God Made Teachers
God understood our thirst for Knowledge, and our need to be led by someone wiser; He needed a heart of compassion, of encouragement, and patience; someone who would accept the challenge regardless of the opposition; someone who could see potential and believe in the best in others... So he made teachers - Author Unknown

My name is Falasteen Ghuneim. I graduated from high school in Palestine, the school’s name is Al-Najah School. I got my Associates degree in General Studies from St. Louis Community College at Meramec, and I’m currently finishing my Bachelor’s Degree in Elementary Education - Middle School/math at University of Missouri- St. Louis.

My husband I have three beautiful children, two boys and a girl. I also have two amazing sisters and three awesome brothers. In my spare time I enjoy spending time with my family and friends. My children and I enjoy outdoors activities, like going to the zoo and the park.

Math is a subject that has always fascinated me. I enjoy how it challenges the mind, it was always my favorite subject in school. I hope my future math class will excite my students to the same great extent I was excited as a student in math class.

“EDUCATION IS THE MOST POWERFUL WEAPON WHICH YOU CAN USE TO CHANGE THE WORLD.”
NELSON MANDELA

Exploring Triangles
Falasteen Ghuneim
Geometry 7th grade

The Overview

The Rationale: I want my students to understand how important triangles and their many different types are to our everyday life. Triangles evolve all around us. Triangles are at work bracing a structure or bridge, racking billiard balls, or holding up a shelf. They set your property lines, make sure buildings and other things are straight and true. They help map the world. Triangles measure the distance of the stars and the planets, and guide our space probes to them and back. Another cool fact in my opinion, the use of triangles was used in 1856 to map India which lead to the discovery of the world’s highest mountain named for the guy who lead the expedition George Everest without anyone going near or climbing it.

The Summary: students will be introduced to triangles. They will learn the definition of a triangle, and they will have a chance to distinguish different types of triangles, either by their sides or by their angles. Students will have to evaluate the different types of triangles by figuring out the sides. Students will also learn how to use a compass and how that can be used to identify what type of triangle it is.

Essential question(s):
- How can learning the different types of triangles benefit us as humans in our everyday life?

Objectives:

CCSS.Math.Practice.MP1 Make sense of problems and persevere in solving them.

Mathematically proficient students start by explaining to themselves the meaning of a problem and looking for entry points to its solution. They analyze givens, constraints, relationships, and goals. They make conjectures about the form and meaning of the solution and plan a solution pathway rather than simply jumping into a solution attempt. They monitor and evaluate their progress and change course if necessary.

CCSS.Math.Practice.MP2 Reason abstractly and quantitatively.

Mathematically proficient students make sense of quantities and their relationships in problem situations. They bring two complementary abilities to bear on problems involving quantitative relationships: the ability to abstract a given situation and represent it symbolically and manipulate the representing symbols as if they have a life of their own, without necessarily attending to their referents—and the ability to pause as needed during the manipulation process in order to probe into the referents for the symbols involved.

CCSS.Math.Practice.MP3 Construct viable arguments and critique the reasoning of others.

Mathematically proficient students understand and use stated assumptions, definitions, and previously established results in constructing arguments. They are able to analyze situations by breaking them into cases, and can recognize and use counterexamples. They justify their conclusions, communicate them to others, and respond to the arguments of others. Students at all grades can listen or read the arguments of others, decide whether they make sense, and ask useful questions to clarify or improve the arguments.

CCSS.Math.Practice.MP4 Model with mathematics.

Mathematically proficient students can apply the mathematics they know to solve problems arising in everyday life, society, and the workplace. Mathematically proficient students who can apply what they know are

comfortable making assumptions and approximations to simplify a complicated situation, realizing that these may need revision later. They are able to identify important quantities.

**CCSS.Math.Practice.MP5** Use appropriate tools strategically.

Mathematically proficient students consider the available tools when solving a mathematical problem. These tools might include pencil and paper, concrete models, a ruler, a protractor, a calculator, a spreadsheet, a computer algebra system, a statistical package, or dynamic geometry software. They detect possible errors by strategically using estimation and other mathematical knowledge.

**CCSS.Math.Practice.MP6** Attend to precision.

Mathematically proficient students try to communicate precisely to others. They try to use clear definitions in discussion with others and in their own reasoning. They state the meaning of the symbols they choose, including using the equal sign consistently and appropriately.

**CCSS.Math.Practice.MP7** Look for and make use of structure.

Mathematically proficient students look closely to discern a pattern or structure. They also can step back for an overview and shift perspective.

**CCSS.Math.Practice.MP8** Look for and express regularity in repeated reasoning.

Mathematically proficient students notice if calculations are repeated, and look both for general methods and for shortcuts. As they work to solve a problem, mathematically proficient students maintain oversight of the process, while attending to the details. They continually evaluate the reasonableness of their intermediate results.

**Literacy Strategies:**
- Carousel brainstorming
- Reaction guide
- Journaling
- Exit slip

**Materials and Resources:**
- School: Smart board
- Teacher: Notes, compasses, worksheets, and any other required material.
- Student: notebook, textbook, pencils.

**Means of Assessment:**
- Pre-assessment will take place through class discussion, explanation of the lesson, and activities. The strategy carousal brainstorming will take place to see any prior knowledge of the subject.
- Formative assessment will take place by giving worksheets and by journaling to check student’s work. Participation points will be given by student’s participation.
- Summative assessment, students will make a portfolio to see their understanding of triangles and how it’s connected to our everyday lives.
Concept Teaching Model Lesson Plan

Teacher: Falasteen Ghuneim        Subject: Math        Grade Level: 7th grade

Topic: distinguishing types of Triangles

Objective(s):

1. Given 10 different types of triangles, students will be able to determine whether they are examples or non-examples triangles with 80% accuracy.
2. Students will be able to use the properties of these three triangles to solve word problems.

Materials needed:

- Worksheet
- Rulers

Literacy Strategy: Reaction Guide,

Phase 1: Introduction: Clarify goals and establish set.

- Learn the characteristics and types of triangles.
- Triangles helps us to measure unknown distances and areas and volumes of things, they guide ships, airplanes, boats and other things to there destinations, triangles make sure buildings and other things are straight, they also help map the world.
- Students will be given 8 statements about triangles and a chance to provide their opinion about whether the statement is true or false. (Checking their prior knowledge).

Phase 2: Provide examples and non-example pairs:

- Provide each student with a ruler and a worksheet with pictures of four different triangles. Ask students to measure the sides of each triangle, labeling the picture with the appropriate lengths. Have them write down any observations they have about the differences between the three triangles.
- After students have had a few minutes to work on measuring, discuss their findings in the large group. Define Acute, Obtuse, Right, and equilateral, pointing to which of the triangles fits each label. Have students write definitions for these in their “geometry dictionaries.”

**Definition of a triangle:**

- Triangles are three-sided polygons, with three vertices and three angles. All the angles in any triangle sum is $180^\circ$.
- The longest side is the hypotenuse. The other sides are known as legs.
- Acute Triangle: Each angle is less than 90 degrees.
- Obtuse Triangle: One angle is more than 90 degrees and two angles less than 90 degrees.
- Right Triangle: one angle equals 90 degrees.
- Equilateral Triangle: all angles are equal.

<table>
<thead>
<tr>
<th>Examples</th>
<th>Non-Examples</th>
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<tbody>
<tr>
<td>Acute Triangle:</td>
<td></td>
</tr>
<tr>
<td>Obtuse Triangle:</td>
<td></td>
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</tbody>
</table>
Phase 3: Check student attainment of concept:

- Can they give an example and non-example of an acute triangle?
- Can they give an example and non-example of an obtuse triangle?
- Can they give an example and non-example of a right triangle?
- Can they give an example and non-example of an equilateral triangle?
- What are the characteristics of a triangle?

Phase 4: Analyze student thinking processes:

- Students will write in their geometry journal how has this lesson helped them understand triangles?
- Students will write in their geometry journal how will they figure out types of triangles?
- Students will be given a test to see if they understand how to figure out which triangle is which.
Discussion Model Lesson Plan

Teacher: Falasteen Ghuneim  Subject: Math  Level: 7th grade; time length: 50 min

Topic: Distinguishing types of triangles

Rational: I want my students to understand the different types of triangles by defining what a triangle is through class discussion.

Objective(s):
1. Students will be able to tell what an isosceles, scalene, and equilateral triangle looks like in their notebooks with 85%.
2. Students will be able to measure the sides and angles of the triangles to determine the degrees of the triangles using a worksheet.

Text set: teacher will have a picture of many different buildings, houses, and bridges, and will ask students as a group to find any triangles located in the picture.

Literacy Strategy: carousel brainstorming

Materials needed:
- Worksheet, ruler, pencil, and protractor

Phase 1: Clarify aims and establish set:
- Student’s will gain knowledge about the isosceles, scalene and equilateral triangles and distinguish the difference between them.
- What is a triangle?

Phase 2: Focus the discussion:
- Ask the students what they know about triangles.

Class will be divided in groups of four. Each group will be assigned a role: measuring the sides of the triangles. Recording on the notebook. Sharing the problem on the board. Explaining the problem to the whole class.

- Allow time for students to solve the problems.
- Students will report the problems with solutions on the board.
- Explain how student got the answer.
- Each group is assigned three question.

**Phase 3: Hold the discussion:**

These two questions will be written on big pieces of paper, and each group will have a chance to answer each question as they rotate around.

1. How did you determine which type of triangle it is?
2. How did you come up with the conclusion?

- Let the whole class write down the problems written on the papers in their notebooks.
- Be prepared to explain the problems.

**Phase 4: End the discussion:**

- Ask the students if they liked this format of teaching
- What improvements could be made if any
- Summarize the definition of each triangle
- Provided the students a chance to show their leadership and social skills

**Phase 5: Debrief the discussion:**

- Each student will write in their journals what they think was important and what they learned.

**The problems used in class:**

www.greatschools.org/worksheets-activities/6029-4-types-of-triangles.gs
Cooperative Learning Model Lesson Plan

Teacher: Falasteen Ghuneim  
Subject: Math  
Grade Level: 7th grade

Topic: Exploring Triangles  
Cooperative Learning approach

Objective(s):
- Through group investigation, the students will identify the different types of triangles according to the rubric with 85% accuracy.
- The students will discuss the reason each research that was made is important in a group presentation.

Materials needed:
- A handout provided by the teacher that includes an example of each type of triangle (Acute, Obtuse, right, Equilateral, Isosceles, scalene.)
- Textbook and notes if needed
- Rubric

Literacy Strategy: KWL

Phase 1: Introduction: Clarify goals and establish set.
- From previous discussions about triangles and a handout with examples about triangles, students will be preforming group presentations.
- Each group will be doing some research and explaining why studying triangles is important in our everyday lives.
- Teacher will explain group interaction expectations:
  - Everyone should respect each other.
  - Work together to get the task done on time.
  - Ask for help when needed.
- Group divides roles among each other:
  - One student does the research
  - One student keeps track everyone stays on track.

✓ One student is responsible to collect all research papers and written assignment and submit to teacher.
✓ One student will present.

Phase 2: Present information (outline of content):
- The class is given a handout with examples of the different types of triangles.
- The class is shown where they can go online to get some research.
- The class can also use their textbooks and notes or the library for more information.

Phase 3: Organize students into learning teams:
- The class will be divided into four groups.
- The class will meet in the library to explain how to find useful information using the computer and books.

Phase 4: Assist team work and study:
- Move around the groups, monitor, and provide help when needed.
- See if students are on track and monitor student's behaviors.

Phase 5: Test on the materials:
- Each group will give their presentation.
- Groups will be graded according to the rubric provided.

Phase 6: Provide team recognition:
- Reward groups for their great work and achievements.
- Give students extra credits according to most creative, most work provided, and most knowledge provided on each graph:
  ✓ #1 presentation: 5 points
  ✓ #2 presentation: 3 points
  ✓ #3 presentation: 2 points
  ✓ #4 presentation: 1 point
- Best work will be displayed on the bulletin board outside the classroom door for everyone in the school to see.

Direct Instruction Model Lesson Plan

Teacher: Falasteen Ghuneim  Subject: Math  Level: 7th Grade

Topic: Pythagorean Theorem

Objective(s):

- All students will be introduced to the Pythagorean Theorem by completing a worksheet in class with 85% accuracy.
- The students will be able to describe and define the Pythagorean Theorem.
- The students will be able to identify a right triangle and the corresponding sides that fit the Pythagorean Theorem.
- Given two sides of the right triangle, the students will be able to solve the Pythagorean Theorem for the missing variable.

Materials needed:

- Worksheet
- Power-point presentation.

Literacy Strategy: write around

Phase 1: Introduction: Clarify goals and establish set.

- Introduce a brief history about the origin of Pythagorean Theorem. (15 min)
- Explanation and demonstration of how the theorem is done, with the steps. (20 min)
- Going over some practice problems on the board. (5 min)

Phase 2: Demonstrate skill or process (use Task Analysis):

1. Write the Pythagorean Theorem on the board, $a^2 + b^2 = c^2$.
2. “a” is one leg, “b” is another leg and “c” is the hypotenuse.
3. Plug in the number given to each number, if $a=24$, then in the formula, plug number 24 in the “a” place. If $c=25$, plug that in the place of “c” in the formula.

4. Solve for the unknown variable, which in this case is “b”. (one of the legs)

**Phase 3: Provide guided practice:**
- Five problems will be written on five different pieces of paper. The class will be divided into five groups. Each group will have limited time to solve some of the problem before the teacher tells the students to swap the paper to the group next to them. That way students are introduced to different problems and introduced to other views of how to go about the problem. If there are mistakes, the teacher will discuss them after the activity is done.

**Phase 4: Check for understanding and provide feedback:**
- Walk around the class and watch the students complete an in class worksheet to check if students understand the subject. Provide help to students that are struggling.
- After each small group is done with their assigned problem, problems will be solved on the board as a class.
- One student from each group will solve the problem on the board and will be discussed and explained for all the class.

**Phase 5: Provide extended practice and transfer:**
- Students will be given homework and collect next class to be graded for understanding.

**Citation:**

www.coolmath4kids.com
Discussion Model Lesson Plan

Teacher: Falasteen Ghuneim  Subject: Math  Level: 7th grade

Topic: Discovering Pythagoras Theorem

Rationale: Students will be immersed in Pythagoras - the man, the myths, his life, contributions, and his theorem. Students will acknowledge that mathematicians are people too! Students will partake in a web quest that will help them to discover Pythagoras for who he was and his contributions to society. Students will employ the use of Microsoft Word to create a word problem involving the Pythagorean Theorem. Finally, students will use the proof given in linking with what they have covered in the unit to create a Microsoft PowerPoint slide-show to prove themselves that the theorem works.

Objective(s):

- Obtain various biographies of Pythagoras
- Have a better understanding of what happened in the days when Pythagoras was alive.
- Prove why his theorem works and to be able to explain it in their own words
- Figure out the type of triangle which can be created, depending on the sides given.
- Determine if the triangle created by various sides will be acute, right, or obtuse.
- Create a story using a word processor that has a mathematical problem wherein a character in the story has to use the Pythagorean theorem to solve the problem
- Enhance their narrative with pictures using Microsoft Word.

Materials needed:

- Computers
- Handouts with questions that will lead students to discover the world of Pythagoras
- Pencils

Phase 1: Clarify aims and establish set:

✓ How can we use the Internet to help us learn more about Pythagoras and who he was?
✓ Have students use the Internet as a source of valuable information
✓ Have the students gain better knowledge of who Pythagoras was
✓ Get students to see the man as he was.

Internet Addresses Involved: students will use these websites.
✓ http://geocities.com/Athens/2092/paper1.htm
✓ http://rit.edu/~flwstv/presocratic.html
✓ http://perseus.tufts.edu/GreekScience/
✓ Students/Tim/Pythag'sTheorem.html
✓ http://cut-the-knot.com/pythagoras
✓ http://encarta.msn.com/find/Concise.asp?z=1&pg=2&ti=761563435
✓ http://historyforkids.org/learn/greeks/science/math/pythagoras.htm
✓ http://sunsite.ubc.ca/LivingMathematics/V001N01/
✓ UBCExamples/Pythagoras/pythagoras.html

Phase 2: Focus the discussion:
✓ Using the first URL, find the answers to these questions:
  ✓ True or False - Pythagoras was a vegetarian but wisdom trivia says that he sacrificed about 100 oxen because he was happy about discovering what has come to be known as his theorem
  ✓ Describe the mystical symbolism of the Pythagorean Triangle and some important facts about the 3-4-5 triangle
✓ Using the second URL, find the answers to the following questions:
  ✓ What was Pythagoras’ cult about?
  ✓ What does this site say his greatest scientific success was?
  ✓ What did he discover about the stars?
✓ Using the third URL, answer:
✓ What does this site say about what he did in his excitement of discovering the theorem, and how does it differ from the first URL?
✓ Write 10-15 sentences describing the life of Pythagoras. Include at least two of his mathematical accomplishments. Include some of his beliefs.
✓ Using the fourth URL, put in your own words five out of the thirty-eight proofs of why Pythagoras’ theorem works.
✓ Using the fifth and sixth websites, compare the two biographies of Pythagoras. Note similarities and differences between the languages of the two sites.
✓ Use the seventh site to demonstrate how the theorem works. Watch the animation, and tell what happens to show that $a^2 + b^2 = c^2$

Phase 3: Hold the discussion:
✓ Students and teacher will regroup and verify accurate information.

Phase 4: End the discussion:
✓ Did students answer the questions properly?
✓ Can students explain the Pythagorean Theorem?
✓ Can students demonstrate the Pythagorean Theorem?
✓ Can students relay information concerning Pythagoras’ biography?

Phase 5: Debrief the discussion:
• Each student will write in their journals what they think of this approach and what they learned.

Exploring Triangles

Welcome students. You and I have been working for the past three weeks on triangles. We have been talking about the definition of triangles, the characteristics of triangles, the sides and angles of different type of triangles, and the Pythagorean Theorem. It was such an exciting and creative unit. You had the opportunity to write in their math journals, work in groups on presentations, explore the history of Pythagoras and his incredible discoveries, and form power-point presentations. Now you will combine all what they have learned in one awesome portfolio.

The portfolio asks you to clarify, rethink, and extend their thinking on the concepts and skills explored through what you learned in the unit. The portfolio should show your creativity, and an understanding of definitions, lectures, and activities. You can be as creative as they want, they should show visual interest.

You should include the following:

- Typed
- Cover
- Table of contents
- Vocabulary from the unit
- Tests, quizzes, and homework with explained solutions
- The presentation that explained why triangles are important in our everyday lives, and the word processor that explained Pythagoras with the question that was solved
- Finally a parent problem. Make up a problem drawn from something you were asked to learn in this unit and ask someone at home to solve it. When the problem is solved, give the response a letter grade and comments. Then, write a paragraph describing the whole process. Include your parent’s work in the portfolio.

HAVE FUN AND BE CREATIVE!! CAN’T WAIT TO SEE YOUR WORK!!

Rubric for Exploring Triangles Portfolio

PORTFOLIO MRS. GHUNEIM JULY 2013 NAME:

How the portfolio should look like:

The components:
- final-copy form
- illustrated cover
- table of contents
- parent problem in test format

Worth 3 points

Vocabulary: Define at least five math terms from this unit using your own words. Place an example.

The components:
- five terms
- definition
- example

Worth 3 points

Test, quizzes, and homework: On a sheet of paper, write the number of each missed problem, write the question, label the error as a mistake, and state in a line or two what your mistake was. Be specific and state what your answer should have been to receive full credit.

The components:
- Up to three questions for each test and quiz
- write the question
- give a complete and correct response

Worth 3 points

Something intriguing: In a paragraph, describe one thing you learned from this unit that intrigues you. This could be something new that you’ve come to understand, something that still puzzles you a bit, a connection you’ve made between math concepts or from math to the real world, or something else. Tell why you’ve included this information and your feelings about it.

The components:

• describe what intrigues you

• tell why

Worth 2 points

**Parent Problem:** Make up a problem drawn from something you were asked to learn in this unit and ask someone at home to solve it. If the person is struggling, offer hints or clues to help. When the problem is solved, give the response a letter grade and comments. Then, write a paragraph describing the whole process.

The components:

- create problem
- depth
- asks for shown work and explanation from parent
- gives parent a letter grade and comments
- paragraph on the process

Worth 3 points

**Why triangles are important in our everyday lives presentation:** In a paragraph or so give an explanation why triangles are important to learn about, and how our lives revolves around our lives.

The components:

- a paragraph
- examples of how triangles are used in our lives.

Worth 3 points

**Pythagoras Inspiration:** In a paragraph assume you are Pythagoras. Tell me how you see math and our modern lives has improved or unimproved. Are you satisfied with the way of living? Are we using enough math and triangles in our lives? What would you change? Be creative!

The components:

- At least a paragraph
- Explanation on how math has improved
- How has triangles and the Pythagorean Theorem made our lives easier.

Worth 3 points

“Always be yourself, express yourself, have faith in yourself, do not go out and look for a successful personality and duplicate it.”

<table>
<thead>
<tr>
<th>Teacher’s Calendar</th>
<th>Mrs. Ghuneim</th>
<th>Identifying Triangles Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>MONDAY</strong></td>
<td>TUESDAY</td>
<td>WEDNESDAY</td>
</tr>
<tr>
<td><strong>WEEK ONE</strong></td>
<td>Start off by reaction guide. See student’s prior knowledge.</td>
<td>Introduction to lesson Identifying triangles</td>
</tr>
<tr>
<td></td>
<td>Explain the lesson, then go over students answers and have a class discussion.</td>
<td>Start off with text set, let students discuss finding with each other.</td>
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<tr>
<td></td>
<td>Work in groups on a worksheet, then students will journal.</td>
<td>Students will be put in groups and work on problems. Debrief by journaling.</td>
</tr>
<tr>
<td><strong>WEEK TWO</strong></td>
<td>Class begins by reviewing some important reasons for studying triangles.</td>
<td>Class meet in library and allow them to get familiar with computers and doing research.</td>
</tr>
<tr>
<td></td>
<td>Explain the handout to students.</td>
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<td></td>
<td>Groups will be set and expectations will be discussed. The project will be explained. Students come together to organize their thought.</td>
<td></td>
</tr>
<tr>
<td><strong>WEEK THREE</strong></td>
<td>Review what was taken last class. Students will work on a worksheet in groups.</td>
<td>Teacher will introduce the lesson. Teacher will review previous lesson to refresh student’s memory. Show and talk about the internet. Word processor will be explained to students that need help. They are given a handout with the questions they have to answer.</td>
</tr>
<tr>
<td></td>
<td>Homework will be given, and students will begin working on it, so I can help students that still need some assistance.</td>
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