TPA Lesson Plan
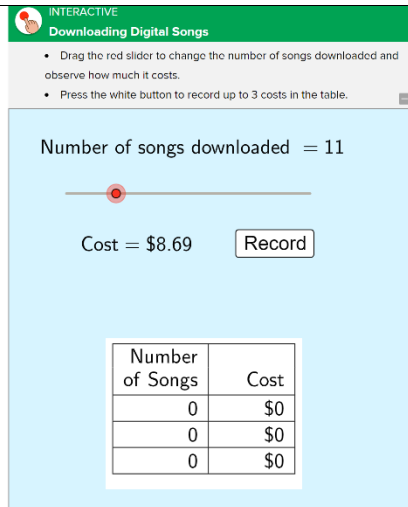**Your lesson plan should not exceed <u>four</u> pages.**
If you refer to a text, worksheet, slides or whiteboard images, make a copy to include for reviewer.
These extra items should not exceed <u>five</u> pages.

| Subject	7th grade - Algebra
Standard	**STANDARD 7.2.4.2 Solve equations resulting from proportional relationships in various contexts.**
<mark>Central Focus</mark>	To provide experience looking at proportional relationships in real-world examples and solving equations for these real-world situations
Academic Language	**Proportional:** having a constant ratio to another quantity **Unit Rate:** rate with one in the denominator
Objective(s)	SWBAT solve equations from proportional relationships.
Instructional Resources	https://flexbooks.ck12.org/tecbook/ck-12-interactive-middle-school-math-7-for-ccss-teachers-edition/section/1.6/primary/lesson/using-equations-to-represent-proportional-relationships-math-7-ccss-msm7-ccss-te - Game Directions **Number Line** **Whiteboards** **Cuisenaire Rods**

Lesson Part

Anticipatory Set	*"Hello. I am so happy you are here in class with us today. To begin class we are going to play a game."* - The students are going to play Integer Tug of War: Game Directions, **Number Line** - I will let them pick one other person to play the game with. We will play for about 10 minutes. *"Wasn't that fun? Now, I have a very important question for you all. Who likes to listen to music? Who likes to sing? Who likes to dance?"* I will then call on a student and have them give me the name of their favorite song (school appropriate). I will tell them, *"This is your last chance before we start class to get up and move around, so while we listen to this song, get up, sing a little, and dance."*
Procedure	*"Well, now that we had a mini song and dance break, I think we should start working on some math."* I will display this interactive activity on the board.

I will say "____ wants to download some new music. It costs $0.79 to download a song. Let's use this tool, to do some investigating." I will allow students to do this on their own, but when we come back to large group, I will have three different students give me their numbers so we can discuss large group. "The first thing I want you all to do is see if you can come up with an equation for the data in our table." I will allow students to work this out on whiteboards. After a couple minutes, I will ask a few students to share their answers. I will then ask students to explain their answers and define what each part of their equation means. The hope is that we discover 0.79 is the **unit rate**. This means that for every 1 (unit) song, the cost is $0.79. We will then do some problem solving. I will ask students, "How much would it cost to download 12 songs?" and "How many songs can I buy for $23.70?" I will ask students, "How did you come up with your answer? Prove to me that your answer is correct." If these questions are too easy, I will ask students questions like, "How many songs can you buy for $36?" The tricky part with this question is that it is not a whole number. They should answer 45 songs with money to spare.

To continue the conversation and discovery, we will transition into another
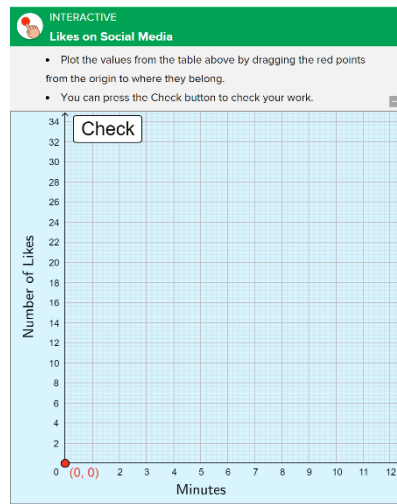
example. I will ask students, "How many of you use social media?" "What are some of your favorite social media sites?" Well, today we are going to also look at some data from social media." I will display this graphic and a table of data. As a whole class, we will graph the data from the table. I will then ask students, "What can you tell me about this graph?" Hopefully I get answers like, "It goes up by the same thing every time and it is a straight line." From these statements, we can conclude that this is a proportional relationship. I will ask students to find the unit rate and we will define this also as the **constant of proportionality**. I will then have students write the equation for this line on their whiteboards. Again, they will have to explain what each part of their equation means. We will then do some solving of this equation. I will ask students "After 15 minutes, how may likes will you have?" and "How long will it take to get 24 likes?" If they struggle, we will revisit the unit rate.

Assessment	** include rubric**
	Informal Assessment: By seeing how students write the equations on their whiteboards and explain their answers, I will have a better understanding of where students are at.

	Exit Ticket: I will have students complete an exit ticket. This will include 3 problems of solving equations of proportional relationships. They will have time to complete it at the end of class, but anything they do not finish, will be their assignment.
<mark>Closure</mark>	*"Can somebody tell me what we did today?"* - Hopefully I get answers like, we wrote equations and solved equations. - To be more specific, I will tell students *"We used a table and graph to write equations for what kind of a relationship?"* The answer should be proportional. I will then ask students, *"what does it mean for something to be proportional?"* - I expect answers like, there is a constant rate of change (constant of proportionality or unit rate) and it forms a straight line when graphed. - This incorporates solving equations of proportional relationships through discovery and applies vocabulary to their discoveries.
<mark>Accommodations</mark>	If any of the language in the activity could be an issue, I will rewrite some of the questions using language that could be better understood. Also, I will have cuisenaire rods and other manipulatives available to students who still feel the need to use them.

Rubric

1	2	3	4
SWBAT Identify a proportional relationship	SWBAT Write equations from proportional relationships	SWBAT Solve equations from proportional relationships	SWBAT Draw conclusions from proportional relationships

Exit Ticket

Name:
The new movie Clouds was just released in the local theater, Cinema 9, on Friday. (Student from Class) wants to buy tickets to see the movie with their friends. 2 tickets cost $10. 1. What is the unit rate in this problem? 2. What is another term for unit rate? 3. Write an equation for this problem and define each part of your equation. 4. How much will it cost to buy 4 tickets? 5. How many tickets can (student) buy with $36? Will (student) have any money leftover? If so, how much money?