

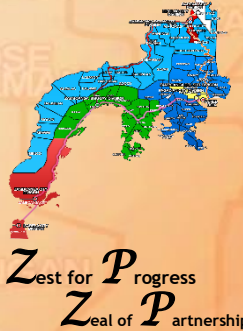
JANUARY	<i>Makugihon</i>
FEBRUARY	<i>Mahigugmaon</i>
MARCH	<i>Matinabunon</i>
APRIL	<i>Matinahuron</i>
MAY	<i>Mahapsay og Malimpyo</i>
JUNE	<i>Maabtik og Masunod sa Dhaklong Oras</i>
JULY	<i>Maantigo og Maabilidad</i>
AUGUST	<i>Maginhuhunon para sa Urban</i>
SEPTEMBER	<i>Madaginaton</i>
OCTOBER	<i>Matinud-anon</i>
NOVEMBER	<i>Masaligan</i>
DECEMBER	<i>Maalampunon</i>



Republic of the Philippines  
**Department of Education**  
 Regional Office IX, Zamboanga Peninsula



**4**



# MATHEMATICS

## 4<sup>th</sup> QUARTER – Module 9: SOLVING PROBLEMS ON SIMPLE EXPERIMENTS



Name of Learner: \_\_\_\_\_

Grade & Section: \_\_\_\_\_

Name of School: \_\_\_\_\_

**Mathematics – Grade 4**  
**Alternative Delivery Mode**  
**Quarter 4 - Module 9: Solving Problems on Simple Experiments**

**First Edition, 2020**

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# Introductory Message

This Self – Learning Module (SLM) is prepared so that you, our dear learners, can continue your studies and learn while at home. Activities, questions, directions, exercises, and discussions are carefully stated for you to understand each lesson.

Each SLM is composed of different parts. Each part shall guide you step-by-step as you discover and understand the lesson prepared for you.

Pre-tests are provided to measure your prior knowledge on lessons in each SLM. This will tell you if you can proceed on completing this module or if you need to ask your facilitator or your teacher's assistance for better understanding of the lesson. At the end of each module, you need to answer the post-test to self-check your learning. Answer keys are provided for each activity and test. We trust that you will be honest in using these.

In addition to the material in the main text, notes to the Teacher are also provided to our facilitators and parents for strategies and reminders on how they can best help you on your home-based learning.

Please use this module with care. Do not put unnecessary marks on any part of this SLM. Use a separate sheet of paper in answering the exercises and tests. Read the instructions carefully before performing each task.

If you have any questions in using this SLM or any difficulty in answering the tasks in this module, do not hesitate to consult your teacher or facilitator.

Thank you.



## What I Need to Know

This module was written as an aid in Mathematics Grade 4, lesson for the fourth quarter module number 9. The module shows procedure on how to solve routine and nonroutine problems on simple experiments.

This module was designed to help pupils solve the given routine and non-routine problems involving simple probability experiments. The lessons followed a developmentally sequenced teaching and learning processes to meet the curriculum requirement.

After going through the module, you are expected to solve routine and non-routine problems involving simple probability experiments. (M4SP-IVj-12)

Believe that learning can continue amidst the health crisis. Good luck, stay safe, and God bless.



## What I Know

A. **Directions:** Solve the problem using the 4-step Plan. Write your answer on your answer sheet.

Mario tossed two coins. What is the probability that two heads will show up?

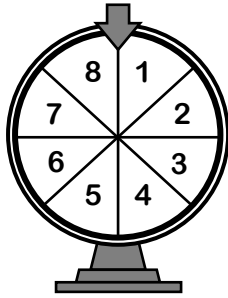
1. What is asked in the problem?
  - A. Mario tossed two coins.
  - B. The probability that either heads or tails show up.
  - C. The probability that two heads shows up.
  - D. The probability that two tails shows up.
  
2. What are the given facts?

A. two coins, two heads	C. heads
B. two coins	D. tails
  
3. What is the formula to find the probability of getting heads or tails?

A. $P = \frac{\text{total number of outcomes}}{\text{Number of times an event can occur}}$	C. $P = \frac{\text{Number of outcomes}}{\text{Total times of event}}$
B. $P = \frac{\text{Number of times an event can occur}}{\text{Total number of outcomes}}$	D. $P = \frac{\text{Number of times}}{\text{Total outcomes of event}}$
  
4. What is the probability that two heads will show up?

A. $P = \frac{1}{2}$	B. $P = \frac{1}{4}$	C. $P = \frac{4}{4}$	D. $P = \frac{3}{4}$
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5. What is the complete answer to the problem?
  - A. In tossing two coins, the probability that two heads will show up is  $\frac{1}{4}$ .
  - B. In tossing two coins, the probability that two heads will show up is  $\frac{4}{4}$ .
  - C. In tossing two coins, the probability that two heads will show up is  $\frac{1}{2}$ .
  - D. In tossing two coins, the probability that two heads will show up is  $\frac{3}{4}$ .

B. **Directions:** Study the spinning wheel and answer each problem.



1. What is the chance of spinning the wheel to point at a factor of 16?
2. What is the chance of spinning the wheel to point a multiple of 2?
3. Is there a chance of obtaining a 9? Why?
4. What is the chance of obtaining a prime number?
5. What is chance of obtaining a composite number?

## LESSON

## SOLVING PROBLEMS ON SIMPLE EXPERIMENTS



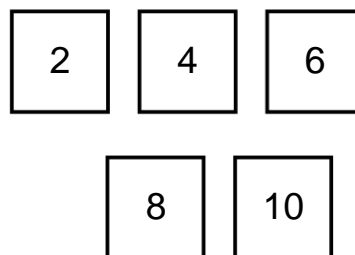
### What's In

In probability theory, an **experiment** is also known as trial is any procedure that can be randomly unlimited repetition with possible outcomes. The results of an experiment are called **outcome**. All the possible outcomes in an experiment are called a **sample space**.



### What's New

Teacher Emz puts 5 cards numbered 2, 4, 6, 8, 10 on her table. Without looking, what is the probability that you will pick an 8 when she asked you to pick one card?

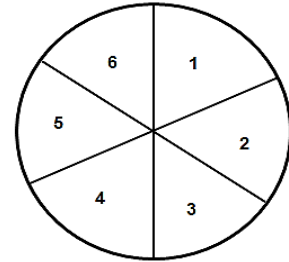




## What is It

### PROBLEM A

Pepe and his friend are spinning a spinner like the one shown at the right. What is the probability that he will spin a 4 on his next turn?



Since this is a routine problem, you can solve it using the 4-step plan.

### UNDERSTAND:

- Know what is asked:
  - *The probability of getting a 4 when Pepe spins a spinner.*
- Know the given facts:
  - *There are 6 equal sections in the spinner.*

### PLAN:

There are 6 equal sections. One of the sections labeled with a 4. Use the formula to find the probability of getting a 4.

$$P(E) = \frac{\text{number of times an event can occur}}{\text{total number of outcomes}}$$

where  $E$  refers to the event

### SOLVE:

If  $E$  is the event of getting a 4, then the formula becomes  $P(4) = \frac{1}{6}$ .  
The probability that Pepe can spin a 4 is  $\frac{1}{6}$ .

## CHECK AND LOOK BACK:

- Since the spinner has 6 sections, the probability of occurrence of each section is  $\frac{1}{6}$
- Since one of the sections is labeled with a 4, the probability that you spin a 4 is  $\frac{1}{6}$

### PROBLEM B

Pedro placed 6 red, 3 blue, 2 green, and 1 yellow marbles in a box. He shook the box well to mix the marbles.

This is a non-routine problem that requires some degree of creativity or originality to solve. It does not have an immediately apparent strategy for solving. It can be done in multiple ways and a variety of strategies.

1. What is the chance of picking a green marble twice?
  - *The chance of picking a green marble is  $\frac{2}{12}$ .*
2. Is there a chance of picking an orange marble? Why?
  - *There is no chance of picking an orange marble because there is no orange marble in the box.*



## What's More

**A. Directions:** Read the problem and answer the questions that follow. Write your answer on your answer sheet.

The letters from the word **MATHEMATICS** are placed in a box. What is the probability that you select an **E** when you are choosing a letter without looking?

1. What is asked?

2. What facts are given?
3. How will you solve the problem?
4. What is the complete answer?

**B. Directions:** Analyze the situation. Answer each question and support your answer with an explanation.

Danaya and her friends take turns in spinning a letter spinner with letters A, E, I, O, U.

1. What is the chance of obtaining a consonant letter?
2. What is the chance of spinning a vowel?
3. What is the chance that Danaya spins an E in her next turn?



## What I Have Learned

To solve routine problems involving simple experiment, use the 4-step Plan: Understand, Plan, Solve, and Check. To solve non-routine problems, use multiple ways and a variety of strategies.



## What I Can Do

Suppose your birthday is coming, what is the probability that it will fall on a Sunday? Why?





## Assessment

**A. Directions:** Solve the problem using the 4-step Plan. Choose the letter that corresponds to your answer.

A box contains 5 balls colored red, blue, yellow, green, and orange. What is the probability of picking a green ball?

1. What is asked in the problem?
  - A. The probability of picking a green ball.
  - B. The box containing 5 balls colored red, blue, yellow, green, white
  - C. The probability of picking any colored ball.
  - D. The probability of picking a purple ball.
  
2. What facts are given?
  - A. 5 colored balls
  - B. 5 balls colored red, blue, yellow, green, orange
  - C. a box
  - D. colored balls
  
3. What is the formula to find the probability of picking a green ball?

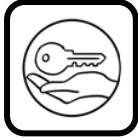
A. $P = \frac{\text{total number of outcomes}}{\text{Number of times an event can occur}}$	C. $P = \frac{\text{Number of outcomes}}{\text{Total times of event}}$
B. $P = \frac{\text{Number of times an event can occur}}{\text{Total number of outcomes}}$	D. $P = \frac{\text{Number of times}}{\text{Total outcomes of event}}$
  
4. What is the probability of picking a green ball?

A. $P = \frac{1}{2}$	B. $P = \frac{1}{5}$	C. $P = \frac{5}{5}$	D. $P = \frac{1}{1}$
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5. What is the complete answer to the problem?
  - A. The probability of picking a green ball is  $\frac{1}{2}$ .
  - B. The probability of picking a green ball is  $\frac{5}{5}$ .
  - C. The probability of picking a green ball is  $\frac{1}{5}$ .
  - D. The probability of picking a green ball is  $\frac{1}{1}$ .

**B. Directions:** Analyze the problem situation. Answer each question and support your answer with an explanation.

A plastic drawer has 5 pairs of white socks, 3 pairs of black socks, and 2 pairs of gray socks.

1. What is the chance of picking a pair of gray socks when picking twice?
2. Is there a chance of picking a red pair of socks? Why?



## Answer Key

**What I Know:**  
 A. 1. C    2. A    3. B    4. B    5. A  
 B. 1. 3/8    2. 4/8 or 1/2    3. No    4. 4/8 or 1/2    5. 3/8

**What is It:**  
 A. The probability that Pepe can spin a 4 is 1/6.  
 B. 1. 2/12    2. None or 0

**What's More:**  
 A.1. Probability to select E    2. Word MATHEMATICS    3.  $P = \frac{E}{\text{MATHEMATICS}}$     4.  $\frac{1}{11}$   
 B. 1. 0 or None    2. 5/5    3. 1/5

**Assessment:**  
 A. 1. A    2. B    3. B    4. B    5. C  
 B. 1. 4/12    2. 0 or None

## Reference:

Ofelia G. Chingcuangco, et al., Soaring High with Mathematics Textbook, SAINT MATTHEW'S PUBLISHING. 2019, 317-319.

# I AM A FILIPINO

## by Carlos P. Romulo

I am a Filipino – inheritor of a glorious past, hostage to the uncertain future. As such, I must prove equal to a two-fold task – the task of meeting my responsibility to the past, and the task of performing my obligation to the future.

I am sprung from a hardy race – child many generations removed of ancient Malayan pioneers. Across the centuries, the memory comes rushing back to me: of brown-skinned men putting out to sea in ships that were as frail as their hearts were stout. Over the sea I see them come, borne upon the billowing wave and the whistling wind, carried upon the mighty swell of hope – hope in the free abundance of the new land that was to be their home and their children's forever.

This is the land they sought and found. Every inch of shore that their eyes first set upon, every hill and mountain that beckoned to them with a green and purple invitation, every mile of rolling plain that their view encompassed, every river and lake that promised a plentiful living and the fruitfulness of commerce, is a hollowed spot to me.

By the strength of their hearts and hands, by every right of law, human and divine, this land and all the appurtenances thereof – the black and fertile soil, the seas and lakes and rivers teeming with fish, the forests with their inexhaustible wealth in wild and timber, the mountains with their bowels swollen with minerals – the whole of this rich and happy land has been for centuries without number, the land of my fathers. This land I received in trust from them, and in trust will pass it to my children, and so on until the world is no more.

I am a Filipino. In my blood runs the immortal seed of heroes – seed that flowered down the centuries in deeds of courage and defiance. In my veins yet pulses the same hot blood that sent Lapulapu to battle against the alien foe, that drove Diego Silang and Dagohoy into rebellion against the foreign oppressor.

That seed is immortal. It is the self-same seed that flowered in the heart of Jose Rizal that morning in Bagumbayan when a volley of shots put an end to all that was mortal of him and made his spirit deathless forever; the same that flowered in the hearts of Bonifacio in Balintawak, of Gregorio del Pilar at Tirad Pass, of Antonio Luna at Calumpit, that bloomed in flowers of frustration in the sad heart of Emilio Aguinaldo at Palanan, and yet burst forth royally again in the proud heart of Manuel L. Quezon when he stood at last on the threshold of ancient Malacanang Palace, in the symbolic act of possession and racial vindication. The seed I bear within me is an immortal seed.

It is the mark of my manhood, the symbol of my dignity as a human being. Like the seeds that were once buried in the tomb of Tutankhamen many thousands of years ago, it shall grow and flower and bear fruit again. It is the insigne of my race, and my generation is but a stage in the unending search of my people for freedom and happiness.

I am a Filipino, child of the marriage of the East and the West. The East, with its languor and mysticism, its passivity and endurance, was my mother, and my sire was the West that came thundering across the seas with the Cross and Sword and the Machine. I am of the East, an eager participant in its struggles for liberation from the imperialist yoke. But I know also that the East must awake from its centuried sleep, shake off the lethargy that has bound its limbs, and start moving where destiny awaits.

For I, too, am of the West, and the vigorous peoples of the West have destroyed forever the peace and quiet that once were ours. I can no longer live, a being apart from those whose world now trembles to the roar of bomb and cannon shot. For no man and no nation is an island, but a part of the main, and there is no longer any East and West – only individuals and nations making those momentous choices that are the hinges upon which history revolves. At the vanguard of progress in this part of the world I stand – a forlorn figure in the eyes of some, but not one defeated and lost. For through the thick, interlacing branches of habit and custom above me I have seen the light of the sun, and I know that it is good. I have seen the light of justice and equality and freedom, my heart has been lifted by the vision of democracy, and I shall not rest until my land and my people shall have been blessed by these, beyond the power of any man or nation to subvert or destroy.

I am a Filipino, and this is my inheritance. What pledge shall I give that I may prove worthy of my inheritance? I shall give the pledge that has come ringing down the corridors of the centuries, and it shall be compounded of the joyous cries of my Malayan forebears when first they saw the contours of this land loom before their eyes, of the battle cries that have resounded in every field of combat from Mactan to Tirad Pass, of the voices of my people when they sing:

“I am a Filipino born to freedom, and I shall not rest until freedom shall have been added unto my inheritance—for myself and my children and my children's children—forever.”