



Mathematics

Quarter 3 – Module 3: **Triangles and Quadrilaterals**



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Mathematics

Quarter 3 – Module 3: Triangles and Quadrilaterals



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 need to 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 selfcheck 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. And 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 designed in order to assist you to learn the different kinds of triangles and quadrilaterals.

In this lesson, you will learn about the different kinds of triangles according to sides and angles and identify and describe the different kinds of quadrilaterals: square, rectangle, parallelogram, trapezoid, and rhombus. You will also describe the different attributes/properties of triangles using concrete objects/models. The learning activities will allow you to explore, discover and appreciate the different kinds of triangles that can be seen in different objects around us. You will also be taught on how to describe and illustrate the different kinds of triangles in the succeeding activities.

After going through this module, you are expected to:

- 1. describe the attributes/properties of triangles and quadrilaterals using concrete objects or models;
- 2. identify and describe triangles according to sides and to angles; and
- 3. identify and describe the different kinds of special quadrilaterals: square, rectangle, parallelogram, trapezoid, and rhombus.



Group the figures below into triangles and quadrilaterals by writing the figure number in the correct column of the table. Write your answer on a separate sheet of paper.



Triangles	Quadrilaterals

Go to the Answer Key to check your answers.



CONGRATULATIONS! If you got a score of 9 or 10, you should not have any difficulty studying the lesson in this module. If you got a score of 8 or below, you may need to study the lesson more carefully and do all the given activities.

LessonAttributes of Triangles andQuadrilaterals



What's In



https://wallhere.com/en/wallpaper/852616

https://www.dreamstime.com/illustration/quadrilaterals.html

Do you like patterns? Look at the patterns above. Which one do you prefer? What shapes do you see in the first pattern? What about in the second? How many sides and corners does each shape in the first pattern have? What about in the second?



What's New



https://www.zazzle.com/black_and_white _checkered_patterns_stylish_elegant_all_o ver_print_t_shirt-256805711310915313

Twin brothers Larry and Garry bought shirts out of their savings. Although they were twins, they have their own favorite designs. Larry bought the one on the left while Garry bought the one on the right. What do you think is Larry's



The shirt Larry bought shows a pattern consisting of 3-sided polygons. These 3-sided polygons are called **triangles**. Triangles also have three corner points.

Below are some examples of triangles with different sizes and shapes.



The pattern in the shirt Garry bought shows four-sided polygons. Four-sided polygons are called **quadrilaterals**. Quadrilaterals also have four corners. There are different kinds of quadrilaterals. Here are some more examples.



What's More

Activity 1. "TriQuad"

The polygons inside the box below include triangles and quadrilaterals.



https://www.nctm.org/Classroom-Resources/Illuminations/Lessons/Sorting-Polygons/

Which of the polygons in the box are triangles and which are quadrilaterals? Group the triangles together and the quadrilaterals together by writing their polygon numbers in the correct figure below. Write your answer on a separate sheet of paper.





Activity 2. "Draw Up"

Draw 5 objects which show triangles and 5 objects which show quadrilaterals. Write your answer on a separate sheet of paper.



What I Have Learned

Let us remember that:

TRIANGLES are three-sided polygons with three corners. Some triangles have two equal sides, while others have three. But some have no equal sides at all.

QUADRILATERALS are four-sided polygons with four corners. Some quadrilaterals have sides which are equal while some do not. Still others have sides which are parallel, while some have sides which are perpendicular.



What I Can Do

Arrange the polygons inside the box so that it is completely covered and no shapes overlap. Write your answer on a separate sheet of paper.





Assessment

- I. Fill in the blanks. Write your answer on a separate sheet of paper.
 - 1. Triangles are _____ with ____ sides and ____ corners.
 - 2. Quadrilaterals are _____ with ___ sides and ____ corners.



Draw a design of your own wall decor using triangles and quadrilaterals. You may use different colors for a more interesting design. Write your answer on a separate sheet of paper.



What I Know

You need a sheet of paper for the activities.

I. Fill in the blanks with the correct words from the box below.

obtuse	equilateral	isosceles	acute	scalene
equiangula	r right	angles	triangle	sides

- <u>1</u>. It has a 90° angle.
- 2. All of its angles are less than 90°.
- _____3. It has an angle greater than 90°.
- 4. It has three equal angles, each having a measure of 60°.
- _____5. It has two equal sides.
- _____6. It has no equal sides.
 - _____7. All its three sides are equal.
 - 8. It is a three-sided figure.
- _____9. Triangles are named according to the measures of their _____,
 - _____10. and according to the lengths of their ______.

Go to the Answer Key to check your answers.



CONGRATULATIONS, if you got a score of 8 or higher, you will find the lesson very easy. If your score is 7 or below, kindly study the lesson and activities carefully.

Lesson

Kinds of Triangles



Let us recall the properties of triangles and quadrilaterals.

Triangles are polygons with three sides and three corners. Their sides may be of equal or of different lengths.

Quadrilaterals are polygons with four sides and four corners. There are different kinds of quadrilaterals. Some quadrilaterals have two or more equal sides. Also, some quadrilaterals have one or two pairs of parallel sides.



What's New



Let us look at the top part of the house above. How many sides does it have? What is its shape? Yes, it has three sides and is in the shape of a triangle.

Let us look at the windows this time. How many triangles in all do you see in the two windows?

Do you know how triangles are classified? Today, we will learn about how triangles are classified. We will also learn about the different kinds of triangles.

KINDS OF TRIANGLES ACCORDING TO SIDES

Equilateral triangle – a triangle which has three equal sides



Isosceles triangle – a triangle which has two equal sides



Scalene triangle - a triangle which has no equal sides



KINDS OF TRIANGLES ACCORDING TO ANGLES

Right triangle – a triangle which has a right or 90°- angle



Acute triangle – a triangle which has three acute angles or angles measuring less than 90°



Obtuse triangle – a triangle which has one obtuse angle or an angle measuring greater than 90°



Equiangular triangle – a triangle which has three equal angles each measuring 60° .





Let us try to have a clearer understanding of how triangles are classified as we get to know the different kinds of triangles.

KINDS OF TRIANGLES ACCORDING TO SIDES

Triangles may be classified according to their sides. The kinds of triangles according to their sides are the equilateral, isosceles and scalene triangles.

Equilateral triangles

An **equilateral triangle** is a triangle with three equal sides.

The triangles below are all equilateral triangles. They have three equal sides.



The symbols "I", or "II", etc. are used to mark parts of figures. When parts of the same or of different figures are marked using the same symbols, that means those parts have equal measures or are congruent.

Isosceles triangles

An **isosceles triangle** is a triangle with two equal sides.

The triangles below are isosceles triangles. They have two equal sides.



Scalene triangles.

A **scalene triangle** is a triangle with no equal sides.

The triangles below are scalene triangles. They have no equal sides.



KINDS OF TRIANGLES ACCORDING TO ANGLES

Triangles may also be classified according to their angles. The kinds of triangles according to their angles are the right triangle, the obtuse triangle and the equiangular triangle.

Right triangle

A **right triangle** is a triangle with a right angle or an angle which measures 90° .

The triangles below are all right triangles. They all have a right angle.



Acute triangles

An **acute triangle** is a triangle with three acute angles or angles each measuring less than 90° .

The triangles below are all acute triangles. All their angles are acute or measure less than 90° .



Obtuse triangles

An **obtuse triangle** is a triangle with an obtuse angle or an angle which measures greater than 90° .

The triangles below are all obtuse triangles. They all have one obtuse angle or an angle which measures greater than 90°.



Equiangular triangles

An **equiangular triangle** is a triangle with three equal angles each measuring 60°. An equiangular triangle is actually a special kind of an acute triangle.

The triangles below are all equiangular triangles. All their angles are equal and each measure 60° .



It is important to know that all **equilateral triangles are** equiangular triangles.

NOTE:

The total measure of the three angles of a triangle is equal to 180°.



What's More

Activity 1. "Match Me Up"

Match the figure with the correct description. Write the letter of the correct answer on the blank provided. Write your answer on a separate sheet of paper.

А	В
1. scalene triangle	a. all its angles measure less than 90°
2. isosceles triangle	 b. all its three sides are equal
3. equilateral triangle	c. it has no equal sides
4. acute triangle	d. all its three angles are equal and measure 60°
5. equiangular triangle	e. it has two equal sides

f. exactly two angles are 60°

Activity 2. "Name It"

Fill in the blanks with the kind of triangle described given the measurements of its angles below. Write your answer on a separate sheet of paper.

1. m∠A = 125°, m∠B = 30°, m∠C = 25°	
2. $m \angle A = 60^{\circ}, m \angle B = 60^{\circ}, m \angle C = 60^{\circ}$	
3. $m \angle A = 90^{\circ}, m \angle B = 45^{\circ}, m \angle C = 45^{\circ}$	
4. $m \angle A = 110^{\circ}, m \angle B = 40^{\circ}, m \angle C = 30^{\circ}$	
5. $m \angle A = 48^{\circ}$, $m \angle B = 57^{\circ}$, $m \angle C = 75^{\circ}$	

Activity 3. "Right Me"

List all the letters that are inside right triangles. Write your answer on a separate sheet of paper.



Check your answers with the Answer Key of the module. A score of 13 -15? GREAT! You understood the lesson well.

Got a score of 10 - 12? Study carefully the lesson and the activities given.

A score below 10? You may need somebody to assist you.



What I Have Learned

Let us recall. There are different kinds of triangles. They are classified according to the lengths of their sides and also according to the measures of their angles.

KINDS OF TRIANGLES ACCORDING TO SIDES

Equilateral - all three sides are equal

Isosceles - two sides are equal

Scalene - no sides are equal

KINDS OF TRIANGLES ACCORDING TO ANGLES

Right triangle - one angle is right or has a measure of 90°

Acute triangle - all angles are acute or have measures less than 90°

Obtuse triangle - one angle is obtuse or has a measure greater than 90°

Equiangular triangle - all three angles are equal or have measures of 60° .



What I Can Do

Using different kinds of triangles, draw a kite or a toy that you would want to play with. Write your answer on a separate sheet of paper.



Assessment

I. Fill in the blanks with the correct word from the box below. Write your answer on a separate sheet of paper.

isosceles	equilateral	right	obtuse
equiangular	quiangular acute		scalene
triangle	three angles	quadrilateral	

- $_$ 1. I am a triangle with three 60° angles.
- ______ 2. I have two equal sides.
- _____ 3. One of my angles measures 90°.
- _____ 4. I have no equal sides.
- _____ 5. I am a triangle with an angle greater than 90° .
- $_$ 6. All my angles are less than 90°.
- _____ 7. All my three sides are equal.
 - _____ 8. A triangle is a polygon with _____ sides and
 - _____ 9. three _____.
 - _____ 10. I am a three-sided polygon.



Who am I? Identify the kind of triangle and draw an example of each. Write your answer on a separate sheet of paper.

- 1. I am a triangle with no sides equal.
- 2. I am a triangle with 3 equal sides.
- 3. I am a triangle with an obtuse angle.
- 4. I am a triangle with 2 equal sides.
- 5. I am a triangle with a 90° angle.



What I Know

You need a sheet of paper for the activities.

I. Which word inside the box gives the name of the figures below? Write your answers on your answer sheet.



II. Which of the figures below are quadrilaterals? Copy the quadrilaterals on your answer sheet.



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Refer to the Answer Key to check your answers.



You're EXCELLENT if you got a score of 8 -10. You already have a clear understanding of the lesson in this module.

If your score is 7 or below, kindly study carefully the lesson and the activities.

Lesson

Kinds of Quadrilaterals



What's In

Hello kids. Do you recall your lesson on triangles? How do we classify triangles? What are the different kinds of triangles? How do they differ from one another?

Match the items in column A with the correct descriptions in column B. Write the letter of the correct answer. Write your answer on a separate sheet of paper.

	А	В
 1.	Equilateral triangle	a. All its angles are less than 90°
 2.	Acute triangle	b. All its three sides are equal
 3.	Scalene triangle	c. It has no equal sides
 4.	Isosceles triangle	d. All its three angles measure 60°
 5.	Equiangular triangle	e. It has two equal sides

Check your answers with the Answer Key. If you got a score of 5, then you are ready to study this module.

If not, you need to study the lesson on triangles.



The prices of basic commodities are continuously increasing. Even prices of vegetables are going up. Knowing that they have to eat vegetables to keep their family healthy, Mr. and Mrs. Manalig decided to have a vegetable garden in their backyard.

With their own backyard vegetable garden, the Manalig family will not only stay healthy, they will also be saving money. They can also be very sure that the vegetables they would be eating are free of harmful chemicals as they also plan to go for organic gardening.



What vegetables does the Manalig family have in their garden. They have celery, saluyot, eggplant seedlings, pepper and lettuce. Do you also eat vegetables? Do you think it is good to have our own vegetable garden at home?

Let us look at the containers the Manaligs used in their garden. Observe the shape of the containers.



All the containers used in the garden of the Manalig Family are rectangles in shape. They all have four sides and four corners. These shapes are also called quadrilaterals.

All four-sided figures or polygons are called quadrilaterals. Some of them have two or more equal sides. Quadrilaterals may also have one or two pairs of parallel sides.

Although all quadrilaterals have four sides, we can see that they vary in sizes and shapes. Let us now look at the different kinds of special quadrilaterals.

KINDS OF QUADRILATERALS



This is a **square**. It has four equal sides and opposite sides are parallel. All its four corners are right angles or measure 90° .



This is a **rectangle**. Opposite sides are equal and parallel. All its four corners are right angles or measure 90° .



This is a **parallelogram**. Opposite sides are equal and parallel. Angles at opposite corners have the same measurements.



This is a **trapezoid**. It has one pair of parallel sides.



This is a **rhombus**. Its four sides are equal. Opposite sides are parallel and opposite angles are equal.

All four-sided figures are **Quadrilaterals**. They are classified according to the lengths of their sides and the measures of their angles.

Let us have a clearer understanding of the kinds of quadrilaterals.

Figure	Name	Description/Properties
	Square	 All sides are equal. Opposite sides are parallel. All of the four corners are right angles.
	Rectangle	 Opposite sides are equal and parallel. All four corners are right angles.
	Parallelogram	 Opposite sides are equal and parallel. Opposite corners have the same measure.
	Trapezoid	 Has one pair of parallel sides.
	Rhombus	 All sides are equal. Opposite sides are parallel. Opposite angles are equal.





What's More

Activity 1. "Match Us Up"

Match the quadrilateral with the object having its shape. Write your answer on a separate sheet of paper.



Activity 2. "Find Me"

Identify the quadrilaterals and copy them on your answer sheet.



Activity 3.

Group the objects according to their shapes. Copy them in the correct quadrilaterals. Write your answer on a separate sheet of paper.

Square	Rectangle	Rhombus	Parallelogram	Trapezoid





What I Have Learned

Let us remember the following:

Four-sided polygons or figures are called **Quadrilaterals.** There are different kinds of quadrilaterals. Some quadrilaterals have special properties and have been given special names. These are the square, the rectangle, the parallelogram, the trapezoid and the rhombus.

A square has four equal sides and opposite sides are parallel. All four corners are right angles or measure 90 ⁰ .
A rectangle has two pairs of equal and parallel sides. All its four corners are right angles ore measure 90 ^o .
A parallelogram has two pairs of equal and parallel sides. Angles at opposite corners have the same measurements.
A trapezoid has one pair of parallel sides.
A rhombus has four equal sides. Its opposite sides are parallel and opposite angles are equal.



What I Can Do

Using the different kinds of quadrilaterals, design your own backyard vegetable garden. Write your answer on a separate sheet of paper.



I. Select the correct answer from the box. Write your answer on a separate sheet of paper.

rhombus	rectangle	parallelogram
square	traj	pezoid

- 1. I have two pairs of equal and parallel sides. The angles at my opposite corners have the same measure. What am I?
- 2. I have four equal sides. All my four angles measure 90°. What am I?
- 3. I have only one pair of parallel sides. What am I?
- 4. I have two pairs of equal and parallel sides. All of my corner measure 90°.
- 5. I have four equal sides. My opposite sides are parallel, my opposite angles are equal.
- II. Draw objects showing the different kinds of quadrilaterals. Write your answer on a separate sheet of paper.
 - 1. square
 - 2. rectangle
 - 3. parallelogram
 - 4. rhombus
 - 5. trapezoid



Draw a toy using a combination of the different quadrilaterals. Write your answer on a separate sheet of paper.

LESSON 1







FESSON 2







FESSON 3



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