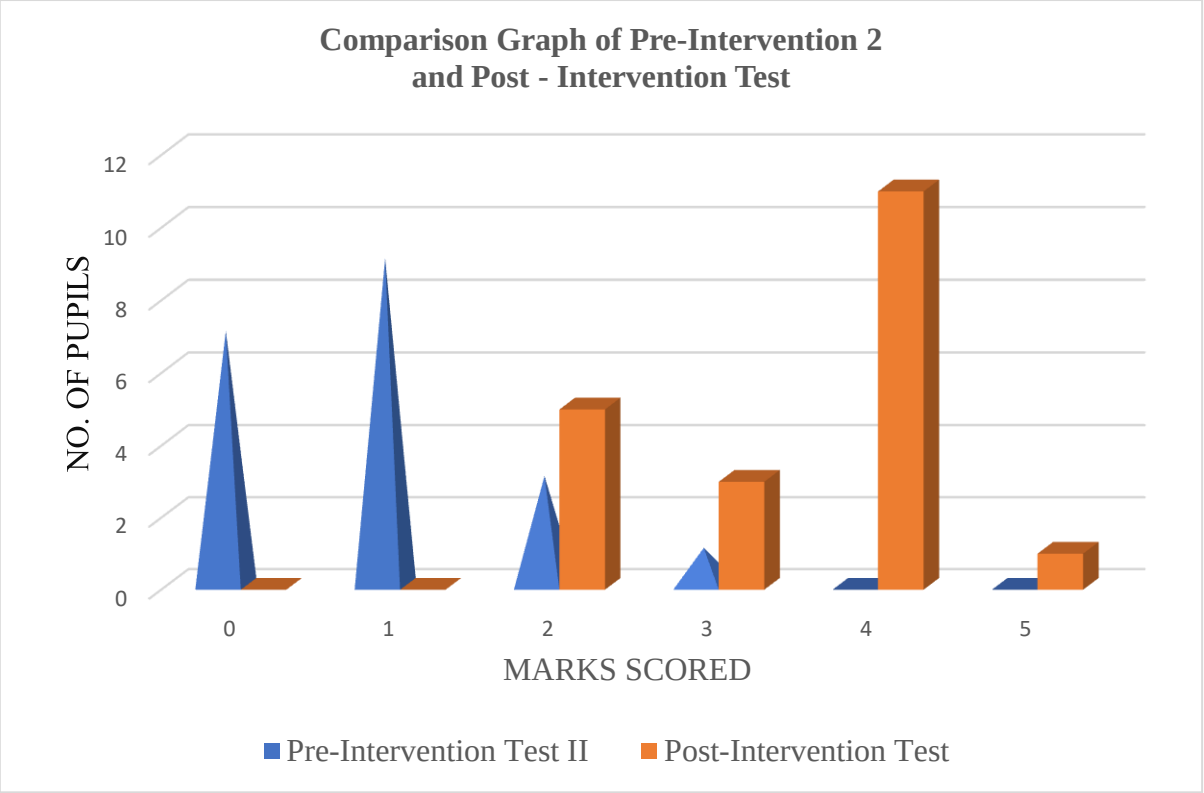

Figure 5: Responses of pupils in the Pre-Intervention II and Post - Intervention Test

Summary, Conclusion And Recommendations

Summary of key findings

Place value charts, according to the study's findings, are especially useful in teaching pupils how to subtract three-digit integers. More pupils took the test given to Nsuta R/C Primary School Basic Three students who used the place value chart during the mathematics classes. This demonstrates how comprehending place value aids in the development of the capacity to subtract three-digit integers. The report claims that schools do not have enough teaching and learning tools, particularly when it comes to teaching and learning three-digit addition and subtraction.

The study also discovered that students who had access to place value charts performed well on the three-digit number subtraction exercise. Children can learn to subtract three-digit numbers with the use of place value charts. They were able to develop their abilities, knowledge, and grasp of the notion of subtraction thanks to the researcher's approaches. The researcher can certainly declare that the objective of helping Basic Three students of Nsuta R/C Primary School subtract three-digit numbers was achieved because the majority of the students appeared to perform credibly well on the test.

5.2 Conclusion

The study, which was done at Nsuta R/C Primary School in the Sekyere Central District with Basic Three students, aimed to teach three-digit number subtraction. The researcher is sure that the study was both relevant and beneficial because it attempted to intervene by implementing actions to improve it through various activities aimed at increasing students' grasp of subtraction. In all, pupils understood the concept of subtraction and can confidently execute subtraction questions and problems.

5.3 Recommendations

The researcher after intervention and working through the action research has recommended few practices that will aid teachers of Mathematics and future researchers in teaching of the subject.

1. Subtraction as an important aspect in Mathematics should be given intrinsic attention in terms of adequate teaching/learning materials (TLMs).
2. In-service training and workshops should be frequently organised for teachers of mathematics in the Sekyere Central District basic schools to assist teachers on the use of various teaching skills and materials.

3. Teachers in Nsuta R/C Primary should concentrate more on hands-on activities while teaching operations on three-digit numbers so that students can comprehend the concept easily, as youngsters learn best by doing and active participation and also have time for pupils to work on these activities.

5.4 Suggestions for Further Research

Researchers should be encouraged to embark on more research to avail new methods of teaching subtraction to update teaching methods and processes.

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APPENDICE

APPENDIX I

PRE- INTERVENTION TEST I SAMPLE RESULTS

Answer All Questions:

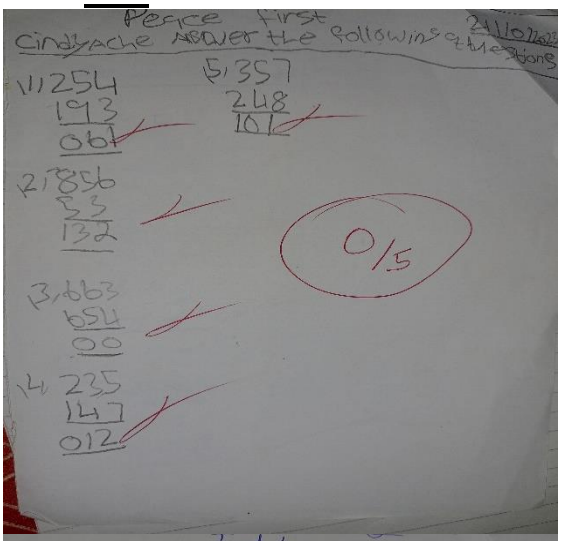
1. 254 -193 ____

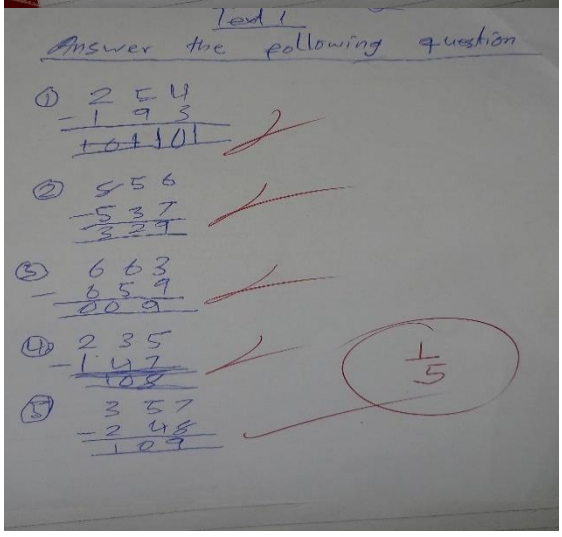
2. 556 -537 ____

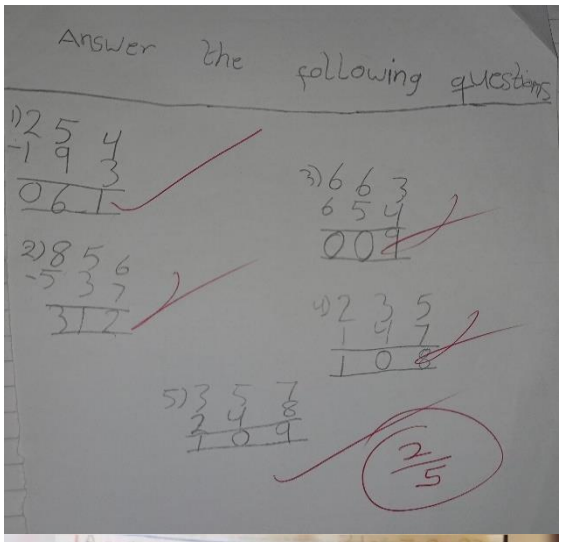
3. 663 -659. ____.

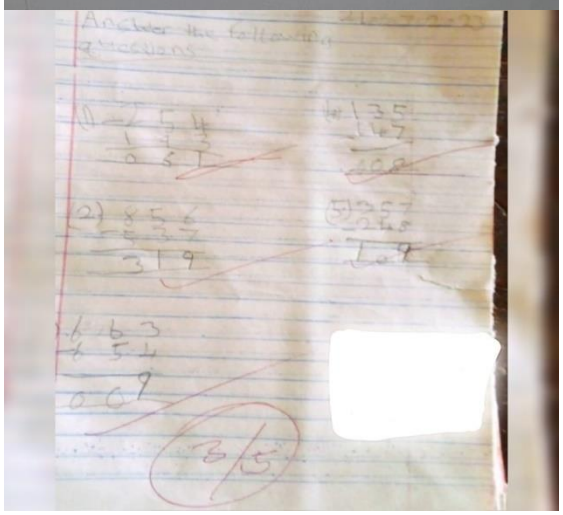
4. 235 -147 ____

5. 357 -248 ____.









APPENDIX II

PRE- INTERVENTION TEST II

Answer All Questions:

1. 357 -248 ____

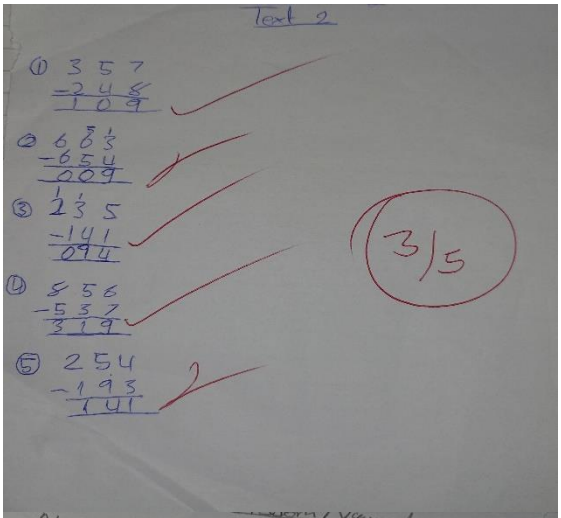
2. 663 -654 ____

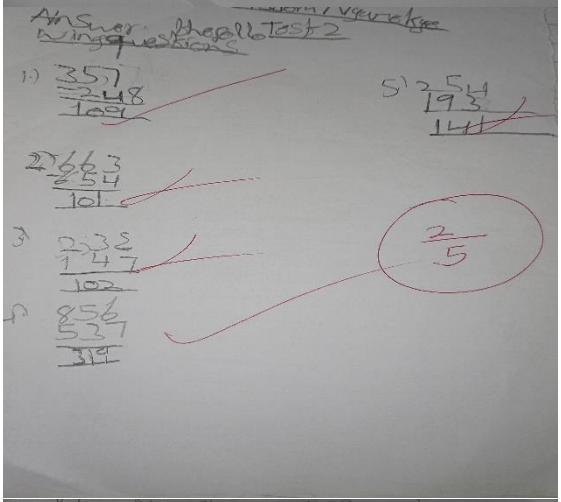
3. 235 -147. ____.

4. 856 -537 ____

5. 254 -537 ____.

Sample Test II Results


Test 2
3/5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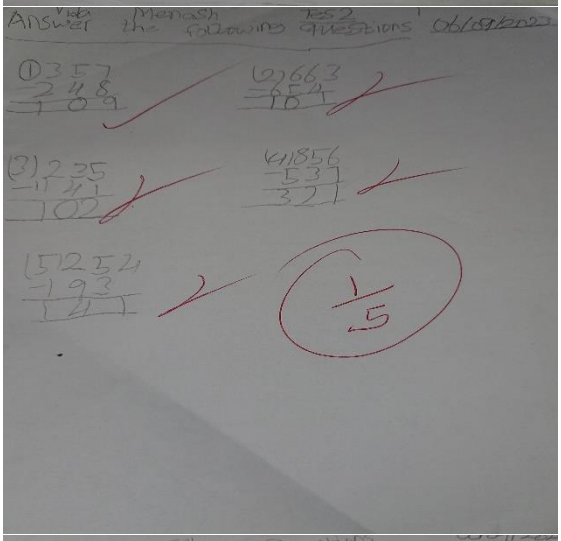
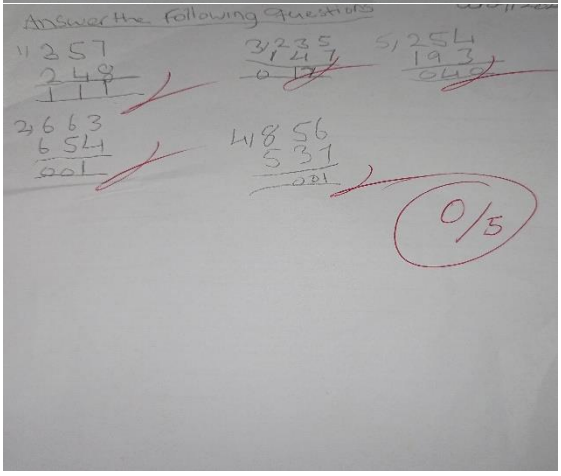

1/5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APPENDIX III

POST- INTERVENTION TEST

Using the place value chart solve the following question and write your answers in hundreds, tens and ones

Answer All Questions:

2. 746
   -398
   ____

2. 837
   -593
   ____

3. 657
   -298.
   ____.

4. 743
   -393
   ____

5. 547
   -296
   ____.

Sample of Post Test Results