Learning Activity Plan 1

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

In this lesson I will teach students to identify and represent balanced equations by using the metaphor of a seesaw.

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

Students will know that for a relationship to be balanced, both sides have to be equal. They will also know that the relationship between two objects/variables is consistent – it never changes. Students will be able to figure out the relationship between two objects by drawing visuals or using manipulatives, and they will begin to write expressions using words and variables.

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

My main learning goal for my unit is for students to be able to write balanced equations to solve/model real-world scenarios. As the first lesson in the unit, it is meant to introduce students to the concept of a balanced equation without immediately throwing algebraic expressions at them. They will first understand that if an equation (represented by a seesaw in this lesson) is balanced, then both sides have to be equal. This lesson will also get them to figure out the relationship between two different objects, just as they will later figure out the relationship between a variable and a number. By first drawing and then using words to describe these equivalent relationships, it lets students slowly progress towards writing an algebraic expression.

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

Throughout the lesson, students will be asked to draw and write their thinking in their notebooks and on their worksheets, and at various points will be asked to share their thinking with group members and the class. I will be circulating as the students work so I will be able to informally check how individuals and groups are doing, and will collect their worksheets at the end of class to see their progress.

1. 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?

This lesson is intentionally designed to include lots of visuals and manipulatives, which will help all students, especially ELL students, access the information. The students will work with visuals before they move on to using words and variables, which will hopefully help them feel more comfortable with the variables when the time comes. Students will be in groups of mixed abilities so that they can refer to each other for support. This class has a lot of high-ability students, so I will have extensions ready so that they do not get bored.

1. Activity description and agenda
   1. Describe the activities that will help your students understand the content of your class lesson by creating an agenda with time frames for your class. Be prepared to explain why you think each activity will help students on the path toward understanding.

See attached timed plan.

* 1. What particular challenges, in terms of student learning or implementing planned activity, do you anticipate and how will you address them?

I anticipate that some students might not understand that there has to be a consistent relationship between two objects. For example: If one fork equals two plates, then one fork will *always* equal two plates. It cannot suddenly equal three plates. If students do not realize this, then they will not be able to correctly determine the relationships between objects. To address this, I will emphasize this point as the students share their answers to the first problem (the one with Mr. Strogoff and his daughter). If students do not make this mistake, I will comment on how it’s great that they realized that the relationship cannot change. If they did make that mistake, I can use it as an example of a common misunderstanding that people have.

I also anticipate that it might be hard to get different volunteers to share their methods and answers. Perhaps if the class isn’t participating as much as I like, I will ask every group to share one thing, but not let them know ahead of time which group member will be doing the sharing. That way it holds each student accountable for understanding the method and having work written down. Or I can tell students ahead of time that I’m grading them for participation, which includes recording their thinking in their notebooks, talking with their group members, and sharing out loud.

1. List the Massachusetts Learning Standards this lesson addresses.

Content Standards:

1. CCSS.MATH.CONTENT.8.EE.C.8.C  
   Solve real-world and mathematical problems leading to two linear equations in two variables.

Practice Standards:

1. Make sense of problems and persevere in solving them
2. Reason abstractly and quantitatively
3. Model with mathematics
4. Look for and make use of structure