Helping With Math

Problem Solving:
Multiplication and Division

Happy Halloween!

Suitable for students **aged 5-12**

This pack is suitable for learners aged 5 to 12 years old or 2nd graders to 7th graders. The content covers fact files and relevant basic and advanced activities of multiplication and division topics that aim to develop and strengthen the learners' problem-solving skills.
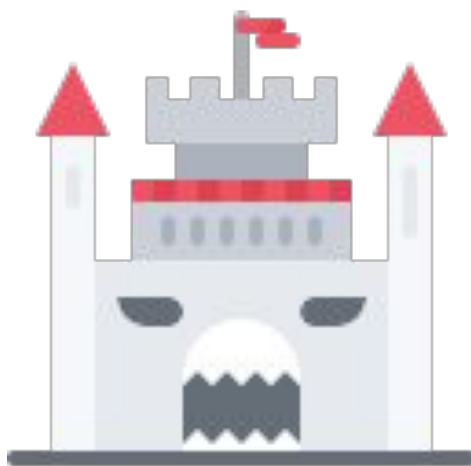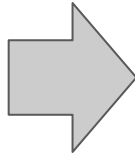
Problem Solving As a Mathematics Skill

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.
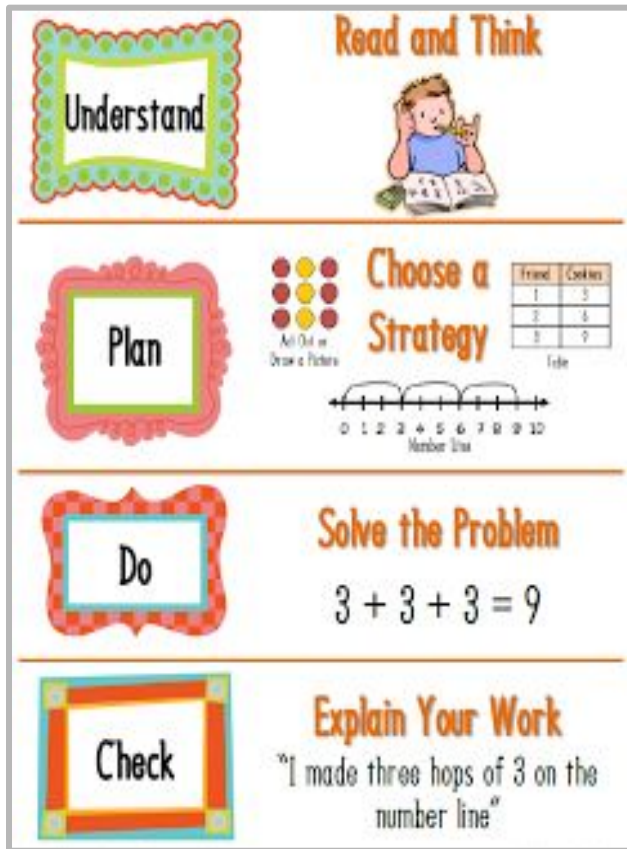
Where can we apply problem-solving skills?

- 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

George Polya's Problem Solving Technique

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?

Basic Examples:

1. During the celebration of the Halloween, Noah was able to gather 2 packs of candies per house by saying "Trick or treat". If he visited a total of 6 houses, how many packs of candies did he get 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 candy packs that Noah got.

Step 2: *Plan: Will I use multiplication or division?*

Answer: Since the problem is asking for the total number of candy packs that Noah got per house, we will use multiplication.

Step 3: *Do: Get the product of the given.*

Answer:
2 packs of candies x 6 = n
2 x 6 = 12 packs

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

Answer:
Noah received 12 packs of candies in all.

Advanced Example:

2. Mary has 1000 bars of Milky way candies. If there are 135 children who will receive the candy bars, how many should each child get? Will there be any remainder? If there will, how many?

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

Answer: The number of candy bars each child will receive. We are also asked to find if there are remainders.

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

Answer:
The operation to be used is division because we are solving for the equal share of each child.

Step 3: *Do: Solve for the quotient of 1000 ÷ 135.*

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              7
  1 3 5 │ 1 0 0 0
         - 9 4 5
         ─────────
           0 5 5
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⟶ Since 135 is not divisible anymore by 55, 55 is now the remainder.

Step 4: *Each child will receive 7 candy bars. There are 55 candy bars that are in excess/remainder.*

INDIVIDUAL PRACTICE

1. During the celebration of the Halloween, Ava was able to gather 3 packs of candies per house by saying "Trick or treat". If she visited a total of 9 houses, how many packs of candies did she get in all?

2. Mary has 1000 bars of Milky way candies. If there are 85 children who will receive the candy bars, how many should each child get? Will there be any remainder? If there will, how many?

TABLE OF ACTIVITIES

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6	Trick or Treat Jars
7	Halloween Costumes and Expenses
8	Halloween Movie Viewing
9	Spooky Numbers
10	Halloween Blues

PUMPKIN POUNDS

Jake and Ken bought some pumpkins to be used for the Halloween. Read and understand each situation below and find out who got the better deal.

1. Jake bought a twenty-five-pound pumpkin for $10.50. How much did he pay per pound?

2. Ken bought an eight-pound pumpkin for $3.40. How much did he pay per pound?

3. Between the two boys, who got the better deal on their pumpkin? Why do you say so?

HAUNTED HOUSE TICKETS

Be brave enough to visit the newest Haunted House in town! Help Mr. Grey determine the amount that he needs to pay to have a spooky experience.

1. The tickets for a Haunted House tour are $7.50 for adults and $5 for children. How much did Mr. Grey pay for five adults and eight children?

2. Which has a cheaper cost, the payment for 20 adults or the payment for 26 children?

3. The next day, the price of the tickets decrease by $1. If there will be 15 adults and 10 children, how much would be the total cost?

PUMPKIN PIES FOR SALE

Lily loves baking, so for the celebration of Halloween, she wants to sell some pumpkin pies. However, Lily is a bit confused on some computations. Can you help her out?

1. Lily baked a pumpkin pie to sell. She cut it into eight smaller slices and sold each piece for $3. How much money did she make if all the slices will be sold out?

2. Because of her customers' high demand, Lily was able to make five pumpkin pies today. She did again cut eight slices of it. If these will be sold for the same price, how much would be her total earnings today?
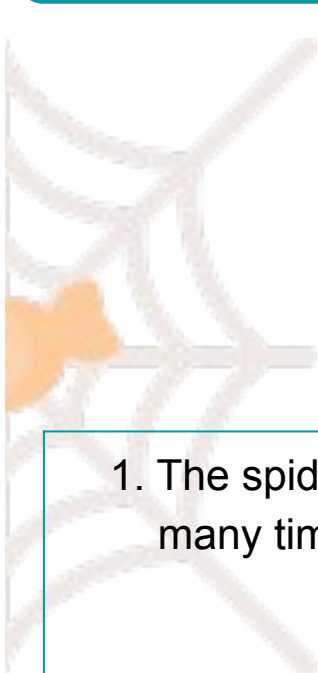
Solution:

Solution:

3. As a treat to her customers, Lily will sell the whole pumpkin pie for $20. How much money her customers would save when they buy the whole pumpkin pie instead of purchasing it per slice?

SPIDER BOOS

The spooky spiders in the Haunted House keep on saying "Boo". Refer to the given below and solve each word problem.

1. The spiders keep on saying "Boo!" every ten seconds. How many times will they say "Boo!" in one minute?

2. As the day continues, Rob, one of the Haunted House staff, heard 30 "boos" from the spiders. How many minutes did they say "boo!"?

3. True or False. The spiders will say 60 "boo"s in ten minutes.

PUMPKIN RIDDLES

Solve the following pumpkin riddles and get a free jar of candies!

1. I am number 2. Multiply me by 8 then add 10. Multiply my result again by 35. What number am I now?

2. I am number 15. Add 17 then multiply it by 4. Add 350 to my result. What number am I now?

3. I am number 1000. Divide me by 20. Multiply the result by 80 then add 100. What number am I now?

TRICK OR TREAT JARS

Noah collected a massive number of candies by saying "Trick or treat". Help him sort the candies by solving the following problems.

1. There are 108 pieces of red candies. How many jars would Noah need to put 18 red candies in per jar?

2. There are 336 green and purple candies. If they are to be put in 12 jars, how many candies does each jar must contain?

TREAT
OR
TRICK

3. There are 182 blue candies and 418 yellow candies. If they will be combined and put into 15 jars, how many candies should be put per jar?

HALLOWEEN COSTUMES AND EXPENSES

Help this Halloween party enthusiasts to compute their costume expenses and many more!

1. If a witch costume costs $108.50, how many can be bought for $5425?

2. A jack-o-lantern hat costs $12.45. if you need to buy 345 pieces of it, how much should you pay?

3. Billie, Mike, and Russel agreed to pay equally the $45890 expenses in renovating the Haunted House. How much would each person pay? (Round off your answer to the nearest hundredth)

4. Ken, Justin, and Amanda are planning to host a big Halloween Costume Party. Each attendee must pay the entrance fee which is $66. If there are 475 attendees, how much would be the total fees?

HALLOWEEN MOVIE VIEWING

Noah and Ava are both school club presidents. One of their activities for the Halloween is to host a movie viewing activity. Refer to the situations below and answer each problem.
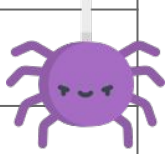
Each ticket costs $5.50. The Halloween movie viewing today will have three scheduled shifts. The breakdown of the movie goers is given below. How many people went to see the movie viewing? What are the total earnings for today?

Shift Schedule	Number of Attendees
1st	150
2nd	186
3rd	235

For the 2nd day of the movie viewing, the schedule was split into four shifts. The details are given below.How many people went to see the movie viewing? What are the total earnings for today?

Shift Schedule	Number of Attendees
1st	180
2nd	195
3rd	230
4th	200

# SPOOKY NUMBERS

Solve these spooky number riddles and win an exclusive Halloween costume!

1. I am 10,000. Subtract 1500 from me. Divide the difference by 15. What number am I now?

2. I am a product of 525 and 168. Add 800 to me then divide it by 48. What is my remainder?

3. What am I if I am the hundredths digit of the quotient of 75836 and 14? By the way, round off your answer to the nearest hundredths.
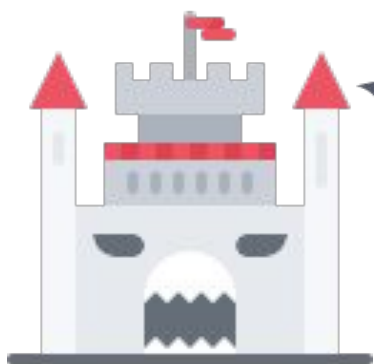
HALLOWEEN BLUES

These are common scenarios during Halloween. Read and understand each item then solve.

1. There are 2500 pieces of red candies. How many jars would Ava need to put 20 red candies in per jar?

2. There are 10404 green and purple candies. If a dozen will be put into a jar, how many jars are needed?

3. If a witch costume costs $108.50, how many can be bought for $10850?

4. A jack-o-lantern hat costs $11.65. if you need to buy 385 pieces of it, how much should you pay?

ANSWER GUIDE

Activity 1

1. $0.42 per lb   2.$0.425/lb
3. Jake got the better deal because he paid a lower price of pumpkin per lb.

Activity 2

1. $77.5   3. $111.5
2. $150 for adults while $130 for children. The cheaper cost is for the 26 children.

Activity 3

1. $24   2. $120   3. $4

Activity 4

1. 6 times   2. 5 minutes
3. TRUE

Activity 5

1. 6 times   2. 5 minutes
3. TRUE

Activity 6

1. 6 jars   2. 28 candies
3. 40 candies

Activity 7

1. 50 pieces   2. $4295.25
3. $15296.67   4. $31350

Activity 8

1. $3140.5   2. $4427.5

Activity 9

1. 566 r. 10 2. The remainder is 8
3. The hundredths digit is 6.

Activity 10

1. 125 jars   2. 867 jars
3. 100 pcs   4. $4485.25

Thank you

Thank you so much for purchasing and downloading this resource.

We hope it has been useful for you in the classroom and that your students enjoy the activities.

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