Moving Straight Ahead Glossary

Coefficient –A number that is multiplied by a variable in an equation or expression. In a linear equation of the form $y = mx + b$, the coefficient, m of x is the slope of the graph of the line in the equation y = 3x + 5, the coefficient of x is 3.

Constant Term – A number in an equation that is not multiplied by a variable—an amount added to or subtracted from the terms involving variables

Coordinate Pair – A pair of numbers of the form (x,y) that gives the location of a point in the coordinate plane. The *x term* is the distance left or right from the origin (0,0), the y term is the distance up or down from the origin.

Function – A relationship usually between two variables.

Linear Relationship-A relationship I which there is a constant rate of change between two variables.

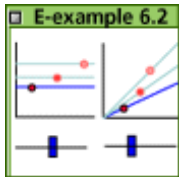
Origin – The point where the x– and y-axes intersect on a coordinate graph.

Slope– The number that relates the steepness of a line. Sometimes this ratio is referred to as the *rise over the run*.

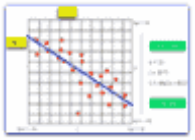
Web Resources

www.illuminations.nctm.org

Learning about rate of change in linear functions



Investigating Linear Relationships



Everett Public Schools

Connected Mathematics Project

Everett Public Schools Mathematics Program

MOVING STRAIGHT AHEAD

Algebra

Linear Relationships

Unit Goals

- **Develop understanding of variables and patterns**
- **Recognize linear relationships**
- **Solve a linear relationship in the form $y = mx + b$**
- **Write a linear equation given the slope and y-intercept**

Proposed Time Frame:
Approximately 6 weeks

Mathematics in Investigations

Investigation 1 Predicting from Patterns

- Many phenomena are constrained by linear relationships
- Collect data and use patterns in tables and graphs to make predictions
- Connect points on a graph of data that were collected or predicted

Investigation 2 Walking Rates

- Recognize linear relationships from tables
- Determine whether a set of data is linear by examining its graph
- Recognize that a change in rate will change the steepness of a line
- Interpret the meaning of the coefficient of x and the y-intercept of a graph of y = mx + b

Investigation 3 Exploring Lines with a Graphing Calculator (Optional)

Investigation 4 Solving Equations

- To solve an equation of the form y = mx + b symbolically
- Connect various methods of finding information in graphs and in tables and by solving equations

Investigation 5 Finding the Slope of a Line

- To develop a more formal understanding of the concept of slope
- To find the constant rate, or slope, from a table
- To find the slope of a line given two points on a line
- To relate the slope and the y-intercept to the equation of a line

Tips for Helping at Home

Good questions and good listening will help children make sense of mathematics and build self-confidence. A good question opens up a problem and supports different ways of thinking about it. Here are some questions you might try, notice that none of them can be answered with a simple "yes" or "no".

Getting Started

* What do you need to find out?
* What do you need to know?
* What terms do you understand or not understand?

While Working

* How can you organize the information?
* Do you see any patterns or relationships that will help solve this?
* What would happen if…?

Reflecting about the Solution

* How do you know your answer is reasonable?
* Has the question been answered?
* Can you explain it another way?

At Home:

1 Talk with your child about what's going on in mathematics class.

2 Look for ways to link mathematical learning to daily activities. Encourage your child to figure out the amounts for halving a recipe, estimating gas mileage, or figuring a restaurant tip.

3 Encourage your child to schedule a regular time for homework and provide a comfortable place for their study, free from distractions.

4 Monitor your child's homework on a regular basis by looking at one problem or asking your child to briefly describe the focus of the homework. When your child asks for help, work with them instead of doing the problem for them.

At School

1 Attend Open House, Back to School Night, and after school events.

2 Join the parent-teacher organization

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