CIRCLEMASTER: DEVICE TO IMPROVE THE PERFORMANCE OF GRADE 10 STUDENTS OF CATANDUANES NATIONAL HIGH SCHOOL ON COMPETENCIES REGARDING CIRCLES

A Completed Action Research Report
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ABSTRACT

TOLLEDO, R. T. & TOLLEDO, J. M. **CIRCLEMASTER: DEVICE TO IMPROVE THE PERFORMANCE OF GRADE 10 STUDENTS OF CATANDUANES NATIONAL HIGH SCHOOL ON COMPETENCIES REGARDING CIRCLES**

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This action research explored the effectiveness of *CircleMaster*, a locally developed manipulative device, in enhancing the understanding of circle-related concepts among Grade 10 students at Catanduanes National High School. The study aimed to answer the following questions: (1) What is the academic performance of students in the summative test on topics about circles before and after using *CircleMaster*?; (2) Is there a significant difference in students' performance before and after the intervention?; and (3) What is the feedback of the students regarding the use of *CircleMaster* as a learning tool? The device was used to teach key competencies such as deriving relationships between arcs, chords, and angles, and proving circle theorems through visualization and hands-on manipulation.

The study utilized a one-group pretest-posttest design involving 35 Grade 10 students from one section. A 30-item teacher-made test was administered before and after the implementation of the intervention to measure academic performance on the topic of circles. The CircleMaster was used as a hands-on instructional aid over the course of one week during regular mathematics classes. Normality of data was verified using the Shapiro-Wilk test, and a paired samples t-test was applied to determine the significance of the difference between pretest

and posttest scores. In addition, student feedback on the usability and effectiveness of the device was gathered through a structured questionnaire using a five-point Likert scale.

Results showed a substantial improvement in students' academic performance, with the mean score increasing from 6.265 with a mean percentage of 20.883 (Not proficient) in the pretest to 23.353 with a mean percentage of 77.843 (Proficient) in the posttest. Statistical analysis confirmed that this gain was highly significant ($p < .001$) with a large effect size (Cohen's $d = 1.68$), indicating the strong impact of the intervention. Students also expressed overwhelmingly positive feedback, describing the tool as easy to use, visually engaging, and helpful in making abstract concepts more understandable.

The study concludes that *CircleMaster* is an effective instructional device for teaching geometry, particularly in making difficult topics more accessible and enjoyable for learners. Its success reinforces the importance of incorporating concrete, student-centered strategies in mathematics instruction to support deeper learning and academic improvement. The researchers recommend the wider integration of manipulative tools like *CircleMaster* in classroom practice and encourage further research on its application to other grade levels and mathematical topics.

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I. Context and Rationale

Mathematics is one of the subjects in which some students find challenging. Its abstract nature requires strong critical thinking skills, problem solving abilities, and the capacity to think logically.

In the Philippines, only 16% of students achieved at least Level 2 proficiency in mathematics, significantly lower than the OECD average of 69%. At this level, students can understand and apply basic mathematical concepts in simple contexts. In contrast, over 85% of students in countries like Singapore, Macao (China), Japan, Hong Kong (China), Chinese Taipei, and Estonia reached this level or higher.

Additionally, almost no students in the Philippines were classified as top performers in mathematics (Level 5 or 6), compared to the OECD average of 9%. Countries such as Singapore (41%), Chinese Taipei (32%), Macao (China) (29%), Hong Kong (China) (27%), Japan (23%), and Korea (23%) had the highest proportions of top-performing students. These students can model complex situations mathematically and choose appropriate problem-solving strategies. Only 16 out of 81 countries and economies in PISA 2018 had more than 10% of students achieving Level 5 or 6 proficiency. This indicates that they can perform only simple calculations and possess below minimum proficiency in mathematics.

Olegario (2019) stated that such poor performance is largely attributed to a curriculum overly focused on memorization rather than fostering analytical thinking and problem-solving skills.

Supporting these findings, the Southeast Asia Primary Learning Metrics (SEA-PLM) 2019 report by UNICEF highlighted that Grade 5 students in the Philippines scored below the average in mathematics compared to their counterparts in other participating countries. This underscores the urgent need for reforms aimed at improving basic education and strengthening students' foundational mathematical skills. (Department of Education, SEAMEO, & UNICEF, 2021).

These statistics highlight the widespread difficulties Filipino students face in mathematics, emphasizing the need for educational reforms that move beyond rote memorization to foster deeper comprehension and practical application of mathematical concepts.

Responding to these findings, the Department of Education (DepEd) in the Philippines has officially adopted the Basic Education Development Plan (BEDP) 2030 through DepEd Order No. 024, s. 2022., aligned with Ambisyon Natin 2040 and the Sustainable Development Goals (SDGs) 2030, is the Philippines' first medium-term plan for basic education. It covers formal K-to-12 education and non-formal education for youth and adults.

Additionally, the MATATAG Agenda, launched in January 2023, provides a roadmap with specific goals that the Department of Education (DepEd) aims to achieve by 2028. MATATAG focuses on: (1) Making the curriculum relevant to produce competent, job-ready, active, and responsible citizens, (2) Accelerating the provision of basic education facilities and services., (3) Promoting learner well-

being, inclusive education, and a positive learning environment, and (4) Supporting teachers to enhance their teaching capabilities.

These initiatives aim to overhaul the educational system in the Philippines, ensuring that students receive a comprehensive and high-quality education that prepares them effectively for the future.

Regional and divisional offices have also implemented targeted interventions. For instance, in Region V, Albay Division established the Albay Numaracy Assessment Tool (ALNAT). The tool aims to diagnose numeracy skills, generate baseline data, and inform instructional improvements to promote better math performance. The framework involves developing the tool through various stages.

They also launched the Project 6B: Bawat Batang Bicolano Bihasang Bumasa at Bumilang: A Multi-Stakeholder Approach for Improving Literacy and Numeracy pursuant to Regional Memorandum No. 786, series 2023 which in general, aims to increase the access and improve performance of learners in terms of literacy and numeracy in partnership with the stakeholders.

Apart from these initiatives, the DepEd Region 5 also hosts several activities along Mathematics Curriculum. One of these is the Regional Math Fair, which is pursuant to Regional Memorandum 657, s. 2023, which promotes the value and relevance of Mathematics among learners and teachers, provide an avenue to showcase the mathematical and aesthetic skills of teachers and learners, and promote camaraderie and sportsmanship through a friendly contest.

These efforts underscore DepEd's commitment to addressing educational deficiencies and improving mathematics education across the country.

Mathematics is a subject that deals with a lot of abstract concepts and formulas, and circles are no exception. Discussed on different grade levels in junior high school and senior high school, the topic of circles can often be challenging for students to understand and apply in real-life situations. Discussing these lessons would be enriched if students had a tool to aid their understanding and problem-solving abilities.

Based from the results of Albay National Achievement Test (AlNAT) in Mathematics for Grade 10, some of the competencies that were least-mastered skills are: (1) Illustrates secants, tangents, segments, and sectors of a circle, (2) Solves problems of circles, (3) Derives inductively the relations among chords, arcs, central angles, and inscribed angles, (4) Proves theorems related to chords, arcs, central angles, and inscribed angles.

The way math is taught can contribute to students’ struggles in the subject. Some students may find traditional teaching methods ineffective and may benefit more from alternative approaches to learning math.

One of the alternative approaches in teaching math is the use of Math manipulatives. Research has consistently shown that the use of manipulatives—physical objects used as teaching tools—can significantly improve students' understanding and engagement in mathematics.

A meta-analysis by Carbonneau, Marley, and Selig (2013) demonstrated that manipulatives are effective in promoting mathematical learning, particularly when used under specific instructional conditions. They help bridge the gap between concrete experiences and abstract mathematical concepts, facilitating a deeper understanding of the material.

Manipulatives such as base-ten blocks, geometric shapes, and algebra tiles provide hands-on learning opportunities that make abstract concepts tangible. According to Moyer-Packenham and Westenskow (2012), the use of these tools is associated with higher student achievement and increased engagement in math classes. They argue that manipulatives help students visualize mathematical concepts, making it easier to grasp complex ideas.

Moreover, a study published by the Educational Research Information Center (ERIC) found that manipulatives can significantly enhance students' problem-solving skills and their ability to transfer knowledge to new contexts. The study highlights that students who regularly use manipulatives in their math instruction perform better on standardized tests compared to those who do not (ERIC, 2019).

Baruis and Diozo (2023) conducted a study aimed at exploring the impact of manipulatives, or tangible learning materials, on the mathematical achievement of 9th grade students. Employing a pretest-posttest control group experimental design, the research involved 86 ninth grade students (42 in the experimental group and 44 in the control group) from Camanlangan National High School during the academic year 2022-2023. The study concluded that students who used

manipulatives showed significantly higher posttest scores compared to those who did not, indicating that the incorporation of manipulatives effectively enhances mathematical performance among students.

It is crucial that students are provided with the right tools and resources to enhance their learning experience. That is why the proponent devised the CircleMaster.

With CircleMaster, students can immerse themselves in interactive lessons, practice problems, and real-life applications of circles. Through its easy-to-use interface and comprehensive content, CircleMaster aims to inspire students' understanding of circles and ignite a lifelong love for mathematics.

Existing pedagogical approaches often rely on traditional teaching methods, including static diagrams and theoretical explanations, which may not resonate effectively with all students. The CircleMaster aims to address these limitations by providing a dynamic and interactive platform that bridges the gap between abstract theories and tangible, experiential learning.

Barraket (2005) stated that in education, constructivism is characterized by the belief that "to do is to learn" as a means of providing students with additional skills and knowledge. Students acquire and develop knowledge and abilities under the guide of the teachers. An additional benefit of the student-centered approach is that it promotes learning via active engagement among students, teachers, and the learning environment. It can be noted that deeper learning strategies promote

deeper processing and hence long-term memory. Hence, the use of CircleMaster is to strengthen and enrich students' analysis of the concept of circles.

Furthermore, educators can also make use of the device as an instructional material as a great visual representation and manipulative to explore the concepts related to circles. Also, it can be used as an assessment for the students if they have understood different theorems of circles.

This study examined how CircleMaster, an interactive educational tool, affects Grade 10 students' understanding of circle terms and theorems at Catanduanes National High School. It started by assessing students' current understanding. Statistical analysis was used to determine if there's a significant difference in their understanding before and after using CircleMaster.

II. Innovation, Intervention, and Strategy

a. Circle Master as an Innovation

In this study, the researcher used CircleMaster to improve the students' performance in Mathematics, specifically the topics on circles.

The CircleMaster device can help teachers in providing a concrete visual representation and can serve as manipulative for the topics regarding circles. This material can be used in proving and illustrating theorems, can help in solving for different aspects regarding circles, and can be used to be familiarized with the different special triangles and the unit circle.

The list of materials with its corresponding cost is indicated on table 1. The total cost of the CircleMaster is Php 630.00.

Table 1

Materials and Cost

Material	Cost
Plywood $\left(\frac{3}{4}\right)$	200.00
Plywood $\left(\frac{1}{2}\right)$	100.00
Finishing Nails	10.00
Screws	10.00
Spray Paint (Black)	100.00
Spray Paint (White)	100.00
Acetate Sheets	25.00
Magnetic Sheets	25.00
Sticker Paper	30.00
GI Sheets	20.00
Tape	50.00
TOTAL	**Php 630.00**

The structure of phase 1 is indicated on Figure 1. The main base and circles are made of plywood. For the bigger circle, the GI sheet is placed in top of the wooden circle. The uppermost part is the tarpaulin of a figure of a circle.

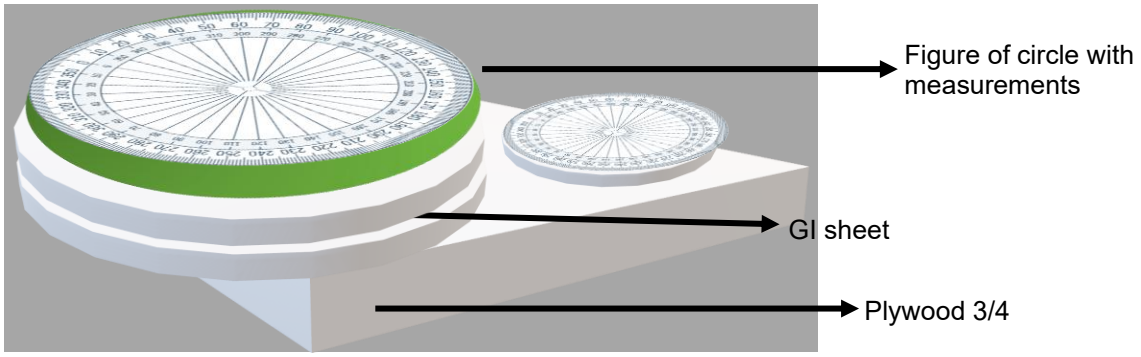

Figure 1: **Structure of Phase 1**

Shown in Figure 2 is the construct of phase 2 of the CircleMaster. The main board was made of ¾ plywood. On the first phase, the unit circle was made from 1/2 plywood.

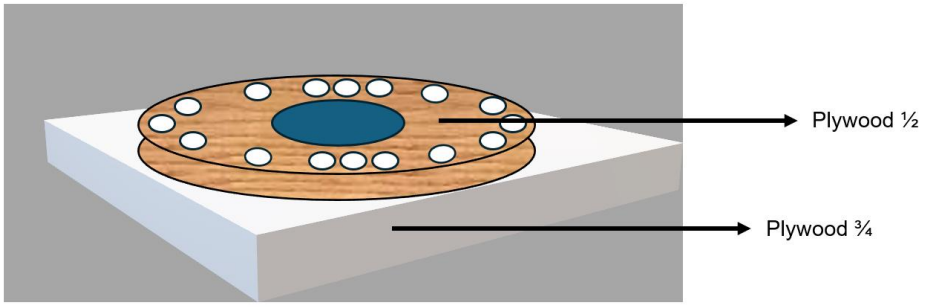

Figure 2: **Structure of Phase 2**

There were 3 layers of circle with holes on the specified angles on each circle. Acetate was also used so that the circle can be written on and to be erased neatly. Pins were used to indicate different angles on the circle/s.

How to Use CircleMaster

Rotate the layers of circle depending on what special angle is being asked. This will show the multiples of the angle whether it is 90, 30, 60, and 45.

Also, rotate the given special triangles to reveal coordinates or the value of the special triangles.

Circle

Depending on the task that will be done, use a rubber band to indicate a figure on the circle/s. Prove and show solution as to the different postulates/theorems such as Arc Addition Postulate, Theorems on Central Angle, Inscribed Angle Theorem, Angle Sum Property of Inscribed Quadrilaterals,

Alternate Segment Theorem, Angle Addition/Subtraction Postulate, and Parts and terms Related to Circle.

b. Circle Master as an Intervention and Strategy

The CircleMaster is a two-faced mathematics device that aids the teaching and learning on different mathematical concepts such as the Unit Circle and Special Angle and Special Triangles and Different Theorems and Postulates regarding Circles.

Presented in Table 2 are the least learned competencies and the strategies to be employed to address them.

Table 2

Least Learned Competencies and Corresponding Strategies to Employed Using the CircleMaster

Least Learned Competencies	Strategies
The learner derives inductively the relations among chords, arcs, central angles, and inscribed angles. M10GE-IIc-1	• Familiarization of terms • Letting the students illustrate and explore the relations among the terms presented through the device. • Class Discussion/Lecture
The learner proves theorems related to chords, arcs, central angles, and inscribed angles. M10GE-IIc-d-1	• Present the theorem through visualization on the device. Then let the students try it on their own. • The students will come up with the definition of the theorem through what they have observed on the exploration. • Class Discussion/Lecture
The learner illustrates secants, tangents, segments, and sectors of a circle. M10GE-IIe-1	• Familiarization of terms Letting the students illustrate and explore the relations among the terms presented through the device. Class Discussion/Lecture

The learner proves theorems on secants, tangents, and segments M10GE-IIe-f-1	• Present the theorem through visualization on the device. Then let the students try it on their own. The students will come up with the definition of the theorem through what they have observed on the exploration. Class Discussion/Lecture
Assessment	Performance Task as to illustrate different theorems regarding circles using the device.

III. Action Research Questions

This action research aimed to determine the effectiveness of CircleMaster as a tool in improving the academic performance of Grade 10 students at Catanduanes National High School on topics about circles.

Specifically, it aimed to answer the following questions:

1. What is the academic performance of Grade 10 students at the Catanduanes National High School on topics about circles before and after using CircleMaster?
2. Is there a significant difference between the academic performance of Grade 10 students at the Catanduanes National High School on topics about circles before and after using CircleMaster?
3. What is the feedback of the Grade 10 students at the Catanduanes National High School in using CircleMaster in teaching topics about circles?

IV. Action Research Methods

a. Participants and/or Other Sources of Data Information

The participants of the study were students of Grade 10 Peace at Catanduanes National High School under the Enhanced Basic Education Curriculum. Table 3 presents the participants of the study categorized by sex.

Table 3
Participants of the Study

Section	Male	Female	Total
Grade 10 Peace	20	15	35

b. Data Gathering Methods

The researchers oriented the administration, parents/ legal guardians and the students about the intervention. Parental consents were secured from the parents/ legal guardians permitting that their children will participate in the study.

Upon approval of conducting the study, the researchers conducted a 30-item pretest and then have utilized the intervention. The students were taught using the CircleMaster for a week during the mathematics 10 class. The topics covered were:

The learners derive inductively in the relations among chords, arcs, central angles and inscribed angles (M10GE-II-c-1).

Subtask 1: Discover the relations among arcs and central angles by finding their degree measures.

Subtask 2: Derives inductively the relations among arcs and inscribed angles by finding their degree measures.

Subtask 3: Find the degree measures of central and inscribed angles and their intercepted arcs

After the implementation of the intervention, a 30-item summative test was administered. The raw data was subjected to statistical procedures to analyze and interpret the results.

To determine the academic performance of Grade 10 students at the Catanduanes National High School in the summative test on topics about circles before and after the use of Circle Master, the researchers used mean scores and mean percentage and interpreted using the National Achievement Test (NAT) Assessment Scale, as follows:

Table 4

Assessment Scale

Mean Percentage	Level of Proficiency
90 – 100	Highly Proficient
75 – 89	Proficient
50 – 74	Nearly Proficient
25 – 49	Low Proficient
0 - 24	Not Proficient

Test for normality was first tested using the Shapiro-Wilk test. The result suggested that the data is normal, a parametric test was used.

T test was employed to test whether there is a significant difference between the academic performance of Grade 10 students at the Catanduanes

National High School in the summative test on topics about circles taught using CircleMaster.

The researchers also conducted acceptability tests test using a five-point Likert Scale to determine the learners' feedback about the use of CircleMaster in teaching topics on circles. Weighted mean was used to analyze and interpret the result.

V. Discussion of Results and Reflection

1. Academic Performance of Grade 10 Students at the Catanduanes National High School on Topics about Circles Before and After Using Circlemaster

Table 5 shows the academic performance of Grade 10 students at the Catanduanes National High School on topics about Circles before and after using Circlemaster.

Table 5

Academic Performance of Grade 10 Students at the Catanduanes National High School on Topics about Circles Before and After Using Circlemaster

	Mean Score	Mean Percentage	Academic Performance
Before Using Circle Master	6.265	20.88	Not Proficient
After Using Circle Master	23.353	77.84	Proficient

As shown, there is a clear difference in the performance of Grade 10 students before and after using *CircleMaster*. Before using the device, students had an average score of 6.265 out of a possible total, which is only 20.88% (Not

Proficient). This result indicates that most students had difficulty understanding the topic before the use of the device.

After the introduction of CircleMaster, their average score rose significantly to 23.353, which is 77.84% (Proficient). This shows an improvement of over 56 percentage points, suggesting that students learned effectively using the device.

This finding supports previous research. Carbonneau, Marley, and Selig (2013) found that using physical manipulatives in teaching math—like the CircleMaster—can lead to higher student achievement, especially when the tool is used clearly and consistently. Similarly, Sowell (1989) emphasized that students who use manipulatives over time tend to perform better than those who rely only on textbooks or lectures.

Manipulative tools help make abstract math ideas more understandable. In this case, the CircleMaster allowed students to physically interact with key concepts—such as radius, diameter, and angles in a circle—making these ideas easier to grasp. As Clements and McMillen (1996) pointed out, manipulatives work best when students use them to explore, ask questions, and build their own understanding.

In conclusion, the results strongly suggest that using CircleMaster helped students improve their understanding of circles. The large jump in scores shows that learning becomes more meaningful and effective when students are given tools that allow them to see and experience the math for themselves.

2. Significant Difference between Academic Performance of Grade 10 in the Summative Test on Topics about Circles before and after using CircleMaster

To determine whether the difference in students' scores before and after using CircleMaster followed a normal distribution, a Shapiro-Wilk test was conducted. The result showed a significance value of 0.130, which is greater than the standard threshold of 0.05. This means that the difference scores are normally distributed, and it is appropriate to use a parametric test, such as the paired sample t-test, to analyze whether the improvement in students' performance is statistically significant.

Table 6 displays the results of the statistical test conducted to determine whether there was a significant difference in the academic performance of Grade 10 students before and after the integration of *CircleMaster*, a manipulative instructional tool designed for teaching topics about circles.

Table 6

Test of the Significant Difference on the Academic Performance of Grade 10 in the Summative Test on Topics about Circles

H_0: $m_1 = m_2$	**Pretest**	**Posttest**
Mean	6.265	23.353
Std. Deviation	1.578	2.21
p-value	<.001	
Cohen's d	1.68	

The results show a substantial improvement in student performance. The mean score increased from 6.265 (SD = 1.578) in the pretest to 23.353 (SD = 2.21) in the posttest.

The computed p-value is less than .001, which indicates that the difference between pretest and posttest scores is highly statistically significant. This means that the improvement in scores is very unlikely to be due to chance and can be attributed to the intervention. Furthermore, the computed Cohen's d value of 1.68 represents a very large effect size, suggesting that the intervention had a strong impact on student learning. According to recent benchmarks by Lakens (2022), an effect size above 0.8 is considered large; thus, a value above 1.5 indicates a particularly meaningful educational effect.

This finding aligns with recent studies that highlight the benefits of using concrete manipulatives in math instruction. According to Moyer-Packenham and Westenskow (2017), manipulatives improve students' understanding by providing visual and tactile experiences that make abstract concepts more accessible. Their study confirmed that hands-on learning tools can lead to measurable gains in mathematics achievement, particularly in geometry.

In addition, a study by Turgut and Turgut (2022) emphasized that manipulative-based learning enhances students' problem-solving abilities and conceptual comprehension, especially in topics involving spatial reasoning. Their findings support the idea that interactive tools like CircleMaster can lead to deeper engagement and better long-term retention of mathematical ideas.

In summary, the statistically significant results and large effect size indicate that the use of CircleMaster had a meaningful impact on students' academic performance in learning about circles. These results are in line with recent

educational research advocating for the integration of manipulative materials to enhance mathematical understanding and learning outcomes.

3. Feedback of the Grade 10 students at the Catanduanes National High School in using CircleMaster in teaching topics about circles

Table 7 presents the feedback of Grade 10 students from Catanduanes National High School regarding their use of *CircleMaster*.

Table 7

Feedback of the Grade 10 Students at the Catanduanes National High School in Using Circlemaster in Teaching Topics about Circles

	Statement	Mean	Verbal Description	Variance
1	The Circle Master helped me better understand key concepts about circles (e.g., radius, diameter, circumference, area).	5.00	Strongly Agree	0.000
2	The device is easy to use and operate without much assistance.	4.60	Strongly Agree	0.490
3	Using the Circle Master made learning about circles more enjoyable.	4.50	Strongly Agree	0.500
4	I felt more confident in solving problems related to circles after using the device.	3.80	Agree	0.600
5	The visual and hands-on features of Circle Master enhanced my understanding.	5.00	Strongly Agree	0.000
6	Instructions for using the device were clear and easy to follow.	5.00	Strongly Agree	0.000
7	Circle Master helped me connect theoretical concepts with real-life situations.	4.70	Strongly Agree	0.700
8	The design and physical appearance of the Circle Master are appealing and well-crafted.	4.80	Strongly Agree	0.458
9	The materials used in the Circle Master appear to be durable and of high quality.	5.00	Strongly Agree	0.400
10	Overall, I am satisfied with my learning experience using the Circle Master.	5.00	Strongly Agree	0.400

The results show overwhelmingly positive responses, with mean scores ranging from 3.80 to 5.00 and most items receiving a verbal interpretation of

“Strongly Agree.” This indicates that students perceived CircleMaster as an effective, accessible, and engaging learning tool that supported both understanding and satisfaction in learning circle concepts.

Five statements received the highest mean score of 5.00. These include the device’s role in helping students understand key mathematical concepts (such as radius, diameter, circumference, and area), enhancing understanding through visual and hands-on interaction, providing clear instructions, offering high-quality and durable materials, and delivering an overall satisfying learning experience. This strongly suggests that manipulative devices like CircleMaster play a crucial role in bridging abstract mathematical ideas with concrete understanding. As emphasized in Piaget’s (1972) theory of cognitive development, students—especially those transitioning to formal operational thinking—benefit from manipulatives that support conceptual clarity. These findings are further supported by Bruner (1966), who posited that learners progress from enactive (doing) to iconic (seeing) to symbolic (abstract) learning stages, and effective instruction should reflect this progression.

Contemporary research continues to affirm these principles. For example, Balka, Hull, and Harbin Miles (2018) emphasized that manipulatives contribute significantly to students' mathematical reasoning and help develop their capacity for problem-solving by making abstract ideas more tangible. Similarly, a study by Sari et al. (2020) found that the use of concrete teaching aids increased student engagement and achievement in geometry, especially when aligned with clear

instruction and guided exploration. In the case of CircleMaster, students reported that instructions were easy to follow (M = 5.00), supporting the notion that clarity of use enhances the effectiveness of educational tools.

Students also rated the device highly in terms of usability (M = 4.60), enjoyment in learning (M = 4.50), and design quality (M = 4.80). These responses reflect the positive influence of aesthetic and ergonomic design on student engagement. According to recent research by Sarı, Ertekin, and Selçuk (2021), well-designed instructional materials contribute to increased attention and motivation, which in turn improves learning outcomes in mathematics. In a similar vein, Alqahtani and Powell (2022) noted that visually appealing and interactive manipulatives positively affect students' attitudes toward mathematics and reduce anxiety in geometry classes.

The lowest mean score (3.80) was recorded in students' confidence in solving circle-related problems after using the device. Though still interpreted as "Agree," this suggests a relatively lower perception of self-efficacy in problem-solving compared to other aspects. Additionally, this item had one of the highest variances (0.600), indicating diverse experiences among students. This finding implies that while CircleMaster supported conceptual understanding, further reinforcement—such as guided practice or teacher facilitation—may be necessary for students to transfer their understanding to independent problem-solving. As highlighted by Nguyen et al. (2019), the integration of manipulatives should be

supported by structured instructional strategies that help students move from manipulation to mathematical abstraction and application.

Furthermore, while the item addressing the connection between theoretical concepts and real-life situations received a high mean score of 4.70, it also exhibited the highest variance (0.700). This suggests that some students found it easier than others to see the practical applications of the concepts learned through the device. A study by Elia, Gagatsis, and Demetriou (2021) stressed that contextualizing mathematical concepts is crucial for meaningful learning, and the use of manipulatives should be accompanied by real-world problem-solving tasks to maximize their impact.

In summary, the findings clearly indicate that the CircleMaster device was highly effective in enhancing student engagement, comprehension, and satisfaction in learning topics about circles. The results validate both classical and recent research advocating the use of manipulatives in mathematics education. However, the data also reveals the importance of teacher support, structured guidance, and contextual application to ensure that understanding leads to confidence and competence in mathematical problem-solving.

VI. **Action Plan**

As part of the final phase of the action research titled *“Enhancing the Academic Performance of Grade 10 Students on Topics About Circles Using*

CircleMaster," a dissemination and utilization activity was conducted on June 10, 2025, at the Grade 10 – Magnanimity Room, Catanduanes National High School. The event aimed to present the research findings to fellow educators, promote the use of manipulative tools in teaching mathematics, and provide a venue for reflective professional dialogue on improving classroom practices. The activity, titled *"Full Circle Learning: Bridging Theory and Practice in Mathematics with CircleMaster,"* was attended by 20 mathematics teachers and the Head Teacher VI of the Mathematics Department, Mrs. Maria Elizabeth C. Abrasaldo. It was facilitated by the researchers, Ronie T. Tolledo and Javine M. Tolledo.

The program opened with a discussion on foundational learning theories that support the use of hands-on tools in mathematics instruction. Mrs. Tolledo emphasized the relevance of constructivist principles, including Piaget's theory of active learning and Vygotsky's scaffolding approach, as the philosophical basis for integrating tools like CircleMaster. These theories support the design of instruction that is both student-centered and cognitively engaging, helping students understand abstract mathematical concepts such as those found in geometry.

Participants were then introduced to the CircleMaster device itself, its background, design, and instructional application. The researchers demonstrated how the tool enables students to physically explore essential concepts such as radius, diameter, arcs, central angles, and circumference. Attendees were shown how the device had been used in actual classroom settings, including activity sequences, guided exploration, and interactive learning opportunities. Sample

student work and photos from implementation sessions further illustrated how CircleMaster contributed to a dynamic and engaging classroom environment.

The discussion also covered the teaching strategies employed alongside the device, such as inquiry-based learning, cooperative group work, and differentiated instruction. These approaches allowed students to actively explore and investigate theorems related to circles. Mr. Tolledo stressed that while the CircleMaster is an effective tool, its success largely depends on how teachers structure and facilitate meaningful learning experiences around it. He provided examples showing how the device could be adapted for both Grade 10 and even Grade 7 competencies. The segment concluded with a reflective challenge for educators to review their existing practices and explore more student-centered strategies, including the conduct of action research in their own classrooms.

The researchers then presented the key findings of their study, drawn from quantitative data comparing student pretest and posttest scores. The results revealed a significant improvement in academic performance after the use of CircleMaster. The mean score rose from 6.265 to 23.353, with a p-value of less than .001 confirming the statistical significance of the results. A Cohen's d value of 1.68 indicated a very large effect size, underscoring the substantial educational impact of the intervention.

To conclude the dissemination activity, teacher-participants were invited to share their feedback. Many expressed their appreciation for the innovation, and one teacher, Mr. Raffy Panti, shared that he had already started using the device

in his own classroom. Several participants commended the researchers' initiative and expressed their motivation to conduct action research themselves to address learning gaps. They also inquired about the procedures followed in conducting the study and completed the M&E Tool to evaluate the effectiveness of the dissemination session.

To sustain the impact of this initiative and encourage wider adoption, copies of the full research paper will be provided to both the Catanduanes National High School and the Schools Division Office. Pamphlets summarizing the study, its key findings, and conclusions for using the CircleMaster device will also be distributed. To further disseminate the results and promote effective utilization of the tool, the researchers plan to facilitate sessions during Learning Action Cell (LAC) meetings and future INSET (In-Service Training) activities.

Additionally, the researchers express their willingness to serve as resource speakers for interested schools who wish to explore how CircleMaster can be applied across various geometry competencies from Grades 7 to 10. These engagements will provide hands-on training and practical strategies for classroom implementation. Finally, the researchers intend to submit the study for presentation in regional and national research conferences as part of ongoing efforts to share best practices, contribute to professional dialogue, and encourage innovation in mathematics instruction.

VII. References

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VIII. Financial Report

Table 8 presents the financial report of this action research.

Table 8

Financial Report

ACTIVITY	CASH OUT	BALANCE
BASIC EDUCATION RESEARCH FUND FACILITY GRANT		**Php 15,000.00**
1. Crafting & Preparation of Action Research Proposal		
a. Printing Expenses	Php 1,000.00	Php 14,000.00
b. Notarial Fee for BERF MOA	Php 200.00	Php 13,800.00
2. Duplication of the CircleMaster		
a. Raw Materials	Php 5,120.00	Php 8,680.00
3. Implementation of CircleMaster		
a. Office and Printing	Php 2,735.00	Php 5,945.00
b. Load Cards	Php 600.00	Php 5,345.00
c. Transportation Expenses	Php 500.00	Php 4,845.00
d. Snacks	Php 1,735.00	Php 3,110.00
4. Conduct of Advocacy Utilization, and Dissemination Activities		
a. Meals Expenses (25 pax)	Php 1,432.00	Php 1,678.00
5. Preparation & Submission of Terminal Report on BERF Completed Action Research		
a. Printing & binding	Php 1,000.00	Php 678.00
b. Transportation Expenses	Php 678.00	Php 0.00

Annex 1

Letter of Approval

Republic of the Philippines
Department of Education
REGION V - BICOL

Office of the Assistant Regional Director

DEPARTMENT OF EDUCATION
RECEIVED
019170

October 3, 2024

RONIE T. TOLLEDO
Master Teacher II
Catanduanes National High School
Virac, Catanduanes

Dear Mr. Tolledo:

This letter of information pertains to the research proposal that received approval from the Schools Division Research Committee (SDRC) and was subsequently submitted to the Regional Research Committee (RRC) for funding through the CY 2025 Basic Education Research Fund (BERF) Grant Facility.

We are pleased to inform you, throguh the Regional Research Committee (RRC), that the research proposal titled **"CIRCLE MASTER: DEVICE TO IMPROVE PERFORMANCE OF STUDENTS ON COMPETENCIES REGARDING CIRCLES"** has been approved for implementation, in accordance with the provisions outlined in DepEd Order No. 16, s. 2017. To streamline funding for the BERF Facility and ensure deliverable compliance, please refer to the table below. It will also serve as documentation for liquidation.

TYPE OF RESEARCH	TRANCHE	PERCENTAGE	DELIVERABLES
ACTION RESEARCH	FIRST TRANCHE	80 %	• Work Plan • Certificate of Acceptance for the Deliverable • Copy of MOA
	LAST TRANCHE	20 %	• Final Report • Certificate of Acceptance from Regional Research Committee (RRC) • Copy of MOA

Please note that if the research proponent fails to complete and submit the deliverables as scheduled, they will be required to return the full amount granted. This payment must be made within six (6) months, either through direct payment or salary deduction. Additionally, strict compliance with the provisions of DepEd Order No. 16, s. 2017 dated March 20, 2017, is mandated.

For any questions or further clarifications, please contact the Regional Research Committee through the **Policy, Planning, and Research Division (PPRD).**

We look forward to the successful implementation of your research. Thank you.

Very truly yours,

BEBIANO I. SENTILLAS
Assistant Regional Director
Chair, Regional Research Committee

SGOD OFFICE
RECEIVED
Date: 10/4/24
Time: 8:45

PPRD/hrm
10/03/2024

Regional Center Site, Rawis, Legazpi City 4500
0969 516 9555
region5@deped.gov.ph

Annex 2

Research Proposal Application Form & Endorsement

Republic of the Philippines
Department of Education
REGION V – BICOL
SCHOOLS DIVISION OF CATANDUANES

RESEARCH PROPOSAL APPLICATION FORM AND ENDORSEMENT

A. RESEARCH INFORMATION

RESEARCH TITLE:	
CircleMaster: Device to Improve Performance of Students on Competencies regarding Circles	
SHORT DESCRIPTION OF RESEARCH:	
The researcher proposes the use of CircleMaster, a math device innovated by the researcher, to improve the academic performance of students on competencies regarding circles.	
RESEARCH CATEGORY (Check only one) O National O Region O School Division O District O School **(Check only one)** O Action Research O Basic Research	**RESEARCH AGENDA CATEGORY** **(Check only one main research theme)** O Teaching & Learning O Child Protection O Human Resource Development O Governance **(check up to one cross-cutting theme, if applicable)** O DRRM O Gender and Development O Inclusive Education O Others (please specify) _____
FUND SOURCE (e.g. BERF, SEF, others)*	**AMOUNT**
BERF	Php 15,000.00
TOTAL AMOUNT	

- *indicate also if the proponent will use personal funds*

Republic of the Philippines
Department of Education
REGION V – BICOL
SCHOOLS DIVISION OF CATANDUANES

B. PROPONENTS' INFORMATION

LEAD PROPONENTS

LAST NAME	**FIRST NAME**	**MIDDLE NAME**
TOLLEDO	RONIE	TUSI
BIRTHDAY (MM/DD/YYYY)	**SEX**	**POSITION/DESIGNATION**
10/10/1979	MALE	MASTER TEACHER II
REGION/DIVISION/SCHOOL		
REGION V/CATANDUANES/CATANDUANES NATIONAL HIGH SCHOOL		
CONTACT NUMBER 1	**CONTACT NUMBER 2**	**CONTACT NUMBER 3**
09219542639	09206056378	
EDUCATIONAL ATTAINMENT (Degree Title) Enumerate from Bachelor's Degree up to Doctorate Degree	**TITLE OF THESIS/RELATED RESEARCH PROJECT**	
Bachelors Degree: Bachelor of Science in Mathematics Masteral Degree: Master of Arts in Mathematics Education (CARMA)		
SIGNATURE OF PROPONENT		

LAST NAME	**FIRST NAME**	**MIDDLE NAME**
TOLLEDO	JAVINE	MAGTANGOB
BIRTHDAY (MM/DD/YYYY)	**SEX**	**POSITION/DESIGNATION**
04/29/1996	FEMALE	Special Science Teacher I
REGION/DIVISION/SCHOOL		
REGION V/CATANDUANES/CATANDUANES NATIONAL HIGH SCHOOL		
CONTACT NUMBER 1	**CONTACT NUMBER 2**	**CONTACT NUMBER 3**
09206056378		
EDUCATIONAL ATTAINMENT (Degree Title) Enumerate from Bachelor's Degree up to Doctorate Degree	**TITLE OF THESIS/RELATED RESEARCH PROJECT**	
Bachelors Degree: Bachelor of Secondary Education-Major in Mathematics Masteral Degree: Master of Arts in Mathematics Education		
SIGNATURE OF PROPONENT		

Republic of the Philippines
Department of Education
REGION V – BICOL
SCHOOLS DIVISION OF CATANDUANES

IMMEDIATE SUPERVISOR'S CONFORME

I hereby endorse the attached research proposal. I certify that the proponents have the capacity to implement a research study without compromising their office functions.

AMELIA R. EUSEBIO
School Principal IV
Catanduanes National High School
July 12, 2024

ANNEX 3

Declaration of Anti-Plagiarism

1. We, RONIE T. TOLLEDO and JAVINE M. TOLLEDO, understand that Plagiarism is the act of taking and using another's ideas and works and passing them off as one's own. That includes explicitly copying the whole work of another person and/or using some parts of their work without proper acknowledgement and referencing.

2. We hereby attest to the originality of this research proposal and has cited properly all the references used. I further commit that all deliverables and the final research study emanating from this proposal shall be of original content. We shall use appropriate citations in referencing other works from various sources.

3. We understand that violation from this declaration and commitment shall be subject to consequences and shall be dealt with accordingly by the Department of Education and _____.

PROPONENT: **RONIE T. TOLLEDO**

SIGNATURE: _____

PROPONENT: **JAVINE M. TOLLEDO**

SIGNATURE: _____

DATE: July 12, 2024

Annex 4

Declaration of Absence of Conflict of Interest

1. We, RONIE T. TOLLEDO and JAVINE M. TOLLEDO, understand that conflict of interest refers to the situations in which financial or other personal considerations may compromise my judgement in evaluating, conducting, or reporting research.

2. We hereby declare that we do not have any personal conflict of interest that may arise from our application and submission of our research proposal. We understand that our research proposal may be returned to me if found out that there is conflict of interest during the initial screening as per Deped Order No. 16, s. 2017.

3. Further, in case of any form of conflict of interest, (possible or actual) which may be inadvertently emerge during the conduct of research, we will duly report it to the research committee for immediate action.

4. We understand that we may be held accountable by the Department of Education for any conflict of interest which we have intentionally concealed.

PROPONENT: **RONIE T. TOLLEDO**

SIGNATURE: _____

PROPONENT: **JAVINE M. TOLLEDO**

SIGNATURE: _____

DATE: July 12, 2024

Annex 5

Attendance

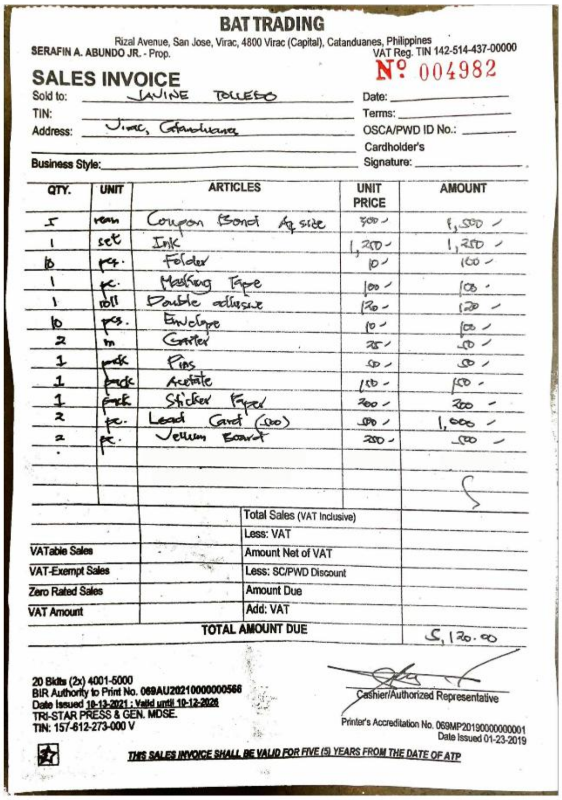
ATTENDANCE

June 10, 2025

Name	Signature
1. GRACE F. BERNARDO	
2. Mariel R. San Juan	
3. Edmond Aurel B. Lazado	
4. Leonard T. Sanchez	
5. Jomhel Urbano	
6. Ginalyn A. Petajen	
7. Rafael F. Manlangit	
8. Raffy A. Parti	
9. Liza C. Alaurin	
10. Allan O. Villegu	
11. Rmie T. Tolledo	
12. REGIN T. RANCES	
13. RONALD C. BERNARDO	
14. ROBERTO T. STO. ROSA	
15. MARIE ANTHONY B. TRASMAÑO	
16. ABEGAIL T. MOLINA	
17. ANGELEE R. SARMIENTO	
18. Jennifer B. Fernandez	
19. Elizabeth T. Tablizo	
20. JASON Y. JIMENEZ	

Annex 6

Receipts



BAT TRADING

SERAFIN A. ABUNDO JR. - Prop. Rizal Avenue, San Jose, Virac, 4800 Virac (Capital), Catanduanes, Philippines VAT Reg. TIN 142-514-437-00000

SALES INVOICE Nº 004982

Sold to: JAVINE TOLLEDO
Date:
TIN:
Terms:
Address: Virac, Catanduanes
OSCA/PWD ID No.:
Cardholder's Signature:
Business Style:

QTY.	UNIT	ARTICLES	UNIT PRICE	AMOUNT
5	ream	Coupon Bond A4 size	300	1,500
1	set	Ink	1,250	1,250
10	pcs.	Folder	10	100
1	pc.	Masking Tape	100	100
1	roll	Double adhesive	120	120
10	pcs.	Envelope	10	100
2	m	Garter	25	50
1	pack	Pins	50	50
1	pack	Acetate	150	150
1	pack	Sticker Paper	200	200
2	pc.	Lead Card (500)	500	1,000
2	pc.	Vellum Board	250	500

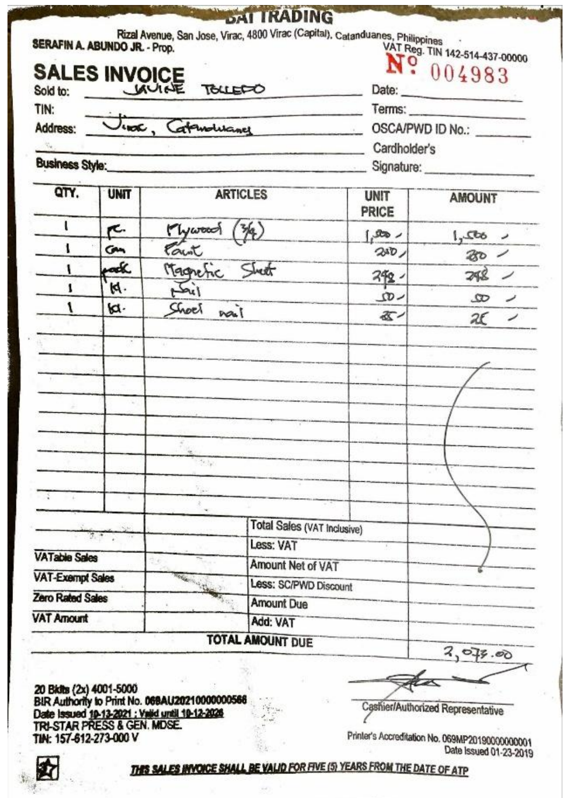
VATable Sales; VAT-Exempt Sales; Zero Rated Sales; VAT Amount; Total Sales (VAT Inclusive); Less: VAT; Amount Net of VAT; Less: SC/PWD Discount; Amount Due; Add: VAT

TOTAL AMOUNT DUE 5,120.00

Cashier/Authorized Representative

20 Bklts (2x) 4001-5000
BIR Authority to Print No. 069AU20210000000566
Date Issued 10-13-2021 ; Valid until 10-12-2026
TRI-STAR PRESS & GEN. MDSE.
TIN: 157-612-273-000 V
Printer's Accreditation No. 069MP20190000000001 Date Issued 01-23-2019

THIS SALES INVOICE SHALL BE VALID FOR FIVE (5) YEARS FROM THE DATE OF ATP



BAT TRADING

SERAFIN A. ABUNDO JR. - Prop. Rizal Avenue, San Jose, Virac, 4800 Virac (Capital), Catanduanes, Philippines VAT Reg. TIN 142-514-437-00000

SALES INVOICE Nº 004983

Sold to: JAVINE TOLLEDO
Date:
TIN:
Terms:
Address: Virac, Catanduanes
OSCA/PWD ID No.:
Cardholder's Signature:
Business Style:

QTY.	UNIT	ARTICLES	UNIT PRICE	AMOUNT
1	pc.	Plywood (1/4)	1,500	1,500
1	gal	Paint	250	250
1	pack	Magnetic Sheet	248	248
1	kl.	Nail	50	50
1	kl.	Sheet nail	25	25

VATable Sales; VAT-Exempt Sales; Zero Rated Sales; VAT Amount; Total Sales (VAT Inclusive); Less: VAT; Amount Net of VAT; Less: SC/PWD Discount; Amount Due; Add: VAT

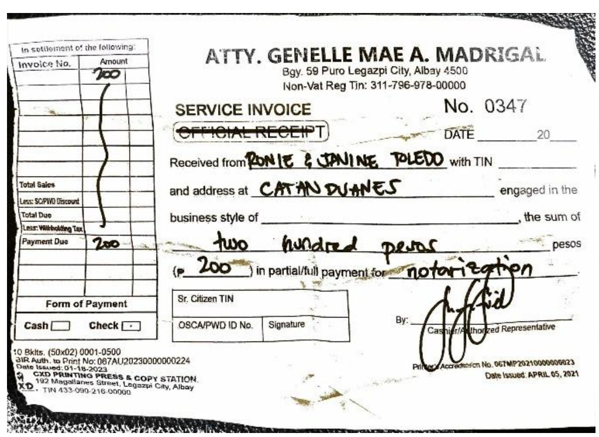
TOTAL AMOUNT DUE 2,073.00

Cashier/Authorized Representative

20 Bklts (2x) 4001-5000
BIR Authority to Print No. 069AU20210000000566
Date Issued 10-13-2021 ; Valid until 10-12-2026
TRI-STAR PRESS & GEN. MDSE.
TIN: 157-612-273-000 V
Printer's Accreditation No. 069MP20190000000001 Date Issued 01-23-2019

THIS SALES INVOICE SHALL BE VALID FOR FIVE (5) YEARS FROM THE DATE OF ATP

Placed	06/10/2025, 9:20 am
Due	Now / ASAP
Total	₱1,142.00
Type	Delivery
Payment Method	Cash on Deli[…]
No. of Stores	1 s[…]
Complete Address with Landmark	CNHS Main b[…], Constantino, Virac, Catanduanes
Notes	Please look for JAVINE M. Tolledo. Near the right wing if the main bldg
Name	JAVINE M. TOLLEDO
E-Mail	magtangobjavinearaojo@gmail.com
Phone	09206056378
Store Address	106 Rizal Ave, Rizal Ave, Virac, 4800 Catanduanes, Philippines



ATTY. GENELLE MAE A. MADRIGAL
Bgy. 59 Puro Legazpi City, Albay 4500
Non-Vat Reg Tin: 311-796-978-00000

SERVICE INVOICE No. 0347
~~OFFICIAL RECEIPT~~
DATE ______ 20__

Received from RONIE & JAVINE TOLEDO with TIN ______ and address at CATANDUANES engaged in the business style of ______, the sum of two hundred pesos pesos (₱ 200) in partial/full payment for notarization

In settlement of the following: Invoice No. | Amount 200
Total Sales; Less: SC/PWD Discount; Total Due; Less: Withholding Tax; Payment Due 200
Form of Payment: Cash / Check
Sr. Citizen TIN; OSCA/PWD ID No.; Signature
By: Cashier/Authorized Representative

10 Bklts. (50x02) 0001-0500
BIR Auth. to Print No: 067AU20230000000224
Date Issued: 01-18-2023
CXD PRINTING PRESS & COPY STATION
192 Magallanes Street, Legazpi City, Albay
TIN 433-090-216-00000
Printer's Accreditation No. 067MP20210000000023 Date Issued: APRIL 05, 2021

PAPERPALACE SCHOOL AND OFFICE SUPPLIES
San Jose, Virac, Catanduanes
VAT Reg. TIN: 743-983-065-00000
Rhea B. Basas-Proprietor

SALES INVOICE 6/14/25

SOLD TO	
Registered Name:	Tolledo
TIN:	
Business Address:	Virac

ITEM DESCRIPTION / NATURE OF SERVICE	QTY	UNIT	U PRICE	AMOUNT
White board Marker	2	pc	64	128
Pencil Case	1	pc		45
Cor. tape	1	pc		40
Scissor	1	pc		45
Lunch Box	1	pc		215
Sharpener	1	pc		25

VATable Sales		Total Sales (Vat Inclusive)	
VAT		Less: VAT	
Zero-Rated Sales		Amount: Net of VAT	444.64
VAT-Exempt Sales		Less: Discount (SC/PWD/NAAC/MOV/SP)	
SC/PWD/NAAC/SP/ MOV ID No.:		Add: VAT	53.36
		Less: Withholding Tax	
SC/PWD/NAAC/SP/ MOV Signature:		TOTAL AMOUNT DUE	498

Cashier/Authorized Representative

Virac Angel Ent.
NON-VAT REG TIN: 921-067-625-00000
Printer's Acc. 069MP20250000000001 01-28-2025
1500 bklts. 077501-152500
OCN 069AU20250000000794
Date of ATP 03-03-25

Nº 081554

CARRIE'S PIZZA, PASTA & MORE
San Isidro Village 4800, Virac (Capital), Catanduanes, Philippines
CARRIE C. ARCILLA - Prop. VAT Reg. TIN 931-525-070-00000

ORDER SLIP Nº 104744

Guest: Tolledo Date: 4/29/25

QTY.	UNIT	ARTICLES	UNIT PRICE	AMOUNT
1	MB	Spag		870
			TOTAL - P	870

500 Bklts (2x) 85001-110000
BIR Authority to Print No. 069AU20230000001180
Date Issued 04-17-2023
TRI-STAR PRESS & GEN. MDSE.
TIN: 157-612-273-000 V
Printer's Accreditation No. 069MP20190000000001
Date Issued 01-23-2019

Guest Signature

THIS DOCUMENT IS NOT VALID FOR CLAIM OF INPUT TAXES

CF HARDWARE & GEN MERCHANDISE
Proprietor : Lorena Co
Constantino Virac Catanduanes
VAT REG TIN:910-567-135-000(VAT)

SOLD TO : RONNIE TOLLEDO
SALES INVOICE NO. : 0000191245
CASHIER : ROCHELLE TRAQUENA

QTY DESCRIPTIONS	PRICE	AMT
1 1/4 CW NAIL 1"-1/4 KI	17.25	17.25 V
1 1/4 CW NAIL 11/2""-1/4 KI	16.75	16.75 V
2 PC PAINT BRUSH 2"-AMES	31.00	62.00 V

Line Items: 3 Qty.: 4.00
TOTAL DUE: 96.00
CASH 100.00
TOTAL PAYMENT: 100.00
CHANGE: 4.00
GROSS SALES 96.00
LESS DISCOUNT 0.00

SHOPBOX TRADING
AND ALLIED SERVICES
MA. CLEOFE R. LAYNES -PROP.
VAT REG TIN: 110-330-828-00005
SAN JOSE POB. VIRAC CAPITAL
CATANDUANES
THS SPS-325 SN: RGAGB5AT200172
MIN: 24070311180458456
PTU: FP072024-069-0454992-00005
DATE ISSUED: JULY 04, 2024

THIS SERVES AS YOUR
SALES INVOICE
SI# 00018569

DATE 06/13/2025 FRI TIME 12:23

2x @ 8.00
COMPUTER SUPPLY V 16.00
1 @ 50.00
COMPUTER SERVICES V 50.00

VATABLE SALES 58.93
VAT AMT 7.07
VAT EXEMPT SALES 0.00
ZERO-RATED SALES 0.00

AMT DUE 66.00
CASH 100.00
CHANGE 34.00
ITEM 3.00xITEMS
CLERK 1 19873
CUSTOMER:
ADDRESS:
TIN:
SC/PWD:
BUSINESS STYLE:
BUSINESS MACHINES CORPORATION
CARSON BLDG. ORENSE ST.
GUADALUPE NUEVO, MAKATI CITY
VAT REG TIN: 000-302-982-00000
050-000302982-000026-55726
DATE ISSUED: JULY 19, 2012

ANGELS PIZZA
OWNED & OPERATED BY:
CATANDUANES ANGELS INC
CATANDUANES ANGELS INC
RIZAL AVE. SANTA CRUZ VIRAC
CAPITAL CATANDUANES
VAT REG TIN 010-271-244-000
MIN #: 23120113215592387
S/N: EP-POS202223080198
PERMIT NUMBER:
FP122023-069-0419229-00000
Take Out
Table# 168
04/29/2025
5:47:29pm
INVOICE #
AAA0160000014178
Cashier:
JHONACEL DADEA
Name:
TIN:
Address:
Type:

1	DDEAL-BF Creamy Spinach Dip	905.00
1	BF Angels Supreme Free	0.00

Sub Total 905.00
(Sub Total/Pre-Tax) 808.04
12% VAT 96.96
Service Charge(0%) 0.00
AMOUNT DUE P905.00
Vatable Sales 808.04
Vatable Amount 96.96
VAT Exempt Sales 0.00
Zero-Rated Sales 0.00
CASH 1,000.00
Change 95.00
- INVOICE -
FIGARO COFFEE SYSTEMS INC
Warehouse #5 Pines Street Mandaluyong City

Your order number is
124

CARDINAL SILANGAN FOODS CORPORATION
VTC Gogon Sirangan Virac Catanduanes
VAT REG TIN 734647460-000
For online delivery,
visit mcdelivery.com.ph
Tell us about your
McDonald's experience
www.mcdolistens.com
Survey Code: 0694
writeus@ph.mcd.com
+632 8888-6236
Invoice # 00417463
Hardware Serial # 18L0T183C
MIN # 18121313372515791
Crew id 29 CHAVEZ MELANIE
Date:06/05/2025 11:51:20

QTY ITEM	PRICE	TOTAL
1 1Ckn wFry ME	186.00	186.00
1 MEVM MedCoke		
1 Mm Med Fries		
1 ** **		
1 D 1SpcyCkn SE	104.00	104.00
1 SEVM SmlCZero		
1 ** **		

Eat-In Total 290.00
Cash Tendered 300.00
Change 10.00
Vatable Sales 258.93
VAT 31.07
VAT Exempt Sales 0.00
VAT Exemption 0.00
Zero Rated Sales 0.00
Tell us about your visit. Scan the QR Code and share your experience. Thank you

Thank you, please come again
This serves as an INVOICE
Supplier:
Golden Arches Development Corporation
17th Floor BDO Towers Paseo 8741
Paseo De Roxas Salcedo Village,
Bel-air 1226 City of Makati NCR,
Fourth District Philippines
TIN: 000-121-242-00000
Acc No: 125000121242201803088З
Date Issued: 07/30/2018
PTU: FP122018-069-0198342-00000
Customer's Information:
Name :
Address :
TIN :
Business Style: