

Lesson 2: Trapezoids and Kites

In this lesson you will learn the following:

1. Identify trapezoid, kites and their properties
2. Explore certain websites indicated in the module that would be of great help for your better understanding of the lessons on trapezoids and kites and work on the interactive activities.
3. Take down notes of the important concepts of trapezoids and kites and follow a logical sequence of statements to come up with proofs of the different theorems about trapezoids and kites.
4. Perform the specific activities or tasks and complete the exercises and assessments provided.
5. Collaborate with the teacher and peers.

EXPLORE



You have already studied the different parallelograms, now you need to explore other kinds of quadrilaterals and how they will be of use to the real-life situations.

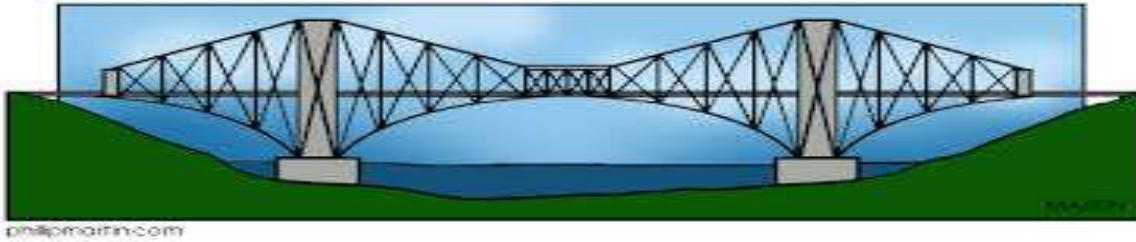
Activity 1b. WHAT'S IN ME?

DESCRIPTION: (Brainstorming)

Take a look at the pictures (a bridge and a tiling design) and note the different polygons found in it. Share your observations with a partner.



http://www.google.com/url?sa=i&rct=j&q=designs%20using%20different%20triangles%20and%20quadrilaterals&source=images&cd=&cad=rja&docid=ZHtUpKb7CtSd8M&tbnid=4BboANCoJ0G_M:&ved=0CAMQjhw&url=http%3A%2F%2Fwww.mathpuzzle.com%2FAug52001.htm&ei=bXHNUrCeBsyxrgeVk4HoBA&psig=AFQjCNHLO5aKfHFDuC4OQ-24M5oWKKAA9Q&ust=1389277514813593



<http://www.google.com/url?sa=i&rct=j&q=pictures%20of%20beams%20of%20hanging%20bridge&source=images&cd=&docid=&tbnid=&ved=0CAMQjhw&url=&ei=Hm3NUpDSL4qJrAeW8IBQ&psig=AFQjCNHQ-BrH9gtvfkQPYCgllpXcyCtf-Q&ust=1389280206982361>

After sharing your observations of the given pictures, record your ideas in the first column of the generalization table below. Write in the column your ideas about the question, what is the best way to solve problems involving quadrilaterals and similar triangles?

MY INITIAL THOUGHTS	MY FINDINGS AND CORRECTIONS	SUPPORTING EVIDENCE	QUALIFYING CONDITIONS	MY GENERALIZATIONS

SUBMIT

Activity 2b. I KNOW NOT

Directions: Based on your observations to the pictures presented, answer each of the following process questions. Write your answer in the box below.

PROCESS QUESTIONS:

1. What do you see in the pictures shown?
2. What kind/s of polygons is/are found in the picture?
3. What will happen if only one geometric figure is used in these pictures say triangles or squares?
4. What do you think are the reasons why they used those figures?
5. What makes up an architectural structure and design?
6. How do you solve problems on the efficient use of materials or spaces?
7. How do you ensure the accuracy of solutions in solving problems?
8. What is the best way to solve problems involving quadrilaterals and similar triangles?

SUBMIT

End of EXPLORE:



You have given your thoughts and heard the ideas of others, now you will proceed by validating or correcting your ideas by doing the next activity. The concepts that you will learn in this lesson will help you accomplish the required project/task at the end which is a miniature model of a house.

FIRM - UP



In this section your goal is to explore the other types of quadrilaterals specifically trapezoids and kites and their properties and understand the proofs of their theorems.

Activity 3b: HANDS ON!

DESCRIPTION: Investigation Activity about Trapezoids and Kites

Directions: Answer each of the following questions below. Write your answer on the box provided.

In a triad, make a specific parallelogram using toothpicks of the same length numbered as 1-4. Cut a portion of side 1 and record the answer of the following questions;

1. What happened to the parallelogram?
2. Can you still form a quadrilateral out of the 4 toothpicks?
3. If yes, what did you do to form the quadrilateral?
4. What kind of a quadrilateral is form?
5. What are the properties of such a quadrilateral?
6. If you lengthen one of the 3original sides using the portion being cut, what kind of a quadrilateral is formed?
7. What are the properties of the new/second quadrilateral?

Cut a portion of toothpick 2 such that it should be of the same length as the first.

1. Can another quadrilateral be formed? Discuss.
2. What are its characteristics? Explain.

WRITE YOUR ANSWERS HERE...

SUBMIT

Activity 4b. I AM WHAT I AM

Concept Attainment on trapezoids and kites

You have seen three other kinds of quadrilaterals so now present your findings in tabular form;

	Quadrilateral 1	Quadrilateral 2	Quadrilateral 3	Quadrilateral 4
Sketch of the figure				
Properties of the quadrilateral				
Kind of quadrilateral				
Parts of the quadrilateral				

To summarize, complete the statement by giving the definition of the given term.

1. A trapezoid is a quadrilateral with _____
2. The bases of the trapezoid are _____
3. An isosceles trapezoid is a quadrilateral _____
4. The legs of an isosceles trapezoid are _____
5. The base angles of an isosceles trapezoid are _____
6. A scalene trapezoid is a quadrilateral _____
7. A kite is a quadrilateral with _____

Compare your answers with the concepts written inside the box below:

A **trapezoid** is a quadrilateral with exactly one pair of opposite sides parallel. (US) The parallel sides are called **bases** and the angles between a base and its adjacent side are the **base angles**. The nonparallel sides are the **legs** of the trapezoid.

An **isosceles trapezoid** is a trapezoid with one pair of opposite sides congruent.

A **scalene trapezoid** is a trapezoid with no congruent sides.

A quadrilateral with no parallel sides is a **trapezium**. (US)

A quadrilateral with exactly 2 pairs of adjacent sides congruent is a **kite**.

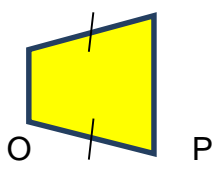
NOTE: British - trapezium for trapezoid (US)
 - trapezoid for trapezium (US)

If you think that everything is clear, proceed by doing the next exercise;

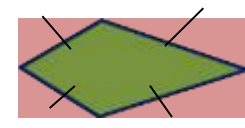
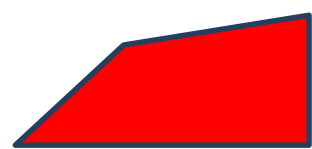
A. Answer the following questions using the trapezoid given:

1. Which sides are the bases?
2. Which are the base angles?
3. Which are the legs?

M



B. Identify the following quadrilaterals:

If you fail to get the correct answers and you need to be clarified on some things, you may refer to this site for more information.

<http://www.onlinemathlearning.com/properties-of-polygons.html>

This site contains video lessons on the properties of trapezoids and kites.

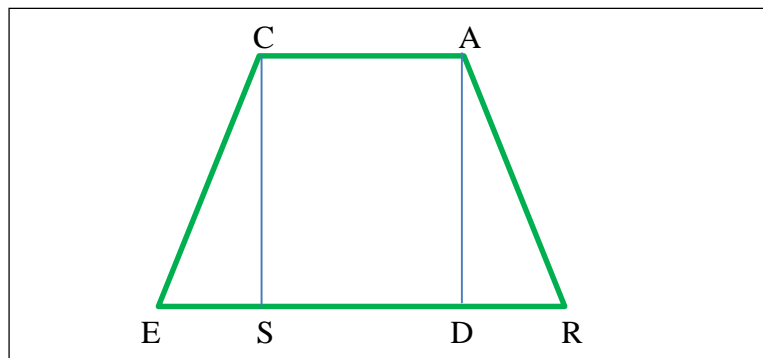
Learning more on the reasons on how such properties exist and why, will easily convince you to believe and understand. To help you come up with evidence it should be back up with proofs which you will do in the next activity.

Activity 5b. LOOK & SEE

Modelled Instruction on proving theorems about trapezoids

Trapezoids have certain properties that you need to learn in order for you to have a better understanding of how they would affect their functions. You have to go through and work on the succeeding activities to come up with proofs of the different theorems.

Theorem 1: Base angles of an isosceles trapezoid are congruent.



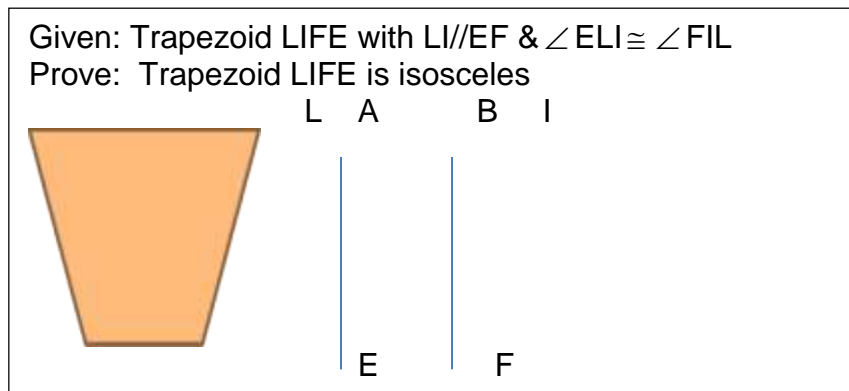
Take a look at the proof of theorem 1 and see how the statements flow to arrive at the final conclusion.

Given: CARE is an isosceles trapezoid where AC//RE

Prove: $\angle E \cong \angle R$

Statement	Reason
1. CARE is an isosceles triangle where AC//RE	Given
2. $CE \cong AR$	Definition of an isosceles trapezoid
3. Draw $CS \perp ER$, $AD \perp ER$	From one point, there is only one line that can be drawn perpendicular to a given line
4. $\angle CSE$ & $\angle ADR$ are right Angles	Definition of perpendicularity
5. $\triangle CSE$ & $\triangle ADR$ are right Triangles	Definition of right triangles
6. $CS \cong AD$	Two parallel lines are everywhere equidistant
7. $\triangle CSE \cong \triangle ADR$	H-L Congruence Theorem (If in a right triangle the hypotenuse and a leg are congruent to the corresponding hypotenuse and leg of another right triangle, then the 2 right triangles are congruent.)
8. $\angle E \cong \angle R$	Corresponding Parts of Congruent Triangles are Congruent (CPCTC)

Theorem 2: If the base angles are congruent, then the trapezoid is isosceles.



Fill in the missing statement or reason to complete the proof of theorem 2.

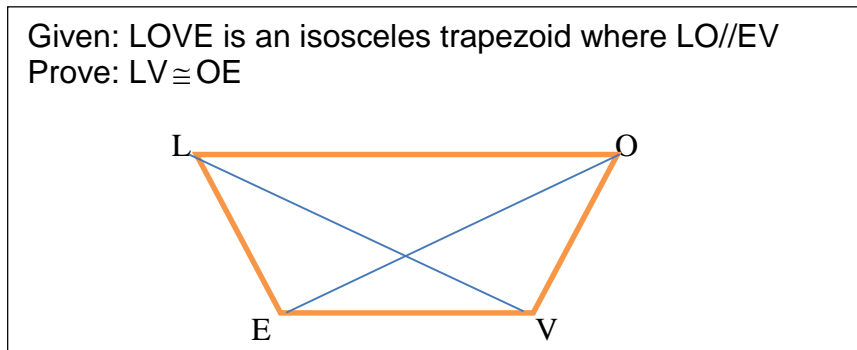
Statement	Reason
1. Trapezoid LIFE with $LI \parallel EF$ & $\angle ELI \cong \angle FIL$	Given
2. Draw $EA \perp LI$ and $FA \perp LI$	From a point to a line there is exactly one perpendicular line that can be drawn
3. $\angle EAL$ & $\angle FBI$ are right angles	
4.	Definition of a right triangle
5. $EA \cong FB$	Parallel lines are everywhere equidistant
6. $\triangle EAL \cong \triangle FBI$	LAA Theorem (If a leg and an acute angle of one right triangle are congruent to the corresponding leg and an acute angle of another right triangle, then the 2 right triangles are congruent)
7.	CPCTC
8. Trapezoid LIFE is isosceles	

Compare your answer with the complete proof of theorem 2 and check on how far you have gone with your understanding of the concepts.

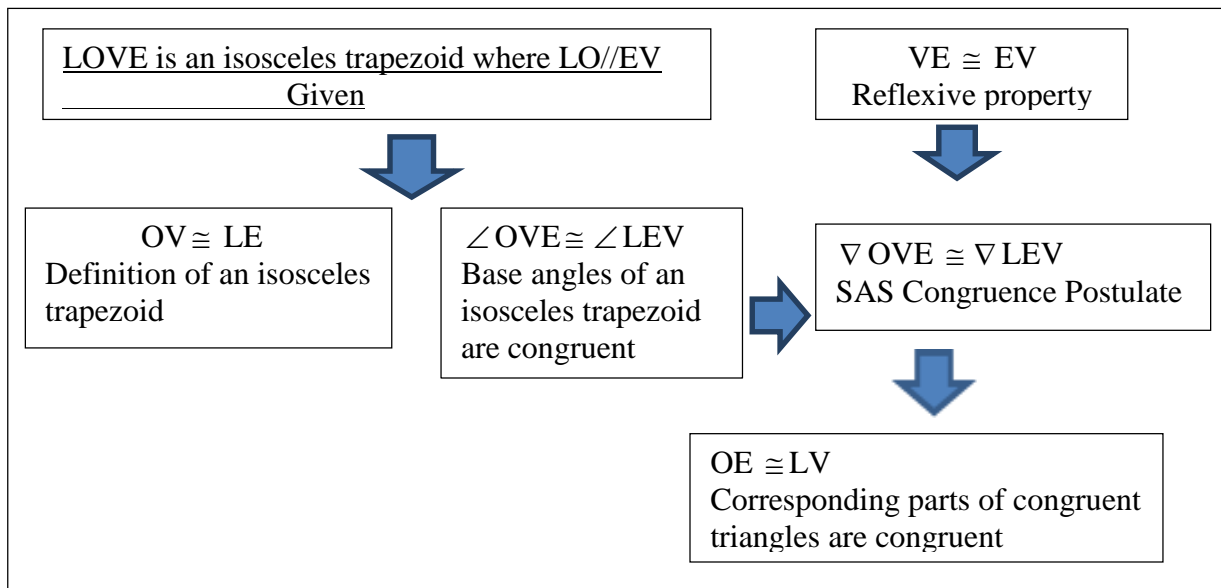
Proof of Theorem 2:

Statement	Reason
1. Trapezoid LIFE with $LI \parallel EF$ & $\angle ELI \cong \angle FIL$	Given
2. Draw $EA \perp LI$ and $FA \perp LI$	From a point to a line there is exactly one perpendicular line that can be drawn
3. $\angle EAL$ & $\angle FBI$ are right angles	Definition of perpendicularity
4. $\triangle EAL$ & $\triangle FBI$ are right triangles	Definition of a right triangle
5. $EA \cong FB$	Parallel lines are everywhere equidistant
6. $\triangle EAL \cong \triangle FBI$	LAA Theorem (If a leg and an acute angle of one right triangle are congruent to the corresponding leg and an acute angle of another right triangle, then the 2 right triangles are congruent)
7. $EL \cong FI$	CPCTC
8. Trapezoid LIFE is isosceles	Definition of an isosceles trapezoid

Theorem 3: The diagonals of an isosceles trapezoid are congruent



Another way of showing the proof is the use of flow chart. The flow of the statements is indicated by the arrows. The following is the proof of theorem 3.



The flow chart is the visual and alternative way of the most common 2-column proof shown below.

Statement	Reason
1. LOVE is an isosceles trapezoid where $LO \parallel EV$ & $OV \cong LE$	Given
2. $\angle OVE \cong \angle LEV$	Base angles of an isosceles trapezoid are congruent.
3. $VE \cong EV$	Reflexive Property
4. $\nabla OVE \cong \nabla LEV$	SAS Congruence Postulate
5. $OE \cong LV$	CPCTC

To prove the next theorem you need to know the meaning of certain term/word. Read the text inside the box and proceed by doing the task that follows.

Median of a trapezoid (**midsegment/midline**) is a line/ segment which connect the midpoint of the non-parallel sides (legs) of a trapezoid.

Theorem 4: MIDLINE THEOREM:

The median of a trapezoid is parallel to the bases and its measure is one-half the sum of the measures of the bases.

Given: XY is a median of trapezoid ABCD

Prove: $AB \parallel XY \parallel DC$ & $XY = \frac{1}{2} (AB + DC)$

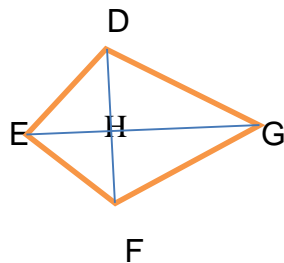


This theorem can be proven to be true after you perform this modelling activity.

Instructions:

1. Draw trapezoid ABCD on a piece of paper and measure the base angles.
2. Measure AD and BC in millimeter and mark the midpoint as X and Y.
3. Connect points X & Y and measure the angles with vertices X and Y
4. Measure AB, XY and DC to the nearest millimeter.
5. Make a conjecture based on your observations.
6. Verify the result using 2 other trapezoids.
7. Give your generalization.

Theorem 5: The diagonals of a kite are perpendicular.



Given: DEFG is a kite
 $EF \cong ED$ and $FG \cong DG$
 Prove: $DF \perp EG$

LOOK BACK:

To prove the next theorem it is important to remember the converse of the perpendicular bisector theorem which states that if a point is equidistant from the endpoints of a segment, then it is on the perpendicular bisector of the segment.

Answer the following questions to prove theorem 5.

1. What triangle is congruent to $\triangle EFG$? Justify your answer.
2. Why is $\angle FEH \cong \angle DEH$?
3. Why is $\triangle FEH \cong \triangle DEH$?
4. Why is $FH \cong DH$?
4. Why is $\angle EHF \cong \angle EHD$?
5. Why are $\angle EHF$ and $\angle EHD$ right angles?
6. Why is $DF \perp EG$?

Since you have discovered for yourself the proofs of these theorems, you are already certain that these are true statements. For ease in remembering these properties and characteristics of trapezoids and kites and be ready for their applications, it is better to outline them.

THEOREMS on Trapezoids and Kites
 Theorem 1: Base angles of an isosceles trapezoid are congruent.
 Theorem 2: If the base angles are congruent, then the trapezoid is isosceles.
 Theorem 3: The diagonals of an isosceles trapezoid are congruent
 Theorem 4: The median of a trapezoid is parallel to the bases and its measure is one-half the sum of the measures of the bases.
 Theorem 5: The diagonals of a kite are perpendicular.

Activity 6b. DON'T FOOL ME!

Writing Proofs

Sketch the figure and write a complete proof of the following by giving the appropriate statements or reasons: (You may use a 2-column proof or flow chart.)

1. Given: FIND is an isosceles trapezoid with $FD \cong IN$
 Prove: $\angle NFD \cong \angle DIN$

Statements	Reason
1. FIND is an isosceles trapezoid with $FD \cong IN$	1.
2. $FN \cong ID$	2.
3. $DN \cong ND$	3.
4. $\triangle FDN \cong \triangle IND$	4.
5. $\angle NFD \cong \angle DIN$	5.

2. Given: $\triangle GIF \cong \triangle IGT$
 Prove: GIFT is an isosceles trapezoid

Statement	Reason
1.	1. Given
2.	2. CPCTC
3.	3. Definition of an isosceles trapezoid
Alternative	Proof
1.	1. Given
2.	2. CPCTC
3.	3. If the base angles of a trapezoid are congruent, then it is isosceles.

3. Given: B and F are the midpoints of AC & AE of $\triangle ACE$.
 $AC \cong AE$
 Prove: BFEC is an isosceles trapezoid

Statement	Reason
1.	
2.	
3.	
4.	
5.	

Check yourself by answering the following questions.



Questions to Answer:

1. How is your proving experience? Which part was clear? Which part was confusing to you?
2. Were you able to derive the correct conclusions and give the supporting reasons?
3. What difficulty did you encounter?
4. What do you intend to do to cope with such difficulty?

Write your answers here...

SUBMIT

To further enhance your skills, you have to accomplish the set of practice exercises below.

Activity 7b. WANNA PRACTICE?

Practice Exercise on drawing out conclusions and giving of reasons:

To demonstrate your mastery of the concepts and skills about trapezoid, fill in the appropriate conclusion and reason.

1. Hypothesis: CORE is an isosceles trapezoid where CO//RE
 - a. Conclusion: _____
Reason: _____
 - b. Conclusion: _____
Reason: _____
 - c. Conclusion: _____
Reason: _____
2. Hypothesis: In trapezoid HOPE where HO//PE, $\angle H \cong \angle O$
Conclusion: _____
Reason: _____
3. Hypothesis: DATE is a kite with DT & AE are diagonals
Conclusion: _____
Reason: _____
4. Hypothesis: In kite RULE, RU=RE
Conclusion: _____
Reason: _____
5. Hypothesis: In trapezoid ACER, the diagonals $AE \cong CR$
Conclusion: _____
Reason: _____
6. Hypothesis: O & U are the midpoints of the legs PR & ST of trapezoid PRST
 - a. Conclusion: _____
Reason: _____
 - b. Conclusion: _____
Reason: _____

Activity 8b. SQUEEZE IT!

Drawing out conclusions applying the different theorems on trapezoids

THINK AND DISCUSS within the group of 4 members (you may sketch the figure)

1. In an isosceles trapezoid MARE where MA//ER, what is the relationship between $\angle M$ & $\angle A$? $\angle E$ & $\angle R$? Explain
2. What is the relationship between $\angle M$ & $\angle E$? $\angle A$ & $\angle R$? Explain.
3. WXYZ is an isosceles trapezoid, how do you compare WY & XZ? Why?

4. A & B are midpoints of the legs TQ and SR of trapezoid QRST, what is the relationship between AB & QR? AB & TS? Explain why. What do you do to determine the measure of AB? Why?
5. M & N are the midpoints of the legs BE and AS of trapezoid BASE. If MN= 25 and BA=35, what is ES? Explain.
6. In trapezoid ABCD if AC = BD, what can you say about ABCD? Why is that so?
7. If BA = DE in trapezoid BADE, what can you conclude about BADE? Why?
8. If $\angle R \cong \angle A$ in trapezoid RAIN where RA//IN, What kind of a trapezoid is RAIN? Why?
9. If HAVE is an isosceles trapezoid where HA//VE, what is the relationship between

HE and VA? How did you know? What can you conclude about $\triangle HEV$ & $\triangle VAE$? Justify your answer. Is there another way to justify your conclusion? Explain how.

10. In kite RSTV, RS=RV & TS=TV, what can you conclude about $\triangle RTV$ and $\triangle RTS$?

Justify your answer.

You may now revisit your generalization table and fill up the second and third columns. Review your ideas in the explore part and compare them with your recent findings, insights and understanding.

MY INITIAL THOUGHTS	MY FINDINGS AND CORRECTIONS	SUPPORTING EVIDENCE	QUALIFYING CONDITIONS	MY GENERALIZATIONS

END OF FIRM - UP



In this section, the discussion was about trapezoids, kites, their properties and theorems.

Go back to the previous section and compare your initial ideas with the discussion. How much of your initial ideas are found in the discussion? Which ideas are different and need revision? What new learning goal should you now try to achieve?

Now that you know the important ideas about this topic, let's go deeper by moving on to the next section.

DEEPEN



Your goal in this section is to take a closer look at some aspects of the topic and explore how these knowledge and skills be put to use.

Work on the next activity and apply the skills acquired to find the measure of the specified parts.

Activity 9b. READY, GET SET

Oral/Drill Exercise on the applications of the theorems on trapezoids (Think Aloud by Pair)

Find the measure of the sides and angles of the following figures and explain why it is like that and how it should be done. A sketch of the figure will help you find the answer.

1. In an isosceles trapezoid MARE where $MA \parallel ER$ if the $m\angle A = 74^\circ$, what is the $m\angle E$, $m\angle M$, $m\angle R$?
2. If $ME = 16$, what is AR ?
3. If S & T are the midpoints of ME & AR respectively, what is MS ? and AT ?
4. If $MA = 20$ and $ER = 34$, what is ST ?
5. If $ST = 18$ and $MA = 12$, what is ER ?
6. If $ST = 35$ and $ER = 45$, what is MA ?
7. If $MR = 19$, what is AE ?
8. In trapezoid REAP, if $\angle R$ & $\angle E$ are right angles and $m\angle A = 68^\circ$, what is the $m\angle P$?
9. In trapezoid TUNE where $TU \parallel EN$, B is the midpoint of TE and BC is a median. What is the value of x if $TU = 3x - 8$, $BC = 15$, $EN = 4x + 10$?
10. In kite ANTE where $AN = AE$ & $TN = TE$, what angles are congruent? If the $m\angle E = 100^\circ$ and the $m\angle T = 55^\circ$ what is the $m\angle A$?

Submit your answer.

SUBMIT



Questions to Answer:

1. How did you find the activities?
2. Were you able to perform all the activities? If no, explain why.
3. What did you do to improve your performance?
4. What insights do you have about the lesson on trapezoid?
5. Do you think this would be of great help to you? Explain in what way.
6. How did you find the best solution to solve the problems?

SUBMIT

Activity 10b. GOING TECHY

Interactive Activity on the properties of trapezoids and kites

To further improve your knowledge and skills about trapezoids and kites, visit the site given below to work on those exercises and take note of your score and do not forget to review the answers especially those items not correctly answered-

<http://www.ixl.com/math/geometry/properties-of-trapezoids>

This site contains interactive exercises about trapezoids and their theorems.

http://www.mathopolis.com/questions/q.php?id=621&site=1&ref=/quadrilaterals.html&qs=621_622_623_624_763_764_2128_2129_3230_3231

This site contains a quiz about quadrilaterals.

After you have answered the quiz and found out that you have learned a lot, you now proceed to look deeper by checking on the applications of these concepts.

Activity 11b. CHECK ON ME!

Identify objects in the surroundings or parts of a house with trapezoidal design; explain your choice of the objects.

http://ph.images.search.yahoo.com/search/images;_ylt=A2oKiavkUe5SZRsAAji0Rwx.?p=real-life+applications+of+trapezoids+and+kites&ei=utf-8&iscqry=&fr=sfp

This site contains pictures of real-life applications of trapezoids and kites.



Also include in your sharing the answers of the follow-up questions.



Questions to Answer:

1. What do you see in these pictures?
2. Why do you think they are trapezoidal?
3. What are the advantages/disadvantages of these designs?
4. What do you think will result if different shapes are used?
5. Why is it important to use trapezoids?

SUBMIT

Write the answers of the following questions in your journal using Evernote.
Please refer to this site, www.Evernote.com

1. What have you realized about the lesson on trapezoids?
2. What are the benefits of learning the concepts?

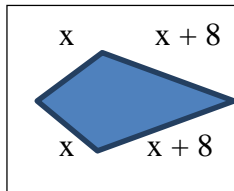
To prepare you with the performance task, one skill you should have is to draw figures to scale so that you will have a proportional drawing whether you reduce or enlarge a desired figure, you will need problem solving technique which is the purpose of the next activity.

Activity 12b. I GOT IT!

Problem Solving using the concepts of trapezoids and kites

To make all these concepts relevant, you have to apply these in the different real-life situations:

1. The perimeter of a kite is 64 feet. The length of one of its sides is 8 feet more than the other side. What are the lengths of each side of the kite?



Let x = be the length of one side
 $x + 8$ = the length of the other side

$$\begin{aligned} \text{Equation: } x+x+x+8+x+8 &= 64 \\ 4x+16 &= 64 \\ 4x &= 64-16 \\ 4x &= 48 \\ X &= 12 \end{aligned}$$

Therefore, 2 sides measure 12 inches each and the other 2 sides measure 20 inches each.

2. Part of the window of the World Financial Center in New York City is made from 8 congruent isosceles trapezoids that create an illusion of a semicircle. What are the measures of the base angles?



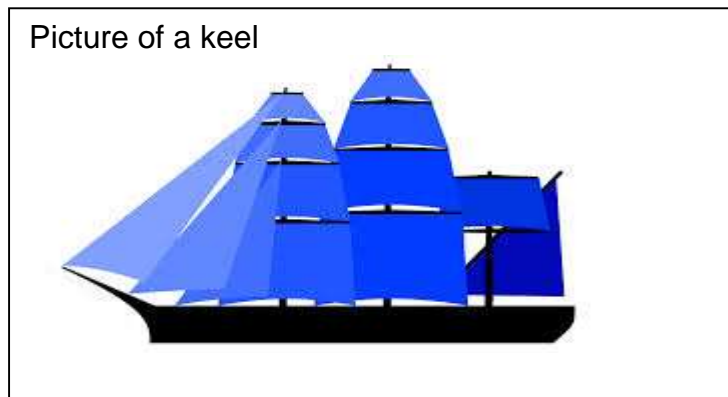
Let $x =$ be the measure of the base angles

Since the measure of a semi-circle is 180 divide it by 8 = 22.5° , that is the measure of the vertex angle.

Equation: $x + x + 22.5 = 180$ because the sum of the measure of
 $2x = 180 - 22.5$ the angles of a triangle is 180
 $2x = 157.5$
 $x = 78.75^\circ$

Thus, the measure of each base angle is 78.75° .

3. Large sailboats have a keel to keep the boat stable in high winds. A *keel* is shaped like a trapezoid with its top and bottom parallel. If the root chord (the one on top) is 12.4 feet and the tip chord (the one at the bottom) is 9.6 feet, what is the length of the mid-chord?



Let x = be the length of the mid-chord

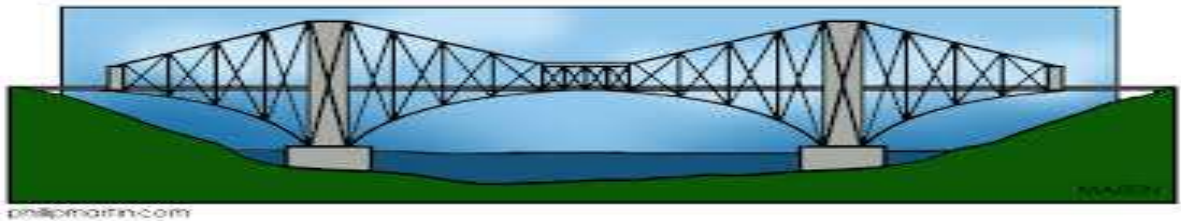
$$\text{Equation: } x = \frac{12.4 + 9.6}{2}$$

$$X = \frac{22}{2}$$

$$X = 11$$

Therefore, the length of the mid-chord of the keel is 11 feet.

Before you fill-up the last 2 columns of the generalization table, take a closer look at the picture below and answer the following questions.



Picture of the Mactan Bridge in Cebu, Phils.



Questions to Answer:

1. Why do beams of the first bridge take the form of a trapezoid?
2. What do you see in the beams which have the shape of a parallelogram?
3. What shape is now formed with the braces?
4. What do the braces do to the structure?
5. Which shape is more flexible?

6. Which shape is more stable?
7. Which is preferred in a bridge structure, flexibility or stability?
Explain.
8. What is the best solution to a problem?

SUBMIT




Fill-up the fourth column of the generalization table and submit.

MY INITIAL THOUGHTS	MY FINDINGS AND CORRECTIONS	SUPPORTING EVIDENCE	QUALIFYING CONDITIONS	MY GENERALIZATIONS

SUBMIT

PAUSE AND EVALUATE YOURSELF:

Draw a star below the icon that best describes your knowledge/ understanding of the lesson

RATE YOURSELF		
<p>I still don't get it</p> 	<p>I acquire the basic concepts/skills of trapezoids & kites</p> 	<p>I understand the concepts of trapezoids & kites</p> 



END OF DEEPEN

In this section, the discussion was about the applications of the knowledge and skills pertaining to trapezoids and kites in the different real-world situations. These will help you accomplish the task in creating a miniature house model which makes use of the different quadrilaterals and similar figures. The design must be chosen in such a way to maximize spaces and efficiently use the materials.

You have to answer the following questions to check on your understanding and prepare for the succeeding activities and life in general. What new realizations do you have about the topic? What new connections have you made for yourself? What helped you make these connections?

Now that you have gained deeper understanding of the lesson, you are ready to use them in a particular context in the next section.

TRANSFER



Your goal in this section is apply your learning to real life situations. You will be given a practical task which will demonstrate your understanding.

To test if you have already enough knowledge and skills in problem solving and posing, try to accomplish the Quiz below.

Activity 13b. MAKE A PROBLEM OUT OF ME

Problem Posing: Follow the procedure below and answer the questions. Do your work in short type writing and then send the soft copy to your teacher through the discussion board or email. You may also submit your work face – to – face.

From the given situations, formulate problems, present solutions and explain.

1. Dress up an octagonal room with furniture and fixtures in such a way that the room appear to be spacious and must reflect the efficient use of materials.
2. The beams of most bridges are trapezoidal; determine the measure of the sides, braces and angles with the least number of known measures.



Questions to Answer:

1. How did you go about answering the activity?
2. What is the best way to solve the problems?
2. Why is it necessary to learn about trapezoid and its properties?
3. What happens if you do not have a clear knowledge about trapezoids?

To transfer your understanding you may now do the transfer task below.

Activity 14b: Look Alike
(Scaffold Level 2- Scale Drawing)

Draw 3 different kinds of quadrilateral

- 1.) having 2 pairs of parallel sides
- 2.) having 1 pair of parallel sides
- 3.) having exactly 2 pairs of congruent adjacent sides

Create a bigger and a smaller version of the 3 quadrilaterals given.
Indicate the scale for each version. Choose your presentation using either the usual drawing paper, sketchpad or GeoGebra.

Note: To make your design appealing and accurate you may use the geogebra. To do it, download geogebra then you may use it for free.

To submit your work you may send it through the discussion board. To do that go to **conversation- message – attached file** then send it to your teacher.

Activity 15b. SUM IT UP

To reflect on the learning process, you may now complete the generalization table by writing your final answer on the last column.

Fill-up the last column of the generalization table and submit.

MY INITIAL THOUGHTS	MY FINDINGS AND CORRECTIONS	SUPPORTING EVIDENCE	QUALIFYING CONDITIONS	MY GENERALIZATIONS

SUBMIT



END OF TRANSFER:

In this section, your task was to make trapezoid and kites with different qualifications with the use of web 2.0.

How did you find the task? How did the task help you see the real world use of the topic?

You have completed this lesson. But you have two more lessons before you finish this module. You need to learn more about triangles to complete what you need in doing your performance task.