I. Content: Describe what it is you will teach. What is the content?

As an introductory lesson into our multiplication word problems unit, we will begin with a whole group warm up activity on the rug. We will use a physical activity to demonstrate and concretize the mathematical principles that are at work when we use the language of equal groups. A vocabulary activity will then ground our knowledge into the more formal conventions of multiplication and provide a universal foundation of labels and names for all students to employ. Finally, we will turn to word problems to apply this practice and continue our work with word problem strategies.

II. Learning Goal(s): Describe what specifically students will know and be able to do after the experience of this class.

- SWBAT begin to make connections between our physical activity and the abstract language of equal groups.
- SWBAT solve for an unknown product from problems written in the language of equal groups.
- SWBAT explain their reasoning using a variety of methods, including words, pictures, and the generation of multiple methods for solving a single problem.

III. Rationale: Explain how the content and learning goal(s) relate to your Curriculum Unit Plan learning goals.

This first lesson begins to address the key standard of my unit, 3.OA.3 (listed below). Our work in this lesson will be foundational for our work to address the standard, which will span over all lessons of the unit. Specifically, in this lesson we will emphasize two portions of this standard: the language of equal groups and the scaffolds of drawings, words, and alternative methods for solving.

In addition to addressing this content standard, the lesson will also address two practice standards, or habits of mind: (1) Make sense of problems and persevere in solving them, and (2) Reason abstractly and quantitatively. Our work today inherently incorporates these two practice standards, as we will be translating our concrete physical activity into the more abstract work of written word problems. Additionally, students will not move easily and fluidly through all elements of this worksheet, especially the extensions; that’s more than all right, given it is our first exposure to multiplication word problems!
This lesson incorporates literacy development by asking students to distill mathematical information from word problems, as well as to detail their mathematical reasoning using words. We will further build our community of learners by working as a whole group to solve problems using our whole body; in addition, we will work in heterogeneous pairs to help us through more difficult problems.

IV. Assessment: Describe how you and your students will know they have reached your learning goals.

- Students will be informally assessed through their participation and cooperation with fellow mathematicians during both the lesson’s activity and discussion.
- Students will be formally assessed by their performance on the Rearranging Room 22 worksheet.
- Students will be formally assessed by the notes taken in their organizers.

V. Personalization and equity: Describe how you will provide for individual student strengths and needs. How will you and your lesson consider the needs of each student and scaffold learning? How specifically will ELL students and students with learning disabilities gain access and be supported?

The strengths of individual students will be brought out and encouraged in several ways:

High flyers will have demanding extensions to pursue their knowledge to the fullest extent. Additionally, they will be challenged to work with students at a lower ability level, thereby reinforcing their own knowledge: Know it? Show it to grow it!

Students who have an IEP or 504 will have many scaffolds, including teacher conferencing, working in heterogeneous pairs with students at a higher ability level, a graphic organizer for their new mathematical concepts, and having the opportunity to represent their reasoning in multiple ways.

ELLs will benefit from many of the same scaffolds as students on an IEP or 504. In addition to these strategies mentioned above, I will emphasize the need to use the correct vocabulary and to reference our organizer whenever necessary. Furthermore, ELLs who have the opportunity to work with fluent English speakers will have the opportunity to encounter this new domain specific academic vocabulary employed by their peers.

Auditory learners will benefit by the oral recitation of our new vocabulary and old strategies. They will also benefit from talking with and listening to a partner in order to solve the word problems. Visual learners are sure to benefit from the graphic organizer, as well as the mental
picture our physical activity will provide. Finally, **kinesthetic** will benefit most from our physical activity at the beginning of the lesson; hopefully, letting out some steam will help them to concentrate and not distract them further!

**VI. Activity description and agenda**

<table>
<thead>
<tr>
<th>Time</th>
<th>Teacher Activity</th>
<th>Student Activity</th>
<th>Materials</th>
</tr>
</thead>
<tbody>
<tr>
<td>0:00-0:15</td>
<td>I will lead students through our equal groups physical activity on the rug.</td>
<td>Students will separate into differently sized but equal groups.</td>
<td>Rug, Students</td>
</tr>
<tr>
<td>0:15-0:30</td>
<td>I will discuss new vocabulary, and ask students to regurgitate this new vocabulary and old word problem strategies.</td>
<td>Students will note new vocabulary in their graphic organizers. Students will review strategies.</td>
<td>Graphic Organizers, Pencils</td>
</tr>
<tr>
<td>0:30-0:45</td>
<td>I will pair students off and conference with them as they complete their worksheets.</td>
<td>Students will complete worksheets in pairs.</td>
<td>Worksheets, Pencils</td>
</tr>
</tbody>
</table>

I foresee that this lesson’s three transitions will prove troublesome, especially from our physical activity to our note taking task. I may rectify this by doing a round of zen counting. Additionally, I know that we will have to spend more time on our worksheets; I will gladly let this activity bleed into our next lesson so that all students have an opportunity to complete the extensions. This means that I will have to prepare one final extension (perhaps some sort of a presentation) for the next lesson for our highflyers, so that they have something to do while the other students complete the extensions.

**VII. List the Massachusetts Learning Standards this lesson addresses.**

- **CCSS.MATH.CONTENT.3.OA.A.3**
  
  Use multiplication and division within 100 to solve word problems in situations involving equal groups, arrays, and measurement quantities, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem.1

**VIII. Reflection**

I really love teaching math. Using the students as models for our lesson was a ton of fun! I think literalizing it in this way was helpful for them really decoding the language of equal groups, especially those kids who were “conductors.” Some students struggled to make groups
equally, but most really understood that you had to have some methodical plan to organize and separate the groups. For instance, Danielle separated her group of ten into five groups of two by counting by twos; on the other hand, Cameron placed one student into each of five groups and then repeated that action until he had placed all ten students into one of five groups. I believe that the audience, enrapt in the physical nature of the activity, remained engaged while the other students were participating; to further facilitate this, I might do it on the rug in a semi-circle, if space permitted it.

The vocabulary was not as much of a bummer as I thought it would be, thanks to the word organizers. When I had taught addition vocabulary, I struggled with the idea of forced them to take notes about it, given that note taking is not a skill we have really developed or talked about. However, I found the structure of the organizer to be a wonderful facilitator of their vocabulary acquisition and use; I really think that using the proper, domain specific labels and words will help them decode word problems which almost always include words like “product.” In my revision, I added their notes in these organizers as a method for me to assess their learning in this lesson, as the completion of this task demonstrates their participation in the activity and readiness to move on. (Student samples to follow when I collect their organizers.)

I was so proud of my worksheet this week, as it asked the students to demonstrate their understanding in multiple ways (pictures, words, and using different operations). In order to really get to all of this, we need to return to these questions so the students can get to all the extensions and go over it as a group. We’ll see if that’s possible in the next few lessons, even though that’s not what I had planned.

Also on the worksheet, I noticed that students were falling into all of my traps. Most all circled “22” (as in Room 22) as an important number, even though it had nothing to do with the mathematical operation required! When we next look over this worksheet, I would like to address how they used this number to solve the question, even though it clearly did not belong in any equation. I really hope to spend some more time on this soon, especially since so few got to the extensions, which I so carefully crafted. News at eleven!