Lesson Plan Template

Name: 408 **Course:** Pre-Algebra **Grade:** 8

Unit: Problem Solving

Big Idea (Key concept): There are multiple ways to represent and solve math problems

Literacy Strategy(s): KWC (which I call the KFC – Know, Find, Conditions) and a modified Think-Group-Share

Lesson: Word Problems Using the KFC Chart **Date Taught:** 9/28/10

Learning Objective(s):

Students will be able to	… use the KFC chart to implement a problem-solving strategy
Students will be able to	… judge the accuracy and/or reasonableness of an answer

Idaho Standards (or National Standards if no Idaho Standards exist):

Standard 1: Number and Operation, specifically 1.1, 1.2, and 1.3

Lesson in Context:

This lesson was the first introduction of my Pre-Algebra class to the KFC chart, as well as the first time students had an entire assignment of word problems.

Instructional Materials, Resources:

KFC Word Chart
Word Problems Using the KFC Chart handout
SMART file with picture manipulatives for the problem the class does together (optional)
KFC paraphernalia, including 5 buckets (optional)
Student white boards (optional)

Procedures:

- **Engage/Introduction:** *(approximate time: 10 minutes)*
  - Have five KFC buckets (numbered) hanging from the ceiling above each of the groups I will form today.
  - Project a few KFC commercials as students are entering the classroom.
  - Journal: Which is more difficult – math problems without words or math problems with words? After writing, get students to talk about their level of confidence with word problems, and what it is about word problems that makes them difficult.

- Let kids know that today is all about KFC – our math will be all about KFC, using the KFC. Explain that the KFC is a chart that will help them find ways to solve problems that seem difficult and they aren't sure how to start.
- We will be using our KFC to solve problems that involve probability, algebra, and geometry.
- (Also of interest to tell the students, the problems that give calories and fat for items are factual. Discuss daily caloric intake recommendations.)

➢ **Explore/Learning Activities:** *(approximate time:35 minutes)*

- Distribute one laminated KFC chart and one assignment to each student.
- Go over the parts of the KFC chart and have kids explain how each part might be helpful in solving a story problem.
- Inform students that we will be doing one problem together as a class, then each group will choose one of the remaining problems to solve using the KFC chart and present their method to the class. The remainder of the problems will be solved on their own using their KFC chart.
- As a class, solve problem #4 on the SMART board using the picture manipulatives and incorporating multiple problem-solving strategies as well as modeling how to check the answer.
- Form five groups and let each group choose the problem they would like to solve.
- Each group solves its own problem and decides how they will show and explain their method to the class. The remainder of the class period is spent solving the assigned homework problems. Individuals that finish early are encouraged to try one of the other problems and/or create their own KFC story problem.

➢ **Explanation/Closure:** *(approximate time:20-30 minutes)*

- The next day, each group presents its problem and solution to the class.
- Praise groups that are able to show more than one way to solve their problem and/or checked their solution.
- Ask questions of group members that didn't do any explanation during the presentation. Encourage the rest of the class to ask questions, clarify, discuss/critique the method used, and provide positive feedback.
- Allow time for the rest of the class to show the method on their individual assignments.
- Grade assignments.

<u>Elements of effective instruction</u>: (Describe how the lesson addresses each of the following. If not applicable, explain.)

1. *Describe how the lesson fosters intrinsic motivation to learn.*

   The intrinsic motivation in this lesson is that students that are typically intimidated by word problems will learn one way to solve them in a less threatening way. They will be able to discuss their ideas with their group-mates, all the while knowing they will need to present their ideas to the class.

2. *Describe how the lesson elicits students' prior knowledge.*

   Since students are solving word problems on a variety of topics, they have to use their prior knowledge to be able to do any of the work. I struggled to find a way to elicit prior knowledge beyond that, so instead I elicited prior feelings and beliefs about their ability to solve word problems.

3. *Describe how the lesson intellectually engages the students in making meaning of the targeted math/science content.*

   Today's lesson isn't really designed to help students make meaning of one big mathematical idea, but rather to provide them with experience using a tool that might help them make meaning of story problems now and in the future.

4. *Describe how students:*
   - *Math: Explain and justify their reasoning.*

   When presenting to the class, groups were required to explain their chosen method, discuss how they decided on that method as a group, and explain how they know their method leads to a correct solution. A lot of this discussion did not end up in writing, so that is something I will change for next year. Even if students justify their reasoning only on the problem they will present to the class and one other problem of their choice, that will help me analyze their thinking.

5. *Describe how the students engage in making sense of the material covered in the lesson.*

   Students worked as groups to make sense of their chosen story problem and use their KFC chart to find ways to represent and solve their problem. Since the intent of the lesson was more of an introduction to solving story problems with the KFC chart, there was not a lot of material covered in the "lesson" per se.

Student Work:

A note about my student work: Since many of the problems were completed together as a class, I looked for papers that showed different ways of thinking through the two homework problems (#1 and #8, with a focus on #8 because that is where I saw the most variety).

LIMSST Project Literacy Lesson Reflection Form

Name: 408 **Date lesson was taught:** 9/28/2010

Lesson Title/Topic Area(s):

KFC Word Problems Using the KFC Chart

Literacy Emphasis:

This lesson utilized a KFC chart as well as a Think-Group-Share (I hope it's okay to make up my own modified literacy strategy). I think the group component to this lesson was critical to its success. I've done lessons in the past on problem solving and beyond the assignment score, there was no student responsibility to make sense of anything. Kids were more willing to *try* with this lesson because there was a focus on multiple representations and the groups could keep trying their problem until they found something that seemed reasonable and/or seemed to work. The instructional assistant and I also provided positive feedback and guidance as the groups worked through their ideas.

Student Response to the Lesson:

Each group really enjoyed presenting from the SMART board, and they all wanted to be able to draw something or diagram something, so each group gave more than just an answer. When students in class were confused about something, they didn't hesitate to ask a question or for another explanation. To me, a well thought out question is the best indication that kids are working to make sense of the content.

Lesson Reflection:

- If a group got a problem they could solve quickly, it was difficult to monitor their behavior and make sure they were moving on to the other problems if I was busy helping another group.
- Students were able to rely on group-mates for a lot during this lesson – perhaps too much. How can I increase the individual accountability to make attempts while keeping a safe learning environment?
- In the future, I will be able to talk students through the KFC process while we problem-solve together, without necessarily having the students use their KFC chart.

Relationship to Previous Instruction:

This lesson was brand new this year. I was pretty proud of myself for coming up with problems that were all about KFC and incorporated so many different math skills. I think it went better than what I've done before with problem solving, which is a "create your own worksheet" assignment. The idea behind that was inspired, or so I thought, but it turned out to be a nightmare of wasted class time with cutting and gluing sometimes being the only thing to get accomplished. Kids were much less hesitant to actually work on the math this time around.