LessonTitle: Four Tracking Change Examples **Pre 6.92**

Utah State Core Standard and Indicators Pre-algebra 2.1, 4.1, 5.1 Process Standards 1-5

Summary

The activities below are open-ended in various degrees. Students must collect and organize data and create graphs to communicate information about the given circumstances.

Enduring Understanding	Essential Questions
A very important part of algebra is learning how to describe, talk about and represent how things change using graphs and equations.	What is a rate of change? How do we use algebra to describe and represents patterns of change?

Skill Focus	Vocabulary Focus
• Collect and record data • Setting up graphs and graphing data • Defining variables	

Assessment ideas:

The activities below are good performance assessments. Evaluate using a teacher or classroom constructed rubric

Materials: Graphing Calculators, Paper, plastic and foam cups, measuring tools

Launch

Explore

Summarize

Apply

Directions:

The following can be done with or without graphing calculators. The activities were modified from Navigating Through Algebra Grades 6-8. Follow the directions on the worksheets. Through previous experience, students should be able to organize the tables and graphs on their own and use the graphing calculators to help if desired.

Students may need help setting up the walking problem. This can be done in the hall by marking off 10, 20, and 30 meter strips.

Alg 3.5a Packaging Cups
Alg 3.5b How Fast Do You Walk?
Alg 3.5c Walk-a-thon Pledge Plans
Alg 3.5d Car Wash Funds

Pre 6.92a Packaging Cups

You work for a company which makes cups of all kinds. You must order the packages for shipping the cups. The company wants to ship 50 cups per package. Assuming the cups are stacked in one stack, you must determine the height of the packages.

You could stack 50 cups. Instead you want to predict the height by measuring smaller stacks.

Make a table of data and a graph to track the heights of different cups.

- Label the axes of the graph.
- Decide on the scale to use on the axes. Mark off the units on the axes.
- Plot the points and draw the lines.
- Label the lines for different kinds of cups.
- Label the graph.

	Heights of Cups		
# of cups	Foam	Paper	Plastic

Use the table and/or the graph to predict the heights of boxes required for 50 cups.

Foam_____ Paper _____ Plastic _____

Explain how you made your predictions.

Pre 6.92b How Fast Do You Walk?

The PTA is sponsoring a 10 kilometer walk-a-thon to raise money for new computers. There is a soccer tournament later in the day. You want to figure out whether you can participate in the walk-a-thon and get back in time to see the tournament.

How can you figure this out while at school? Show all work and explain your strategies.

Create a Table and a Graph to help you. The table and the graph should involve data about all students in your group.

Pre 6.92c Walk-a-thon Pledge Plans

The PTA has asked the math classes to figure out a pledge plan for the walk-a-thon sponsors. The suggested options are:

- Jay's plan: $1.50 per kilometer
- Leanne's plan: $2.50 per kilometer
- Julie's plan: $4.00 plus $.75 per kilometer

Create a table and graph to track the money earned using these 3 options.

Explain what the table and the graphs show.

Write equations that could be used to figure out the money earned at any stage of the walk using the three different options. Use m for money earned and d for distance.

Jay's Plan _____

Leanne's Plan _____

Julie's Plan _____

Pre 6.92d Car Wash Funds

Student government leaders (the SGA) at the middle school decided to hold a car wash to help raise money for school activities. They decided to charge $5.00 per car. The cost of sponges, rags, soap, buckets and other materials needed will be $110.

Write an equation which could be used to figure out the profit for any number of cars washed. Use m for money earned and c for cars. _____

Create a table and a graph to help you track the profit for this event.

Explain everything the table and the graph show, including when the SGA will break even.