



G1-G2
Basic

G2-G3
Advanced

Helping With Math

GRADES

**Data Collection & Representation Skill:
Mathematical Sentences**

*Suitable for students
aged 5-8*



This pack is suitable for learners aged 5 to 8 years old or 1st to 3rd grades. The content covers fact files and relevant basic and advanced activities of mathematical sentences topics that aim to develop and strengthen the learners' data collection and representation skills.

Celebrate Poetry with your Child!



Children's Poetry Day or World Poetry Day is celebrated every March 21. This day was adopted by UNESCO in 1999 with the goal to keep poetry alive in its languages throughout the world.

Data Collection & Representation Skill



Data collection and representation teach us to gather and visually show data for better understanding. These skills prepare us for later knowledge on statistics, technology, models and simulations.



DATA COLLECTION & REPRESENTATION

Before we discuss about data collection and representation, let us first define the meaning of data.

WHAT IS DATA?

- ★ Data is the plural form of the Latin word “datum” which means *something given*.
- ★ These are facts or numbers which are used to analyze information.
- ★ These are the information that we will be needing for the process of data collection and representation.



WHAT IS DATA COLLECTION?

This is the process of gathering information that can be used to answer questions or evaluate results.

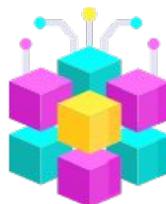
There are different ways to collect information, which are:

1. Primary Data Collection

- original form of data collected directly from its source

2. Secondary Data Collection

- data which are collected by another person other than the researcher

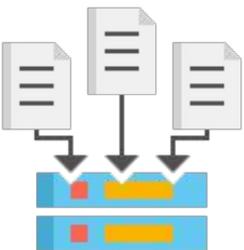
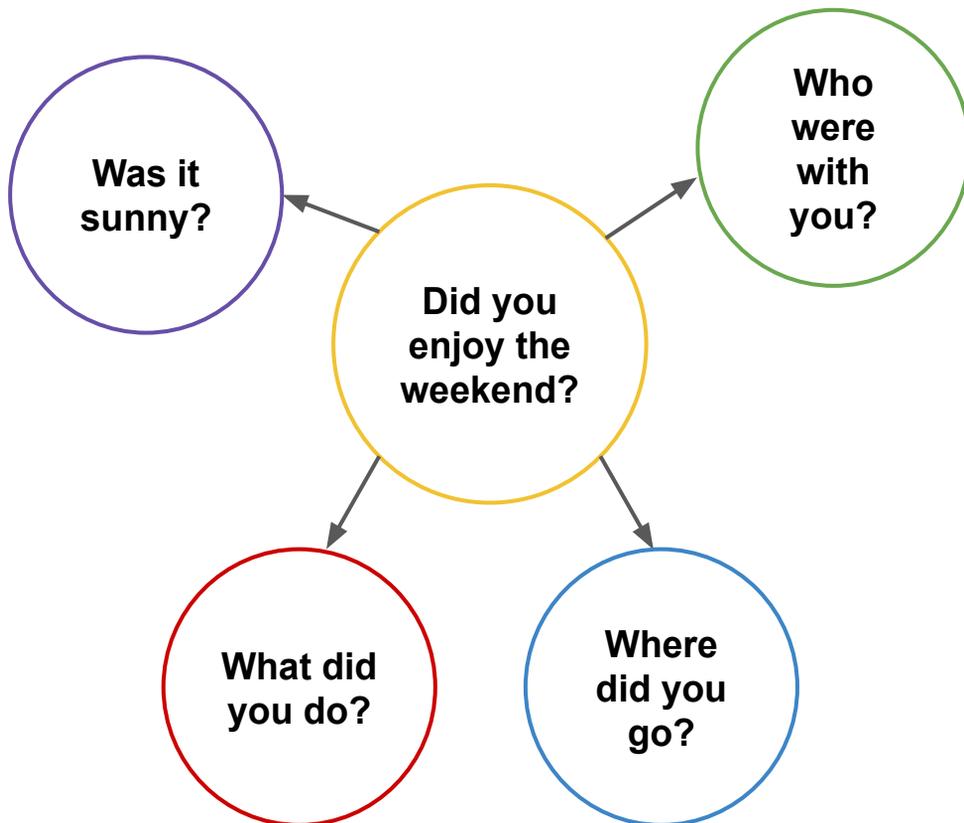


DATA COLLECTION & REPRESENTATION

Children should start to be interested in data collection in their early stages. To engage with this, they need to start getting information by asking questions.



Find questions that are interesting for children. Like, “**Did you enjoy the weekend?**” or “**How was your last vacation?**”. Questions like this would make them want to investigate more on the topic and lead to follow up questions.



Young minds can easily identify and interpret the yes-no answers. There are times that children may be able to generate creative questions that may not be answered by yes or no, like in this example.



DATA COLLECTION & REPRESENTATION



It is best that when this occasion arises, we try to narrow down the options - two options are a great idea. For example, answers may vary for the question “**What color do you like?**” but this can be limited to “**Red or Green?**”. This way, the responses can only be between the given choices.



Questions with varying answers can be understood easier by children through different visual representations.

The purpose of collecting data is to find the answers when it is not apparent or when the answers are hard to find. Children need to understand the reason behind data collection.

Children must understand that data collection might be the best way to solve problems. Knowing the purpose or reason behind collecting data will eventually motivate them to try it.

WHAT IS DATA REPRESENTATION?

This is the method of analyzing the data that has been collected in a visual way for better understanding. It shows the relationship between facts, concepts, and ideas.

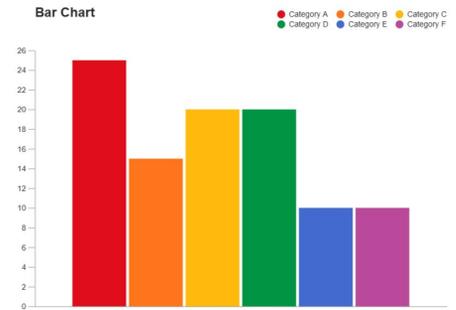
Data representation is one of the most fundamental ways of learning. Some ways to graphically show data are the following: *bar graph, frequency distribution table, histogram, pie chart, and line graph.*



DATA COLLECTION & REPRESENTATION

★ BAR GRAPH

- This presents data visually using bars in a horizontal or vertical manner to compare information.



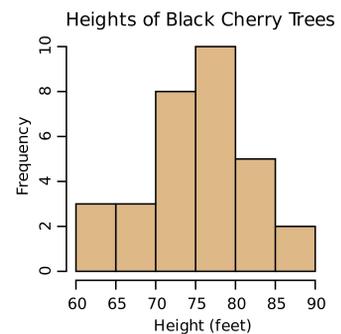
★ FREQUENCY DISTRIBUTION

- This is a method which is used to present raw data using tally marks.

Score (x)	Tally Marks	Frequency (f)
13		2
14		4
15		5
16		8
17		6
Total		25

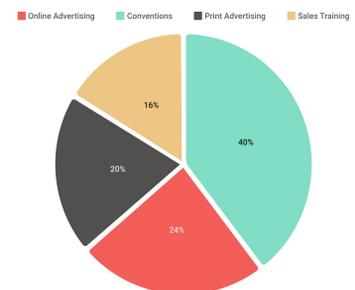
★ HISTOGRAM

- This also presents data using bars but the information are condensed into ranges.



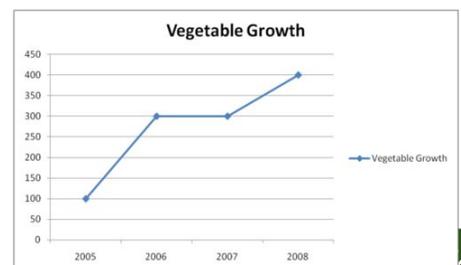
★ PIE CHART

- This is a method that divides a circle into sectors to represent the factors being measured.



★ LINE GRAPH

- This graph uses points and lines to show the change that occurred over time.



DATA COLLECTION & REPRESENTATION

Data representation is important because it makes the data easier for us to comprehend by displaying it visually. In this way, it would not be difficult for us to find the trends or outliers in the gathered information.

Data collection and representation are used in situations like:

- ★ **Medical study** - used to measure the health development, effectiveness of treatment, and the like
- ★ **Weather forecasts** - to predict future weather conditions
- ★ **Quality testing** - for products sold in the market
- ★ **Stock market** - to analyse information about the economy
- ★ **Consumer goods** - to track the supply and demand

MATHEMATICAL SENTENCES

- ★ These are number sentences made up of numbers and mathematical operations that need to be solved.
- ★ They can be true or false, but they can never be both.
- ★ These may comprise either addition, subtraction, multiplication, division or combination of these operations.
- ★ Word problems can be transformed into mathematical sentences to be understood better.

$$1 + 2 = 3$$



MATHEMATICAL SENTENCES

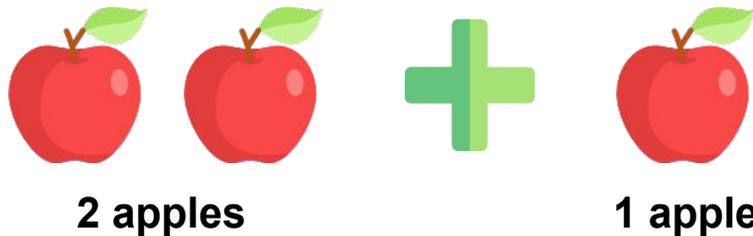
TYPES OF MATHEMATICAL SENTENCES

ADDITION NUMBER SENTENCE

- This number sentence involves the use of the operation of addition, which involves adding numbers to find the sum.

- Example: $2 + 2 = 4$ or $3 + 2 = 5$

What would be the addition sentence for this?



Because there are 2 apples and 1 apple, the addition sentence would be: $2 + 1$. Count the number of apples to find the sum.



$$\underline{2 + 1 = 3}$$

Try this one on your own! What is the additional sentence for this?



$$\square + \square = \square$$



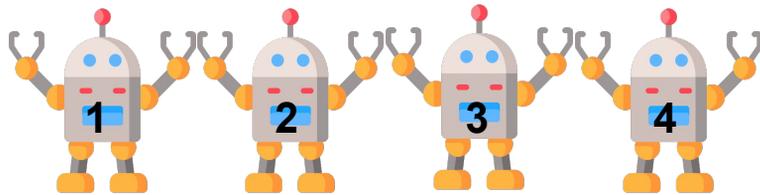
MATHEMATICAL SENTENCES

SUBTRACTION NUMBER SENTENCE

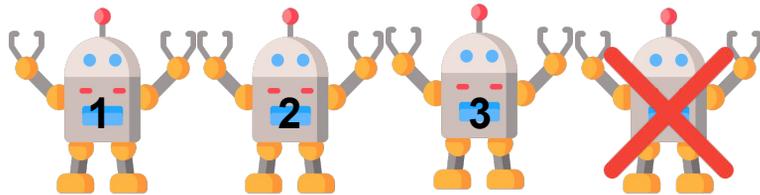
- This number sentence involves the use of the operation of subtraction, which involves subtracting numbers to find the difference.

- Example: $3 - 1 = 2$ or $4 - 2 = 2$

What would be the subtraction sentence for this?



There are 4 robots in the picture. If we remove 1 of the robots, how many robots are left? The total number will be the minuend and the number of item removed is the subtrahend.



$$\underline{4 - 1 = 3}$$

Can you identify the subtraction sentence of this one on your own?



$$\square - \square = \square$$



MATHEMATICAL SENTENCES

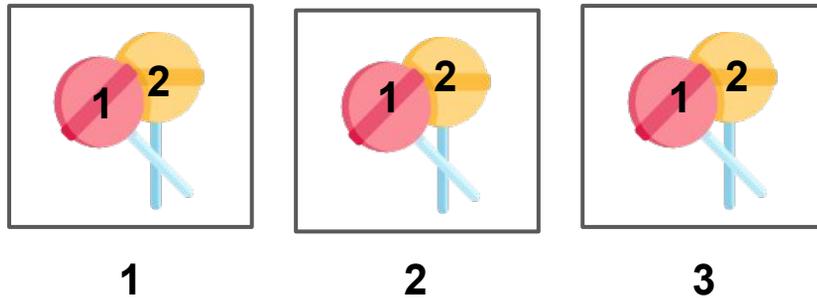
MULTIPLICATION NUMBER SENTENCE

- This number sentence involves the use of the operation of multiplication, which is the repeated addition of numbers.

- Example: $2 \times 2 = 4$ or $3 \times 2 = 6$

What would be the multiplication sentence for this?

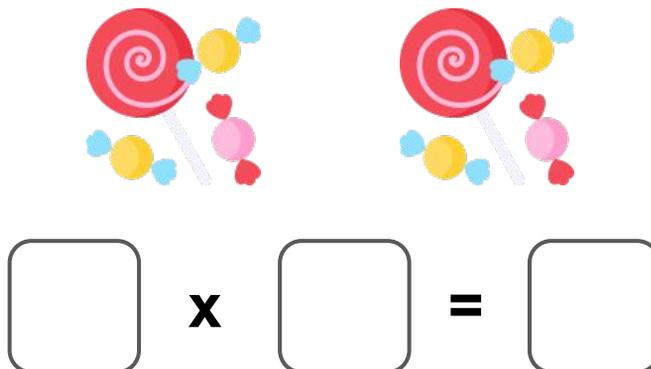
First, we need to count the number of groups, and the number of objects in each groups. These will be our factors.



In this picture, there are **3 groups**, and **2 objects** in each groups. So, we multiply the number of groups to the number of object to find the total number of objects. The number sentence would be:

$$\underline{\underline{3 \times 2 = 6}}$$

Try to write the multiplication sentence of this one on your own.



MATHEMATICAL SENTENCES

DIVISION NUMBER SENTENCE

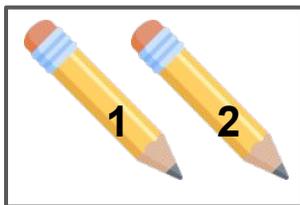
- This number sentence involves the use of the operation of division, which is the repeated subtraction.

- Example: $4 \div 2 = 2$ or $6 \div 2 = 3$

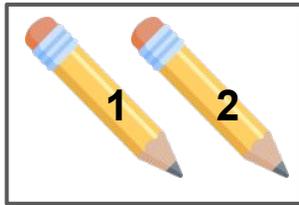
What would be the division sentence for this?



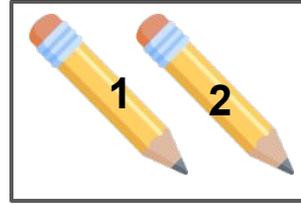
There are 6 pencils in the picture. If we put two pencils each in groups, how many groups are there?



1



2



3

The 6 pencils are divided into 2 pencils in a group. Now, count the number of groups made and this will be the quotient.

$$\underline{6 \div 2 = 3}$$

Try this one! Divide the 8 books into 4 books in a group.



$$\square \div \square = \square$$



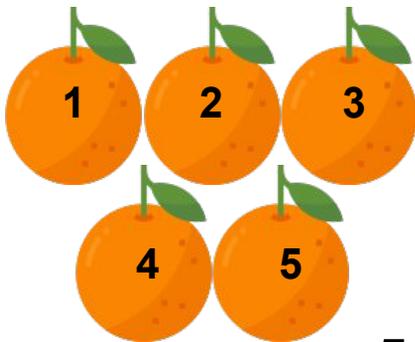
MATHEMATICAL SENTENCES

Mathematical sentences can also answer simple word problems applicable to the different operations.

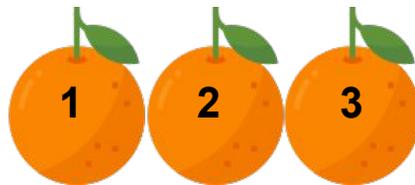
Here is an addition example:

I bought 5 oranges. When I got home, my mother gave me 3 more oranges. How many oranges do I have now?

Oranges that I bought



Oranges from my mother



$$\underline{5 + 3 = 8}$$

Try answering this problem involving addition. Show a visual representation of the problem to help you with the number sentence.

I baked 3 cookies then my sister baked 3 more cookies. How many cookies do we have in total?



TABLE OF ACTIVITIES

Ages 5-7 (Basic)		<u>G1-G2</u>
1	Jack and Jill	
2	Wish Upon a Star	
3	Baa, Baa, Black Sheep	
4	The Old Woman Who Lived in a Shoe	
5	Fishing With My Grandpa	
Ages 6-8 (Advanced)		<u>G2-G3</u>
6	Winter, Winter	
7	Let's Go to the Park	
8	Five Little Monkeys	
9	My Love for Sweets	
10	Become a Poet	



JACK AND JILL

G1-G2
Basic

Jack and Jill are siblings who went up the hill to get a pail of water. As they walked, they passed through these questions that you need to answer. Choose the letter of the correct mathematical sentence for the visual representations below.



- 2.
- a. $3 + 3 = 6$
 - b. $3 + 2 = 5$
 - c. $3 \times 2 = 6$



- 1.
- a. $6 - 2 = 4$
 - b. $3 + 3 = 6$
 - c. $3 \times 2 = 6$



“Jack and Jill went up the hill to fetch a pail of water. Jack fell down and broke his crown, and Jill came tumbling after.”



WISH UPON A STAR

G1-G2
Basic

Many people believe that wishing upon a wishing star will make our wishes come true. Tonight, look up at the sky and wish upon the brightest star that you will see. Write the mathematical sentence for the stars below to make your wishes come true.



*"Star light, star
bright,
First star I see
tonight,
I wish I may,
I wish I might,
Have the wish I
wish tonight."*



$$\square + \square = \square$$



$$\square + \square = \square$$

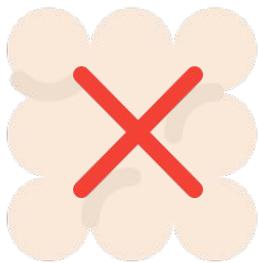


BAA, BAA, BLACK SHEEP

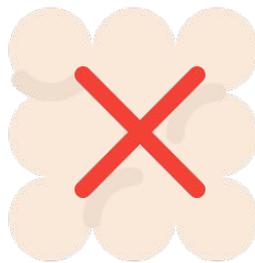
G1-G2
Basic

In the Nursery Rhyme, Baa, Baa, Black Sheep, the sheep has produced three bags of wool. Carefully read the Nursery Rhyme and use the visual representation to provide the appropriate mathematical sentence.

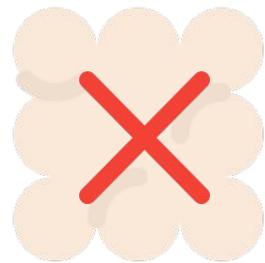
For the master



For the dame



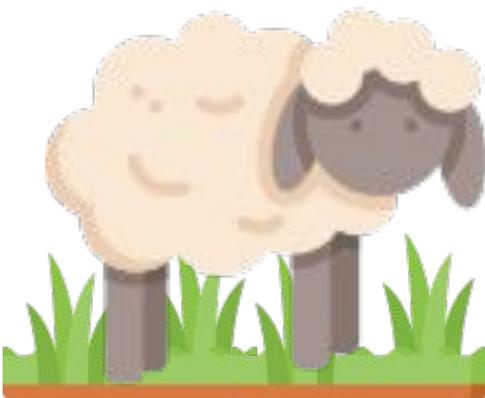
For the little boy



$$\square - \square = \square$$

Baa, Baa, Black sheep
Have you any wool?

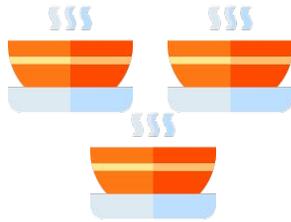
Yes, sir. Yes, sir.
Three bags full;
One for the master,
And one for the dame,
And one for the little boy
who lives down the lane.



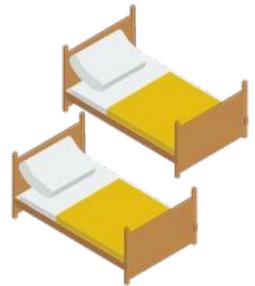
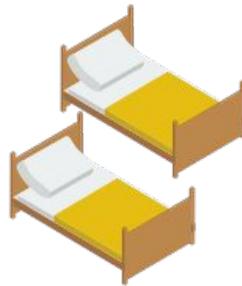
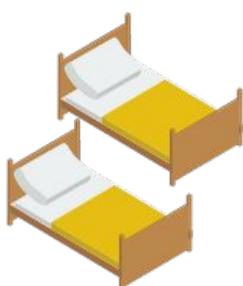
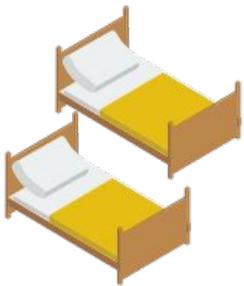
THE OLD WOMAN WHO LIVED IN A SHOE

G1-G2
Basic

A famous poem talks about a woman and her children living inside a shoe. Complete the mathematical sentences below to find the total number of broth and beds based on the visual representations.



$$3 \times \square = \square$$



$$\square \times 2 = \square$$



There was an old woman
Who lived in a shoe.
She had so many children,
She didn't know what to do.

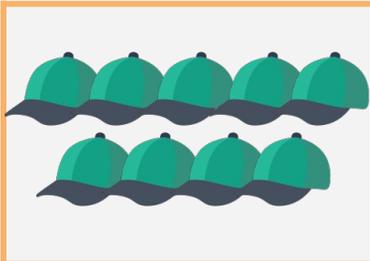
She gave them some broth,
Along with some bread,
Then hugged them soundly
And sent them to bed.



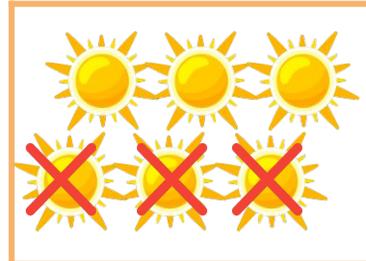
FISHING WITH MY GRANDPA

G1-G2
Basic

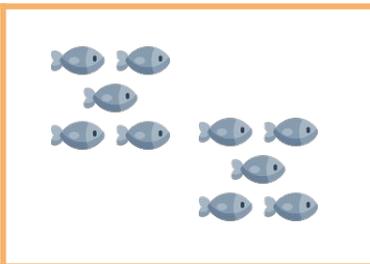
Spending time with our grandfathers is a moment worth remembering. As you are on the lake with your grandfather, fill in the blanks to complete the mathematical sentences. The fishes in the water are going to help you. Find the answers from them.


$$\square + 4$$

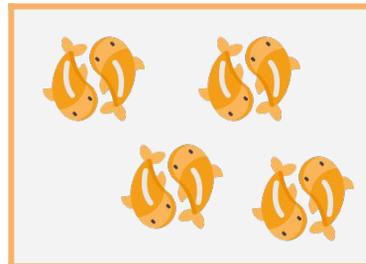
1. $= 9$


$$6 - \square$$

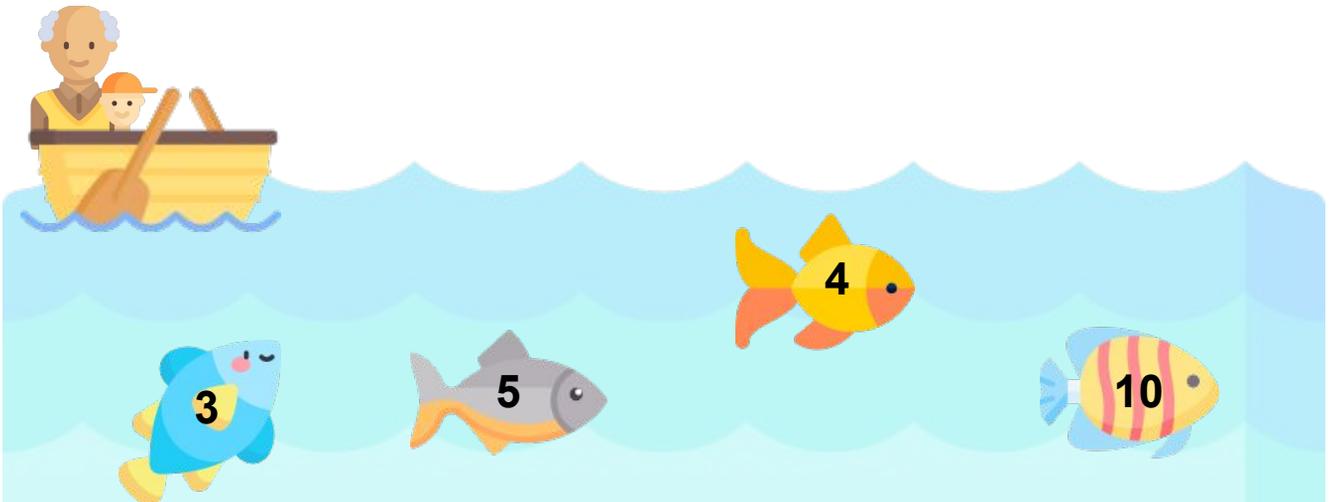
3. $= 3$


$$5 \times 2$$

2. $= \square$


$$\square \times 2$$

4. $= 8$



*My grandpa and I do a lot of things together,
But fishing with my grandpa is the best ever.
I love going to the lake when the sky is all blue
I love riding in my Grandpa's boat, too.
The next trip to the lake, I don't want to miss.
Just being with my Grandpa is better than catching fish.*



WINTER, WINTER

G2-G3
Advanced

Kids enjoy sipping hot chocolate and having snowball fights during Winter. Help the kids enjoy by giving the appropriate mathematical sentences for the problems below.



It's cold! How many cups of hot chocolate will each of us get?



Answer:



We need 2 members in each team. How many teams do we form?

Answer:



*Winter, winter, cold and ice
A mug of hot chocolate would be nice
Winter, winter, long dark nights
Kids bundle up for snowball fights*



LET'S GO TO THE PARK

G2-G3
Advanced

Children love to go to the park to play with their friends. Read the poem and help the children count themselves together with their newfound friend. Draw a visual representation of the poem and write the appropriate mathematical sentence.



I love to ride the bike everyday,
And go to the park to play.
I have my friends, Mike and Gray.
Here comes the others, John and Jay.



“How many are we?” this I say.
I found a new friend, her name is May.
Can you help us count, so we'll be gay?
I have friends who are here to stay.



Visual Representation:

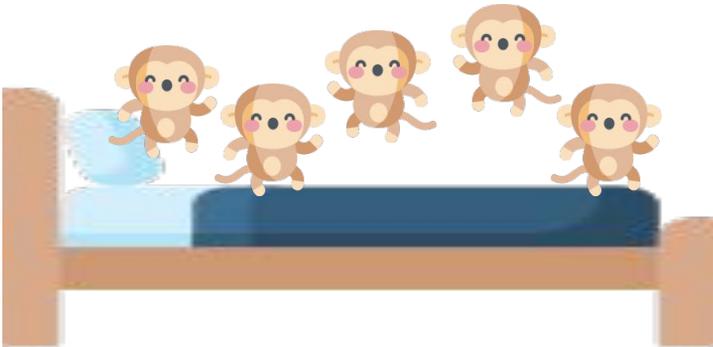
Mathematical Sentence:



FIVE LITTLE MONKEYS

G2-G3
Advanced

Five little monkeys enjoy their playtime, but something happens. Read the poem below about the monkeys and answer the word problems below.



Five little monkeys
jumping on the bed.
One fell off
and bumped his head.
Mama called the doctor
and the doctor said,
“No more monkeys
jumping on the bed.”

When one monkey falls off the bed, how many monkeys are left jumping on the bed? Write down the mathematical sentence.



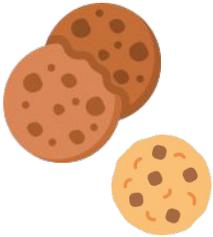
When the doctor said that no more monkeys should jump on the bed, how many monkeys are left? Write down the mathematical sentence.



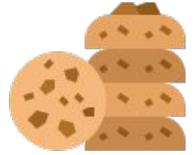
MY LOVE FOR SWEETS

G2-G3
Advanced

Oh, look at how much you love sweets. It's good that you also love to share. Read the short poems below to find the problems you need to answer. Write the correct mathematical sentences for each poem.



I have 10 cookies that I want to share,
But I want it to be fair.
How many cookies will my friends get,
If I want to give some to Claire and Jet?



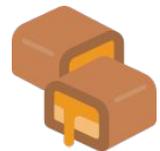
Answer:

Cupcakes are my favorite treats.
I'll be sharing some of these sweets.
4 of these will share one box,
How many boxes do I need, when 20
cupcakes are my stocks?



Answer:

Chocolates are the best.
Milk, white, dark, and the rest.
I have 6 bars left in the ref,
How many can I share with my brother, Jeff?



Answer:



BECOME A POET

G2-G3
Advanced

Learning how to write your poem is important for our creative minds. Answer the problem below and write your poem related to the topic. Don't forget to include rhyming words.

Our family is composed of five members. We ordered a 10 piece bucket of chicken for dinner. How many do each of us get?

Visual Representation:

Mathematical Sentence:

Own Poem:



ANSWER GUIDE

Activity 1

1. A 2. B

Activity 2

1. $5 + 2 = 7$ 2. $4 + 4 = 8$

Activity 3

1. $3 - 3 = 0$

Activity 4

1. $3 \times 3 = 9$ 2. $4 \times 2 = 8$

Activity 5

1. 5 2. 10 3. 3 4. 4

Activity 6

1. $9 \div 3 = 3$ 2. $10 \div 2 = 5$

Activity 7



$$5 + 1 = 6$$



ANSWER GUIDE

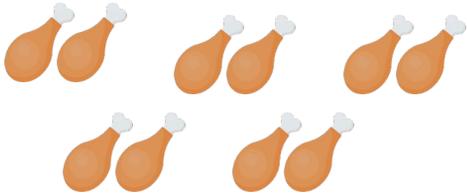
Activity 8

1. $5 - 1 = 4$ monkeys 2. $5 - 5 = 0$ monkeys

Activity 9

1. $10 \div 2 = 5$ cookies 2. $20 \div 4 = 5$ boxes 3. $6 \div 2 = 3$ chocolates

Activity 10



$10 \div 5 = 2$ chickens each member



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