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Integration of Ethnomathematics Mandar Tribe for Elementary School Mathematics Materials

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Abstrak

Tujuan penelitian ini adalah mendeskripsikan pengintegrasian etnomatematika yang ada pada budaya masyarakat suku Mandar di Kabupaten Polewali Mandar dan Kabupaten Majene dalam suplemen Bahan Ajar matematika SD. Penelitian ini menggunakan jenis penelitian kualitatif dengan pendekatan etnografi. Hasil penelitian menunjukkan Etnomatematika yang diperoleh berelasi dengan materi matematika SD antara lain yaitu, Penjumlahan dan Pengurangan bilangan cacah sampai dengan 99, Bangun Datar Sederhana dan Bangun Ruang Sederhana, Pecahan Sederhana, Lama Waktu Suatu Kejadian (satuan waktu), Kelipatan Suatu Bilangan dan Kelipatan Persekutuan Dua Bilangan, Simetri Lipat dan Simetri Putar, Pengukuran Tidak Baku (satuan panjang, satuan isi, satuan berat), Keliling Bangun Datar (Persegi, Persegi Panjan, dan Segitiga), Penyajian Data, Posisi Benda Terhadap Mata Angin. Berdasarkan validasi bahan ajar matematika SD yang diintegrasi dari etnomatematika termasuk kategori sangat baik.
Kata Kunci: Budaya, Suku Mandar, Sekolah Dasar

Abstract

The purpose of this study is to describe the integration of ethnomathematics in the culture of the Mandar tribal community in Polewali Mandar Regency and Majene Regency in elementary mathematics teaching material supplements. This qualitative research uses research with an ethnographic approach. The ethnomathematics obtained relates to elementary mathematics materials, among others, namely, Addition and Subtraction of numerical numbers up to 99, Simple Flat Buildings and Simple Spaces, Simple Fractions, Length of Time of an Event (unit of time), Multiples of a Number and Multiples of Communal Numbers, Folding Symmetry and Rotary Symmetry, Nonstandard Measurements (units of length, units of content, units of weight), Perimeter of Flat Buildings (Square, Long Square, and Triangle), Presentation of Data, Position of Objects Against the Wind.

Keywords *Culture, Mandar Tribe, Elementary School*

INTRODUCTION

Indonesia as a multicultural nation and state is a strong reason to remind generations of diversity which is considered a national asset and it is appropriate that culture be introduced, not just to tell its origins, or to show its beauty, but to introduce other dimensions that are implied in culture.

Culture is an important part of people's lives.Koentjaraningrat (2009)argues that culture comes from Sanskrit, namely buddayah which is the plural form of buddhi which means mind or reason. Meanwhile, EB Taylor defines culture as the whole of knowledge (the whole complex, which includes beliefs, art, law, morals, habits and skills) acquired by humans as members of society.(Liliweri, 2014). However, often cultural elements are not integrated into the educational curriculum, including in learning mathematics in elementary schools. In fact, the introduction of cultural elements in learning can motivate students and increase their understanding of mathematical concepts(Nuraini, 2019).Thus, it will produce students who understand the importance of maintaining and preserving culture. In addition, mathematics in a cultural context is also capable of being a learning medium that makes an impression and gives an impression that is easy to understand and remember because,basically something interesting will bring a sense of liking which then fosters enthusiasm and will influence the process and learning outcomes.

Mathematics in the form of culture is very important to make mathematics learning more meaningful, because it can increase student learning interest, considering the teacher as one of the determinants of student learning success. Culture-based mathematics is believed to be able to bring students to the awareness that mathematics is in their lives.Tun (2014)said that ethnomatematics is a science that studies the relationship between mathematics and culture.Rosa & Orey (2014)AndKatsap & Sivermanz (2008), ethnomathematics indicators are as follows: the shape is consistent, has certain properties (as in geometry), has a mathematical pattern, has mathematical rules of the game.Sardjiyo said that in ethnomathematics-based learning, the learning environment will turn into a pleasant environment for teachers and students, which allows teachers and students to actively participate based on the culture they are familiar with, so that optimal learning results can be obtained.(Supriyanti, 2015). For this reason, it is necessary to integrate ethnomathematics into the curriculum.

Alangui and Barton say there are five possibilities for an ethnomathematics curriculum to be applied, namely (1) ethnomathematics must be designed in an appropriate and meaningful context; (2) conveyed in the form of content or special cultural content that is different from general mathematical concepts; (3) the next concept in the ethnomathematics curriculum is to build on the idea that ethnomathematics is at the stage of developing mathematical thinking which is applied in education; (4) the application of the ethnomathematics curriculum can be part of mathematical ideas; (5) The ethnomathematics curriculum is the integration of mathematical concepts and practices into the student culture(Sirate, 2012).

Has to do with calculating, measuring, weighing, and sorting systematically.

West Sulawesi Provinceis a province that was formed in 2004 based on Law number 26 of 2004(Abbas, 2015). West Sulawesi Province is a division of South Sulawesi Province with the capital city of Mamuju. Consists of 5 districts with the majority of the population being ethnic Mandar.Before the division of the region, the Mandar tribe was part of the four ethnic groups that colored the diversity of South Sulawesi, along with the Bugis, Makassar and Toraja tribes. In general, the livelihood activities of the Mandar

people areraising livestock, going to sea (fishing) and trading. The equipment used by the Mandar people is very diverse. In addition, the Mandar people are known for their handicrafts in the form of Lipaq saqbe weaving and Sandeq making. The Mandarese have various kinds of customs and arts that are diverse with various concepts and meanings in them.

One of the characteristics of the Mandar people can be seen in the Mandar silk sarong (lipaq saqbe).Dahlan, (2013)stateevery Mandar tribe's traditional clothing cannot be separated from Lipa Saqbe. At first glance, the Mandar silk sarong has similarities with other regional silk fabrics, but in each type and nameMandar silk sarong(lipaq saqbe) has special characteristics, namely in terms of pattern (sureq) or flowers and the way they are made. The position of the pattern is not arbitrary, because the creation of the pattern (sureq) or flower motif has its own designation based on economic standards, socio-culture, religion, and also one's social strata. Currently there are 2 types of Lipaq Sa'be when viewed from the motif, namely pattern (sureq) and flower. The difference is that the pattern (Sureq), namely Lipaq Sa'be, which is the original motif of the Mandar silk sarong, has no decoration/flowers that makes it stand out. Meanwhile, flowers, namely Lipa Saqbe, have motifs and decorations in the form of flowers or other things, which are derivatives of the pattern (sureq) so that the Mandar silk sarong (lipaq Saqbe) looks prettier.

Method

This type of research in this research is qualitative research. Qualitative research is research that intends to understand phenomena about what is experienced by research subjects, for example behavior, perceptions, actions, etc. holistically and by means of descriptions in the form of words in a special natural context.(Muleong, 2012). This means researchers interact with data sources. The approach used in this research is ethnography. Ethnography is etymologically derived from the words ethno (tribe) and grapho (writing), which is broadly interpreted as a written record of ethnic groups.(Ratna, 2010).

In this study, the ethnomathematics of the Mandar tribe will be described, analyzed in relation to mathematical concepts then integrated intoElementary mathematics teaching materials with ethnomathematics nuances. There are several stages carried out in this research. This research was initiated by exploring the activities and artifacts of the Mandar people. In this stage, the activities carried out included collecting data on the activities and artifacts of the Mandar people through observation, interviews and documentation. Then in the next stage the data is reduced to obtain ethnomathematics which is then discussed with humanists in order to clarify the data that has been found as well as the final stage of exploration. Next, the ethnomathematics was analyzed in relation to elementary mathematics material.

In this study, researchers used observation and interview techniques and documentation. The source of data in this research is the Mandar tribe communityCultural figures, tribal traditional leaders, craftsmen, fishermen, the general public (traditional specialties sellers), heads of museums in the Mandar tribal areas and class teachers in elementary schools in the Mandar tribal areas as a source for digging up information related to community activities and artifacts owned by the Mandar tribal people.

Table 1. Research Data Sources

Data	Data source
Traditional clothing	Silk sarong craftsmen (lipaq saqbe)
Building	Cultural practitioner
Traditional dances	Artist / cultural
Traditional game	General public
Fisherman activities	General public (Fishermen)

Traditional food	General public (Jepa, Pupuq, Bikang, Pasoq, and Onde-Onde sellers)
Traditional musical instruments	cultural practitioner
Mandarin Museum	Museum keeper and cultural observer

Data analysis in this study started from the exploratory stage of the Mandarese community by using the analysis technique proposed by Miles and Huberman(Sugiyono, 2014)that the activities in qualitative data analysis are carried out interactively and continuously until complete, so that the data is saturated. The measure of data saturation is indicated by the absence of new data or information. Activities in the analysis include data reduction (data reduction), data presentation (data display), as well as drawing conclusions and verification (conclusion drawing/verification)

Hasil dan Pembahasan (70%)

RESULTS AND DISCUSSION

Cinema(Orton, 2004)said that in every nation's culture there are six general mathematical activities, namely (1) calculating; (2) determine location and location; (3) measure; (4) designing; (5) play; (6) explained. This shows that cultural activities are also carried out by the Mandar people in Polewali Mandar and Majene Regencies in West Sulawesi Province. Observation, documentation, strengthened by interviewing informants who have been determined based on their suitability.

Based on the results of ethnomathematics exploration on the culture of the Mandar people in Polewali Mandar and Majene districts in three sub-districts, namely, Banggae, Tinambung, and Balanipa, it was found that ethnomatematics forms are related to mathematical material including addition and subtraction, geometry, measurement, and fractions. In this study, ethnomathematics was integrated with elementary school mathematics material, including the following:

Addition and Subtraction of Whole Numbers Up to 99

From the results of observations on the children of the Mandar tribe who play traditional games, namely*Mattruq*,*Mattaruq* is one of the traditional games of the Mandar tribe. Mattaruk game using candlenut. The way to play mattaruk is to place a candlenut bet with an agreed amount, then the player throws a bet with candlenut *Pakkabaq* (weapon).

Figure 2. Traditional Games of the Mattaruk Mandar Tribe

The consequence of the Mattaruq game is that the number of winning candlenuts will increase while the number of losing candlenuts will decrease. This shows that there is a relationship between the mathematical material of adding and subtracting counting operations.

Whole numberis a number that starts from zero and always increases by one with the number after it or a set of non-negative integers, or it can also be said to be a set of natural numbers with added zeros. In whole number operations, especially in addition and subtraction operations, the commutative rule applies $(a + b = b + a)$and associative (. The following is an example of a counting operation for whole numbers (addition and subtraction) in the mattaruq game. Ammang, Taufan, and Adi each have 8 candlenuts then they play a bet (mattaruq) by placing a candlenut bet totaling 5 candlenuts each . So that there are 15 candlenuts in the line of the game circle. Adi gets his turn as the first shooter to throw pakkabaq (candlenuts used as weapons). with the number of candlenuts that are hit, it is certain that the

candlenuts in the circle will decrease.$(a + b) + c) = a + (b + c))$

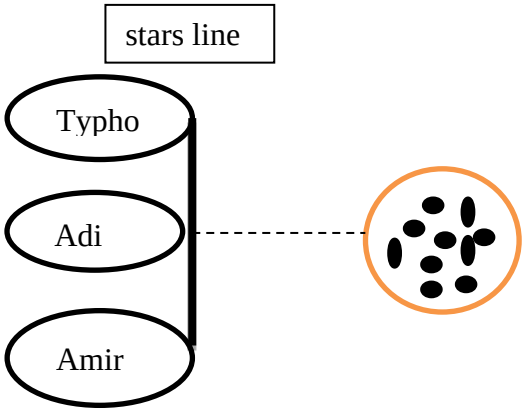

Figure 3. Mattaruq Game Pattern

If Adi succeeds in removing 2 candlenuts from the circle line, Adi's candlenuts will add 2 seeds with the remaining candlenuts that Adi had before. So, the number of adi candlenut becomes 5 seeds. Meanwhile, the number of hazelnuts in the circle line decreased by 2 so that there were 13 candlenuts remaining. This situation can be presented in 2 mathematical sentences, namely: (1) ; (2) $.3 + 2 = 515 - \ 2 = \ 13$

Build a Flat and Build a Simple Room

The traditional dance of the Mandar tribe cannot be separated from the characteristics of the traditional clothing and accessories that complement it. One of them, Tombi aqdi-aqdi and Simaq-simaq, are accessories used by pattuqduq dancers as well as accessories for traditional Mandar wedding dress. as for the meaning of both forms are symbols of affection. By observing the physical form of Tombi aqdi-aqdi and Simaq-simaq it can be identified that these accessories are related to the form of a quadrilateral geometric shape.A flat shape that has four sides.The shape of the Aqdi-aqdi and Simaq-simaq tombi can be seen in Figure 4

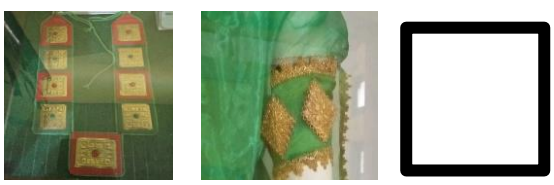

Figure 4.*Tombi Aqdi-aqdi*, Simaq-simaq, and square

Sail Sandeq (Sombal Sandeq) is a part of the Sandeq boat which functions to determine

the direction of the Sandeq fishing boat (posasiq) Pupuq is a special food made from fish which is processed in such a fine form. Pupuq is a complementary side dish that is often found at big events such as weddings, and so on. By paying attention to the shape of sombal and pupuq, it can be identified that their physical form is related to the shape of a triangular geometric shape.A triangular shape is a flat shape that has three sides. Relationship betweenSombal, pupuq and triangular flat bangu can be seen in Figure 5.

Figure 5. Sombal Sandeq, Pupuq, Triangle

Rabana is a traditional musical instrument that is always played by the Mandar people at traditional ceremonies, weddings, or other sacred events. Kappar plattigi is a part of the melattigi procession or wearing hyenas which is a sacred event for the bride and groom as a form of self-cleaning. The form of Rabana and Kappar plattigi is related to the shape of the circle concept where the circle is a flat shape consisting of one curved sidecan be seen in Figure 6.

Figure 5. Kapar Pelattigi, Rabana, circle

The culture of the people of the Mandar tribe cannot be separated from the shape of their traditional houses like other regions. The traditional house of the Mandar people in Mandar Boyang language is a stilt house made of almost all of the material made of wood. The Paqannang Andeang (plate storage area) found

in the Mandar Museum shows that in ancient times the Mandar people used bamboo-based plate containers. The shape of the Boyang Mikkeqdeq and Paqannang Andeang (plate storage) resembling the geometrical shapes identified relates to the geometrical beam shape. The relationship between the pillars of the stilt house, the place for storing plates and the flat shape of the beam can be seen in Figure 6

Figure 6. *Boyang Mikkeqdeq,Paqannang Andeang*, Beam

Kattoq-kattoq is a traditional musical instrument of the Mandar tribe made of bamboo and is a type of musical instrument that is beaten. gallang balleq isaccessories worn when performing the Pattuqduq dance, and Mandar tribal brides. Kattoq-kattoq physical form and*gallang balleq*shows the relationship to the geometric shape of the tube. The relationship between Kattoq-kattoq,*Gallang balleq*and the shape of the cylinder shape can be seen in Figure 7.

Figure 7. K*attoq-kattoq, Gallang balleq*,Tube

Pasoq, is a typical food of the Mandar people in the shape of a cone, wrapped in banana leaves with ingredients derived from palm sugar and rice flour. The physical shape of the supply shows the relationship to the cone shape. The relationship between the supply and the shape of the cone shape can be seen in Figure 8.

Figure 8. Pasoq, Keke and Cones

*Boiled rice cake*a typical food whose basic ingredients are palm sugar covered in starch and topped with a sprinkling of coconut. Boqboq was a means of transporting water for the Mandar tribe in ancient times. Boqboq is one of the artifacts in the Mandar Museum. Physical form of Boqboq and*Boiled rice cake*shows the relation to the spherical shape. The relationship between Onde-onde and Boqboq, and the shape of the ballroom can be seen in Figure 9.

Figure 9. Boqboq, Onde-onde, Ball

On the roof of a traditional Mandar house or in Mandar language it is called Ateq as a whole in the form of a triangular prism which means the relationship between God, humans and the universe. The physical shape of the roof (Ateq) shows the relationship to the triangular prism shape. The relationship between the roof and the shape of the triangular prism can be seen in Figure 10


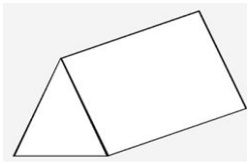

Figure 10. Boyang Mikkeqdeq, Triangular Prisma

From concrete and contextual examples it is expected to change the condition of low mastery of geometry material at the basic education level indicating the failure of students in learning geometry(Suryaningsih, 2019).

Folding Symmetry and Rotating Symmetry

On the head of Pattae Sayyang you can see using a small saqbe cloth in the shape of an equilateral triangle where the triangular shape is obtained from the folds of the saqbe cloth which was originally square in shape. This shows that the pattae sayyang head tie can be related to the material concept of folding symmetry in a square shape

Figure 11.*Dear Pattuqduq*

Fold symmetry means that the two halves are the same or symmetrical. A shape is said to have folding symmetry if the shape is folded to be symmetrical or the parts are the same. A square shape has 4 fold symmetries as follows:

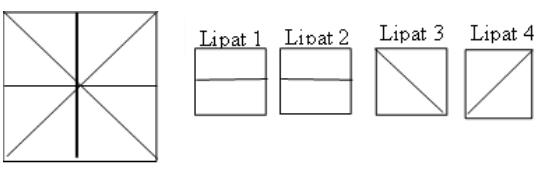

Figure 12.*Square Fold Symmetry*

Next, Japan is one of the foods that can be used as a staple food because the way it contains high carbohydrate content and to enjoy it is usually side dishes. One form of presentation is by folding the jepa to form a semicircle. The shape of the jepa in that position can be related to the material concept of folding symmetry in a circular plane shape, where a circle is a plane shape that has infinite fold symmetry

Figure 13. Traditional Food Jepa

Data presentation

Most of the coastal communities of the Mandar tribe work as fishermen. In the fishing community, wages are obtained through a profit-sharing system. The profit-sharing rules do not necessarily determine a constant value in receiving wages. The income earned is very dependent on the percentage of profit sharing which of course is based on the catch of fish. This can be seen in the paggae profit-sharing system or the designation of a fishing community that catches fish using nets and roppong. The method of profit sharing is divided according to roles according to the rules agreed upon by each participating party. The percentages are as follows, 10% for fish sellers (Paanggaq and Pappalele), 10% for machine maintenance or a bonus for mustard greens who are diligent,Travel costs (fuel and food) are adjusted. Then the remainder is divided by three: ropong owner, Boat owner and gae,*Mustard*and boatman.

The profit sharing system for Mandar in profit-sharing system and the concept of data presentation material. In presenting data, one form of measurement used is a pie chart. The data presented in the form of a pie chart is divided into several sectors. Each sector represents the data presented.

SimpleFractions

Bikang is a traditional Mandar cake. Bikang is made from rice flour which is thickened and then cooked on a circular stove which is also a tool for roasting Jepa in Mandar is called Panjepangan. The presentation is done by slicing the bikang into several parts which are then doused with liquid palm sugar as a complement to the taste. The presentation of bikang by cutting it into several parts shows a relationship to the material concept of fractions, that is, fractions are part of the whole. Fractions consist of two parts, namely the numerator and denominator. The number above is called the quantifier and the number below is called the denominator. $\frac{a}{b}$

Figure 14. Traditional Typical Food of the Mandar Bikang Tribe

Non-standard units

(measurement of content, measurement of weight, and measurement of length)

Sales of small fish such as omber and penja are usually measured using a canteng (metal cup/cup)

Figure 15. Penja and Omber as measured by ticks (non-standard units)

From the picture above, it can be seen that the measuring instrument is not standard, namely canteng (similar to a glass/cup), 3 canteng are estimated to be worth 1 liter of penja/omber. This shows the relationship between seller/source sales and non-standard measurement material on content measurement. Furthermore, *Pakatteq*is an activity to separate flying fish eggs from paqbulu/kosseng using Dariq. The results of separating flying

fish eggs (katteq) are usually sold by weighing. The tools used are not standard tools but simple (hand-made) weight measuring instruments, the units used are not general units such as grams, ounces, and so on

Figure 16. Hinge

The Katteq trading system uses an ancient coin called Benggol. One hump called "one eye". This is an adaptation of the thread/silk sheath trade (lipaq saqbe). The current price for one benggol is Rp. 3,000 to Rp. 7,000, this price is uncertain or in other words follows a set market. The weight conversion of the weighing equipment used in buying and selling Katteq is:

1 hump= 12,5 gr = 3 sen = 5 $rimis$
1 rime = 2,3 gr
1 zinc (perforated) = 3,9 gr
1 regular zinc = 4,6 gr
2 rims = 1 $seng$
CoinRp 100 = $\frac{1}{2}$ $benggol$
1kg = 83 $benggol$ (80 $benggol$)
1 battery = 8 $benggol$ = 1 oz
1oz = 100 gr

The house of the Mandar tribe (boyang) is a building whose material is almost entirely made of wood. Like a house in general, of course the traditional Mandar house has components so that it forms a building which in this case is a traditional house. One of the most important parts of the house is the door. Some Mandar people still measure the width of the door traditionally or based on the width of the kappar (tray) and measure the height of the door according to the height of the head of the household. This is considered to have a relationship with non-standard measurement material in the concept of length measurement

According to the statement(Jediut, 2016)namely non-standard measurements are measurements whose results are different because they use non-standard or non-standard measuring instruments.

Position of an Object Against the Cardinal Points

Estimated time in planning fishing activities (mosasiq) is an important point that seafarers (posasiq) must know. The wind is very closely related to fishing activities (Mosasiq) because the wind will move the boat. Experienced Mandar sailors can very well estimate the speed that can be achieved by relying on the position of the wind strength that will carry it(Alimuddin, 2017).If Posasiq (Seafarers) are going to a place or island that takes a long time, Posasiq must pay attention to the direction of the wind based on the season. For example, posasiq will go to the island to the west, so they leave in the east season (pattimorang). Because, during the east monsoon the wind blows towards the west, and vice versa. However, if the wind direction is erratic, it usually occurs during the transition season. The Posasiq Mandar made the bow of the boat against the wind as the axis to determine the direction of sailing. Thus, it will arrive at its destination by adjusting the direction of the coming wind with the position of the sail. The knowledge of Mandar fishermen (posasiq) regarding wind direction shows a relationship with the concept of a coordinate system in the material position of objects to the cardinal points.

Example:

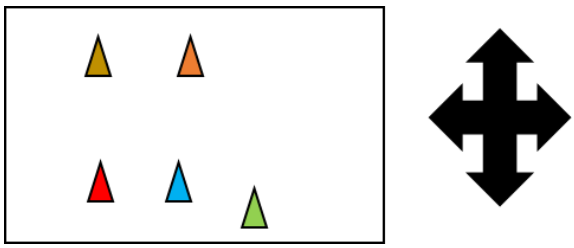

Figure 17. Example of determining the position of an object with respect to the cardinal directions

Multiples of a Number and the Union of Two Numbers

The Cangke game is a traditional game of the Mandar people whose way of playing is using a stick as a weapon in determining the player's defeat and victory. The distance of the throw is determined by the size of the bat. This can be related to the matter of multiples of a number and the union of two numbers.

Example: if the canke's bouncing stick is 20 cm long. How many multiples of the stick?

Answer

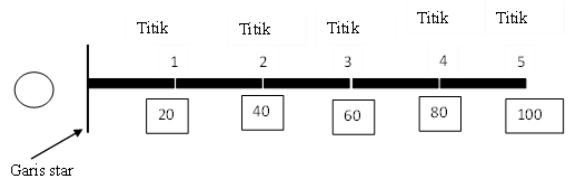

Figure 18. Example of the Canke Game Concept

So the multiples of the sticks are 40, 60, 80, 100, etc.

Length of Time of an Event

In the process of making mandar silk sarongs (lipaq saqbe) it takes quite a long time to get good results. Usually, weavers (panetteq) produce one sarong within one week depending on the level of difficulty of the motif. As for other things that add to the length of time to work on the silk sarong (lipaq saqbe), among others, if a relative or neighbor dies, they are not allowed to carry out meditation activities because they are considered taboo (pemali). The time process for making Mandar silk sarongs (lipaq saqbe) can be related to the concept of the relationship between units of time on the matter of the length of time of an event (the relationship between days, weeks, months, and years).

Example :

*Ammaq*Kiki manetteq 6 sarongs for 1 month 2 weeks plus 4 days. How many days is Ammaq Kiki manetteq?

1 month+2 weeks 4 days = 30 days 14 days 4 days = 48 days+ + +

So Ammaq Kiki manetteq for 48 days.

Circumference of Flat Shapes (rectangle, square, and triangle)

The composition of symmetrical lines in the form of warp lines and weft lines that cross each other forms a square like the shape of a chessboard. In addition, there is a rectangular shape in the motif and shape as a whole. There is a triangular shape on the special motif. In addition, triangles are also found on the shape of the front roof or it is also called tumbaq screen and the same goes for the genealogy of King Balanipa. The shapes of the flat shapes contained in these parts can be related to the material around the flat shapes (squares, rectangles, triangles).

Ethnomatematics and integration of elementary mathematics material

In the material for addition and subtraction of whole numbers up to 99 ethnomathematics which is integrated, namely the Mattaruq game. The material indicators in teaching materials include addition and subtraction of two numbers; In the materials on Flat Shapes and Simple Spatial Constructing ethnomathematics which are integrated include Tombi Aqdi-aqdi, Simaq Simaq, Gallang Balleq Sombal Sandeq, Rabana, Pupuq, Kappar Pelattigi, Ariang boyang, Kattoq-kattoq, Pasoq, Ateq Boyang, Onde-onde, Paqannang andeang, Keke, Boqboq, with indicators of teaching materials covering the introduction of simple flat shapes, flat shapes based on their types, knowing simple geometric shapes

In the material of folding symmetry and ethnomathematics rotational symmetry that are integrated, namely Pattae Sayyang head tie, Jepa, Lipaq Saqbe. The indicators in teaching materials include identifying folding symmetries, solving problems related to folding symmetries, identifying rotational symmetries, solving problems related to rotational symmetries

In the integrated ethnomathematics data presentation material, namely the distribution of fish catches, while the indicators

in teaching materials include the presentation of data in table form, data presentation in the form of pie charts; In the material of ethnomathematics simple fractions that are integrated, namely the traditional Bikang cakes. The indicators in teaching materials include knowing simple fractions, knowing the value of simple fractions using concrete objects$\frac{1}{2}, \frac{1}{3}, \frac{1}{4}$

In the measurement material includes measurement of non-standard content, integrated ethnomathematics, namely Kapar, Duan dappa, Sandappa, Jengkal, Tande stem of kale. Katteq, Catteng Omber and Penja weighing scales. The indicators in teaching materials include non-standard length measurements, relationships between length units, non-standard content measurements, relationships between content units, non-standard weight units, relationships between weight units; On the subject of recognizing multiples of a number and the common multiples of two integrated ethnomathematics numbers, namely the traditional Maccangke game. The indicators in teaching materials include determining multiples of a number.

In the material, the length of time an ethnomathematics event is integrated, namely the length of time for making Lipaq Saqbe, while indicators in teaching materials include the relationship between days, weeks, months, and years, the relationship between units of time in everyday examples.

Materials that have been integrated into SD teaching materials are made along with sample questions, practice questions, and summaries. Then the teaching materials were validated by 3 validators and 3 elementary Mathematics teachers in Majene district and Polewali Mandar district in three sub-districts namely, Banggae, Tinambung, and Balanipa to assess validity which later could be declared good for use as a supplement to mathematics teaching materials in schools. The assessment is adjusted to the indicators contained in the Teaching Materials validation sheet. Elementary teachers who assess the feasibility or validity of these teaching materials are teachers who know about local culture and have long been influential in mathematics.

CONCLUSION

This can be seen in the materials obtained through exploration and data analysis. The materials contained in this study include addition and subtraction of whole numbers up to 99, simple flat shapes and simple spatial shapes, simple fractions, length of time of an event (unit of time), multiples of a number and common multiples of two numbers. , Folding and rotary symmetries, non-standard measurements (units of length, units of content, units of weight), circumferences of flat shapes (squares, rectangles and triangles), data presentation, position of objects to the cardinal points. The materials are integrated and then validated and based on the results of the validators' validation

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