



K-G3
Basic

G4-G7
Advanced

Helping With Math

GRADES

Problem Solving:
Addition and Subtraction

Suitable for students
aged 4-12



This pack is suitable for learners aged 4 to 12 years old or kindergarten to 7th graders. The content covers fact files and relevant basic and advanced activities of addition and subtraction topics that aim to develop and strengthen the learners' problem-solving skills.

Happy World Teachers' Day!



Problem Solving As a Mathematics Skill

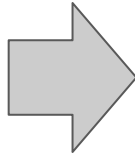


Problem-solving skills refer to the ability to identify a problem, determine its origin, and figure out all possible solutions to solve the problem. These are also a set of skills where you could formulate a variety of unique ways to solve a problem.



IMPORTANCE OF PROBLEM-SOLVING SKILLS

Mathematics aids us to understand the world and to provides an effective way of building mental discipline. Math encourages logical reasoning, critical thinking, creative thinking, abstract or spatial thinking, problem-solving ability, and even effective communication skills.



Problem solving...

- plays a significant factor in mathematics and should have a critical role in the mathematics education of K-12 students.
- enhances a generic ability to solve real life problems and apply mathematics in real life situations.
- makes students to believe in their ability to think mathematically. They will appreciate that learning math means finding the solution to a problem.

Where can we apply problem-solving skills?

- in managing your finances
- in shopping for the best price of goods
- in preparing/cooking food
- in figuring out distance, length, or weight
- in generating more than one solution/alternative
- in making the best decision/option
- in predicting possible outcomes



PROBLEM-SOLVING STRATEGY

George Polya's Problem Solving Technique

Understand **Read and Think**

Plan **Choose a Strategy**

Do **Solve the Problem**

Check **Explain Your Work**

Step 1:

- Do you understand all the words in the problem?
- What are you asked to find or show?
- Can you state the problem in your own words?
- Are the details enough for you to find the answer?



Step 2:

- Is it possible to use guess and check technique?
- Can you eliminate possibilities?
- Which plan will work? Which plan will not work?
- Will I use addition or subtraction?



Step 3:

- What is the equation?
- What will be the next step?
- Can you prove your solution?

Step 4:

- Can you check if your answer is correct?
- Does everything turn out well?
- What are the steps that worked and didn't work?



SAMPLE/APPLICATION

Basic Examples:



1. As a way of showing appreciation to his teachers for the celebration of the World Teachers' Day, Mark bought 12 pieces of ball pens, 24 pieces of notepads, and a dozen boxes of paper clips. How many items did he buy in all?

Let's answer this problem using Polya's Problem Solving Techniques

Step 1: *Understand: What are you asked to find?*

Answer: You are asked to determine the total number of items that Mark bought for his teachers.

Step 2: *Plan: Will I use addition or subtraction?*

Answer: Since the problem is asking for the total number of items, we should use addition.

Step 3: *Do: Get the sum of the items.*

Answer:

$$12 + 24 + 12 = N$$

$$48 = N$$



SAMPLE/APPLICATION

Step 4: *Check: Can you check if your answer is correct?*

Answer:

There are 48 items in all. These are the items that Mark bought for his teachers in line with the celebration of the World Teachers Day.

Advanced Example:



2. The Math Club members prepared 500 pieces of chocolate banana muffins and 650 packs of orange juice. They want to raise a fund for the free show for their teachers. If a muffin costs \$4.35 and an orange juice costs \$3.50, how much would they be able to raise if all of these items will be sold out? How much is still needed if their target amount is \$5000?

Step 1: *Understand: What are you asked to find?*

Answer: The total sales of the food products and the remaining amount needed to achieve \$5000.



SAMPLE/APPLICATION

Step 2: *Plan: What operations will I use?*

Answer:

The operation to be used is addition for the calculation of the total sales and subtraction for the calculation of the needed amount.

Step 3: *Do: Solve for the total sales and get the difference of it from the target amount.*

To compute for the total sales,
Chocolate banana muffins:

$$500 \times \$4.35 = ?$$

$$500 \times \$4.35 = \mathbf{\$2170}$$

Orange Juice

$$650 \times \$3.50 = ?$$

$$650 \times \$3.50 = \mathbf{\$2275}$$

To compute for the **total sales**,

$$\$2170 + \$2275 = ?$$

$$\$2170 + \$2275 = \mathbf{\$4445}$$

Amount needed:

$$\$5000 - \$4445 = ?$$

$$\$5000 - \$4445 = \mathbf{\$555}$$

Step 4: *The total sales would be \$4445 and the remaining amount to reach the desired amount is \$555.*



TABLE OF ACTIVITIES

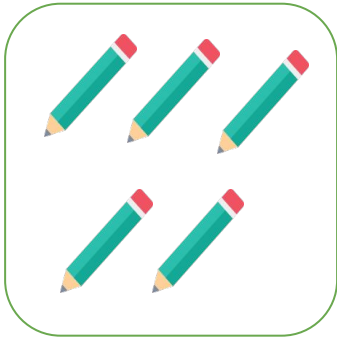
Ages 4-8 (Basic) <u>K - G3</u>	
1	My Teacher, My Hero
2	Teachers Appreciation Day Card
3	Bookshelves Task
4	World Teachers' Day Fair (Food Edition)
5	World Teachers' Day Fair (Beverage Edition)
Ages 8-12 (Advanced) <u>G4 - G7</u>	
6	Teachers' Table
7	The Quiz
8	The World Teachers Day Celebration
9	Food for a Teachers Day Show
10	Thank you, Teachers!



MY TEACHER MY HERO

K - G2
Basic

Ms. Gwen is Shane's favorite math teacher. In her math class today, Ms. Gwen showed some set of objects. Help Shane answer the following questions.



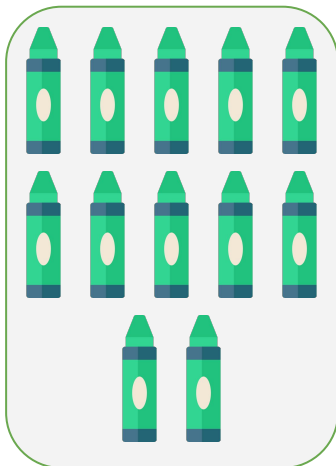
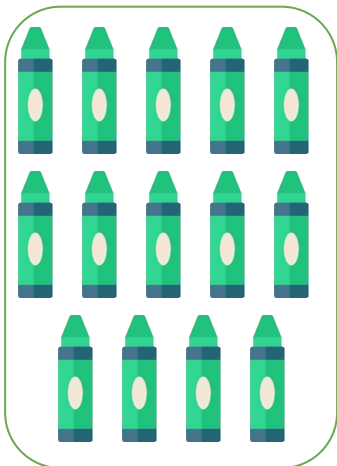
1. Write the math sentence here: _____

What is the sum of the items? _____



2. Write the math sentence here: _____

What is the sum of the items? _____



3. Write the math sentence here: _____

What is the sum of the items? _____



TEACHERS APPRECIATION DAY CARD

K - G2
Basic

Shane would like to make greeting cards for her teachers. Read the situations below and help her solve the problem in making the greeting cards. Write the math sentence first then the answer.

1. Shane needs to make greeting cards for Mr. Sky, Mr. Howard, Ms. Gwen, Ms. Emily, and Mrs. Mitch. If she is already done with three greeting cards, how many more greeting cards should she make?



2. Shane needs ten pieces of colored papers to make the envelopes for the greeting cards. She only has four pieces at her house. How many colored papers should she need to buy?

3. She wants to decorate the five envelopes with two dried flowers each. There are 18 pieces of dried flowers in her room. How many extra dried flowers are there?



4. When she bought the dried flowers, she handed out \$20 to the cashier lady. The lady gave her \$5 as a change. How much is the cost of the dried flowers?



BOOKSHELVES TASK

K - G2
Basic

Shane has a task. She needs to draw the following objects by following the description of each set. Help her finish her work then answer the problem.

1. There are ten books on the table. Your classmate, Ana, add two more books. How many books are there in all?



2. On each bookshelf, there are three books. How many books are there in all if the classroom has five bookshelves?



3. Shane counted the books in the shelves and find out that there are twenty books in all. Ana would like to borrow seven books. How many books will be left?



WORLD TEACHERS DAY FAIR (FOOD EDITION)

K - G2
Basic

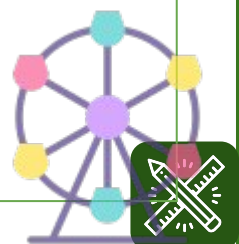
As part of the celebration of the World Teachers Day, some of the students prepared food and games! Read and understand each situation below and use the Polya's Technique in Problem Solving to answer the given.:

Below is the price list of the snacks that are being sold in the World Teachers Day Fair.

Food	Price (in dollars)
Chicken Sandwich	7.50
French Fries	1.89
Belgian Waffles	1.35
Beef Burger	4.89

1. How much is the total cost of 2 chicken sandwiches, 3 belgian waffles, and a beef burger?

2. How much is the change if you handed out \$50 and bought 3 chicken sandwiches, two French fries, and two beef burgers?



WORLD TEACHERS DAY FAIR (BEVERAGE EDITION)

K - G2
Basic

As part of the celebration of World Teachers Day, some of the students prepared beverages and games! Read and understand each situation below and use the Polya's Technique in Problem Solving to answer the given.

Below is the price list of the beverages that are being sold in the World Teachers Day Fair.

Beverage	Price (in dollars)
Café Latte (350 ml)	2.50
Cucumber Juice (350 ml)	3.45
Strawberry Smoothie (350 ml)	5.40

1. How much is the cost of five orders of Cafe latte and two orders of cucumber juice?

2. How much would it cost if a customer will buy 4 orders of each beverage?



TEACHER'S TABLE

G4-G7
Advanced

Teacher Gwen would like to buy new stuff for her school table. She will get some freebies if she can answer all the items correctly. Help her grab the freebies!

$100 - 89 = ?$

$250 - 45 = ?$

$475 - 324 = ?$

$185 - 78 = ?$

$500 - 150 = ?$

$500 - 350 = ?$

$200 - 138 = ?$

$450 - 200 = ?$



THE QUIZ

G4-G7
Advanced

Mr. Sky is preparing a quiz for his grade 5 students. If you are to answer the following items, how would answer it?

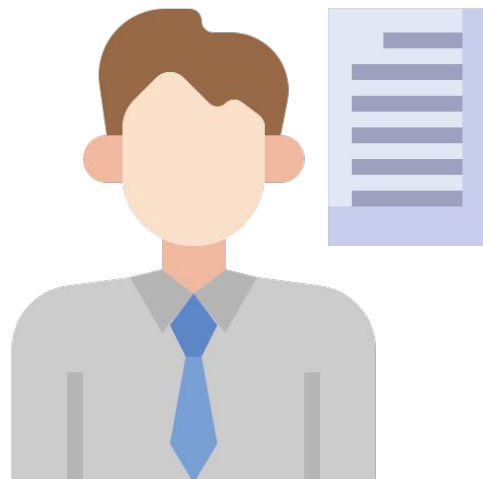
1. What is the sum of 890 and 120?

2. How many digits are there in the sum of 695 and 1450?

3. What is the missing addend if the sum is 1000 and the other addend is 650?

4. What is the total if you get the sum of 549, 654, 819, and 100?

5. Which has a larger value: 525 and 315 or 515 and 325?



THE WORLD TEACHERS DAY CELEBRATION

G4-G7
Advanced

The HWM Academy treat all their teachers in line with the celebration of the World Teachers Day. Refer to the given below and answer each question.

1. There are 15 female teachers and 14 male teachers. Each of them received a \$35 worth of food snacks. How much is the total cost of the food snacks?



2. Each teacher receives a brand-new tablet. The cost of the tablet is \$235.90. is \$7000 enough to cover all the total cost? Why or why not?



3. If each of them will receive a \$595 bonus allowance today, how much is the needed budget allocation for that?



FOOD FOR A TEACHERS DAY SHOW

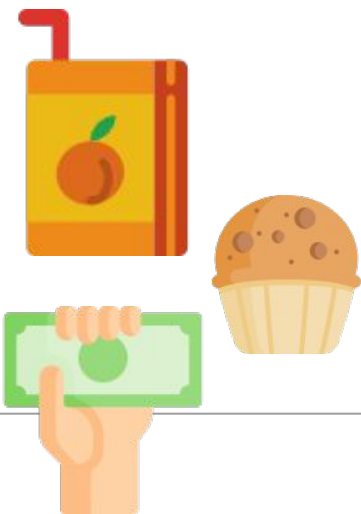
G4-G7
Advanced

These ever-supportive Math club members have a surprise plan for their teachers. Read and answer the questions below.

1. The Math Club members prepared 1800 pieces of chocolate banana muffins and 1750 packs of orange juice. They want to raise a fund for the free show for their teachers. If a muffin costs \$4.35 and an orange juice costs \$3.50, how much would they be able to raise if all of these items will be sold out? How much is still needed if their target amount is \$20000?



2. If all of their products will increase in quantity by 500 pieces, how much would be the total cost? Will the total amount exceed \$15000? If yes, by how much?



THANK YOU, TEACHERS!

G4-G7
Advanced

As we celebrate World Teachers Day today, write a gratitude letter to your math teacher. Share an instance where he/she helped you understand math problem solving items.



ANSWER GUIDE

Activity 1

1. $5 + 2 = 7$. There are 7 pencils.
2. $8 + 6 = 14$. There are 14 books.
3. $14 + 12 = 26$. There are 26 crayons.

Activity 2

1. Two more greeting cards
2. Six more colored papers
3. Eight pieces
4. \$15

Activity 3

1. 12 books in all
2. 15 books
3. 13 books

Activity 4

1. \$23.94
2. \$36.06

Activity 5

1. \$19.4
2. \$45.40

Activity 6

1. 11
2. 205
3. 151
4. 107
5. 350
6. 150
7. 62
8. 250

Activity 6

1. 1010
2. Four digits
3. 350
4. 2122
5. They are just the same.



ANSWER GUIDE

Activity 8

1. \$1015
2. Yes, it's enough because the total amount is \$6841.1
3. \$17255

Activity 9

1. \$7830 - muffins, \$6037.5 - juice
Total: \$13867.5. Needed amount: \$6132.5
2. \$9787.5 and \$7875. Total: \$17662.5, exceeded by \$2662.5

Activity 10

Answers may vary.



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