Lesson Plan Template

Grade: 8

Subject: 8th Grade Math

Materials: Worksheets, Markerboards

Technology Needed: Active Board

Instructional Strategies:

- ☐ Direct instruction
- ☐ Guided practice
- ☐ Socratic Seminar
- ☐ Learning Centers
- ☐ Lecture
- ☐ Technology integration
- ☐ Other (list)
- ☐ Peer teaching/collaboration/ cooperative learning
- ☐ Visuals/Graphic organizers
- ☐ PBL
- ☐ Discussion/Debate
- ☐ Modeling

Guided Practices and Concrete Application:

- ☐ Large group activity
- ☐ Independent activity
- ☐ Pairing/collaboration
- ☐ Simulations/Scenarios
- ☐ Other (list)
- ☐ Hands-on
- ☐ Technology integration
- ☐ Imitation/Repeat/Mimic

Explain:

Standard(s)

8.G.7 Apply the Pythagorean Theorem to determine unknown side lengths in right triangles in real world and mathematical problems in two and three dimensions.

Objective(s)

I CAN *recall* what it means to round to the nearest tenth and hundredth.
I CAN *identify* the short leg, long leg, and hypotenuse of a right triangle.
I CAN *represent* given data in Pythagorean Theorem and find the missing side.
I CAN *analyze* a word problem to find the missing length using Pythagorean Theorem.

Bloom's Taxonomy Cognitive Level: Knowledge, Understanding, Analyzing

Differentiation

Below Proficiency:
Pairing/Collaboration
Different worksheets that have same problems for checking answers, but one is at a lower level.

Above Proficiency:
There is a more challenging partner worksheet.
Also able to problem solve themselves through new application problems

Approaching/Emerging Proficiency:
Work together to solve both upper and lower level questions.

Modalities/Learning Preferences:
Groupings pre-made to accommodate different learners

Classroom Management- (grouping(s), movement/transitions, etc.)
Students able to group themselves while working with a partner on both worksheets. One student from each group will grab a #1 and #2 partner worksheet from the front of the room to work on together. When finished, they will hand it and grab the next homework worksheet.

Behavior Expectations- (systems, strategies, procedures specific to the lesson, rules and expectations, etc.)
Students grab calculator and markerboards when enter the room.
Students work together quietly when working on exercises.

Minutes	Procedures
5 min	**Set-up/Prep:** Cut up worksheets Turn on projector Put table in front of rooms for students to grab.
2 min	**Engage: (opening activity/ anticipatory Set – access prior learning / stimulate interest /generate questions, etc.)** Remember the quiz from yesterday? You all did so well! Just remember when we are looking for side a and b (the short and long leg) that we must subtract! We are going to now take that up a level and work on some level 3-4 type questions.
10-12 min	**Explain: (concepts, procedures, vocabulary, etc.)** Let's warm up what it means to round. Rounding if it is >5, we round up. If 0-4 we stay the same. So if we see round to the nearest tenth what does that mean? Look at the example 1.2658304. We are looking at the tenth spot, 10 has 1 zero so that means that we want only one number after the decimal. We will look at only the 2 places then to determine what our one decimal should be. 1.2|658304 So hear we only want the spot where the 2 is at so we will look at the 6 to determine what to do with the 2. Is 6>5. YES! So we round up! Our answer is **1.3**. Now let's try 2.16834201 2.1|7834201…. look at 7 so we round up=**2.2** Let's work through one last example. 12.24524323…**12.3** Now we will be looking at problems using the Pythagorean theorem that we will have to round.

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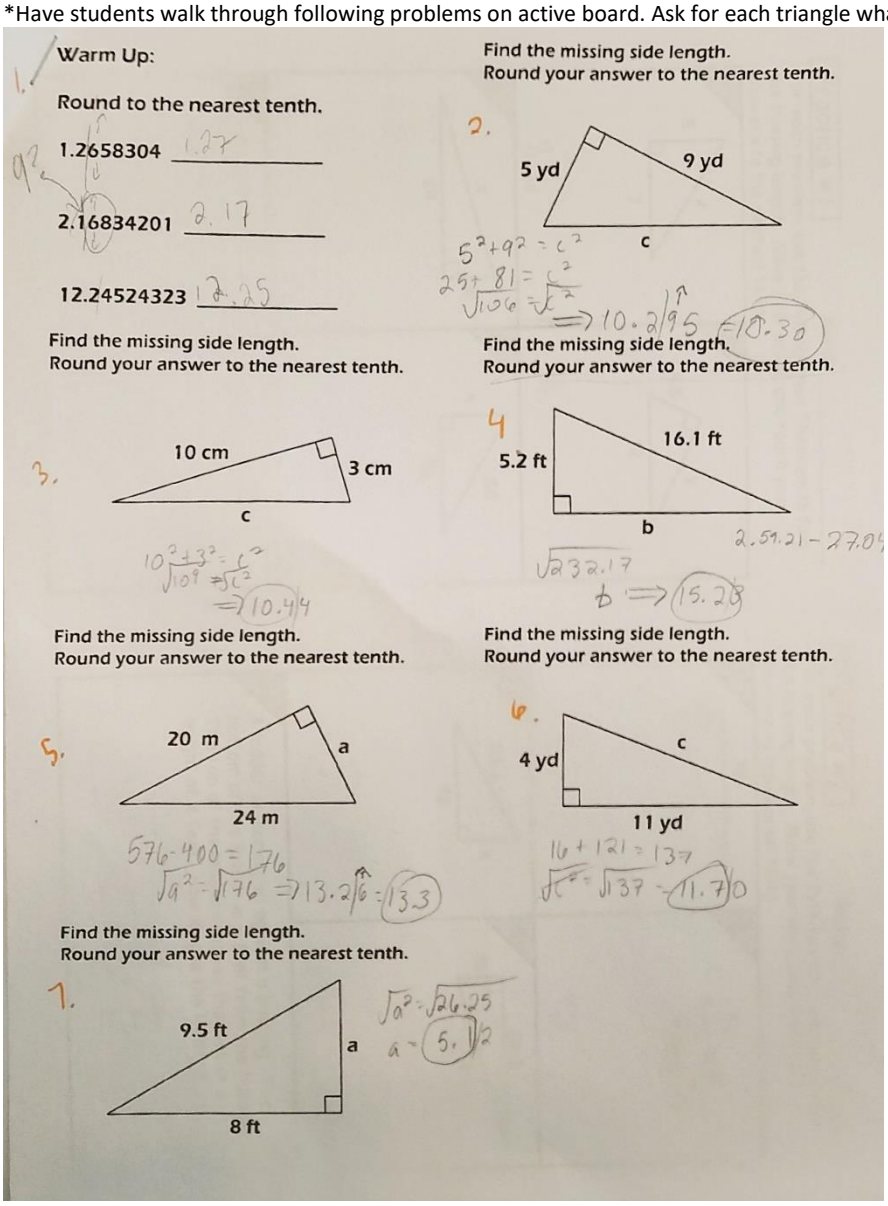
	*Have students walk through following problems on active board. Ask for each triangle what each number represents.
20 min	**Explore: (independent, concreate practice/application with relevant learning task -connections from content to real-life experiences, reflective questions- probing or clarifying questions)**



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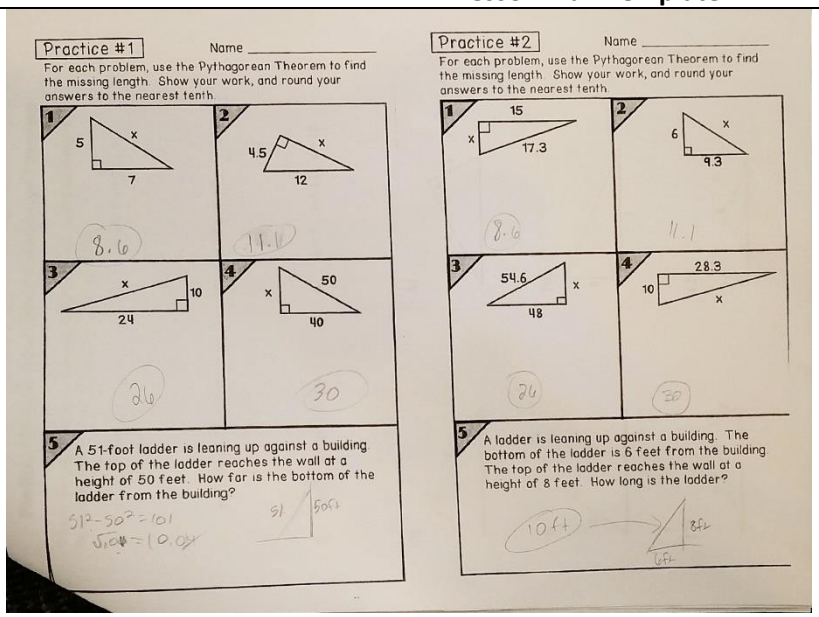

Practice #1 Name _____

For each problem, use the Pythagorean Theorem to find the missing length. Show your work, and round your answers to the nearest tenth.

1. 5, x, 7 — 8.6
2. 4.5, x, 12 — 11.1
3. x, 10, 24 — 26
4. x, 50, 40 — 30
5. A 51-foot ladder is leaning up against a building. The top of the ladder reaches the wall at a height of 50 feet. How far is the bottom of the ladder from the building?

$51^2 - 50^2 = 101$

$\sqrt{101} = 10.0$ ft

Practice #2 Name _____

For each problem, use the Pythagorean Theorem to find the missing length. Show your work, and round your answers to the nearest tenth.

1. 15, x, 17.3 — 8.6
2. 6, x, 9.3 — 11.1
3. 54.6, x, 48 — 26
4. 28.3, 10, x — 30
5. A ladder is leaning up against a building. The bottom of the ladder is 6 feet from the building. The top of the ladder reaches the wall at a height of 8 feet. How long is the ladder?

10 ft

8 ft, 6 ft

Students get these "quick checked with each other" which is improving on their skills learned previous days but is taking them one step further.

Then they reviewed what it means to round and applied that to different problems

7 min

Review (wrap up and transition to next activity):

Okay here is 3 more word problems that are similar to the last ones you did with your partner! Draw your picture and label it! Then you can start packing up!

Formative Assessment: (linked to objectives)

Progress monitoring throughout lesson- clarifying questions, check-in strategies, etc.

By having open communication, I can gage if they are catching on by their responses. I also ask if they would like to go through more examples or not at the end. There are an additional 2 questions on the slide show.

Consideration for Back-up Plan:

I could have them grab whiteboards and give an example problem and walk around to see how they are doing with it.

Summative Assessment (linked back to objectives)

End of lesson:

Homework assessment has practice problems for everything covered in this lesson. It is also building off of previous knowledge

If applicable- overall unit, chapter, concept, etc.:

This part of the unit was one of the heights of this standard. It included some higher order thinking as well as putting together some key concepts. This reached a lot of level 4 questions towards this standard.

Reflection (What went well? What did the students learn? How do you know? What changes would you make?):

It was really good that we reviewed what it means to round right away. Many of the students took until problem number three to understand the idea of rounding again but some did not until later on when working with their partners or even one on one with me. If teaching this lesson again, I would be sure to spend a little more time one exactly what it means to round to the nearest 10^{th} conceptually and why that means one decimal. Maybe then it will help for the next time the have to round. The students really liked the partner activity at the beginning of the lesson. They were able to help each other find the correct answer. Not only did they just say the right answer or tell them what number they got wrong, but they both had to look together and then see how that effected the rest of the steps. Also from their pre-assessment quizzes from the day before, they did not always know what side was a, b, or c being the picture showed them so I emphasized it and tried to explain why each side corresponds with a particular letter but I would go back in and change the images used in the power point not to have the letters on them. By the end of their partner worksheet and individual questions, they could round accurately and also solve for a particular side of the triangle no matter what side.