

Algebra 1 Lesson Plan

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Grade: Freshman Algebra 1

Unit Topic: Rates, Ratios and proportions

MA Curriculum Frameworks: Analyze proportional relationships and use them to solve real-world and mathematical problems.

- Recognize and represent proportional relationships between quantities.
- Compute unit rates associated with ratios of fractions, including ratios of lengths, areas, and other quantities measured in like or different units

Instructional Objective: Students will be able to demonstrate an understanding of 3 different concepts (rates, ratios, proportions) by computing the answers algebraically.

Assessment: I will assess the progress of my students by looking at their work on the Activity Answer Table (Appendix A). Students must show all work neatly and their work needs to be logical.

Academic Language Objective: Students will be able to create either a conversion rate, ratio, or proportional word problem in writing, individually by submitting an exit ticket using at least 2 of the following tier words: ratios, relationship, proportional, units, rates, correlation, or equivalence.

Assessment: I will evaluate the students' progress by assigning an exit ticket problem. Individually, students will write their own word problem and incorporate one of the following concepts: unit rate, ratio, and proportions.

Opening (15-20 minutes)

I will start of by introducing the topics rates, ratios, and proportions. First, I will provide an example of each. The example will help students when they get stuck and they can use this as a reference point. During this part, I will project a visual on the overhead projector (This will meet A7 standard of the 3PA+). This will allow multiple ways of representing a certain concept. As a result, this visual will cater to students' needs by accommodating visual learners (Support #1). Next, I will briefly provide the students to work on 1 example of each individually. During this time I will make sure I go around and answer any questions students have. This will allow some time for me to provide differentiated instruction (paraphrase when necessary) to a student who does not fully understand the mathematical concept (Support #2). As a class, we will go over the problem. Any student who answers the problem incorrectly, I will make sure that I correct him or her. By the end of the warm-up students will be able to tell the differences and direct relationship between ratios and proportions, and rate conversions.

During Lesson: Pair Activity (25 minutes)

Students will work in pairs on a game I have constructed. I have formed a list of problems. Students will choose a number 1-15 and complete a set of problems. The first pair to complete all problems will be able eat my candy! During this activity, I will verbally state the instructions out loud making sure I provide explicit instructions to avoid confusion. In addition the instructions will be also be provided on the Activity Answer Table. The worksheet also has some visuals to better assist students in understanding the concept of ratios (Meets A3 standard of 3PA+). I will

make sure that I go around and answer any further questions that a student has. I will also conduct informal assessment by evaluating a student's progress. This will indicate if a student has achieved the performance objectives. In addition to the informal assessment, I will also make sure that the ELL students are improving on the language, particularly in the use of mathematical terms (Support #3)

Closing: Exit Ticket (15 minutes)

During this time students will individually provide their own examples of one of the 3 new concepts: unit rates, ratios, or proportions. This Exit Ticket (Appendix C) will allow me to measure the students' progress. This will help me gauge to what degree students met the objectives. I will answer any last minute questions and assign students with the homework assignment.

Learner Factors: The Exit ticket helps me measure the students' understanding of the material. The picture that I will present them will assist them visually (Support 1). The students will also have additional examples that I will have presented them with (Support #2). I will walk around answering any questions students have. Also, my instructions will be presented to the students both orally and in writing.

(Support #3)

Support #1: The picture I will present will allow students to interpret the concept of ratio from a visual perspective. This will give students the opportunity of learning differently. As a result, this will help meet the needs of all students.

Support #2: Allowing sufficient time for questions and walking around to clarify any questions students may have will also assist the students in meeting the

objectives. The example provided to the students will guide students in achieving the correct answer.

Support #3: The instructions that will be given to the students will be presented to them orally and in writing. This will allow different forms of instruction to meet the needs of all students.

Classroom Management: During my opening lesson introduction, I will make sure that everyone is well-behaved and complying with classroom rules. If the students are not behaving I will address any unacceptable behavior and clearly state the importance of respect when others are talking.

Materials: Appendix A, Appendix B, Appendix C, calculator (if accessible), and CANDY!

Follow-up: The students will encounter the concepts of ratios, unit rates, and proportions again as they advance in mathematics. I will also ensure that students are reinforced with the material again by continuously using the mathematical language.