Lesson Context

BIG PICTURE of this UNIT:	• mastery with algebraic skills to be used in our work with linear functions and equations. • understanding various properties of basic functions and linear equations • how do manipulate equations with more then one variable? • How do we work with system of equations		
CONTEXT of this LESSON:	Where we've been The beginning of the DIAL project… a culminating project using all our previous skill development	Where we are The middle of the DIAL project… but we must continue to move. So we introduce systems of equations today.	Where we are heading Solving systems by substitution and elimination. Also being able to determine the number of solutions to a system.

Task 1: Opening Card Activity
Task 2: Systems Discussion
Task 3: "Real World Problem" + 1 and 2
Task 4: Real World Problems: 3 or 4
Task 5: HW: Where's the Money?

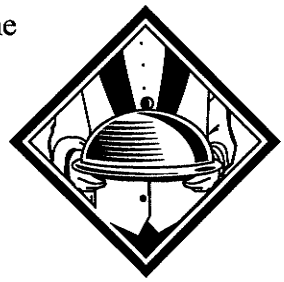
Slope-Intercept Linear System
Real World Problems

Name: _____
Date: _____

Complete the following sentences:

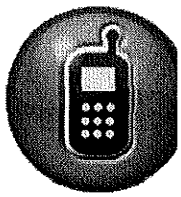
- The slope intercept form is _____
- In the real world slope, m, means _____ and the $y-$ intercept, b, means _____.

1. Wendy is starting a catering business and is attempting to figure out who she should be using to transport the food to different locations. She has found two trucking companies that are willing to make sure her food arrives intact. Peter's Pick Up charges \$0.40 per mile and charges a flat fee of \$68. Helen's Haulers charges \$0.65 per mile and charges a flat fee of \$23.



   - Define your variables.
   - Write a system of equations to model the above situation.
   - For what distance would the cost of transporting to the produce be the same for both companies? What is that equal cost? Use mathematics to explain how you determined your answer. Use words, symbols or both in your explanation.
   - Which company charges a lower fee for a 160 mile trip? Use mathematics to justify your answer.
   - Which company will move a greater distance for \$200? Use mathematics to justify your answer.

2. Jonas needs a cell phone. He has a choice between two companies with the following monthly billing policies. Each company's monthly billing policy has an initial operating fee and charge per minute.



	Operating Fee	Charge per Minute
Terri's Telephone	29.95	0.14
Carrie's Connection	4.95	0.39

- Define your variables.

- Write a system of equations to model the above situation.

- At how many minutes is the monthly cost the same? What is the equal monthly cost of the two plans? Use mathematics to explain how you determined your answer. Use words, symbols, or both in your explanation.

- Which plan costs more 150 minutes of calls each month? Use mathematics to justify your answer.

- Which plan provides more minutes for $ 60.00? Use mathematics to justify your answer.

If you felt as though you got #1 and 2 correct, go to Problem #4.
If you feel as though you need extra help go to Question 3 and do not complete Question #4.

3. Movies Are Us has two video rental plans. The Regular video rental plan charges $ 3.25 for each video rental. The Preferred video rental plan has an $ 8.75 membership fee and charges $ 2 for each video rental.

   - Define your variables.

   - Write a system of equations to model the above situation.

   - How many video rentals give the two plans the same cost? What is the equal cost? Use mathematics to explain how you determined your answer. Use words, symbols or both in your explanation.

   - Which video plan costs more for 18 video rentals? Use mathematics to justify your answer.

   - Which plan provides more videos for $ 30.00? Use mathematics to justify your answer

4. Instead of completing another problem, be creative and write your own scenario. Be sure to give your solution as well. (Hint: The easiest way to come up with this is to determine your answer first.)