4

Mathematics

Quarter 3 - Module 8

Perimeter or Area

Zest for Progress
Zeal of Partnership

JANUARY
Makugihon

FEBRUARY
Mahigugmaon

MARCH
Matinabangon

APRIL
Matinahuron

MAY
Mahapsay og Malimpyo

JUNE
Maabtik og Musunod sa Iksaktong Oras

JULY
Maantigo og Maabilidad

AUGUST
Maginhunahunaon para sa Uban

SEPTEMBER
Madaginoton

OCTOBER
Matinud-anon

NOVEMBER
Masaligan

DECEMBER
Maalampuon

Name of Learner: _____

Grade & Section: _____

Name of School: _____

What I Need to Know

This module contains two lessons:
- Differentiating perimeter from area.
- Converting square centimeters (sq cm) to square meters (sq m) and vice versa.

After going through this module, you are expected to:
1. Differentiate perimeter from area and;
2. Convert square centimeters (sq cm) to square meters (sq m) and vice versa

What I Know

Direction: Choose and **encircle** the letter of the correct answer.

1. The distance around the outside of a shape is called _____.
    A. Area   C. Perimeter
    B. Circumference   D. Volume

2. The measurement of space inside a shape is called _____.
    A. Area   C. Perimeter
    B. Circumference   D. Volume

3. Square unit is use for measuring _____.
    A. Area   C. Perimeter
    B. Circumference   D. Volume

4. Below is an example of _____.
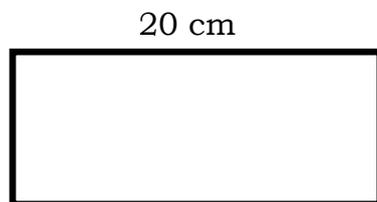
20 cm

10 cm

= 2L + 2W
= 2 (20cm) + 2 (10 cm)
= 40 cm + 20 cm
= **60 cm**

    A. Area   C. Perimeter
    B. Circumference   D. Volume

5. What is the difference between area and perimeter?
    A. Area and Perimeter has no difference.
    B. Area is the measurement of only one side of a shape while Perimeter is the distance between each side.
    C. Area is the measurement around the outside of a shape while Perimeter the measurement of space inside a shape.
    D. Area is the measurement of space inside a shape while Perimeter is the measurement around the outside of a shape.
6. Sq. m is the symbol for _____.
    A. Area   C. Perimeter
    B. Circumference   D. Volume
7. If 1 square meter is equal to 10,000 square centimeters then what is the equivalent of 12 square meters to square centimeters?
    A. 120 sq cm   C. 12,000 sq cm
    B. 1,200 sq cm   D. 120,000 sq cm
8. Your classroom has a floor area of 56 square meters (56 sq m). If you will clean your classroom, how many square centimeters will you clean?
    a. 560 sq cm   c. 56,000 sq cm
    b. 5,600 sq cm   d. 560,000 sq cm
9. Mr. Cristhan bought a lot which is 1,500,000 sq cm. What is its equivalent in square meter?
    a. 15 sq m   c. 1,500 sq m
    b. 150 sq m   d. 15,000 sq m
10.   What is the equivalent of 10 sq m into sq cm?
    a. 100 000 sq cm   c. 1 000 000 sq cm
    b. 110 000 sq cm   d. 1 100 000 sq cm

What's In

Activity 1. Illustrate My Emotion

Directions: Read the statement and choose whether it is TRUE of FALSE. Draw a Smile Emoji 🙂 if **TRUE** and Sad Emoji 🙁 if **FALSE**.

_____1. Triangle is a three sided polygon.

_____2. Square has 2 equal sides.

_____3. You can get the perimeter of a rectangle by multiplying the length by 2 and multiplying the width by 2 then adding the two products.

_____4. If one side of a square measures 2 cm then the perimeter of that square is 8 cm.

_____5. In measuring the Perimeter of triangle, use the formula P = 4s.

What's New

Read and analyse the problem.

> The Grade 4 class has a group activity in their Math class. After the activity they were asked to clean their working tables. Group A cleaned an area of 30,000 sq cm (square centimeter) while Group B cleaned 4 sq m (square meter). Do the two groups have the same size of working tables?


Group A table.
Area = 30,000 sq cm
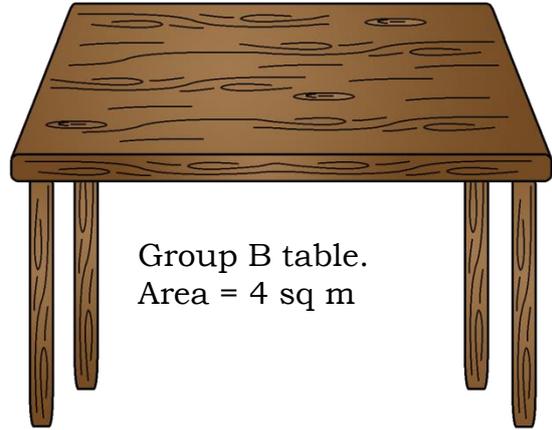
Group B table.
Area = 4 sq m

Guide questions:
1. What is asked in the problem?
2. What are the given facts?
3. What operation will you use?
4. What is the number sentence?
5. How is the solution done?
6. What is the correct answer to the problem?

What is it

The problem above asks for the area. Area is different from perimeter. From your past lesson, you have learned that perimeter is the distance around the **outside** of a shape or the outer boundary of the shape. Area is different from perimeter because area is the amount of space **inside** a shape and it is always measured in square units. For you to understand farther, study the Venn diagram below.

Area
- It is the amount of space inside a shape.
- Measured in square units

Similarities
- They are both part of measuring a shape.

Perimeter
- It is the distance around the outside of a shape.
- Not measured in square units

This Venn diagram shows their differences on the left and right circle while the similarity is in
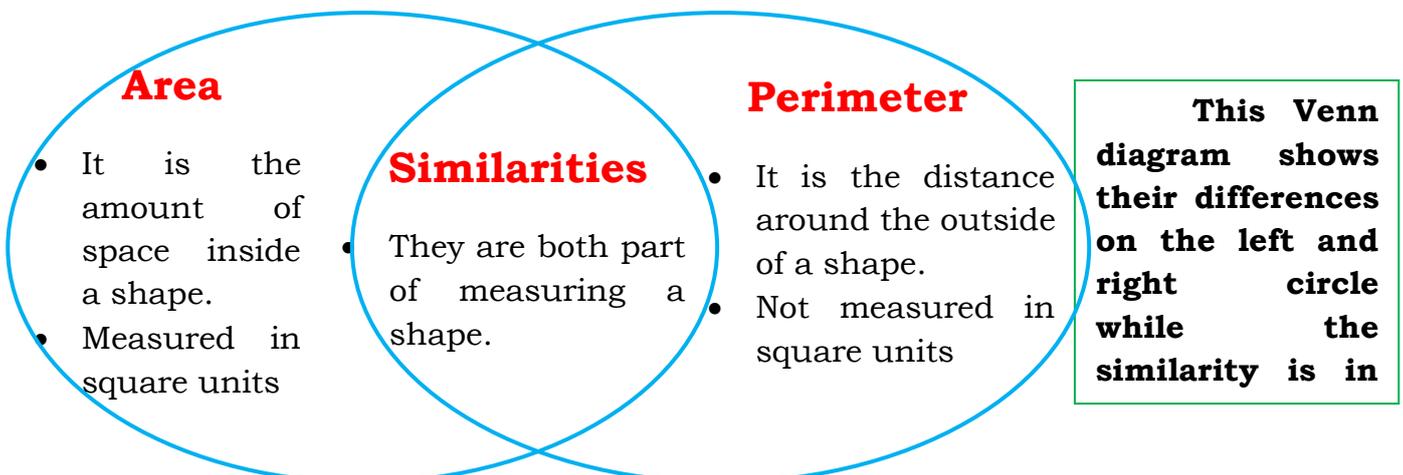
Study this example:
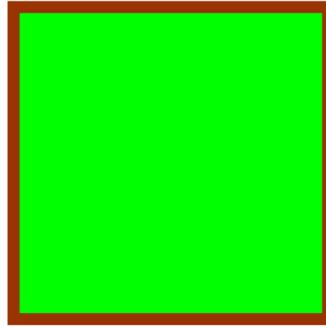
3 m

Above is a square yard. The brown border is a fence, while the green square is the grass. The *perimeter* of this yard is the total length of the fence while the *area* of this yard is the amount of grass.

Let's calculate both:

Perimeter = S + S + S + S   **Area** = S x S

= 3 m + 3 m + 3 m + 3 m   = 3 m x 3 m

= **12 m**   = **9 sq m**

The difference of the two; **Perimeter** is the distance around the outside of shape while **Area** is the amount of space inside a shape. Now, let us go back to the problem.

Read and understand this problem.

> The Grade 4 class is having a school camping. After the activity they were asked to clean their working tables. Group A cleaned an area of 30 000 sq cm (square centimeter) while Group B cleaned 4 sq m (square meter). Do the two groups have the same size of working tables?

1. What is asked in the problem?
   ❖ **It is the comparison of measurements of two tables.**

2. What are the given facts?
   ❖ **The given facts are: 30 000 sq cm (area for the table of group A)**
   4 sq m (area for the table of group B)

3. What operation will you use?
   ❖ **The operations to be used are multiplication, division, and subtraction.**

4. What is the number sentence?
   ❖ **The number sentence is: 30 000 sq cm   =   _____ sq m**
   4 sq m   =   _____ sq cm

5. How is the solution done?

   ❖ **To be able to compare the measurements of the two tables, we must convert the square centimeter to square meter and vice versa because the unit used in the measurement is different**

Remember that **10 000 sq cm = 1 sq m.** Square centimeter is smaller unit than square meter.

Here is the process how to convert smaller square units to bigger square units:

30 000 sq cm = _____ **sq m**

Step 1: multiply the value of smaller square unit you want to convert to its value in bigger unit.

$$30\ 000 \text{ sq cm} = 30\ 000 \ \cancel{\text{sq cm}} \times \frac{1 \text{ sq m}}{10\ 000 \ \cancel{\text{sq cm}}}$$

We multiplied *30,000* sq cm to its equivalent value in other square unit which *1 sq* m divided by its value which is *10,000 sq cm.* Eliminate the sq cm because it has the same unit with your area so the remaining unit will be square meter.

Step 2: divide the product of the first step to the value of the given unit.

$$= \frac{30\ 000 \text{ sq m}}{10\ 000}$$

Now we have the value of smaller unit converted to bigger unit.

$$= \textbf{3 sq m}$$

Now let us convert 4 sq m which is bigger unit to sq cm which is smaller unit so we can compare the size of the tables. The process is still the same but we will reverse the value. Remember that **1 sq m is equal to 10 000 sq cm**.

4 sq m = _____ **sq cm**

We will just reverse the process from our last example.

$$4 \text{ sq m} = 4 \ \cancel{\text{sq m}} \times \frac{10\ 000 \text{ sq cm}}{1 \ \cancel{\text{sq m}}}$$

$$= \frac{40\ 000 \text{ sq cm}}{1}$$

$$= \textbf{40 000 sq. cm}$$

Compare the sizes of the table. The area of table of Group A is 30 000 sq cm which is 3 sq m while the area of the table of Group B is 4 sq m which is 40 000 sq m.

6. What is the correct answer to the problem?

❖ **The answer to the problem is no because the table of group A is smaller than the table of group B.**

Now let us have another example.

Example1. A 20 sq m pool is to be tiled by square tiles. How many square centimeters of tiles will be needed to completely tile the pool?

$$20 \text{ sq m} = \underline{\hspace{2cm}} \text{ sq cm}$$
$$20 \text{ sq m} = 20 \text{ } \cancel{\text{sq m}} \times \frac{10\ 000 \text{ sq cm}}{1 \text{ } \cancel{\text{sq m}}}$$
$$= \frac{200\ 000 \text{ sq cm}}{1}$$
$$= \textbf{200 000 sq cm}$$

To completely tile the pool it needs 200 000 sq cm of tiles.

Example2. Kim wants to find out how many square meters there are in 140,000 sq. cm.

$$140,000 \text{ sq cm} = \underline{\hspace{2cm}} \text{ sq m}$$
$$140,000 \text{ sq cm} = 140,000 \text{ } \cancel{\text{sq cm}} \times \frac{1 \text{ sq m}}{10,000 \text{ } \cancel{\text{sq cm}}}$$
$$= \frac{140,000 \text{ sq m}}{10,000}$$
$$= 14 \text{ sq m}$$

There are 14 sq m in 140,000 sq cm.

To summarize the lesson:
- **Perimeter** is the distance around the *outside* of a shape.
- **Area** is the amount of space *inside* a shape.
- There are 10,000 sq cm in 1 sq m.
- To convert square centimeters to square meters, we divide by 10,000.
- To convert square meters to square centimeters, we multiply by 10,000.

What's More

Activity 2: Fill Me.

Directions: Change the following units as indicated. Write your answers on the blank.

1. 230,000 sq cm   =   _____ sq m
2. 40,000 sq cm   =   _____ sq m
3. 90,000 sq cm   =   _____ sq m
4. 5 sq m   =   _____ sq cm
5. 6 sq m   =   _____ sq cm

What I Have Learned

Activity 3: You Complete Me.

Directions: Complete the table with the correct unit of square measure needed. Write your answer inside in the table.

Area in square centimeters	Area in square meters
Example 1. 75,000	7.5
	9
54,000	
60,000	
	3
	12

What I Can Do

Activity 4: You Solve Me

Directions: Solve the problems using the steps you've learned in the past lessons. Write your answers on the space provided below.

1. Your house has a floor area of 42 sq m. If you will sweep the floor, how many square centimeters will you clean?

Steps	Answer
What is asked?	
What is given?	
What operation will you use?	
What is the number sentence?	
How is the solution done?	
What is the answer to the problem?	

2. Jose has a long table in their living room with an area of 100,000 sq cm. How many square meters of table cloth does she need to completely cover the table?

Steps	Answer
What is asked?	
What is given?	
What operation will you use?	
What is the number sentence?	
How is the solution done?	
What is the answer to the problem?	

Assessment

Directions: Multiple choice. Choose the letter of the correct answer. Write the chosen letter on the space provided for you.

1. The distance around the outside of a shape is called _____.
   - A. Area
   - B. Circumference
   - C. Perimeter
   - D. Volume

2. The measurement of space inside a shape is called _____.
   - A. Area
   - B. Circumference
   - C. Perimeter
   - D. Volume

3. Square unit is use for measuring _____.
   - A. Area
   - B. Circumference
   - C. Perimeter
   - D. Volume

4. 45 sq cm is an example of _____.
   - A. Area
   - B. Circumference
   - C. Perimeter
   - D. Volume

5. What is the difference between area and perimeter?
   - A. Area and Perimeter has no difference.
   - B. Area is the measurement of only one side of a shape while Perimeter is the distance between each side.
   - C. Area is the measurement around the outside of a shape while Perimeter the measurement of space inside a shape.
   - D. Area is the measurement of space inside a shape while Perimeter is the measurement around the outside of a shape.

6. How many square centimeters of plywood will be needed to replace 6 sq m glass for the sliding door?

      A. 600 sq cm   C. 60,000 sq cm

      B. 6,000 sq cm   D. 600,000 sq cm

7. Whose house is bigger if the area of Johns' house is 2,000,000 sq cm while the area of Arthurs' house is 150 sq m?

      A. Arthur   C. John

      B. both   D. none

8. Your classroom has a floor area of 56 square meters (56 sq m). If you will clean your classroom, how many square centimeters will you clean?

      A. 560 sq cm   C. 56,000 sq cm

      B. 5,600 sq cm   D. 560,000 sq cm

9. How many square meter of grass will be needed to fill up a yard with an area of 450,000 sq cm?

      A. 45 sq m   C. 4,500 sq m

      B. 450 sq m   D. 45,000 sq m

10.   How many square meters if 540,000 sq cm is added to 12 sq m?

      A. 66 sq m   C. 70 sq cm

      B. 68 sq cm   D. 72 sq m

Additional Activities

A. Guess me

Directions: Put **<** if the value of the number is lesser than the other number, put **>** if greater than and **=** if it has the same value. Write your answers on the blank provided below.

1. 210,000 sq cm   ____   210 sq m

2. 91 sq m   ____   910,000 sq cm

3. 420,000 sq cm   ____   4.2 sq m

B. Give Me Your Solution

Directions: Find the equivalent unit. Show your solution on the space provided for you.

4.   5 sq m = _____ sq cm

5.   60,000 sq cm = _____ sq m

References

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http://clipart-library.com/clipart/1146116.htm

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